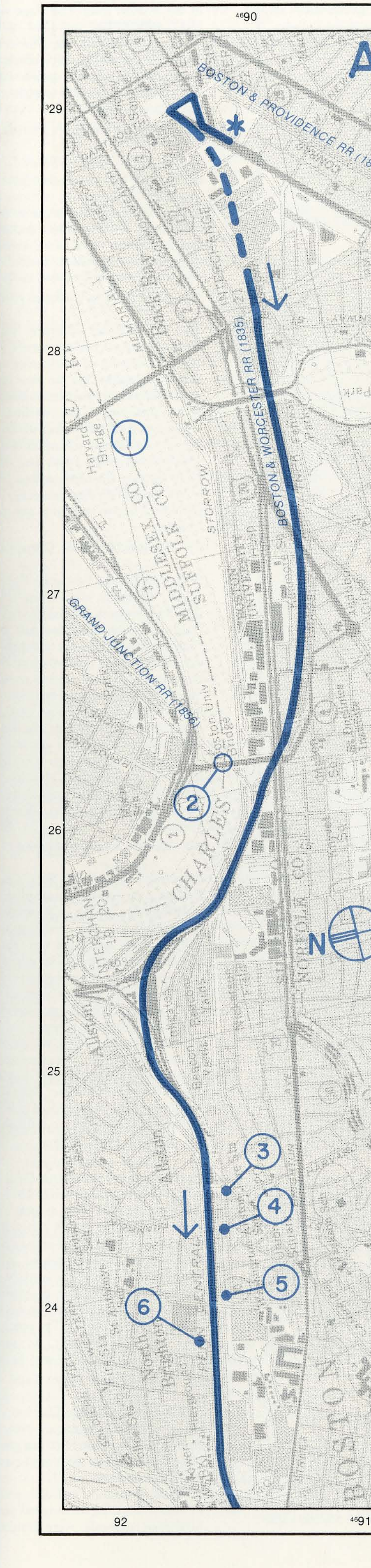
13th Annual Conference

Society for Industrial Archeology
Boston 1984

Sunday Morning Tour June 17

Waltham
Watertown
Newton
Cambridge
Charlestown



Copley Place—U.S. Custom House: 40.4 miles

01 Charles River Basin

map grid ref.: ³280.⁴⁶910

The Charles River Basin is the most important element of Boston's metropolitan park system. Originally an estuary edged with tidal mud flats, and coal and lumber wharves, the river was transformed into a recreational preserve by the completion of the Charles River Dam in 1910. The basin was modeled in part on the basin park created by darning the German river Alster in Hamburg. Use of the 1910 dam was discontinued in 1978 with the completion of the New Charles River Dam 850 yards downriver from the old. The original dam and the Basin were designated a National Historic Civil Engineering Landmark in 1981.

02 Cottage Farm Bridge/BU Bridge 261.908

The Cottage Farm (now the "B.U.") Bridge, one of four Charles River Basin crossings rebuilt by the Metropolitan District Commission in the 1920s, was completed in 1928 to the designs of Desmond & Lord, consulting architects. The highway bridge consists of a single-span through steel arch of 176-foot span erected by the Phoenix Bridge Company, supported by two reinforced concrete arches, each of 100 feet in length. The railroad bridge beneath it, also completed in 1928 and of standard plate-girder construction, carries the Grand Junction Branch of the former Boston & Albany Railroad.

03 Boston & Albany RR: Allston Depot 243.912

In 1868, at "Cambridge Crossing," where Cambridge Street crossed the Boston & Albany tracks, the railroad built a small wood-frame depot and named it "Allston," after the painter Washington Allston (1779–1843) who had lived at the other end of Cambridge Street in Cambridgeport. Brighton's second post office was established here the same year, and thus this part of Brighton came to be called Allston. In the 1880s, the line was four-tracked between Boston and the Charles River, and in conjunction with this work, the old wood-frame depots along the line were replaced by stone structures. The architectural commissions went to Henry Hobson Richardson, and after his death to his successors, Shepley, Rutan & Coolidge. The present Allston Depot, completed in 1887, was one of the latter, though the architects used Richardson's builder, style, and materials in its construction. Since 1972 the depot has housed a restaurant.

04 West End Street Rwy: Allston Power Station 242.913

The Allston depot was the terminus of the first electric streetcar line in Boston, established by the West End Street Railway in 1889. A few hundred feet down the street from the depot, the West End company built a small power station, now the earliest surviving evidence of what became in the 1890s the nation's largest electric street-railway system. Frank Sprague, who had recently completed a trolley system in Richmond, Virginia, electrified the original line, which linked the depot with a downtown terminus at Park Square. By 1891 the company operated 217 miles of street railways, much the largest electrified trackage of any street railway in the country. After the opening of the Central Power Station in 1892 (*see* Friday tour, #7), the Allston station was operated only in the winter, and its use was discontinued altogether in 1911. Today only the shell remains of the original one-story brick power station.

05 Thompson & Norris Company 239.913

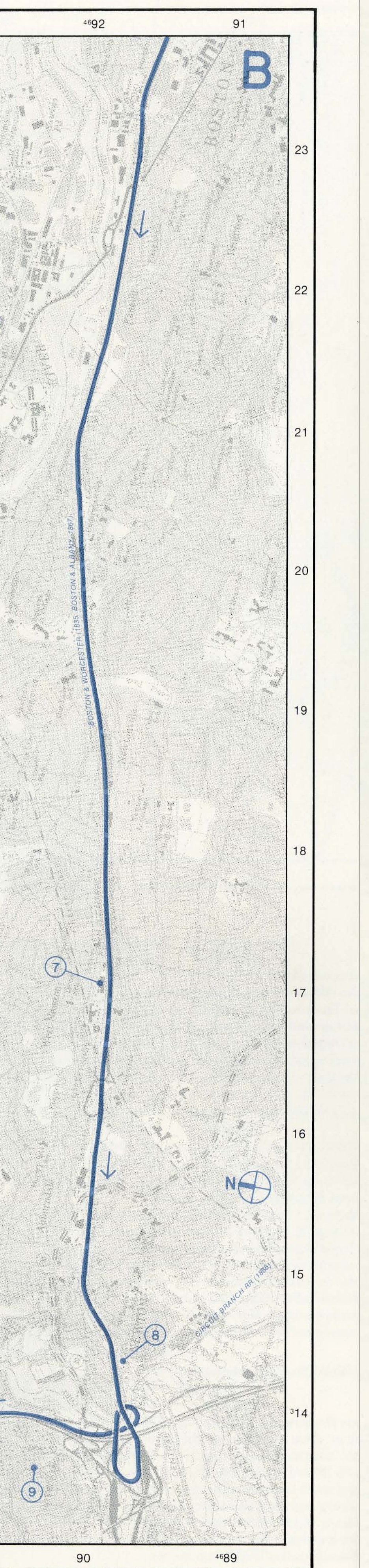
The five-story brick box and corrugated wrapping factory was built in 1900 for the Brooklyn-based Thompson & Norris Company. Founded in Brooklyn in 1875, T&N had been responsible for several important patents in the manufacture of corrugated packing, invented about this time for wrapping bottles, glass, and other objects. The plant remained in operation until 1947.

