

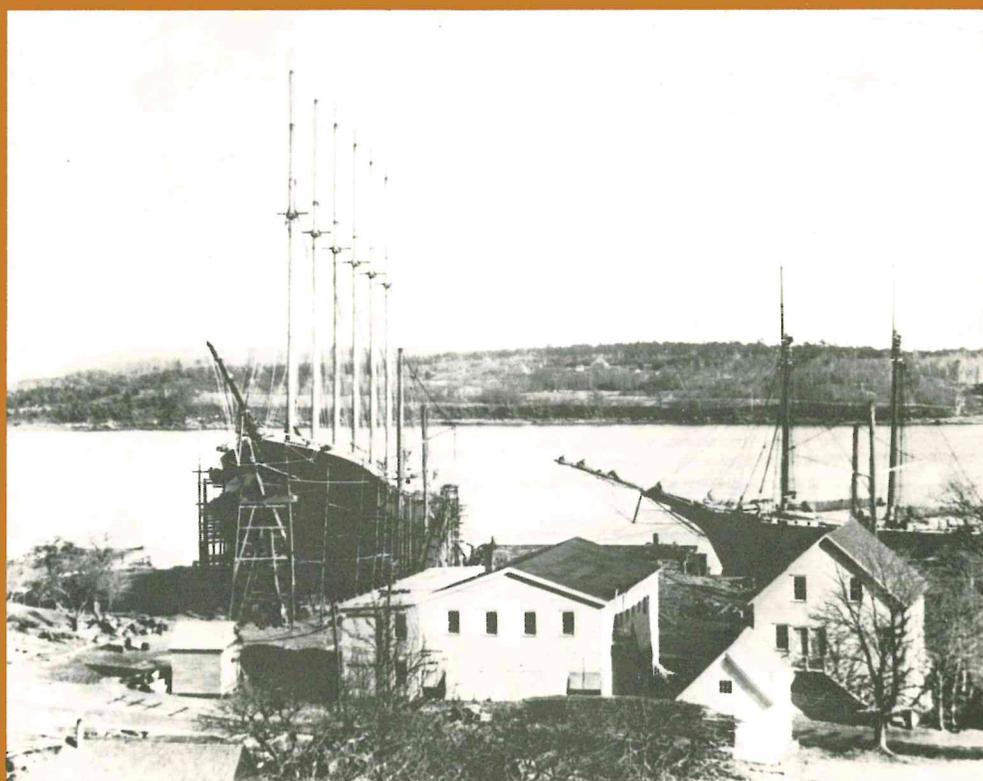
Industrial Heritage '84



New England



The Fifth International Conference
on the Conservation of the Industrial Heritage



Guidebook

North Coast:
Massachusetts, New Hampshire
& Maine Excursion

Laurence Gross
Richard M. Candee

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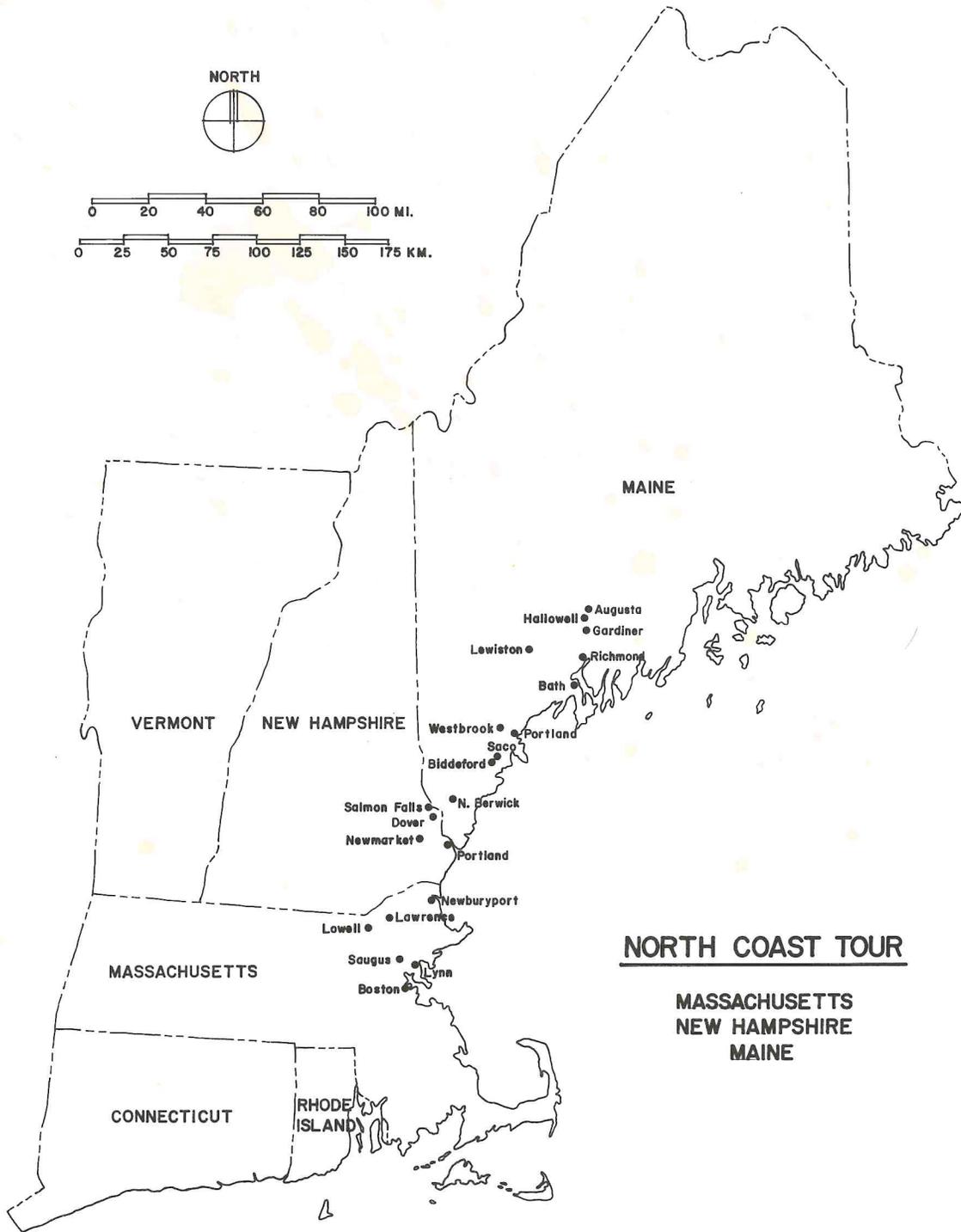
Cover: 13. Percy and Small Shipyard (Photo: Maine Historic Preservation Commission)

NORTH



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0 25 50 75 100 125 150 175 KM.



MAINE

VERMONT

NEW HAMPSHIRE

MASSACHUSETTS

CONNECTICUT

RHODE ISLAND

NORTH COAST TOUR

MASSACHUSETTS
NEW HAMPSHIRE
MAINE

1. LAWRENCE, MASSACHUSETTS

Lowell investors hoping to repeat their success up-river saw the opportunity to build a 30 ft. (9 m) high dam. Careful surveying showed the resulting 9 mile (14.4 km) pond wouldn't interfere with Lowell's operation. The 900 ft. (270 m) dam of granite blocks stands as completed in 1848.

