Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	DAL.904
Historic Name:	Holiday Road Bridge over Wahconah Brook
Common Name:	
Address:	Holiday Rd
City/Town:	Dalton
Village/Neighborhood:	
Local No:	
Year Constructed:	c 1884
Architect(s):	Ball, C. H.; Ball, Charles Henry
Architectural Style(s):	Truss Unspecified
Use(s):	Other Engineering; Other Transportation
Significance:	Engineering; Transportation
Area(s):	
Designation(s):	
Building Materials(s):	

DEMOLISHED

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

Demolished DAL.904

MASSACHUSETTS HISTORIC BRIDGE INVENTORY

Municipality: Dalton District: 1

Street name/Rt. #: Holiday Rd.
Over
Street name/Rt. #: Wahconah Brook

Bridge key #: TWN 108 002 100 Photo ##s: Dist 1 photos; HBI 125: 8-20

Bridge plan #: D-1-11

Common/historic name:

Current owner:

UTM coordinates: AASHTO rating: 194 (1-18-89)

****

National Register status (insert date)

Entered: Potential: 10-6-81 (MHC)

Eligible: Non-eligible:

Field rating: (3) 2 1

****

Date built (source): 1894 (plate)

Date(s) rebuilt (source):

Builder (source): "Charles H Ball (plate)

Designer (source):

****

Structural type/materials: 910

1 span, iron and steel, Ball queenpost pony truss. tubular iron pipe upper chord, ca. 6½" diameter, with threaded sleeve splices on inclined sections. Original verticals: ca. 2¾" diam. tube mated to a flared fitting on underside of upper chord and to a 6-sided fitting with a round boss on upper flange of floor beam, flanked by pair of 1½" wide half-round bars bent over upper chord and secured by a single 'staple'; Lower ends of ½ rounds are matched to notches in flanges of original I-beam floorbeams, and have threaded ends. A plate secured by nuts between the opposing ends of the ½ rounds carries the original floor beam. Diagonals are ⅞" round rods, appear to have originally *

Overall length: 42' Deck width/layout: 12'

Skew: -

Main unit, # spans: 1 lengths: 38'

Approaches, # spans: - lengths: -

Plaque: 1 location: NE vertical

Alterations, unusual features, comments:

* passed through casting on underside of upper chord where tubular vertical 'posts' meet upper chords; orig. lower connections not clear. Diagonals in end panels still have original loop-welded upper end eyes, bolted to underside of upper chords. Lower chords are paired 1¼" round rods w/ turnbuckles; located laterally at floor beams by L-hooks bolted through upper flanges of floor beams. Ends of lower chord rods are threaded and secured by nuts against a plate held by tension against the end of the tubular upper chord. 5 rolled 6" x 3" I-beam stringers, plus 2 8"x4" rolled I stringers laid on their sides near center line of bridge, may or may not be original.

Major repairs/reinforcement of verticals and floorbeams: 4 round rods welded to "mouse-eared" gusset plates welded to upper chords, now surround each original vertical. Added verticals support 2 short transverse Ls. which carry 2 new rolled steel channels which bracket the original floorbeams. Diagonal connections now made to gusset plates welded at panel points. New steel channels added as fascia stringers

Heavily mortared stone rubble abutments, with much later concrete for wingwalls + facing of S. abutment (abutment repairs 1949 - see plan.)

Visual quality (bridge and setting): High X Average ___ Low ___

Site integrity: Retained X Violated ___

Describe: Pastures/hayfields stretch back from the wooded margins of Wahconah Brook in all directions, a farmhouse/barn complex sits on higher ground to the north. A picturesque rural setting, with the wooded Berkshire hills rising in the background.

History of bridge and site:

See "History" section of the HBI form on W-41-11 for a summary sketch of Charles H. Ball and his patented truss bridge design.

According to the 1893 Dalton town reports (quoted by B.A. Drew) the town paid $386 for the superstructure of this bridge, plus $472.06 for the substructure and the railings.