06 Sewall & Day Cordage Company 240.920

The yellow two-story brick structure is the headhouse and the only remaining portion of a ropewalk 1900 feet in length, constructed in 1888 for the Sewall & Day Cordage Company when the firm moved from Roxbury to Brighton. The company had been founded about 1834 and had operated extensive works on the site of what is now the Museum of Fine Arts on Huntington Avenue. Most of the rest of the brick mill complex was located at the other end of the ropewalk on Western Avenue, visible when the bus passes along that route (*see* #31).

07 Martin Manufacturing Company 168.907

The two-story brick factory was constructed in 1905 along the Boston & Albany Railroad for the Martin Manufacturing Company. Martin specialized in the production of "Novelty Curtains," (as distinguished from those made on the "Nottingham machine"). By 1930, there were 100 employees manufacturing curtains under the "Echo Bridge" trademark, and the company was said to be the largest producer in the country of the "better class of novelty curtains." After 1940,



the building was occupied for 40 years by a retail furniture store. In its renovation for office use last year, later concrete-block additions were faced with modern brickwork matching the original 1905 mill.

08 Robertson Canoe Factory 141.900

John R. Robertson started building canoes near his home on the Charles River about 1887. The canoeing boom around the turn of the century helped to make it a very successful business, and a new three-story wood-frame building was built about 1900. On this placid stretch of river above the Moody Street Dam were over a dozen boat and canoe houses with at least seven at nearby Norumbega Park. Although the industry declined with the popularity of the automobile, Robertson survived until 1941. Today the building houses a manufacturer of transformers.

09 Weston Aqueduct: Terminal Chamber 132.904

The terminal chamber was the largest of eleven buildings built by the Metropolitan Water & Sewerage Board along the Weston Aqueduct. Completed in 1903, the aqueduct extends 13.4 miles from the Sudbury Dam in Southboro to the Weston Reservoir, a few hundred yards west of this location. The terminal chamber marks the point at which the aqueduct joins the cast-iron pipes of the Metropolitan Water District. From the terminal chamber, a siphon carries Sudbury River water underneath the Charles River before continuing on to the receiving reservoir at Chestnut Hill (Friday tour, #76). Like other buildings along the aqueduct, the terminal chamber, designed by Shepley, Rutan & Coolidge, is of stone with a red tile hipped roof.

10 Cambridge Water Works: Stony Brook Gatehouse 134.914

The Stony Brook Reservoir, constructed in 1887, was the first of two water-supply reservoirs built on the Waltham/Weston boundary to supply the City of Cambridge, and its completion eliminated the city's need to join the new Metropolitan Water District. The lower end of the reservoir encompasses part of the former millpond of the Roberts Paper Mill, located, until its demolition last year, a few hundred feet downstream from the dam. The Queen-Anne style brick gatehouse controls the flow of water to Fresh Pond in Cambridge.

11 U.S. Watch Company/Howard Watch Works 148.933

One of the many spinoffs of the American Watch Company (#13) was the U.S. Watch Company, formed in 1883 by Charles Vander Woerd, formerly mechanical superintendent of the watch factory. The firm erected the first wing of the three-story brick building in 1884, adding a second wing about 1905. The narrow width of the structure provided large amounts of daylight for the watchmakers benches which were lined up facing the windows. The firm bought the rights to the "Howard" name in 1910, and, as the Howard Watch Works, and later Howard Clock Products, the company continues to produce Swiss screw-machine products and replica Howard clocks.

12 Prospect Street Bridge 152.929

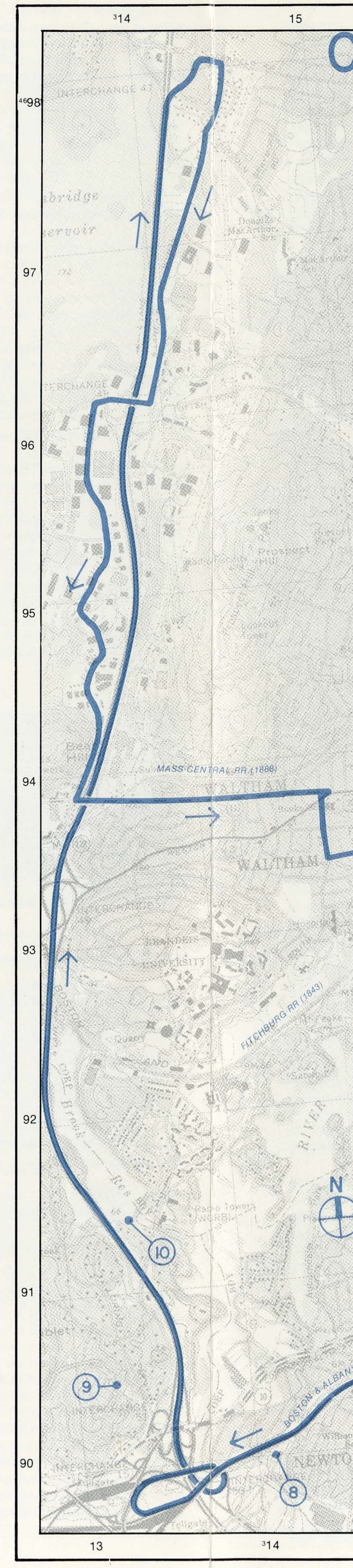
This three-span granite-arch bridge was constructed in 1888–89. Each span has a length of approximately 38 feet. Plans for the bridge were prepared by Marcus M. Tidd, (1827–1895), a native of Woburn and later a prominent New England engineer of water and sewer systems.

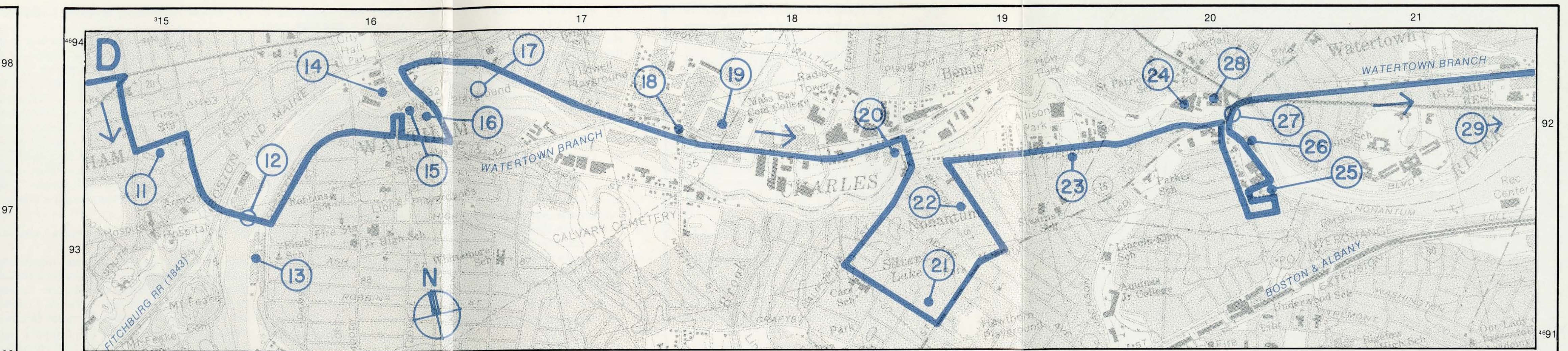
13 American Watch Co. /Waltham Watch Co. 152.927

The American Watch Company, founded by Aaron L. Dennison in 1849, was the first civilian industry to introduce the use of interchangeable parts. To escape the dust and vibration harmful to precision manufacture, the company moved out of Boston to Waltham in 1854. Most of the existing red brick Victorian complex dates to the company's chief period of prosperity in the last quarter of the 19th century, when at its peak it employed more than 3,000 men and women, spurring the development of many other watch-making and watch-tool firms in Waltham and elsewhere. The company closed in 1954.