The 1846 famine in Ireland sent a wave of potential workers who found their way to construction and textile jobs here. By 1855, 2/5 of the population was foreign-born, and by 1910, 74,000 of 86,000 residents were first or second generation. In places 600 people per acre lived in crowded tenements.

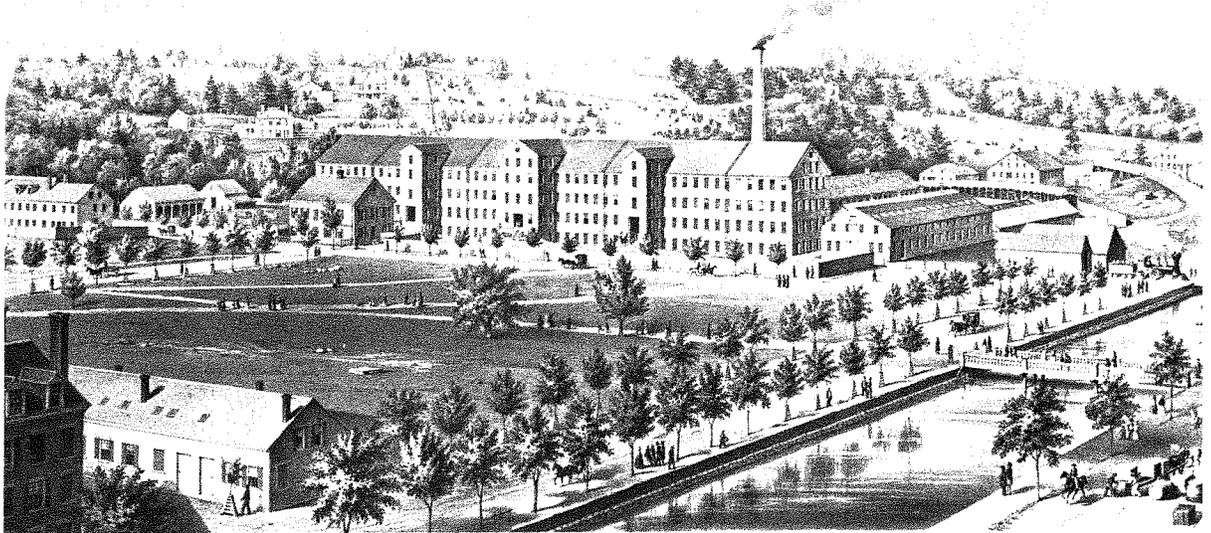
Giant mills made wool, cotton, and worsted textiles. Low wages, unemployment, and accidents characterized the work. The collapse of the Pemberton Mill killed 88 in 1860. One mill, the Pacific, had 1,000 accidents in five years. Seventy per cent of textile workers died from respiratory disease (compared to 4% of the farmers). The death rate was the country's 6th highest.

Wages declined until in 1912 a city-wide strike led by the Industrial Workers of the World reversed the trend. The workers' demand for sufficient pay to supply "Bread and Roses" became a rallying cry which persists in United States labor movements.

Currently the manufacture of computers, shoes, and garments employs many residents in the old mills. Latin and Asian immigrants continue to come for these low-paying jobs.

2. PORTSMOUTH, NEW HAMPSHIRE

The colonial capital of New Hampshire and the only major port along the state's short coastline, Portsmouth was a shipbuilding and mercantile center through the mid-19th century. The decline of shipbuilding after the Civil War was paralleled by the rise of several breweries, increased European immigration, and growth of the commercial center in the late 19th century.



1. Lawrence Machine Shop (Photo: Merrimack Valley Textile Museum)

J. B. HOBBS
VERMONT
38 Kipling St., Boston.

LAWRENCE MACHINE SHOP, LAWRENCE, MASS.

Illustration of the Principal Building.
Built by the Lawrence Machine Shop Co. in 1850.
The building was destroyed by fire in 1860.
The present building was built in 1861.
The building was destroyed by fire in 1862.
The present building was built in 1863.

J. B. HOBBS
VERMONT
38 Kipling St., Boston.

3. ATLANTIC SHIPYARD (1917-21)
Off Market St.
Extention Portsmouth, N.H.

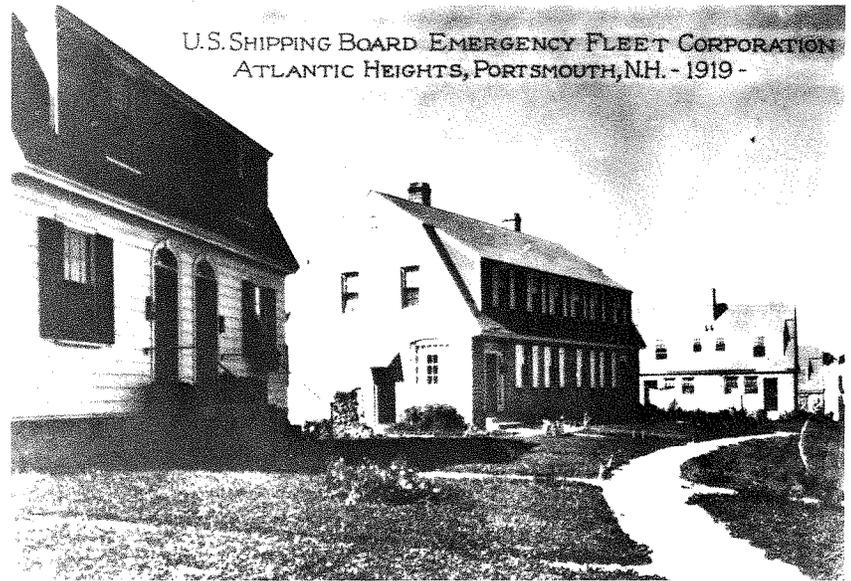
With America's entry into World War I, local promoters helped establish a new shipyard for the Atlantic Corporation, which contracted with the United States government to build ten 8,800 cwt steel ships. The new corporation purchased an unfinished paper mill along the Piscataqua River in 1917 and began construction of the first ship in May 1918.

4. ATLANTIC HEIGHTS (1918)
Kearsarge Way
Portsmouth, N.H.

The rapid increase of shipyard workers for this and other nearby yards created a need for workers' housing. The U.S. Congress authorized the Emergency Fleet Corporation to finance housing for shipyard workers engaged in government contracts early in 1918. The resulting housing projects and new communities built under this act were the first use of federal funds for the construction of private housing in the United States. Atlantic Heights was begun in May 1918 and completed in January 1919, within two months of the armistice. The town plan and building designs were the work of Kilham and Hopkins, Boston architects. Atlantic Heights was the culmination of the architects' efforts at achieving affordable housing for workers in a "Garden Suburb" setting. When completed, Atlantic Heights was widely recognized as among the most successful design solutions among the nearly two dozen shipbuilding housing projects and other W.W. I war production housing schemes.