Sources: US Patent #502,165, granted July 25, 1893 to Charles H. Ball.
B.H. ✓ Bernard A. Drew, "Ball's Iron-Pipe Bridges" in SIA Newsletter, Dept. 1977, p.2.
Plans 1949 " " " "Early Surviving Iron and Stone Bridges in Berkshire County, Massachusetts," (undated typescript in MDPW HBI files).
Bernard A. Drew, "Going, Going, Gone!" in The Berkshire Sampler, Ap. 29, 1979, pp. 4-6
Old BH ✓ 1949 photos in Bridge Plan Room 3-ring photo binders.

****

Summary statement of significance:

The newer of only 2 known surviving Ball pony truss bridges in the MDPW database, to the best of current knowledge, these are the last extant Ball truss bridges anywhere. Although considerably altered, the alterations consist primarily of new members being added as reinforcements for the original verticals and floorbeams, with the original vertical members and original floorbeams being left in place. The original verticals include a tubular compression member not seen in Ball's patented design, and not used in the other surviving Ball queenpost truss, along with a second, looped, half-round tension member. The use of these additional, original vertical elements presumably relates to the fact that these trusses have a 38' span, considerably longer than the average span for a Ball truss.

Statement prepared by: S.J. Roper, MDPW Historic Bridge Specialist Date: 2-26-90

****

Field survey by: H. Lee Stern, Dist. 1 Environmental Engineer Date: 7-14-81
S.J. Roper, MDPW Historic Bridge Specialist 10-1-84
9-7-89

DAL.904

BRIDGES PREVIOUSLY REVIEWED BY M.H.C. -- CONCURRENCE REAFFIRMED

	Municipality	On/Over	Br. Dept. No.
Bridge:	Dalton	Holiday Rd / Wahconah Brook	D-1-11

has previously been reviewed by the Massachusetts Historical Commission and was determined to be: Potentially Eligible

on Oct. 6, 1981.

After a review of all known bridges of comparable structural type identified in the M.D.P.W. statewide computerized database, the M.D.P.W. now reaffirms its concurrence with that initial determination.

Summary statement of significance:

One of only 2 known surviving examples of Charles H. Ball's unique, patented pipe truss bridge. Although considerably altered, the alterations primarily consist of new members being added to the structure, with the corresponding original members being left in place. Contains features not found in Ball's 1893 patented design, nor in other known Ball trusses -- particularly the configuration of the original gueenposts.

Scheduled for replacement.

Statement prepared by: S. J. Roper, MDPW Historic Bridge Specialist

Date: 2-23-90

DAL.904

HISTORIC BRIDGE INVENTORY AND EVALUATION

Date: July 14, 1981

Municipality DALTON S.H. _____ N.S.H. X

Street Name & Route No. Holiday Road

Over

Street Name & Route No. Wahconah Brook

Bridge No. D-1-11 Bridge Key No. TWN108002000 Dist. 1

CRITERIA FOR DETERMINATION OF HISTORIC SIGNIFICANCE

1. Builders Contribution

Quantity

Unknown X Several _____ (1-10) Many _____ (10 or more)

Name of Builder: C. H. Ball Windsor, MA

Designer: C. H. Ball

Placque: Yes X No. _____

2. AGE: Pre 1850 _____ 1850-1900 1894 1900-1930 _____

3. TECHNICAL

Bridge Type ~~Thru~~ Pony Pipe Truss

Bridge Width 12'

Total Length of Bridge 42'

Number of Spans: 1 Span Lengths 38'

Patented: Yes X No _____ Unknown _____ Patent #502, 165

Load Carrying Capacity: Adequate _____ Inadequate X

Configuration Unique X Unusual _____ Common _____

Types of Materials:

List Special Features and Modifications:

Many repairs made over last several years destroying much of the original appearance of the vertical supporting members.