14 Boston Manufacturing Company (BMC) 160.934

The Boston Manufacturing Company, was the first fully-integrated textile mill, in which all the processes from raw material to finished products were performed by powered machinery under one roof. The existing complex represents all phases of building construction, from the erection of the first American brick mill in 1814 to the last additions in 1911. The success of the enterprise led directly to still larger investment on the banks of the Merrimack and to the establishment of Lowell, the nation's first planned industrial city. The company founder, Francis Cabot Lowell (1775–1817), also introduced his own version of the English power loom.





The BMC was liquidated in 1929. Since then, the buildings have served many uses—mainly light manufacturing, warehousing, and, more recently, artists' studios. In 1978–80 the three main wings were renovated for elderly housing. The Charles River Museum of Industry is located in the 1911 boiler house.

15 Waltham Gas Light Company 161.932

Organized in 1852, the Waltham Gas Light Light Company began providing service to the Boston Manufacturing Company and a small number of private homes in the same year. Although the brick gasholders have since been demolished, the remaining brick buildings at the site include what may be the original purifier house. In the 1880s the firm began to supply the city with electric light. The firm ceased operations in 1909, its electric service picked up by the Edison Electric Illuminating Company of Boston. Boston Edison maintains a substation at the site today.

16 American Watch Tool Company 162.932

The largest offshoot of the watchmaking industry in Waltham was the watch-tool industry. The American Watch Tool Company had its origins in 1872 when three former employees of the watch factory formed a company to manufacture watchmakers' lathes by the interchangeable parts system. The two-story brick factory was erected in 1877 and later enlarged. The lathe business was later sold to the F.W. Derbyshire Company, and for about thirty years the Belgian Spinning Company used the watch tool factory for the manufacture of yarns.

17 Newton Street Bridge 164.933

Three-span stone-arch bridge constructed in 1877 under the direction of the Concord engineer Hiram W. Blaisdell. Each of the eliptical spans is 27 feet long.

18 Wade Machine Tool Company 173.928

When the American Watch Tool Co. (#16) was liquidated in 1918, the machinists' bench lathe portion of the business was sold to the Wade American Tool Company of Boston. Two years later Walter H. Wade moved his company to Waltham next to the Metz factory on River Street (#19). At this time, the company mainly manufactured precision lathes, which it continues to make. The company's plant is an early concrete-block building of two stories.

19 Metz Company 175.929

In the 1890s Charles Herman Metz (1863–1937) formed the Waltham Manufacturing Company with three partners, producing the "Orient" bicycle. The motorization of bicycles led to Metz's interest in automobiles, the earliest of which he produced in 1898. In order to decrease a large inventory of unassembled parts, he developed his "Plan Car," a kit for people who wished to build their own automobile. In 1909, he formed the Metz Company, erecting five years later the exisiting buildings on River Street. The two-story wood-frame building with a saw-tooth roof was used for assembly operations, while the three-story brick structure housed upholstery operations. For a time, Metz was the largest car manufacturer east of Detroit, though the company's fortunes declined during the First World War. In 1924 the firm was liquidated.

20 Bemis Mills/Aetna Mills 184.925

Watertown's largest industry for much of the 19th century were the Bemis (and later, the Aetna) Mills which stradled the river and gave its name to the nearby mill community of Bemis. Seth Bemis built one of the earliest cotton spinning mills in 1803, pioneered in the U.S. production of cotton duck sailcloth, and in 1812 equipped his mill with the first gaslight to be used in an American factory.

Sold out of cotton manufacture at the start of the Civil War to the Aetna Mills Company, the mills embarked on a 70-year history as manufacturers of worsted fabrics. Most of the exisiting mill complex on the Watertown side of the river dates from this period of prosperity. Since 1981 the complex has housed various light industrial firms.

The present dam, built in 1822, is a unique stone "rolling dam," a description thought to refer to the ability of flashboards to roll in a track along a slot in the top of the dam. The dam was breached in the last decade. Before the introduction of steam power to the mills on the northern side of the river, mechanical power from turbines on the south side was transmitted to the north side using overhead cables or belts.

21 Silver Lake Cordage Company 183.917

One of the most architecturally impressive factories in the immediate Boston area is the Victorian cordage factory built about 1866 for the Silver Lake Cordage Company, formed the same year to manufacture braided cord. The original four-story brick mill building still stands, now the mansard-roofed center block of the complex which was expanded to the north about 1880 and to the south after 1907. The firm manufactured sash rope, clothesline, trolley and bell pulls, as well as the asbestos steam packing used in sealing steam fittings. After the company moved to Georgia in 1928, the plant was taken over by the National Packaging Machinery Company, a leading manufacturer of box and carton-forming machinery.

22 Nonantum Worsted Company 186.922

The oldest portion of the present complex of brick mill buildings between Chapel and Bridge streets is a much altered 1862 brick structure built for Thomas Dalby's knitting mills which moved here in the late 1850s. Most of this complex, however, dates from the Nonantum Worsted Company's ownership of the mills between 1867 and 1896. Most of the company's 600 employees were Irish and French Canadian immigrants in the Nonantum community.

The firm went out of business in the business depression of the 1890s, and the mills, with the addition of two large machine shops and other buildings, have had multiple tenants since that time. A subsequent owner, the Saxony Mills, in 1907 became the first textile mill in the world to drive each spinning mule by an individual electric motor. Today the machine shops provide space for light manufacturing, while much of the rest of the mills have been renovated for office space, known as Chapel Bridge Park.

23 Saxony Silk Mills 192.923

This three-story brick textile mill was built about 1917 for the Saxony Silk Company, an offshoot of the Saxony Worsted Mills (#22).Its later tenants included the Shepard Worsted Mills in the 1930s, and more recently Ratheon had a satelite plant here.

24 Hollingsworth & Whitney Paper Company: Pequossette Mill 198.924

The former Hollingsworth & Whitney mill occupies the site of the first mill in Watertown, erected in 1634. In the 19th century, the mill privilege was the site of a succession of paper manufacturers. In 1839 Leonard Whitney bought the business from his former employer. Expanded demand after the Civil War led to the construction of a new 60x200-foot steam-powered mill in 1867–68. By 1878, the mill was the largest paper producer in Middlesex County, and in the 1880s the company won awards for the quality of its papers. The company moved to Maine to be closer to the source of wood pulp, but much of the Pequossette Mill remains intact including the 1868 two-story brick mill on Brook Street.

25 Stanley Motor Carriage Company 201.919

The Stanley Steamer was invented by the identical twins Freeland O. and Francis E. Stanley, born in Kingfield, Maine in 1849. In the 1890s they moved to Watertown and set up a business manufacturing photographic dry plates near the corner of Maple and Hunt streets. In 1897 they produced their first steam automobile out of the dry-plate shop. In the early 1900s the Stanleys decided to construct a large brick factory for the new Stanley Steam Vehicle Company. When the bricklayers refused to work on the building because the foundation excavators were nonunion, the Stanleys turned instead to reinforced concrete, and their new three-story factory, built in 1903–04, is said to have been the earliest factory in New England to be constructed of this material. Although a few steamers continued to be manufactured until 1925, Freeland Stanley sold the business in 1918 after his brother was killed in a motoring accident. Today the factory houses the Bachrach photographic studios.