5. PORTSMOUTH NAVAL SHIPYARD (1800-PRESENT)
Dennetts Island Kittery, Maine

The Portsmouth Naval Shipyard was established in 1800 on Dennett Island in the mouth of the Piscataqua River, which separates New Hampshire and Maine, and was the first navy yard established by the U.S. Navy Department. The first war ship launched here was the Washington in 1815, the flagship of the Mediterranean squadron. The navy yard achieved its present size in 1866 with the purchase of the adjoining Seavey's Island. The narrow gut between the islands was converted to a 750 foot (225 m) dry dock and the remainder filled to join the smaller island to Seavey's Island. In 1917 the yard became the first government facility to build submarines. Until 1969 it was the only yard devoted to submarine construction and repair including, in 1958, the Swordfish, the government's first nuclear powered submarine. Construction ended at the yard in 1969 when the yard became the site for repair and overhaul of the U.S. submarine fleet.



U.S. SHIPPING BOARD EMERGENCY FLEET CORPORATION
ATLANTIC HEIGHTS, PORTSMOUTH, NH. - 1919 -

6. PORTLAND, MAINE

Portland's first settlement dates from 1628. Originally called Falmouth, it was burned by the British in 1775 and renamed Portland in 1786. Following Maine's admission to statehood in 1820, Portland served as its first capital until 1832. The 1830s proved a prosperous time, with Portland's economy based on its natural resources -- harbor, timber, fishing, shipbuilding, and shipping. The West Indian trade brought profits, molasses, and new industry: sugar refining and rum distilling. John Bundy Brown's Portland Sugar Company was the third built in the United States and produced 250 barrels of sugar per day. Brown was Portland's leading 19th-century capitalist. It was to his brick sugarhouse, considered impregnable, that fire spread from a nearby boatyard on July 4, 1866, in its course destroying the central portion of the city's commercial district.

By the 1860s, Portland had become an important transportation and distribution center. As terminus of the Atlantic & St. Lawrence Railroad (later known as the Grand Trunk), it linked Montreal to the sea and provided a winter outlet for Canada's vast grain shipments. Commercial Street, built on filled land along the waterfront, was lined with warehouses and wharves. It connected two railroad depots, the Portland, Saco & Portsmouth on the western end, and the Grand Trunk (A & St. L.) on the eastern end. Waterfront development included two huge piers built in expectation of Brunel's British steamship, the GREAT EASTERN, which never arrived.

4. Atlantic Heights
(Photo: Richard Candee)

8. Portland Observatory (Photo: Maine Historic Preservation Commission)



7. PORTLAND CO. (1840s)
Fore St. Portland, Maine

The Portland Company, founded in the 1840s to build railway locomotives and other equipment, established a world-wide market. One of the largest machine makers in northern New England, it fabricated an astounding range of products ranging from castings to engines, elevators, and papermaking equipment. Small components used in nuclear engineering are now made at the site which retains a number of the 19th century buildings but no foundry or machine shop equipment survives.

Other important industries which developed in Portland include spruce gum (for chewing gum), glass and stoneware, obstetric forceps and artificial legs, and canned food. The Portland Packing Company's great success and profits in the 19th century led to the philanthropy of its owner, James P. Baxter, who improved the city's

and state's park system and its waterside promenades.

8. PORTLAND OBSERVATORY (1807)
138 Congress St.
Portland, Maine

An 82' octagonal framed tower built by Capt. Lemuel Moody on Munjoy Hill in 1807, the Portland Observatory was designed to spot incoming ships and raise flags of local mercants.

9. NORTH AND EAST OF PORTLAND, MAINE

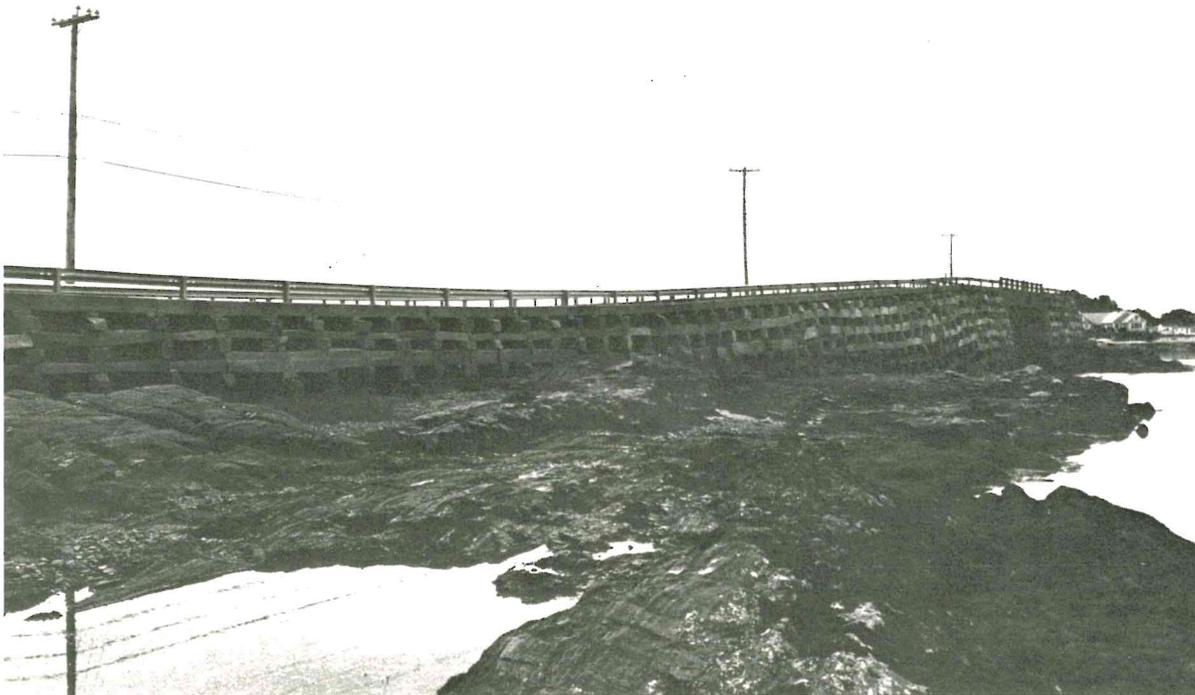
After leaving Portland, one catches glimpses of rural Maine and the scenic coast. The villages around which Maine's long-lost agricultural economy was based retain evidence of the farm as business and total way of life. Lumber, hay, potatoes, poultry, dairy products, corn, and blueberries all contributed to Maine's important rural economy. One of the most obvious changes is the loss of farm out-buildings. Barns, sheds, pigstyes, hen houses, ice houses, etc. are modified or gone altogether. Saw mills, lobster trap mills, workshops for a trade other than farming often existed nearby, as most professional people also farmed to some extent.

The coast offers a view of another of Maine's industries, tourism, the state's second largest. The railroad and the trolley brought visitors from far and near to enjoy seaside resorts and day trips to the beach. Casco Bay's islands saw regular steamboat service, and the development of amusement parks mechanized pleasure for many. Many remnants and landscapes of Maine's version of agribusiness and touribusiness can be seen in among the industrial sites of this region.

10. BAILEY ISLAND CAUSEWAY CRIBSTONE BRIDGE
Rt. 24 Harpswell, Maine

This bridge, finished in 1928, connects Orr's and Bailey Islands. Believed to be the only such structure in the world, it presents a remarkable solution to a difficult problem. Swift tides, battering ice floes, and extreme weather made the channel, Will's Gut, a hazardous strait.