DAL.904

L-19 Pg.2

IV. ENVIRONMENTAL

Aesthetics: Unusual_____ Good _X_ Common_____
Site Integrity: Retained _X_ Violated_____
History of Bridge and Area:

V. ECONOMICS

Owner: Municipal _X_ County_____ State_____ Federal_____

R.R._____

What is your recommendation?
Maintenance_____ Replacement _X_ Rehabilitation_____
Are materials available for Rehabilitation? Yes_____ No_____
Is structure scheduled for replacement? Yes_____ No_____

VI. PHOTOS - INDICATE SHOTS TAKEN

X 1. Setting
X 2. Builders Plaque
X 3. 3/4 View
X 4. Thru View
X 5. Under View
6. Elevation
7. Joint & Connections
8. Machinery
9. Decorative Features

VII. COMMENTS & CONCLUSIONS

1. In your judgement, does this bridge have historic value? *Yes___ No___
2. Please explain your answer to #1

This information was requested of the Dalton Historical Commission by letter on May 22, 1981.

*This bridge may have some other functional value to the community.

Preparer H. Lee Stern, P.E.
Title District Environmental Engineer
Date of Survey July 14, 1981

INCLUDE TOPO SHEET SHOWING LOCATION

DAL. 904
8/19/81

MDPW RECOMMENDATION - NATIONAL REGISTER ELIGIBILITY

	Municipality	Street on	No.
Bridge:	Dalton	Holiday Rd.	D-1-11

Historic evaluation

Significant because:

1) Unusual or (unique) type	X
or rare survivor of common type	___
2) Early example of type	X
3) Design - Valuable contribution to bridge technology	___
4) Retains integrity	X?
5) Builder known (and important?)	X
6) Bridge historically important to area	___

Not significant because:

1) Common type	___
2) Post-1931	___
3) Design - no contribution to bridge technology	___
4) Integrity lost because of: a) alterations	X?
b) disintegration	___
5) Builder unimportant or not known	___
6) No known significance in area	X

[X] Potentially eligible [ ] Not eligible

Comments:
When the original design is not known, it is difficult to decide how extensive the alterations have been, though the District seems to feel they have been major. Its uniqueness may justify its preservation.

RMcD ✓
JA ✓

D-1-11

DAR.904

Early Surviving Iron & Stone Bridges in Berkshire County, Massachusetts
Bernard A. Drew

Bridge	Waterway	Type	Town	Date	Information
Commercial St.	Hoosic R.	Stone arch	Adams	?	-
Lover's Lane	Shaker Mill Bk	Metal beam	Becket	1901	Acme Road Machinery Co., Frankfort, NY
Off Rt 8	Hoosic R	Metal beam	Cheshire	?	-
Off Rt 8	-	Metal truss	Clarksburg	?	-
Holiday Rd	Wahconah Falls Brook	Metal truss	Dalton	1894	C.H. Ball, Windsor builder, 41 ft.
Off South St.	-	Stone arch	Dalton	?	-
Rowe Rd.	Green River	Metal truss	N. Egremont	?	-
River Rd.	Deerfield R.	Metal truss	Florida	1886	Charles Hilton, Albany (unconfirmed
Off River Rd.	Deerfield R.	Metal truss	Florida	?	RR access
Pumpkin Hollow Road	Green River?	Metal truss	Gt. Barrington	1888	Berlin Iron Br. Co. Berlin, CT 59ft.
Bullard's Crossing	RR	Metal truss	Hinsdale	recent	-
Off Skyline Trail	-	Metal truss	Hinsdale	1889	King Br. Co., Cleveland (dbl trus
Off Rt 8, Center of town	-	Metal truss	Hinsdale	?	turn-of-century?
Golden Hill Rd.	Housatonic R	Metal truss	Lee	1885	Berlin, 81 ft.
Valley Mill Rd.	Housatonic R	Metal truss	Lenox	1889	Berlin, 85 ft.
Linden St.	Housatonic R	Metal truss	Pittsfield	1900	Berlin, 53 ft.
Oswald Ave.	RR	Metal truss	Pittsfield	?	-
Summit Rd.	RR	Metal truss	Richmond	recent	-
Off Rt 183	-	Stone arch	Interlaken	ca 1842	Erastus Burghardt
N. Glendale Rd	Housatonic R	Metal truss	Stockbridge	1881-82	George Morrison, Buffalo 86½ ft
Old Joe Rd (disc.)	Konkapot Bk	Metal truss	Sheffield	1907	Canton Br. Co., Ohi
Miller Ave.	-	Metal truss	Sheffield	1885	Berlin, 32 ft.
Off Rt 41, village	-	Metal beam	W. Stock.	1907	United Constr. Co. Albany
Belden St.	-	Metal truss	Williamstown	1910	Canton
Galvin Rd	Hoosac R	Metal truss	Williamstown	prel889	Berlin through, 104
Windsor Bush Rd.	Phelps Bk.	Metal truss	Windsor	1893	Ball, 30½ ft.