26 Boston Elevated Rwy: Watertown Square Carbarn 200.922

The single-story brick and wood-frame carbarn, completed in May 1901, had an original capacity of 250 cars. Watertown Square was the terminus of both the Watertown Street streetcar line from Kenmore Square and the Mount Auburn Street line from Harvard Square. In 1934 the size of the building was reduced when Nonantum Road was extended from Water Street to Galen Street along the Charles River. The building continued in operation as a streetcar operating facility until June 1969, and since then it has been used for streetcar and bus repairs.

27 Galen Street Bridge 199.923

The first public bridge to span the Charles River was erected at this location in 1643, crossing the river a short distance below Thomas Mayhew's cornmill, built a decade earlier. Until the construction of the "Great Bridge," near Harvard Square, the bridge channeled all the land traffic from the north of Boston onto the old Shawmut Peninsula. The present 90-foot single-span concrete-arch bridge, faced with granite from Deer Isle, Maine, was constructed between 1905 and 1908 as part of the improvement of Watertown Square.

28 Lewando's Cleansing & Dyeing Establishment 199.924

Organized in Boston in 1828 by Adolphus Lewando (d. 1871), the company moved to Watertown permanently during the Civil War. In the 1870s the company experienced unprecedented expansion as new equipment, produced by Watertown's own Empire Laundry Machinery Company, dramatically increased the quantity of laundry and cleaning the company could handle. By 1900, the company served the eastern seaboard as far as Maryland, and the firm was said to be the largest cleansing and dyeing business in the country. The three-story brick building facing Watertown Square was built in 1906 and later extended to Pleasant Street.

29 Watertown Arsenal 218.921

Established in 1816, the Watertown Arsenal evolved from an ordnance military supply depot to an important manufacturing and materials testing facility by the end of the 19th and beginning of the 20th centuries. When the Arsenal closed in 1967, 55 acres of the site were sold to the town of Watertown. It has since been developed into elderly housing and the Arsenal Marketplace shopping mall.

Of the earliest buildings designed by Alexander Parris, of brick with slate roofs and granite and sandstone trim, the only remaining structure is the "North Arsenal," now vacant, though three 1830s additions to the design, a laboratory, machine shop, and blacksmith shop, have been converted to elderly housing. The East and West Timber Storehouses (1847, 1851) were constructed when the Arsenal began the manufacture of wooden gun carriages. Not until the 1890s, however, did the Arsenal became a major construction facility, and much of the complex in the 1890s was built for the expanded gun-carriage production. Additional facilities at this time included the Administration Building (1900) and the Officers Club and Barracks (1905). In 1916–17, the Arsenal was directed to produce the carriages for the new 16-inch Seacoast Guns, and during the next four years, the Arsenal nearly tripled in size. Twenty-three new buildings were designed by the Boston engineering firm of Stone & Webster including the largest buildings of the Arsenal, two of which now house portions of the Arsenal Marketplace mall.

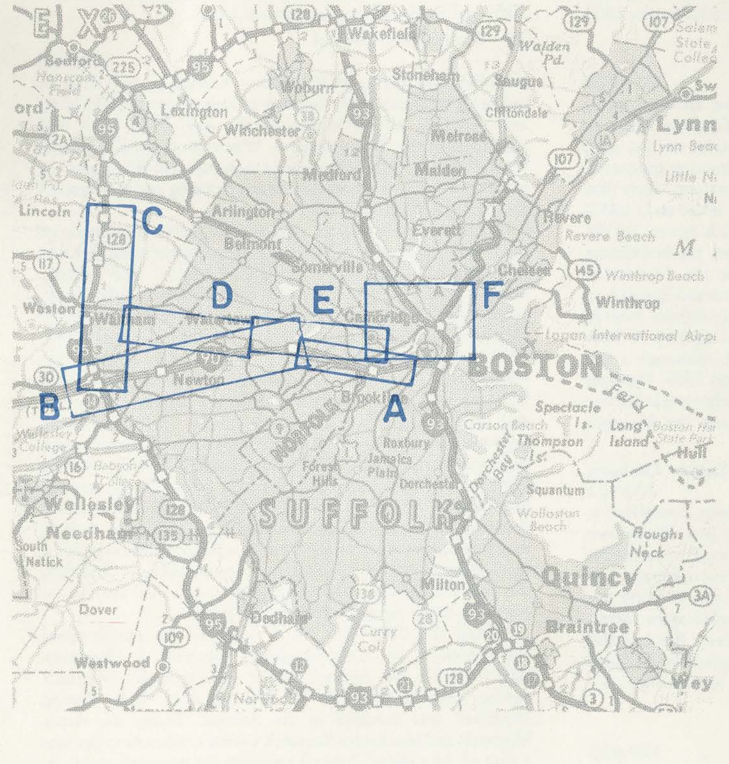
During the Civil War, as a result of the metallurgical experiments of Commandant Thomas J. Rodman (1815–1871), the Arsenal won a reputation for materials testing, and in 1879, A. H. Emery's new "U.S. Testing Machine" was installed in the Arsenal. Today the Army Materials and Mechanics Research Center continues to operate a part of the original Arsenal property for materials research.

30 Arsenal Street Bridge 231.919

The Arsenal Street Bridge, built in 1925, has two 91-foot reinforced concrete arch spans. It was one of four bridges over the Charles to be constructed in the early 1920s by the newly organized Metropolitan District Commission.

31 Sewall & Day Cordage Company 240.920

In addition to the ropewalk (#6), Sewall & Day also constructed two two-story brick mills, each 105 by 300 feet in size. Between the two mills an engine house supplied power to the mills on either side by means of rope transmission and line shafting in a tunnel between the mills. Other buildings remaining include a machine shop, boiler house, and tar house, all of brick construction. Today the buildings house a variety of smaller firms.