Local granite in 12 ft. (3.6 m) blocks rests in criss-crossed open construction, or crib-work, on the similar stone beneath. Pine wedges shim the rough-cut stone. Only gravity binds the mortarless structure. Tides flow through it and fishing boats can pass the central 52 ft. (15.6 m) channel. The design works and succeeds aesthetically as well.



10. Bailey Island Causeway Cribstone Bridge (Photo: Maine Historic Preservation Commission)

11. BATH (Maine)

The Maine Maritime Museum encompasses several sites: the Bath Marine Museum, Percy and Small Shipyard Complex, and the Apprenticeshop, 12 buildings in all. The Museum's programs include exhibitions of marine artifacts, small boats, models, tools, trade goods, and seamen's possessions. The shipyard tour shows visitors the last surviving wooden boat-building facility in America where large sailing ships were built. It includes the Restorationshop where trainees replicate traditional craft. The Apprenticeshop programs in half-modeling and boat building train students for 18 months in all aspects of classic Maine coast boats, building dories, pinkies, peapods, skiffs and sloops. A Kennebec River boat trip, available from the Percy and Small Shipyard, cruises along the Bath waterfront and can provide a view of the construction of huge modern vessels at the Bath Iron Works.

The Percy and Small Shipyard was involved in building forty-four vessels between 1894 and 1920, forty-two of which were schooners. The yard earned a reputation as one of the finest producers of wooden sailing craft. The owners, Captain Samuel R. Percy and Frank A. Small, specialized in the construction of large schooners for the coastal trade. The most famous of these was the 329 ft. (98.7 m) WYOMING, built in 1909, the largest American wooden vessel ever built.

The Bath shipbuilding tradition has been carried over to the present time by the Bath Iron Works shipyard. Percy and Small, now owned

and operated by the Maine Maritime Museum, is possibly the only wood shipbuilding yard that built large merchant vessels still existing in this country.

12. CARLTON BRIDGE, Route 1, Bath/Woolwich, Maine BATH/WOOLWICH

Bridging the Kennebec River from Bath to Woolwich, the Carlton Bridge (built 1927) carries railroad and highway traffic, replacing the ferries which had operated there for centuries. The Kennebec is especially wide and deep at that point, with strong currents, which explains the late date for building this bridge. Cost was a factor too; it had a price tag of \$3 million, a lot of money in 1927 dollars, which explains why the railroad put up with the inconvenience of ferrying for such a long time.

Combined deck and through steel trusses carry the Maine Central RR on a single track at the level of the bottom chords and Route One highway traffic at the top chords, on a concrete deck. A vertical lift span of 234 ft. (70.2 m) permits the passage of river traffic.

13. PERCY AND SMALL SHIPYARD
451 Washington St., (1894-1920)
Bath, Maine

The city of Bath has long been associated with the ship-building industry. As early as 1707, the Popham colonists built the 30-ton (27 m ton) VIRGINIA, the first English vessel built in America. In 1762, Bath's first commercial shipyard was opened. After the Revolutionary period, local maritime activities expanded rapidly, making Bath fifth in the nation in the shipping industry. By 1857, over five hundred ships were operating out of the Bath customs district. After the Civil War, with the decline in world trade, the schooner came into its own because of its ability to maneuver along the coast.

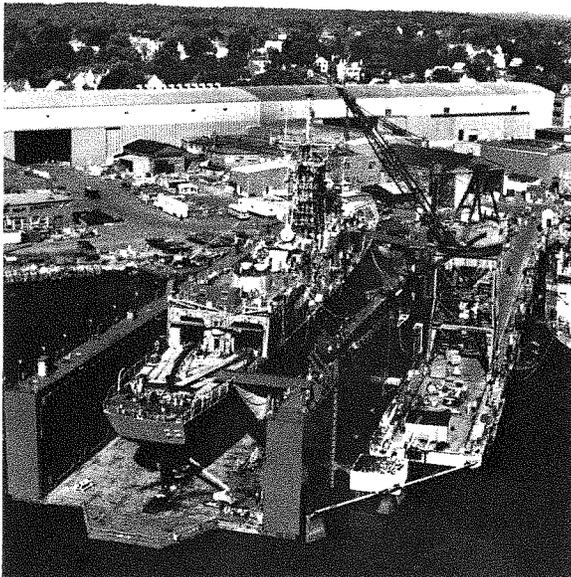
14. BATH IRON WORKS, (just South of the Carlton Bridge, Off Rt. 1; 1826/1889 - Present)

Bath Iron Works grew out of an 1826 foundry. After making hardware for wooden ships, it began building ships in 1889. The steel gunboats MACHIAS and CASTINE were the first in a long line of vessels built for the U.S. Navy. Among 30 vessels built between 1890-1900 were the APHRODITE, then the largest and fastest steam yacht ever built; the WINIFRED, first ocean-going tramp steamer; and the DAHLGREN and CRAVEN, then the Navy's fastest torpedo boats. Between 1900-10, the company built the battleship U.S.S. GEORGIA (1906), the steamers CAMDEN and BELFAST, second and third passenger ships propelled by steam turbines, and the cruiser CHESTER (1908), first Navy warship

successfully propelled by turbines. The destroyer WADSWORTH (1915) was the Navy's first geared turbine vessel. BIW designed and built many of the famous "four-stack" destroyers in World War I.

Following the 1922 disarmament conference, there were no new Navy contracts. In 1927 a new company was incorporated and the plant gradually was rehabilitated, building steel yachts, fishing trawlers, Coast Guard patrol boats, and tugs. The 343-foot (103 m) turbine electric yacht CORSAIR IV was delivered to J.P. Morgan, II in May 1930. In 1937, the company built the last and best of the J-Class sloops, the America's Cup defender RANGER for Harold S. Vanderbilt, which defeated the British challenger ENDEAVOR II in four straight races. By 1940 the company had built 16 Navy destroyers and became one of the country's principal destroyer-building yards prior to World War II. The plant covered 48 acres, (12 hectares) and had 12,000 workers during the war when the company delivered 21 destroyers per year, a quarter of all U.S. wartime destroyers -- 67 between the 1941 Pearl Harbor attack and 1945. Among destroyers of the Forrest Sherman Class was the U.S.S. John Paul Jones. From 1941-45, together with the Todd Shipyard Corp. of South Portland, now defunct, BIW engaged in merchant shipbuilding. Thirty 10,000 ton (9,000 m ton) cargo ships were built for Great Britain and 244 Liberty Ships for the U.S. government. By 1965 BIW had acquired other manufacturing and also was building commercial cargo vessels.

The company has served as a lead yard for the design and construction of guided missile frigates, destroyers and their escorts. It built the U.S.S. DEWEY, first Naval missile ship (1962) and the U.S.S. LEAHY, first frigate to carry guided missiles fore and aft. It also built the 125-foot (37.5 m) MIT bow for the mammoth experimental tanker MANHATTAN that in 1969 opened the Northwest Passage to Alaska.



14. Bath Iron Works
(Photo: Bath Iron Works Corporation)

15. RICHMOND, MAINE
Rt. 24 (as are #16 and #17)

This colonial-era village became increasingly prosperous as a 19th-century shipbuilding town, producing 236 vessels. The ice-industry, for which the Kennebec River was famous in late century, added to local success and fame. Surviving Greek Revival, Italianate, and Second Empire architecture reflect the town's past glories.