No. Adams ?

PAL.904

... O. _____ Bridge No. D-1-11

GENERAL HIGHWAY BRIDGE REPORT

... or Town DALTON

Name of bridge

On road ~~from~~ HOLIDAY COTTAGE RD.

Name of stream or railroad WACHONAH FALLS BROOK

Built by State, Town, County or Railroad TOWN

Maintained by "

Contributions to cost or maintenance by whom

Date of construction

Type of bridge THRU PIPE TRUSS (QUEEN POST)

If steel or iron give name of Bridge Co. C H BALL

Total length—0 to 0 45'

Width—0 to 0

No. spans 1

Sidewalks

Abut. built of

Piers built of

Condition of abut.

Surface built of

No. and size of floor stringers

Floor—Headroom under bridge

Weight allowed on bridge

Name of St. Ry. Co.

Describe pipes, wires, or structures on or under bridge

Date of record

Original cost $

To

~~When last~~ repaired ABUTMENT REPAIRS - 194.

Material built of

c to c bearing

c to c Fences or trusses 12'

Length of spans {Skew / Square}

Location

Condition of piers

Condition

Condition

Age

To low water

To high water

Posted

Location of St. Ry. tracks

Are St. Ry. tracks in use?

clear span {Skew / Square}

Between wheel guards

Width

Space below to be used for future data

~~REPAIR TRACING ON FILE~~ - NA

~~BEFORE REPAIR PHOTOS " "~~ - NA

NOTE:—Sketch and remarks on other side

Report by

UNITED STATES PATENT OFFICE.

CHARLES H. BALL, OF EAST WINDSOR, MASSACHUSETTS.

BRIDGE.

SPECIFICATION forming part of Letters Patent No. 502,165, dated July 25, 1893.

Application filed April 20, 1893. Serial No. 471,136. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BALL, a citizen of the United States of America, residing at East Windsor, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Bridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a truss bridge of improved construction; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of the improved bridge, and Fig. 2 is a sectional view through the line *x*—*x* of Fig. 1.

A A designate the piers or abutments upon which the ends of the chords B rest and are anchored in any suitable manner. The chords are preferably made up of tubes connected to each other by sleeves *b*, and they are so arranged that they extend upwardly at an acute angle from the abutments and are bent to provide a central horizontal portion B'. From the horizontal portions of the chords depend rods *a a*, which are made of a single bar looped over the chords and secured thereto by bolts *b'* which pass through the chords and are secured in place by nuts. The lower ends of the rods are spread and passed through the flanges of the I-rails or cross-ties C, which are apertured for the purpose, and the rods or supports are screw-threaded at their lower ends to receive nuts *c c*.

D D designate diagonal rods or braces which are attached at one end to the inclined portions of the chords B, pass through the cross-ties C on a line with the chords and extend therefrom to the bolts *b'*.

E E designate tension bars which are held in engagement with the lower ends of the chords by means of staples or bolts which connect with eyes in said tension bars. These tension bars pass through perforations in the cross-ties C and are attached to each other by turn-buckles *e*. The longitudinal beams F F of the bridge rest upon the cross-ties C C, and the floor boards, G, are secured to said beams in the usual manner.

A bridge constructed as hereinbefore described can be readily made and set up, and the chords being tubular are light and have great strength, and each chord being made of two pieces permits the parts to be shaped or patterned after each other so as to have uniform bends or angles.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bridge, the combination of the tubular chords having inclined end portions and a horizontal central portion, looped bars connected to the central portion of the chords and to cross-ties, diagonal brace-rods D extending from the inclined portions of the chords through the cross-ties to the horizontal portion of the chords, and tension bars attached to the lower ends of the chords and extending through the cross-ties and connected to each other by turn-buckles, substantially as shown.