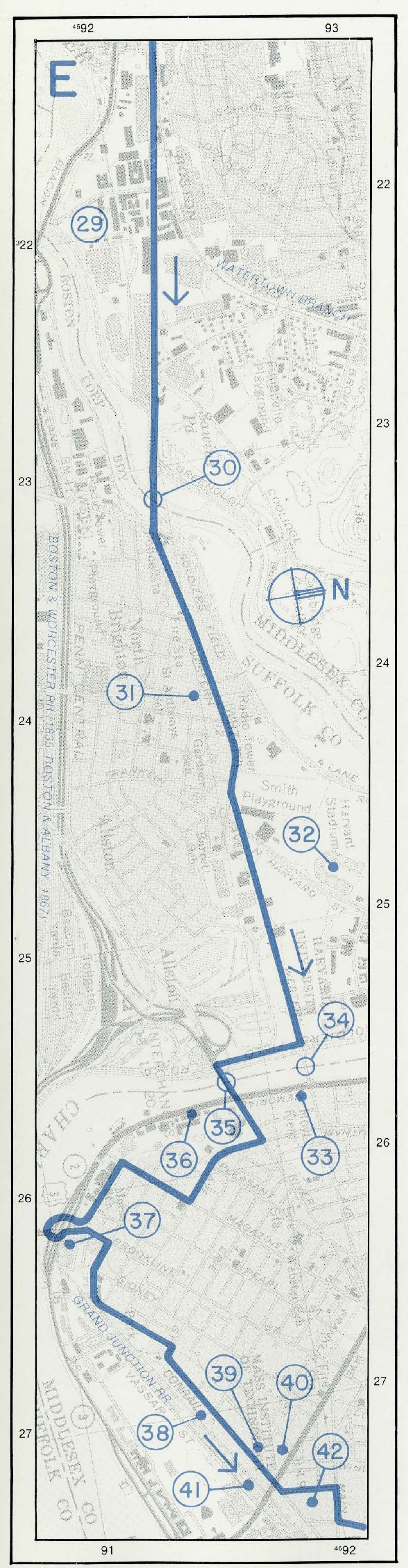


This brochure has been written and edited by Peter Stott from material included in the forthcoming *Guide to the Industrial Archeology of Eastern Massachusetts*, to be published by the MIT Press next year. Production of the brochure was by Charles Parrott and Peter Stott. Charles Sullivan, Peter Bernson, David Engman, Michael Folsom, and Suzanne Spencer-Wood have also contributed to its preparation.

Maps have been prepared from the following 7.5-minute U.S. Geological Survey quadrangles: NEWTON, BOSTON SOUTH, CONCORD, LEXINGTON, NATICK, and BOSTON NORTH.

SCALE: 1:25 000, except as noted.*
1 in. = approx. 2083 feet
1 cm = 250 meters

*On the second and third maps, smaller scales are used. The distance between grid lines is equivalent to 1000 meters or approximately 3280 feet.



32 Harvard Stadium
248.924

Harvard Stadium, constructed between 1903 and 1905, was the first massive structure of reinforced concrete in the world. Architect of the U-shaped grandstand was Charles Follen McKim; Joseph R. Worcester was consulting engineer, and the contractor was the Aberthaw Construction Company, one of the pioneer builders of large reinforced-concrete structures. As built, the stadium had a capacity of 21,000 to 26,000 spectators, according to the allowance of space per person.

33 Cambridge Electric Light Company
257.921

The Cambridge Electric Light Company, organized in 1885, moved to its present site on Western Avenue in 1888. The location was centrally located, allowing the shortest possible transmission lines, while the Charles River provided cooling water and access to coal brought by schooners and barges. The plant presently standing on Memorial Drive was erected in 1901, designed by Sheaff & Jaastad. Now one of the oldest generating plants still in use in New England, it primarily produces steam for Harvard University.

34 Western Avenue Bridge
256.921

A three-arched, cast-in-place reinforced concrete structure, the Western Avenue Bridge was built in 1924, to the plans of Desmond & Lord, also architects of the later Cottage Farm Bridge (#2). The original 1824 pile-trestle bridge on this site, rebuilt in 1879–80 and 1910, had a leaf draw. The present structure, 328 feet in length, is supported by three arches: the 88-foot center span is flanked by shore spans each 78 feet in length.

35 River Street Bridge
256.918

The original River Street Bridge was built in 1811 to connect Brighton to Boston via the West Boston (now "Longfellow") Bridge. The present three-span concrete-arch structure, approximately 330 feet long, was designed by Robert P. Bellows, architect, and constructed in 1926 under the direction of M.D.C. chief engineer John R. Rablin.

36 B & B Chemical Company
257.916

Intended to provide laboratory and office space as well as to house an experimental factory, the B & B Chemical Company building was built in 1937. The three-story building was designed by Shepley, Coolidge, Bulfinch & Abbott. B & B Chemical Company was a subsidiary of the United Shoe Machinery Corp. that specialized in research and manufacture of adhesives for shoe and other industries. The building presently belongs to the Polaroid Corporation and is used in its original function of research and experimentation.

37 Ford Motor Company Assembly Plant
262.910

The Ford Motor Company Assembly plant was built in 1913 in the first stage of decentralization of Ford production from Detroit to sites around the country. The Northeast branch of the Ford Company was initially located in Boston and, following construction of a new plant on Memorial Drive, moved to Cambridge in 1914. Here, Model T cars, trucks, and tractors were assembled from parts brought by rail from Detroit. The plant stood on a dominant riverfront site, probably in consideration of Henry Ford's decree that all his factories have access to water routes. Although the Ford business prospered in Cambridge, the assembly operations moved to a new plant in Somerville in 1926. The Cambridge building now belongs to M.I.T. and until recently was used for manufacturing by the Polaroid Corporation.

Designed by the Seattle architect, John Graham, who was responsbile for Ford plants in several other cities, the plant was one of a number of large riverfront industrial buildings built between 1900 and World War I on Memorial Drive facing Boston.

38 Library Bureau
270.915

One of the key inventions in the late 19th-century revolution in business methods and office systems was the replacement of the time-honored book ledger by card-record systems, a concept credited to H. E. Davidson of the Library Bureau.

The Library Bureau was founded in Boston in 1882 by Melvil Dewey (1851–1931), originator of the Dewey Decimal System of library organization. It was established to manufacture standard library supplies for the members of the newly organized American Library Association, of which Dewey had also been a founder, in 1876. The adoption of the library catalogue-card concept for commercial indexes in 1888 brought a rapid growth to the company, which established branches all over the U.S. and Europe. The company moved out of Boston to the present three-story brick building in 1908. The firm was merged into the Remington-Rand Corporation in 1925.

39 Elliott Addressing Machine Company
272.916

Another prominent business-machine firm to move to Albany Street in the same period was begun by the prominent Watertown inventor and bicycle manufacturer, Sterling Elliott (1852–1922). In his promotion of bicycles, Elliott published a magazine, *Bicycling World*. In order to mail out 10,000 copies a week to subscribers, he invented an addressing machine. About 1900, he organized the Elliott Addressing Machine Company, which moved to Albany Street sometime between 1904 and 1916. By 1930, the complex had been expanded to three times its original size, arranged along three sides of an open quadrangle, and employed 500 people. Today, the firm's corporate descendent is located south of Boston, in the town of Randolph.

40 New England Confectionery Company (NECCO)
272.918

Built in 1926, the New England Confectionery Company factory represents one of the last examples in Cambridge of pre-World War II industrial architecture. Architects of the six-story factory were the mill engineers, Lockwood, Greene & Co., who designed the Schraffts candy factory in Charlestown about the same time (#55). The company was the result of a merger in 1901 of three large confectionery companies, the oldest of which, Chase & Company, had been organized in Boston in 1847 when Oliver Chase invented the "lozenge cutter." In the 20th century, these lozenges, "NECCO wafers," were sold from coast to coast and gave the NECCO factory in the 1930s a reputation as "the largest plant of its kind in the world." Today NECCO is one of the last candy companies still operating in Cambridge, a city once the fifth largest producer of confectionery in the U.S.

41 Metropolitan Storage Warehouse
273.916

Designed by Peabody & Stearns in 1895, the Metropolitan Storage Warehouse was the first building on the filled land created by the construction of a seawall along the Charles River in the 1890s, and one of a half dozen structures in the medieval or Tudor styles that were intended as prototypes for future development in this area. The five-story warehouse, 480x90 feet, was extended in 1911 and contains 1600 storage rooms. The building was acquired by M.I.T. in 1962.