16. GARDINER, MAINE

Gardiner, once the most important Kennebec River port, also benefitted from the 8 natural falls in Cobbosseecontee Stream's 126-ft. (38 m) drop to the river. Some twenty-one industries clustered around these falls in 1880.

17. HALLOWELL, MAINE

Hallowell, another successful port, also quarried high-quality granite. The Hallowell Steam Cotton Mill now contains housing for the elderly built with government subsidies.

18. HALLOWELL STEAM COTTON MILL (1844)
Rt. 24 Hallowell, MAINE,

19. AUGUSTA, MAINE

Augusta's European occupation started in 1628 when a member of the Plymouth Colony established a trading post. Area furs are said to have paid the colony's debts to English merchants.

The town grew as a major riverport involved in shipbuilding, shipping (ice, lumber), and industry (lumber, paper, textiles, shoes, printing). In 1832 it became the State capitol.

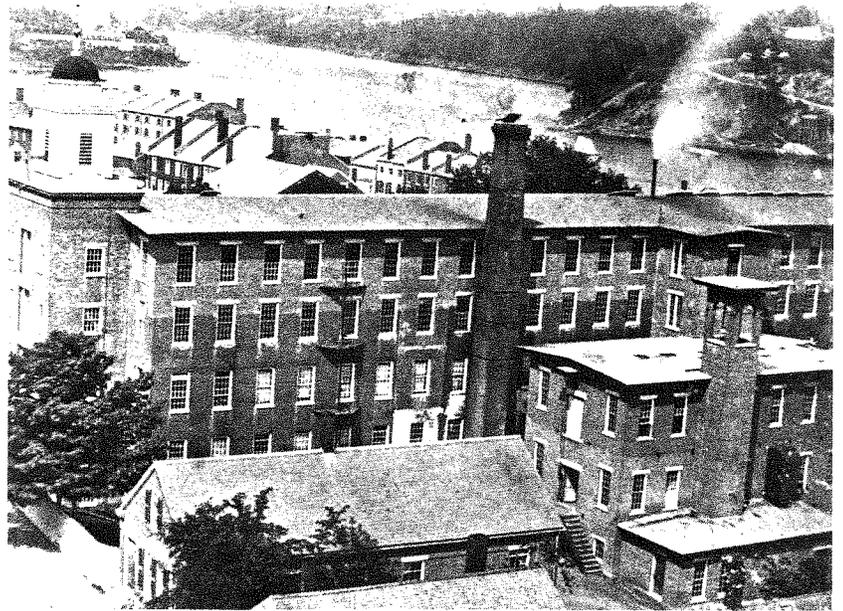
20. MAINE STATE MUSEUM
Capitol Complex, Augusta, Maine

The Maine State Museum presents exhibits on several industries, including quarrying, fishing, timber and lumber, and ice harvesting. A "Made in Maine" exhibit will consider four settings and styles of work: home, shop, mill and furnace, and factory. Domestic skills, crafts, small mills, and a woolen factory will offer contrasts between changing manufacturing techniques over time. People's changing relationships to one another and to the means of production will be the focus.

21. LEWISTON, MAINE

The development of the Great Falls on the Androscoggin River provides a capsule history of the development of hydropower in the United States from 1770 through the 19th century. The system of dams and canals to provide water to power textile factories and related industrial uses is a unique combination of mid-19th century corporate engineering, community planning, and technological pragmatism. It is a significant engineering structure associated with the urban planning of textile mill cities in New England, embodying distinctive methods of construction in a nearly unaltered power system, and representing the work of several of the leading engineers of the period.

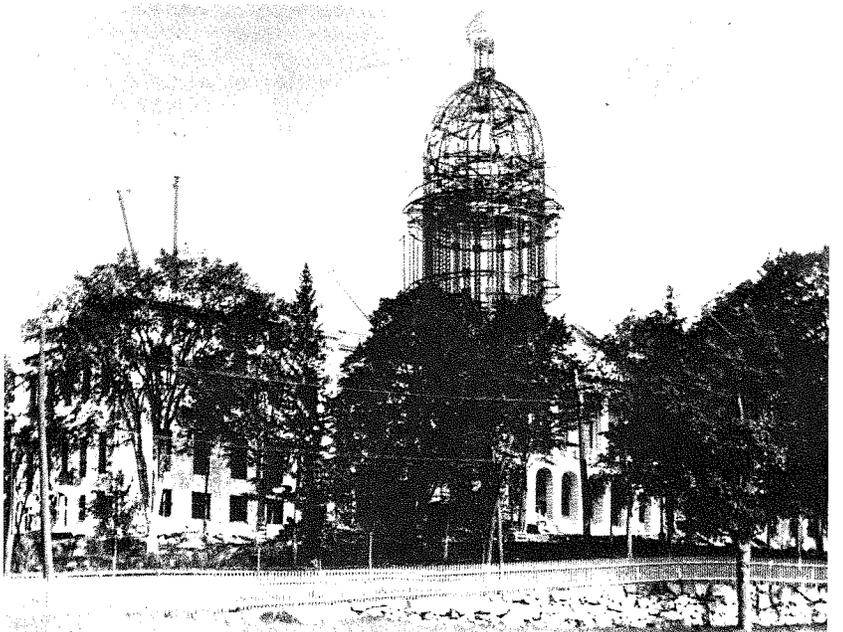
The first mill on the Great Falls of the Androscoggin was for sawing lumber and stood from 1770 to 1785. By 1809 a sawmill, grist-

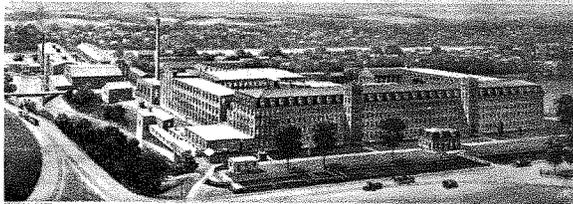
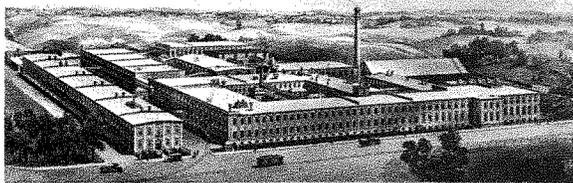


mill, and fulling mill replaced the first structure and employed a simple timber dam; it was burned by arson in 1814. Its owner built a new mill which remained until 1850. Such mills were typical of those in the District of Maine before statehood: they changed labor by providing specific services, but made little impression on the available power and caused little alteration in the local economy. As late as the 1830s they were the only type of water-power in use in Lewiston.

18. Hallowell Steam Cotton Mill (Photo: Maine Historic Preservation Commission)

20. Maine State House (Photo: Maine Historic Preservation Commission)





22, 24, 25. Bates Manufacturing Co., Lewiston Bleachery and Dye Works, Adroscoggin Mills, and Hill Manufacturing Co. (Photo: Merrimack Valley Textile Museum)

During the 1830s the local land and water-power owners explored ideas for increasing the scale of operations toward more complete production systems requiring more capital, more power, and more factory labor. Inspired by the obvious power available, the success of the early mills there, and the contemporaneous success of the mills at Lowell, they employed the civil engineer

I.A. Beard to devise a plan for the development of Lewiston into an industrial city around a series of canals.