2. A bridge constructed substantially as shown and comprising chords having inclined end portions and horizontal central portions, looped bars connecting the horizontal portion of the chords with the flanges of cross-ties, diagonal brace-rods passed through the cross-ties on a line with the chords, said brace-rods extending from the inclined portions of the chords to the central portion, tension bars E having turn-buckles *e*, longitudinal beams F F adapted to rest upon the abutments and upon the cross-ties, and a floor secured to the longitudinal beams, the parts being organized substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. BALL.

Witnesses:
EDGAR E. JORDAN,
H. P. HATHWAY.

(No Model.)

C. H. BALL.

BRIDGE.

No. 502,165. Patented July 25, 1893.

Fig. 1.

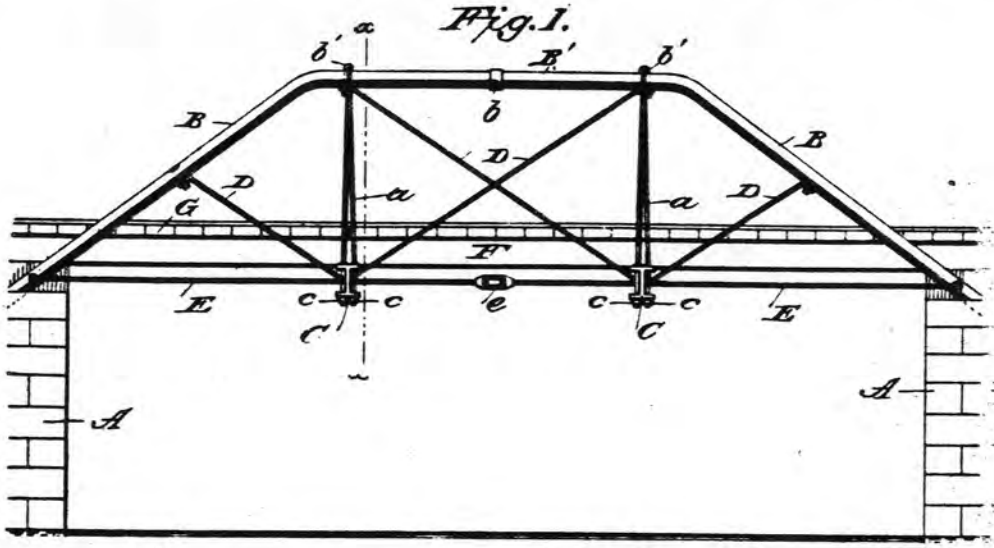
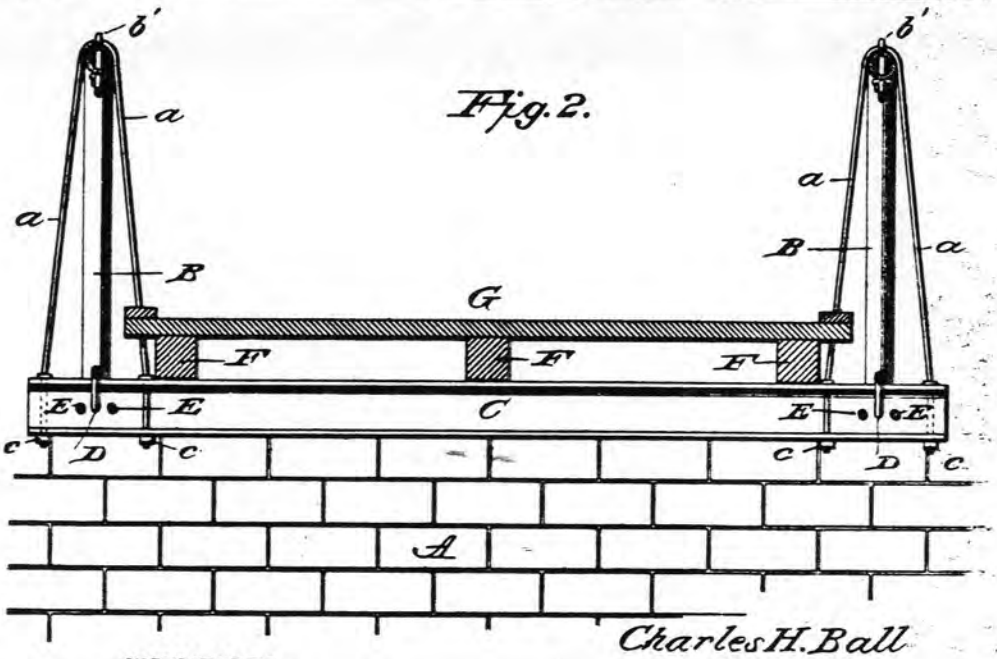