42 Davenport Car Manufactory
274.919

Charles Davenport (1812–1903) pioneered in the development and construction of railroad passenger cars. Organized in 1832, the firm moved to the exisiting location in 1842, and in 1848 expanded an earlier structure with brick extensions several hundred feet in length. Parts of these extensions still exist, though the front building was replaced in 1882.

Following the demise of the Davenport business in 1857, the Walworth Mfg. Company, the corporate descendent of Nason & Walworth, the inventors of steam heating, was located here. In 1876 Alexander Graham Bell at the Walworth offices in Boston and Thomas A. Watson at the factory in Cambridgeport engaged in the first reciprocal telephone conversation over the company's private telegraph line. Since the early 1940s, the 1882 Main Street building has been the site of Dr. Edwin Land's personal laboratory, where the instant photography technology marketed by the Polaroid Corporation was developed.

43 Olmsted-Flint Company
275.919

The Olmsted-Flint Co. was established in New York in 1910 but moved to Cambridge in 1915 to be closer to its customers. Once manufacturers of leather and oilskin belting and power transmission equipment, it is now mainly a distributor of rubber belting and transmission products manufactured by others. It is best known for its endless-belt advertising display.

44 Boston Woven Hose & Rubber Company
277.923

The Boston Woven Hose & Rubber Company was founded in 1880, and over the following thirty years it constructed over a dozen major buildings on the Cambridgeport site it had acquired in 1886. In 1907, the company began an intensive building campaign with a series of four large reinforced-concrete factory buildings, which today are important examples of the early use of this material.

Originally the company's main products were garden and fire hose. By 1893 production had expanded to include bicycle tires, belting, gaskets, and almost anything in rubber except clothing and shoes. The company closed only recently. Three buildings were demolished for the current extension of Draper Laboratories, while the remainder of the complex is being developed for office use.

45 George F. Blake Steam Pump Works
284.923

In the early 1860s, while a mechanical engineer at the local brick yards, George F. Blake (1819–1904) invented and patented a successful steam pump. The George F. Blake Manufacturing Co. was organized in 1874, and in 1889 the business moved to Cambridgeport, where a foundry and adjoining buildings were erected within the next few years. At its height, covering 5.5 acres of land, the pump works was one of Cambridge's most prolific, as well as most respected, industries. Its buildings were equipped with completely modern facilities and was said to manufacture more kinds of pumping machinery than any other firm. The Blake company was also a major supplier of pumps to the U.S. Navy. As the Blake & Knowles Steam Pump Works in the early 20th century, the firm became the second largest pump manufacturer in the U.S. after the rival Worthington pump concern. The company continued to manufacture steam pumps on this site until 1928, when the firm was absorbed into the Worthington Pump & Machinery Corporation.

46 New England Maple Syrup Company
286.921

The Boston-based New England Maple Syrup Company moved to Cambridge in 1907, erecting the existing three-story brick and steel factory at the corner of Second and Monroe streets. The factory was advertised as "the home of the Golden Tree," the brand name under which the firm's principal products, maple sugar and honey, were marketed. At that time the company was one of the largest packers of honey in the United States, shipping its products all over the country and into Canada. Despite this success, the company sold the building in 1918 to the Crew Levick Company, an oil manufacturer. Currently, the building is undergoing remodeling for office use.

47 American Net & Twine Company
286.924

Initially based in Boston, the American Net & Twine Company was founded in 1842. Two years later ir became the first firm in America to manufacture cotton twine and netting for fish nets, previously imported solely from England as hand-made hemp products. The innovation is credited to James S. Shepard of Canton, Mass., and for many years the company maintained a plant there as well as in Boston. In 1875 the company moved part of its manufacturing operations to Cambridge. The original brick structure is distinguished by a gambrel roof, broad gabled dormers, and a projecting stair tower. Three-story additions of conventional mill construction were added in 1886 and 1916. The buildings were sold in 1928 and have recently been renovated for office use.

1885 advertisement for American Net & Twine Co.

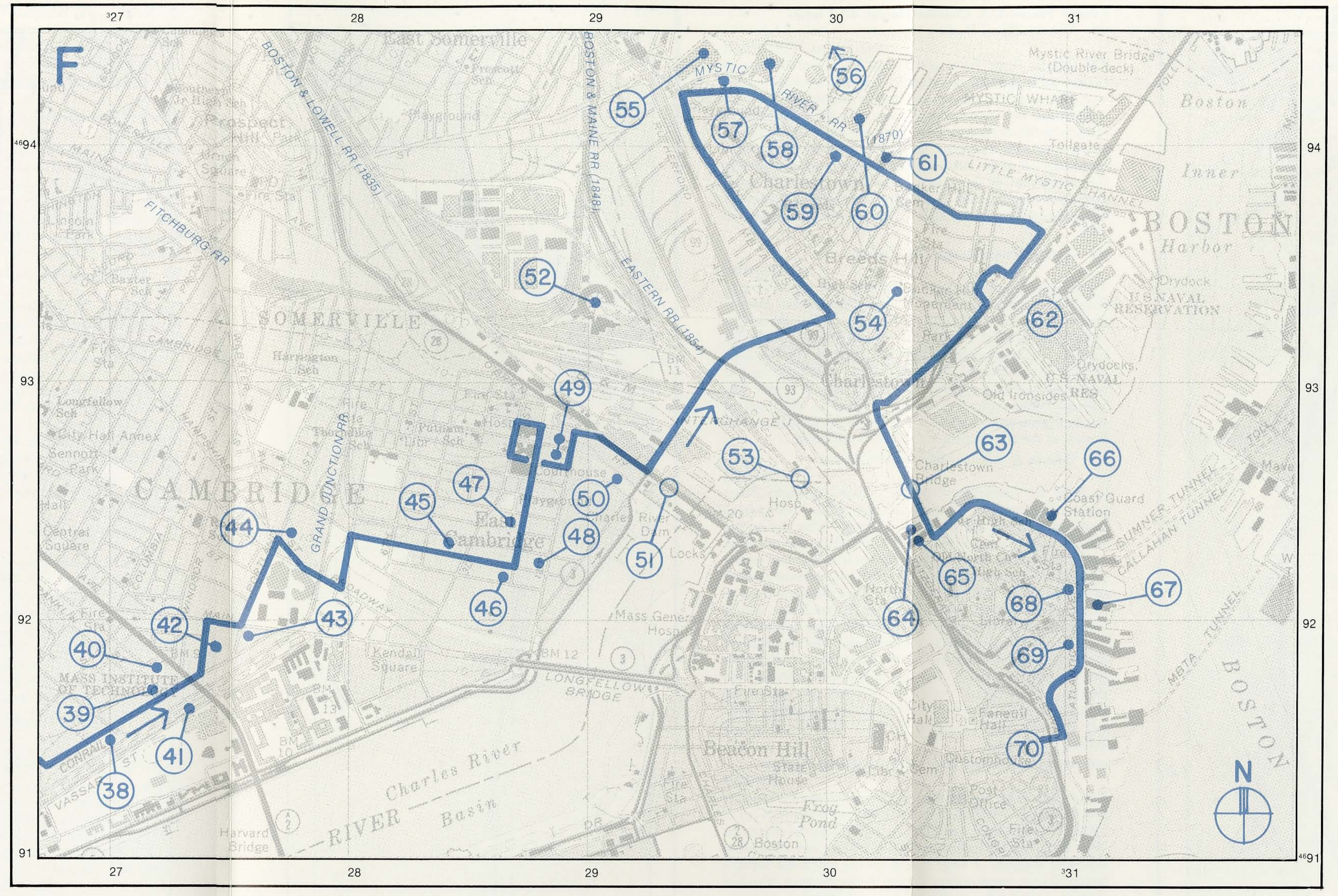
48 Ashton Valve Company
288.922

The Ashton Valve Company was founded in Boston in 1871 by the Englishman, Henry G. Ashton. In 1908 the company moved to Cambridge, erecting the present factory the same year. Ashton steam gages, safety valves and other appliances won a sizeable market among railroad companies, and later the company developed a variety of locomotive and power-plant specialities, as well as an extensive line of gages and valves. The factory was sold to Nicholson & Co. for glue manufacturing after World War II, and was rehabilitated in 1982 for a manufacturer of computer software.