The catalyst for the eventual development of the canal system was the promotion of a railroad to connect Portland and Canada. The railroad was begun in 1846, completed in 1853, and leased to the Grand Trunk Railroad for 999 years.

Massachusetts investors brought to the development of the canal system at Lewiston not only vastly expanded capital but also contact with expert engineering and construction personnel. There is near contemporary evidence that the "layout of the dam, canal and mill sites" was accomplished by one of New England's foremost engineers of the day, David Whitman of Rhode Island, known as the "mill doctor." Before he died in 1857, Whitman was assisted by John B. Straw, a civil engineer from Lowell. Because the river falls some 40 ft. (12 m) over a distance of about 300 ft. (90 m) of the rocky ledge, it required a dam of only seven ft. (2 m) to create a 50-ft. (15 m) fall, more than equal the hydraulic power of Lowell.

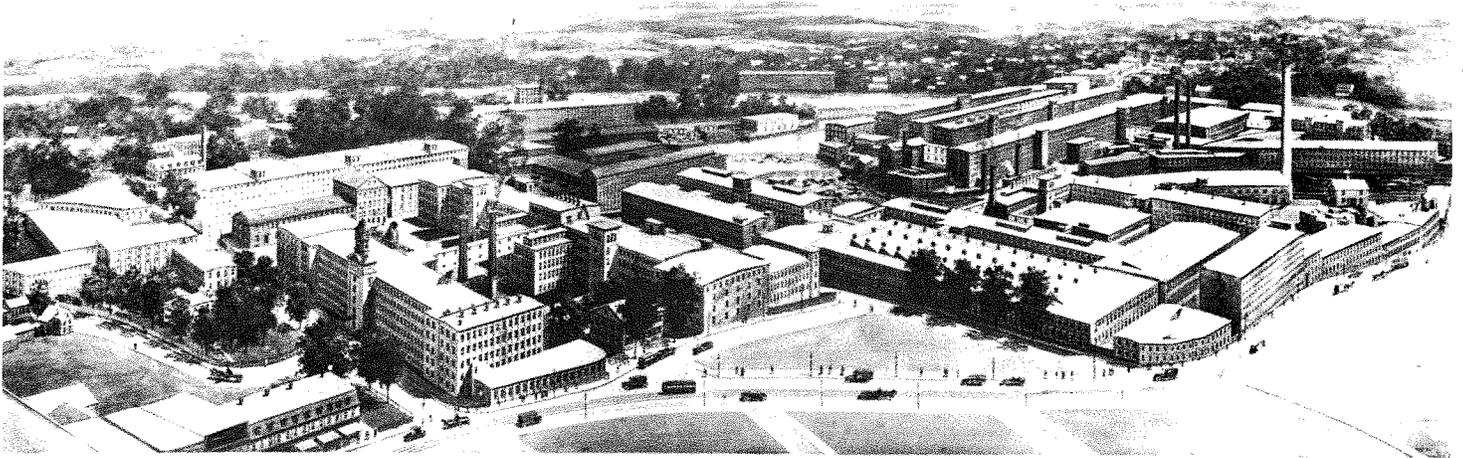
The two-tier canal system offered power over a wide area. Textile mills rose throughout the plan according to a Lowell-style pattern from mid-century until early in the 1900s. Several mills, notably Libby and Bates, continue to operate, as do a number of shoe factories. Bates became worker-owned in recent years.

22. Union Power Company (Inc. 1849)
At head of upper canal
Lewiston, Maine

23. BATES MILLS (Inc. 1850)
Upper Canal
Lewiston, Maine



27. Cumberland Mills (Photo: Maine Historic Preservation Commission)



PEPPERELL MANUFACTURING CO.
BIDDEFORD, MAINE.

24. HILL MILLS (Inc. 1851)
UPPER CANAL
Lewiston, Maine

25. ANDROSCOGGIN MILLS (Inc. 1860)
ON UPPER CANAL
Lewiston, Maine

26. Continental Mills (Inc. 1856) and Housing
Oxford St., Lower Canal
Lewiston, Maine

27. CUMBERLAND MILLS
Westbrook, Maine

The S.D. Warren Company began making rag paper with waterpower here in 1845 and shifted to the wood-pulp process in the 1870s. The owner ran a paternalistic operation; he provided public services but required workers to live in company housing. His system is said to have avoided any strikes in the 19th century.

This residential district includes pre-industrial farmhouses and late 19th-century housing for workers and management. During the 1880s architect John Calvin Stevens designed a series of Queen Anne structures: workers' cottages, impressive managerial homes, business and community buildings. The combination of urban planning and industrial paternalism connect these developments to earlier New England manufacturing centers.

28. SACO-BIDDEFORD, MAINE

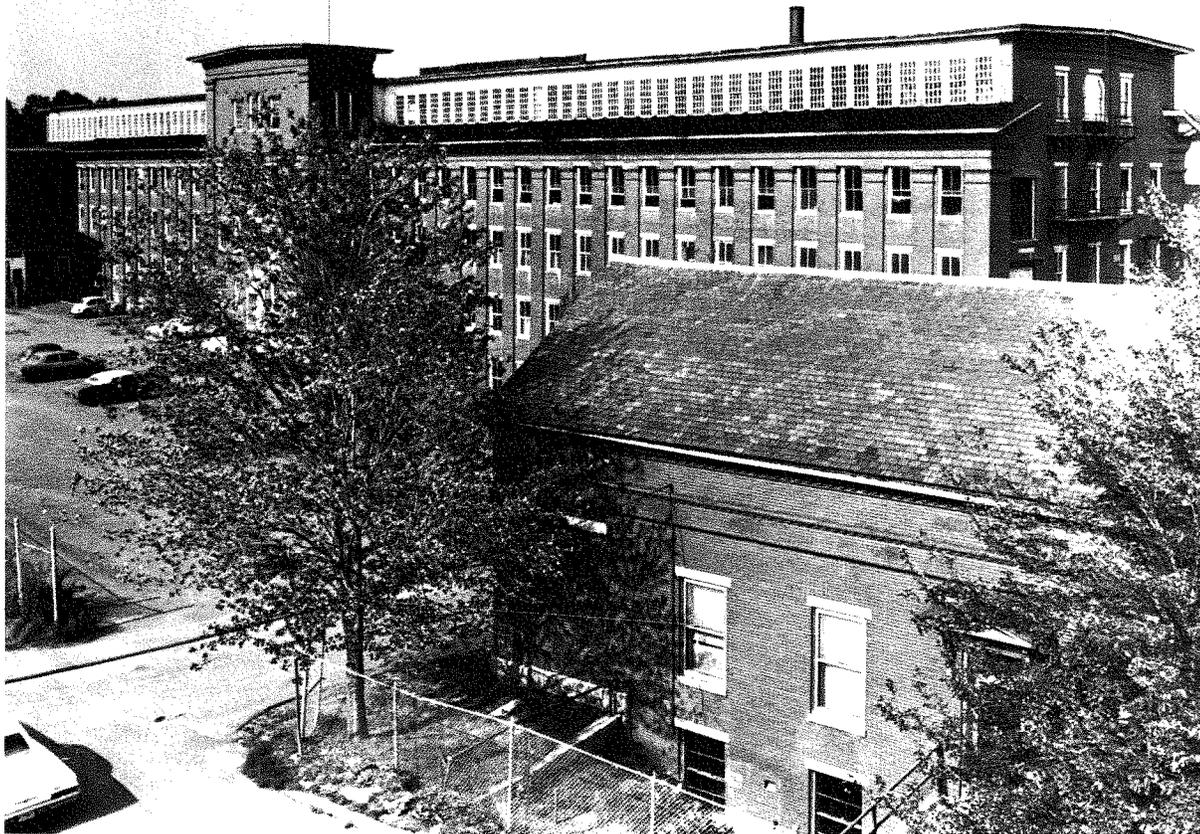
The Saco River runs out of New Hampshire's White Mountains and drops 42 ft. (12.6 m) over Saco Falls, four miles (6.4 km) from the Atlantic. Originally owned by Sir William Pepperell, the region drew on the white pine of the interior to feed 14 sawmills here by 1800. As timber resources declined, capital accumulated, leading to the development of an iron works in 1811, soon transformed by Boston money into the Saco Manufacturing Company to produce iron, steel, and cotton goods. The textile machine-building which ensued led to a corporation which would merge first with the Pettee Machine Works of Newton, Mass., and then the Lowell Machine Shop, creating the Saco-Lowell Shops in the 20th century.