Fig. 2.



WITNESSES

E. S. Ellis

C. M. Johnson

Charles H. Ball
INVENTOR

by [illegible]
Attorney.

DAL.904

Charlie Ball: One-Man Industry

EAST WINDSOR — Charles H. Ball built a few dozen of his patented metal truss bridges in a small machine shop here in the 1890s. He marketed his "durable and cheap" spans to neighboring hilltowns.

Mr. Ball's was a modest enterprise, and ultimately an unprofitable one. A few large, regional companies by that time dominated the bridge building field. The hard-working and inventive Mr. Ball, however, went on to establish a wood-working mill which thrived until his death.

While metal truss bridges of any sort are virtually extinct in the Berkshires today, Mr. Ball might find some satisfaction: several of his simple and hardy iron pipe structures still carry traffic on back roads here.

Charles Ball family at their residence in East Windsor, 1905 A.W. Howes

Charlie Ball began building bridges as an offshoot of his machine shop business in East Windsor.

In the 1880s, Windsor was a rural and rugged Berkshire community of 650 residents. Situated atop a hill, the town possessed a large number of farms and industry was limited to saw and grist mills and a scythe stone shop.

East Windsor village, in a valley in the southeast corner of town, was long known as Jordanville, because of the number of families of that name living there. Fast-running streams had made the section ideal for locating a mill, and the village grew around it.

John Jordan built a machine shop and foundry in East Windsor in about 1860; his large building was located at the four corners, on the river bank at the junction of Alder Meadow and Westfield Brooks. Mr. Jordan made Improved Turbine waterwheels of his own invention. He also made bench screws, hand vices, circular and band sawmills and various types of wood-working machines. The foundry produced cast iron pieces.

Mr. Jordan's son Granville later entered and took over the business. He eventually became associated with Mr. Ball in the manufacture of iron bridges.

Charles Henry Ball was born Jan. 14, 1861, the son of William Isaac and Mary Adeline (Peirce) Ball. He grew up on the Willey place in Peru, a few miles south of East Windsor. He had seven brothers and sisters who survived childhood.

Father Ball was something of an adventurer in his youth. He traveled to California in the '49 gold rush. When he returned east, he served a short stint as a waterfront policeman in New York City, then came to Peru to farm, marry and raise a family.

A creative sort, William Ball designed an improved potato masher — Patent 45,382 in 1864.

Charlie Ball received his only formal education in the Peru stone schoolhouse. In later years he read a great deal and was conversant on most subjects.

He worked for several years as a mechanical engineer with the Stevens Manufacturing Company in Cummington. This wood-working factory made pencils, pen holders, tool handles and towel racks.

There is a story about Mr. Ball's association with the mill, perhaps apocryphal. It is said that he one day devised a piece of equipment which would mould six pencils at a time, making them perfectly round and with the leads centered.

This revolutionary piece of machinery, however, was seen by an agent for a competing company, was copied and patented. And the Stevens firm was sued for copyright infringement.

True or not, Mr. Ball was in later years very cautious about protecting his ideas.

Young Mr. Ball entered Granville Jordan's employ sometime in the mid 1880s, and soon became a partner in the business.

Not long after he moved to town, Mr. Ball became secretary of the baseball association and began an involvement in local politics which would last for nearly 50 years.

And he became interested in building bridges.