49 Irving & Casson—A. H. Davenport Company
289.927

The merger of Irving & Casson, furniture manufacturers, with the A.H. Davenport Company in 1914 marked a significant point in the furniture industry of Cambridge. Albert H. Davenport began his business in 1880, becoming famous for elegant, lavish furniture. Among his successes were commissions to furnish the Royal Palace of Hawaii in 1880, and the White House in 1902–03.

Charles R. Irving and Robert Casson became partners as carpenters in 1874, and moved to East Cambridge in 1885, establishing their present factory in 1894. While Davenport erected several buildings on his property between 1883 and 1903, Irving & Casson took over much of the factory complex formerly owned by the furniture maker Ferdinand Geldowsky. At the time of the merger, the two companies were spread across adjacent blocks between Cambridge and Thorndike streets. The firm's last major commission was for the United Nations building in New York; it closed in 1972. Today the former Davenport factory houses the Deran Confectionery Company, while the Irving & Casson property is occupied by a variety of retail and light manufacturing firms.



50 Lechmere Canal
291.926

The Lechmere Canal, in the northwest corner of the Charles River basin, was created at the end of the 19th century by filling in the flats along Commercial Avenue. Three tenths of a mile long, the canal provided access to the lumber wharves and docks of the various furniture manufacturers located on the opposite side of First Street. Today, as a result of a reconstruction project in 1981–82, the canal is basically rectangular in plan, with a circular basin and fountain at its extreme end.

51 Boston Elevated Rwy: Lechmere Viaduct
294.925

The streetcar viaduct was erected in 1910–11 by the Boston Elevated Railway to provide surface cars from Cambridge and Somerville with a high-speed connection to the Tremont Street Subway, thus alleviating congestion in the North Station area. Designed by Boston architect Robert S. Peabody, the reinforced-concrete viaduct was intended as a visual termination to the eastern end of the Charles River Basin and to mask the unsightly railroad yards and wharves downstream. Its ten arches rest on granite piers in the bed of the Charles, adjacent to the downstream face of the Charles River Dam. The span opposite the dam's lock incorporates a single-leaf steel draw, controls for which are located in a concrete tower atop the viaduct.

52 Boston & Maine RR Yards/New Boston Engine Terminal
290.934

The territory spanned by the Prison Point Bridge was once a vast complex of railroad yards operated by four separate and competing railroads from the north and northwest: the Fitchburg, Boston & Lowell, Boston & Maine, and Eastern railroads. The general chaos was aggravated by three main engine terminals, many main routes crossing at grade, and many thousands of feet of track supported on pilings. One by one, these lines were absorbed by the Boston and Maine, but it was not until the 1920s that the railroad was financially able to undertake the physical rationalization of its Boston facilities into one unified system.

Today, although the railroad still uses a part of the yard, much of the area has been given over to industrial development. Chief feature of the surviving railroad facilities is the "New Boston Terminal," the Boston & Maine's primary engine terminal from its opening in 1930 until it was sold to the Mass. Bay Transportation Authority in 1977. It was originally built with 50 stalls, a concrete coaling tower that spanned four tracks, as well as shop, office, and crew buildings. A power plant, 60 feet in height with an 85-foot tower and 250-foot stack, long a landmark for the arriving B&M passenger, was built adjacent to the engine house. Today the engine terminal is the MBTA's chief maintenance facility for its commuter rail operations.

53 Boston & Maine RR: Charles River Bridges
298.925

The replacement and realignment of the railroads crossing the Charles River was the last element to be completed in the Boston & Maine's extensive terminal improvements. Eight main tracks were carried over the river on four new double-track, single-leaf, rolling-lift bascule bridges, completed in 1931. Today only two of the bascule spans remain, the westernmost having been removed in 1961 after the railroad discontinued long-haul passenger service. (*Guide* #553.)

54 Bunker Hill Monument
302.934

The Bunker Hill Monument, built by the Bunker Hill Monument Association to commemmorate the 1775 battle on Breed's Hill, today is more important for its revolutionary innovations in 19th-century construction technology. Although the obelisk form is credited to Loammi Baldwin, it was Solomon Willard (1788–1862) who was designated architect and superintendent of the project in October 1825. The Monument was constructed in three stages between 1825 and 1842. Two hundred twenty-one feet in height, it was the highest structure yet erected in the country.

One of the most important devices developed by the builders of the monument for handling the granite blocks of unprecedented size was the common derrick—the "Holmes Hoisting Apparatus"—invented by Almoran Holmes, a Boston seaman, who probably developed a local reputation as an engineer, based on his experiments in lifting heavy objects. The 1824 patent on Holmes' derrick was the first U.S. patent for a hoisting device. After his accidental death in 1834, James Savage took Holmes' place. Savage made improvements in Holmes's original device (for which he, too, was awarded a patent in 1838), and in 1841 Savage replaced the oxen which drove the derrick with a 6-HP steam engine attached to his "improved" boom derrick. In 1980 archeological excavations uncovered the original base of the derrick used by Holmes in 1825.

55 W. F. Schrafft & Sons Corporation
294.943

The chief landmark of Sullivan Square, now that the Boston Elevated terminal has been demolished, is the Schraffts candy factory, completed in 1928. Like the NECCO factory in Cambridge (#40) built at the same time, the Schraffts factory was also designed by the mill engineers, Lockwood, Greene & Co. Both utilize massive corner towers, a limestone-faced lower story, and horizontal bands of stone trim above. The seven-story steel-frame and reinforced-concrete Schrafft plant contains over 16 acres of floor space and was said to be the largest confectionery plant in the country engaged in chocolate candy production.

56 Boston Edison Co.: Mystic Station
297.950

By 1941 the electrical power needs of the Boston area were served only by the L Street Station in South Boston and the Edgar Station in Weymouth (Friday tour, #s 23, 51). With the growth of the electrical load on the system, transmission and distribution had become progressively more difficult. Mystic Station, built between 1941 and 1944 on the Mystic River close to the Charlestown line, was designed to serve the northern side of the Boston load. The plant was expanded to the north in 1947, 1957, 1959, and 1961. When "Mystic 7" was placed in service in 1975, the first three units were retired from service. Today, the seventh unit produces 565 megawatts of electricity, more than ten times the power that the first unit produced, and the station as a whole supplies 984 megawatts to the New England power grid.