Samuel Batchelder, first Agent of the Hamilton Manufacturing Company in Lowell, came here in 1831 as Agent for the York Co. A series of Lowell-style firms arose, such as the Laconia Co., 1841, and Pepperell Co., 1844. A primarily French-Canadian workforce came to operate them.

29. N. BERWICK, MAINE

An example of smalltown industry at a falls in a small watercourse, misleadingly named the Great Works River. Clocks and boxes were early products, and a local woolen mill prospered making blankets in the Civil War. The extant Hussey Plow Company, founded 1835, diversified into steel products (ladders, fire escapes, bleachers) and remains family-run.

28. Pepperell
Manufacturing
Company (Photo:
Merrimack Valley
Textile Museum)



30. Rollinsford,
Salmon Falls
Manufacturing Co.
(Photo: Richard
Candee)

30. Salmon Falls Village (1822)
Rollinsford, New Hampshire

The middle falls, of the Salmon Falls River site of Salmon Falls Village, supported a gristmill and a sawmill c. 1656. The 18th century saw a brisk lumber business develop, and that century's mills were mostly sawmills, but early residents recollected a woolen fulling mill and dam on the spot where the Salmon Falls Manufacturing Company later began. In the early 19th century, the success of the Boston Manufacturing Company's textile mills at Waltham, Massachusetts, prompted other investors to turn from the declining shipping industry to manufacturing. An inventory in 1822 lists a dam and "factory, two fulling mills, dye-house, store, two barns, blacksmith shop, machine shop, and workwhop."

This company differed from the Waltham factory in one major respect. It manufactured woolen, instead of cotton, goods, and produced in 1833 one-fifteenth of all the broadcloth made in the United States. The mill was rebuilt 1836-1843 for cotton, with 1,900 spindles, but the next year the weary Portsmouth investors

sold controlling interest in the company to Mason and Lawrence, Cotton Selling Agents, who introduced drill and heavy sheeting as products.

Amos Lawrence, treasurer of Mason and Lawrence, was one of the Boston Associates, an elite plutocracy that dominated New England manufacturing, economic, and even political life in the period 1820-1860. Some of the other Associates who bought into the Salmon Falls Manufacturing Company were Abbott Lawrence and William Appleton. This ownership virtually remade the company. It introduced its characteristic, Lowell-style methods of organization and efficiency. It brought in the latest technology from Lowell, including the turbine. And it conducted an almost continual building campaign, employing a Waltham-style design for Mill No. 2 in 1848.

Alterations in 1876 raised the number of spindles from 31,000 to 54,304, plus 1,143 looms. A steam engine was introduced in 1888 to supplement the existing water power. In its prime -- at the end of the 19th century -- the Salmon Falls Manufacturing Company employed some 600 persons and produced almost 9 million yards (8 million m) of cotton goods a year.

31. SAWYER'S MILLS (1824-1954)

Lower Falls, Dover, New Hampshire

SAWYER'S Mills were founded in 1824 by Alfred I. Sawyer, who, during the course of the next quarter century, successfully established a thriving woolen manufactory, producing flannels, cassimere cloth, suitings, and fancy worsteds. By 1892 six hundred operatives were employed and their output was nationally celebrated for "uniformity of texture and elegance of finish."

The two mills (Upper and Lower) were owned and directed by the Sawyer family until 1899 when they passed into the control of the American Woolen Company. This company continued to manufacture woolen cloth (up to 1,000,000 yards (914,000m per year) until 1954. At that time Sawyer's Woolen Mills ceased operation with the demise of the American Woolen Company.

mained in operation for over one hundred years. At the turn of the century the company ran 55,000 spindles, turned out 300,000 yards (270,000 m) of cloth per week and employed 700 operatives, most of whom lived in company-built housing.

34. NEWBURYPORT, MA

Newburyport, as a colonial port, produced much of the capital and managerial knowledge which led to the development of not only Lowell, but also much of the area's and the new country's economy. The 1820 Custom House stands as a reminder of this era.

35. Towle Silver Manufacturing Co. (1866-77)

174 Merrimack St.
Newburyport, MA

The Towle Silver Manufacturing Co. produces silverware and cutlery in 1866-1870 buildings. Shoes and ships' hardware were significant products at one time.

32. DOVER, NEW HAMPSHIRE

In the 1820s Dover became the first industrial town modeled directly after Waltham, and like Waltham it was financed by Boston capitalists. Their corporations built two large industrial complexes, the Dover Manufacturing Company and the Cocheco Print Works, as well as the first wooden boarding houses for female factory workers and most of the town's commercial blocks. There, Cocheco Corporations dominated the economy and politics of Dover until 1909, when the Pacific Mills of Lawrence, Mass., bought both companies. At its peak in the latter part of the 19th and early 20th centuries, Cocheco's plants covered an area of over 25 acres (10 hectares). Cotton manufacturing utilized 130,000 spindles in 2,800 looms; employed 2,000 hands, and produced 65,000,000 yards (58.5 million m) of finished cloth per year.

The Pacific Mills continued the operation from 1912 until the 1940s. A large portion of the downtown area, including residential boarding houses and commercial structures, has been demolished for "urban renewal."