A Peru town report for 1888 shows that community paid the firm of Jordan & Ball $50 for an unspecified new bridge.

That same year, Mr. Ball built a machine shop on South Street (now Worthington Road), just above Lorenzo "Shoemaker" Tower's shoe shop. Here, several dozen Ball pipe bridges would be assembled in the next few seasons.

After several months of testing and refinement, the novice bridge maker settled on a basic design. On April 20, 1893 he filed an application for a patent.

On June 4 the same year, Mr. Ball married Cora Ellen Jenkins, daughter of Sheriff Marshall Jenkins of Cummington. The newlyweds settled in a house just down the road from the machine shop.

The next month, on July 25, 1893, Mr. Ball received Patent 502,165 for his iron pipe bridge design.

It is not known how Mr. Ball came up with his design; it closely resembles the old Queen and King Post patterns used for short timber bridges.

Twenty-four Ball bridges can be documented; certainly more were built. Four survive in the Berkshires. Three are pipe bridges, one is a simple metal beam bridge.

Mr. Ball's earliest bridges were triangular in shape. They were quite inexpensive; Windsor paid $85 for one built in 1891.

By 1892, Mr. Ball had experimented with pipe sizes (both 6- and 7-inch tubing) and with King and Queen patterns. He seems to have settled on the latter, for it is described in detail in the patent. The longest of his bridges still standing in the county is a 41-foot Queen Post in Dalton.

A drawing on his sales brochure suggests that Mr. Ball also considered a modified Howe design, again rendered in tubes and rods. But it is not known if he built any bridges of this sort.

His daughter Mary Ball Bowman recalled that her father toward the end of his bridge building did contract to erect a large structure in Conway, at a price of $625. Since this amount is considerably higher than that of any of the earlier bridges, it may have been of this third design.

With Yankee straightforwardness, Mr. Ball advertised his bridges as the cheapest and strongest available.

He brimmed with enthusiasm. He said in his sales brochure: "To meet the demand for a low priced iron bridge having all the important qualities of strength and durability found in the best iron bridges now made, I have perfected a pipe truss bridge which is shown in the sketches. The question of artistic or architectural effect was not considered in planning this bridge, the main point being to produce a strong, cheap bridge, that

would last as long as any iron bridge, and cost but little, if any, more than a good wooden bridge."

He disparaged most iron bridges being built at the time, saying that their builders paid more attention to beauty than strength. He offered to furnish a bridge to any town wishing one, then would "allow the bridge to be tested up to the point of its guaranteed strength. If any failure or weakness is developed by the test, I will remove the bridge at my own expense."

A number of communities, judging by letters reprinted in the sales pamphlet, found Mr. Ball's structure quite satisfactory: "The bridges you put on for our town are giving good satisfaction," wrote Worthington selectmen in 1893. "Think you have struck the right thing this time. It is a good, substantial bridge and comes within reach of small towns."

Mr. Ball was justifiably proud of his bridges. His daughter remembered him fondly telling this yarn about the time a circus came to town.

It seems an elephant and her animals and equipment had to be transported across one of his bridges to the circus lot. According to Mr. Ball, before an elephant will walk across a bridge, it will stop and place one foot gently on the structure to test its strength.

This particular elephant, however, instead of thus testing the Ball span, simply took one look at the plate on the side, read that it was built by Charles H. Ball of East Windsor, Mass., and immediately walked across without fuss.

Mr. Ball's bridge building methods were equally amusing. Bending the pipe for the structures was something of a community affair. The long tubing was heated in an outdoor fire. In the evening after supper, when the younger men of the village were looking for excitement, they were recruited to take the pipe and place the heated spot between two closely located stone posts. Then all would push and strain and bend it into the desired shape.

Frank Ball (a brother) and Harrison "Abe" Hathaway were employed in the construction and erection of the bridges. Granville Jordan remained for a time, then moved to Dalton and established a machine shop there.

Mr. Ball sold a number of bridges to his hometown. Only one still stands, in Windsor Bush. It may have been moved there from the Allenville section. It cost $200 new.