57 Wemyss Brothers Furniture Company
295.942

The two-story brick furniture factory was built about 1870 by the Scottish furniture maker James Wemyss. By 1885, the firm employed 130 men in various departments. The company produced "all the higher grades of chamber furniture as well as chiffoniers, both in antique and modern designs." The business continued until 1899, when it was acquired by the S.M. Howes Company, then a manufacturer of stoves near Dock Square. The stove company moved to Taunton about 1942.

58 U.S. Baking Company: Boston Bakery
297.943

The U.S. Baking Company was organized in 1890 by the principal biscuit manufacturers of the central states. With the express purpose of competing with its rival, the New York Biscuit Company, for the New England business, the company erected the three-story brick Boston Bakery on Medford Street about that time. The warfare between the two concerns continued until 1898 when the two were merged as the National Biscuit Company (NABISCO). Nabisco moved out of Charlestown about 1910, and the building became a sash and blind factory. By 1930, with a large five-story steel frame and concrete addition, the company was said to be one of the largest jobbers of doors, windows, and similar building material in the country.

59 Robert Webb & Company Black Lead Works
298.940

In the 1850s, the Scotsman Robert Webb was a Boston stove dealer. Probably soon after the Civil War, he turned to manufacturing stove polish, made from black lead (today's graphite). His first factory was on Sherman Street in Charlestown, but in the mid 1880s, he built the existing three-story brick factory on Medford Street. On the first floor of the factory was the mill used to grind the lumps of graphite into a fine powder; the second floor for used for storage; and in a two-story brick ell to the rear was a 50-hp steam engine. After Webb's death in 1893, the building was acquired by the Whittemore-Woodbury Company, manufacturers of shoe blacking and shoemakers wax. The old black lead works was used as a "blacking factory," and a wood-frame wax manufacturing plant (since demolished) was built to the rear. Today the Black Lead Works houses the Cobblestone Restaurant.

60 Revere Sugar Refinery
301.941

Originally located in East Cambridge, the Revere Sugar Company moved to a larger plant in Charlestown in 1918. The steel-frame and brick sugar refinery, designed for a capacity of two million pounds, was designed by the engineer Renier P. DeFries, and the plant was virtually a duplicate of a New Brunswick plant which DeFries designed for the Atlantic Sugar Company. After the opening of the new refinery, a number of New Brunswick natives came to Charlestown to work in the plant, which employed at its peak about 500 men.

In the 1930s, the company became a pioneer in the handling of bulk sugar, replacing 100-pound bag shipments with loose cargoes. Until this year, Revere was one of only two sugar refineries remaining in New England, the other being the new plant of Amstar Domino, built in 1960 on land adjoining the Revere factory. In April of this year Revere announced the permanent closing of the refinery.

61 Wiggin Terminal
303.941

Development of the Mystic Docks was initiated by the Boston & Lowell Railroad which in 1873 completed a 2¼-mile branch line from its Milk Row station in Somerville to a large wharf south of Chelsea Street (site of the present Tobin Bridge). Wiggin Terminal, "the newest and most modern warehouse in Boston," its owners boasted, was built about 1910 by the Terminal Wharf and Railroad Co., a subsidiary of what by then had become the Boston & Maine. The two nine-story brick warehouses, each 100 feet in height, face each other on either side of Terminal Street. The company offered docking facilities for "any size steamer or vessel" and "direct railroad connections with the Boston & Maine."

62 Charlestown Navy Yard
310.935

Established in 1800 the Charlestown Navy Yard introduced the use of sheltered shipways, erected one of the nation's first drydocks, pioneered in modern ship construction, and manufactured all of the Navy's rope for over a century. Before it was disestablished in 1974, it included nearly 130 acres, 90 buildings, 6 miles of railroad, and numerous docks, piers, and shipways. Most of the original granite buildings, including the 1360-foot ropewalk, were designed by Alexander Parris.

63 Charlestown Bridge
303.925

The Charlestown Bridge, completed in 1900, was built by the Boston Transit Commission and designed by its chief engineer, William Jackson, to provide a suitable structure for the new elevated railway. The new bridge was particularly remarkable for its 100-foot width, making it then the widest swing span in the world. The bridge was also a double-decked structure throughout. The overhead steelwork carried the Elevated's mainline tracks until its replacement in 1975 by a subsurface route a few yards upstream.

The draw span, like that of the longer Northern Avenue swing span (Friday tour #13), was of the "rim-bearing type:" the 1200-ton weight of the span was carried by a steel drum 54 feet in diameter, in turn supported by 70 steel wheels. The draw was last operated in 1956, and its motors have since been removed. The bridge is today the oldest of the three steel swing spans remaining in Boston.

64 W. F. Schrafft & Sons
303.923

The predecessor to Schrafft's Charlestown plant (#55) was this 8-story brick candy factory on North Washington Street, completed in 1906, the year of the founder's death. Schrafft had been born in Bavaria in 1823. He came to New York as a political refugee about 1850, opening a small candy business in Boston about a decade later. (*Guide* #542)

65 Austin Biscuit Company
303.923

The six-story brick bakery was erected in 1907 by the Austin Biscuit Company, the largest cracker manufacturer in the Boston area. In later years, as a branch of the St. Louis-based Loose-Wiles Biscuit Company, the Boston plant originated the "Sunshine Hydrox" biscuit. (*Guide* #543)

66 Lowney Chocolate Factory
309.924

The five-story brick chocolate factory was built in 1896–98, now the oldest of the surviving confectionery structures in the North End. Since World War II the complex has housed the U.S. Coast Guard which has made the eleven-building facility the agency's New England Support Center.(*Guide* #540)

67 Boston Elevated Rwy: Lincoln Wharf Power Station
311.920

Lincoln Wharf Power Station, built in 1901 and enlarged in 1907, was built to supply the Elevated's Atlantic Avenue loop, which opened in August of 1901, two months after the El's main line. Constructed to the designs of the transit company's chief engineer, George A. Kimball (1850–1912), it housed what were then the largest direct-current railway generators yet constructed. (*Guide* #539)

68 United Candy Company
310.921

To supply its growing chain of Rexall and Liggett drug stores across the country, the United Drug Company, founded by Louis Kroh Liggett in 1900, organized the United Candy Company which in 1912 built a large confectionery plant in the North End. The eight-story plant remained in use until the 1940s when operations were consolidated at the home office on Leon Street, Roxbury. (*Guide* #544)

69 Prince Macaroni Manufacturing Company
310.919

The eight-story macaroni factory was erected in 1917 for the Prince Macaroni Manufacturing Company, formed by Gaetano LaMarca in 1912 in a small store on Prince Street. The company moved to Lowell in 1939 where it has since become a leading manufacturer of macaroni products. The renovation of the building for 42 apartments in 1968 served as an important catalyst for other redevelopment projects along Boston's waterfront. (*Guide* #545)

70 Boston Custom House
308.914

The Boston Custom House, constructed between 1837 and 1847, was designed by Ammi Burnham Young (1800–1874), a student of Alexander Parris. Young's use of single blocks of granite for the shafts of the 32 giant monolithic columns was adapted from Parris's Quincy Market House (1825–26). The structure represents what was probably the most successful of the many attempts made by Greek Revival architects to combine a low Roman saucer dome with a pedimented Greek Doric order. In 1913–15, a 500-foot tower designed by Robert S. Peabody was added to the roof of the original Custom House at a cost of $1.5 million. The 29-story tower is a steel-frame building with stone facing.