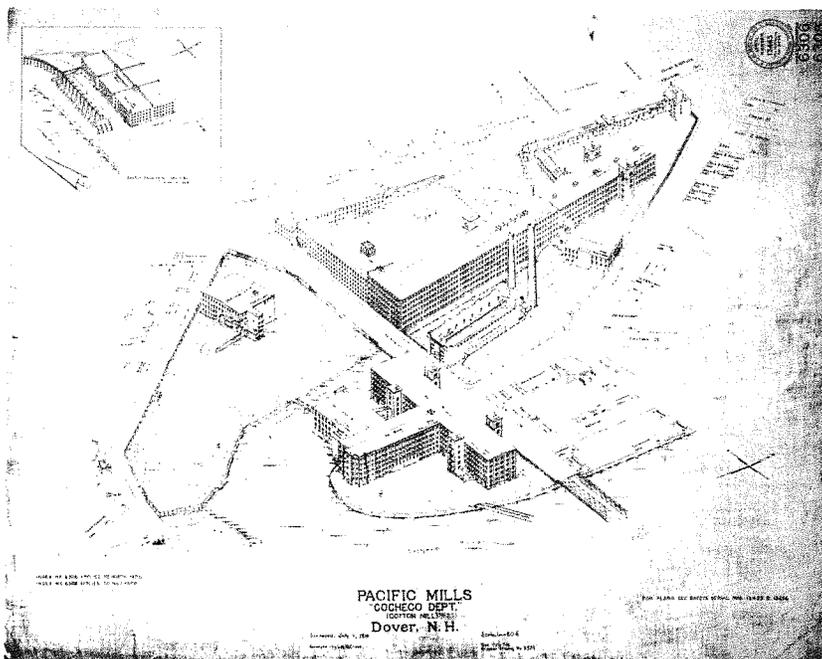
33. NEWMARKET, N.H.

Newmarket arose in 1823 from Salem, Mass. capital generated by the Clipper Ship trade. One of many Waltham-system copies, it remained economically separate from the Boston investors' realm.

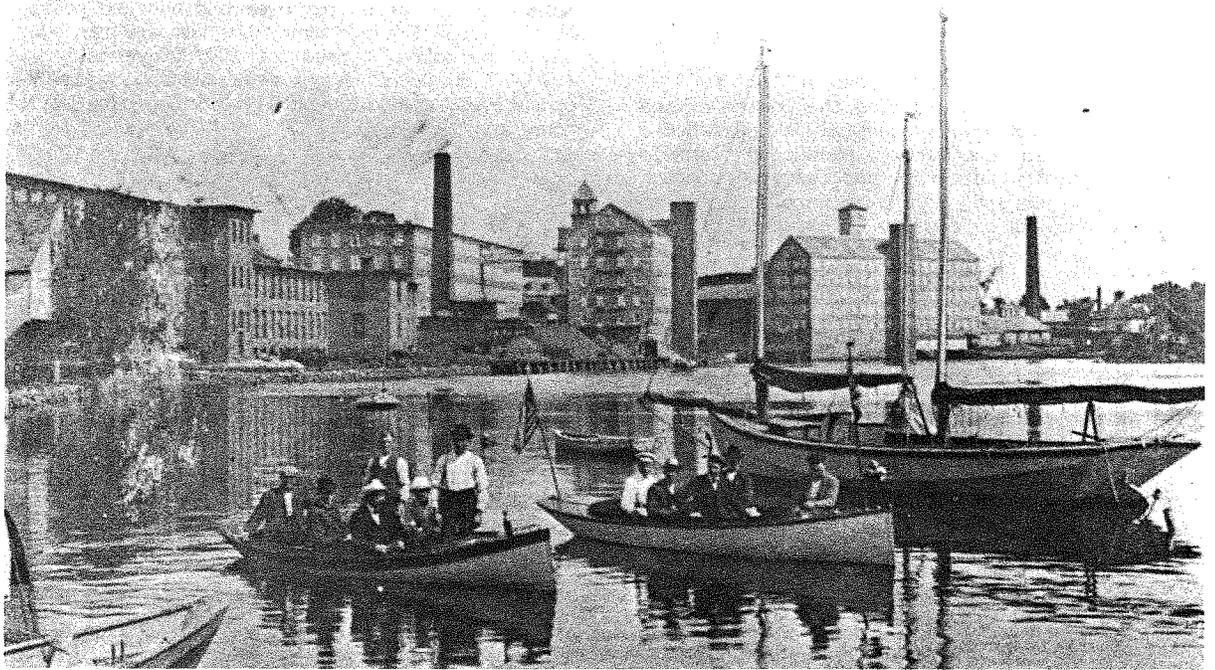
Workers built three stone buildings at the first falls of the Lamprey River between 1823 and 1829. They copied the Waltham pattern in building style (though substituting stone for brick), production, and housing. Later building added a fourth stone mill (1869), and two brick factories.

The Newmarket Manufacturing Company re-

32. Pacific Mills
(Photo: Merrimack Valley Textile Museum)



33. Newmarket
Manufacturing Co.
(Photo: New
Hampshire Historical
Society)



36. James Steam Mill (1842)
Water St. (between Salem & Charles Sts.)
Newburyport, MA

The James Steam Mill, built in 1842 by Charles T. James of Providence, Rhode Island, is the only surviving textile mill in Newburyport. James also erected and ran the Peabody and Ocean Steam Mills in Newburyport. The mill was powered entirely by steam engines which James helped popularize in the 1840s. The mill manufactured cotton sheetings and shirts, and in 1876 contained 17,000 spindles and 350 looms. In 1907 the Bay State Cotton Corporation purchased the structure and manufactured yarn for about twenty-five years.

37. Saugus Iron Works National Historic Site
244 Central Street
Saugus, MA

The Saugus Ironworks, "Hammersmith", was begun in 1646 under the direction of Richard Leader, a manager recruited in England by investors in a joint stock company of English and Massachusetts Bay Colony merchants. It converted the bog iron of the Saugus River flats and the timber of surrounding forests into iron with an integrated industrial complex. Its building included a blast furnace, a forge, and a rolling and slitting mill driven by water wheels powered through wooden flumes from a dam across the river above the site. Joseph Jenks, a skilled English swordmaker, was also authorized to establish a forge for making scythes and

other edge tools. In the 1650s the ownership was transferred to the company's creditors in Boston and, while briefly revitalized, the ironworks eventually failed and was closed by 1678. The iron-working skills applied here were the basis of efforts later in other New England and New Jersey sites. The surviving 17th century house on the site formerly called the Ironworks House and restored in 1915, was built about 1680 for a local merchant. The house and lands were acquired by the First Ironworks Association in 1944 and run as an historic site with support from the American Iron and Steel Institute. Historical and archaeological research for the reconstruction of the ironworks was conducted during the 1950s and the re-created site was transferred to the National Park Service in 1969.

38. LYNN HERITAGE STATE PARK
Lynn, MA

The Heritage State Park system, developed by the Massachusetts Department of Environmental Management, represents an effort to interpret the industrial heritage of the state and to form a basis for the revitalization of its historic cities. A Cooperative effort between the Commonwealth and the cities, each park is planned as a stimulus for tourism and greater private investment and as a way to celebrate the histories of these cities and their people. The Massachusetts initiative is the country's first such state-wide system.

Each park has its own interpretive themes reflecting the industrial past of its community. A Visitor Center provides a location and orientation for programs and activities related to the park's themes. Lynn's waterfront park will explore the changing use of its harbor, Lynn's history as America's largest shoe manufacturing center, and its role in the modern electric industry. The Visitor Center will include a cobbler's work house (called a "10-footer" from its size) and will interpret the shifts from craft to industrial production of shoes as well as the later shift of the city's industrial base to the electric industry.

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36. Workers and Supervisors at Counting House of James Steam Mill (Photo: Betsy Woodman)



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