The selectmen justified the expense in the 1893 annual report: "It will be seen by this report that the cost of our Highways and Bridges have very materially exceeded the appropriations. Unexpectedly we found it necessary to build a new bridge near the Allen place, we thought it a matter of economy to build of iron, as it is not expedient to procure timber at the present, as it will last but a few years..."

Henry Estes, a long-time Windsor resident, recalled working with the town's road crew years ago when they constructed a new abutment for the Bush bridge. He remembered, too, dismantling one of the Ball bridges: "The nuts came off as easy as could be when you put the wrench to them. I don't know what kind of oil Charlie Ball used, but it sure lasted."

Mr. Ball sold his first bridges to neighboring hilltowns. When these were well-accepted, he began promoting his product further afield. He put up spans in Peru, Dalton, Hinsdale, Lanesboro and Windsor; Cummington and Worthington; Hawley, Montague and Conway; Washington Depot, Conn., and Jericho, Vt.

One Ball bridge was recently removed in this county, but four others remain, three still in regular use.

The one in Windsor Bush, already mentioned, spans Phelps Brook. It sits at the edge of a picturesque meadow.

The 30-foot, orange span has a railing along one side.

Windsor Historical Commission

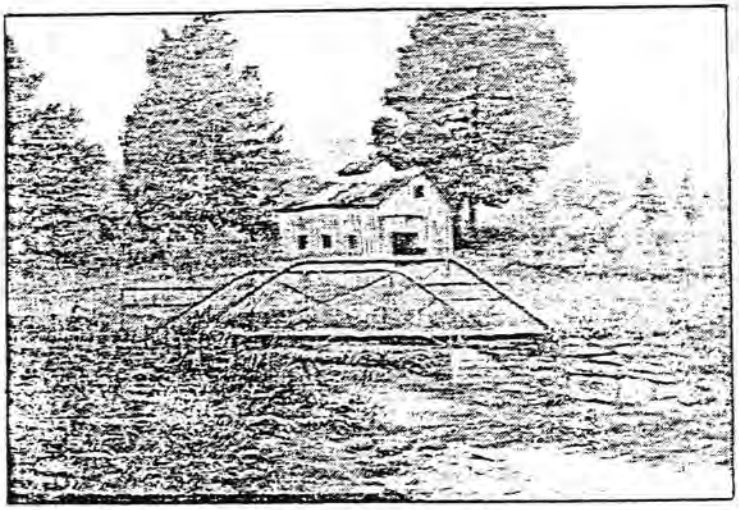
Charles H. Ball

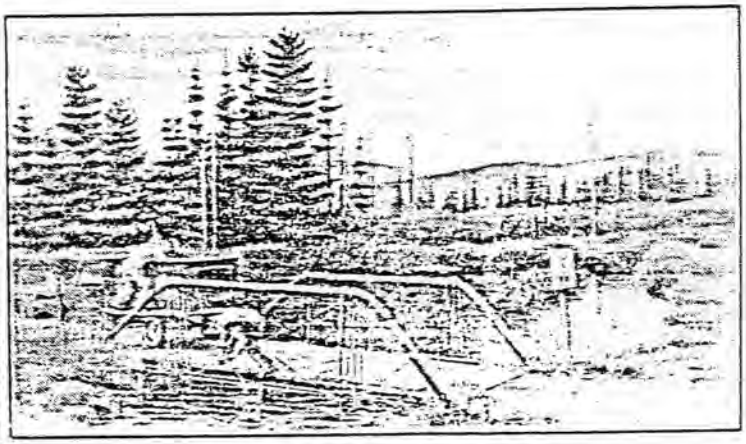
It was fabricated from 6-inch iron pipe, and is similar to the 34-foot bridge that stood on Bullard's Crossing in Hinsdale. The latter lacked a railing.

The Hinsdale bridge, located in a remote, swampy area at the source of the East Branch of the Housatonic River, was removed a couple years ago because high water had rotted out its undersides.

It and the Dalton and Cummington bridges were made of 7-inch tubing.

The Dalton bridge, the largest of the survivors, is on Holiday Cottage Road, crossing Wahconah Falls Brook. It is 41 feet long and

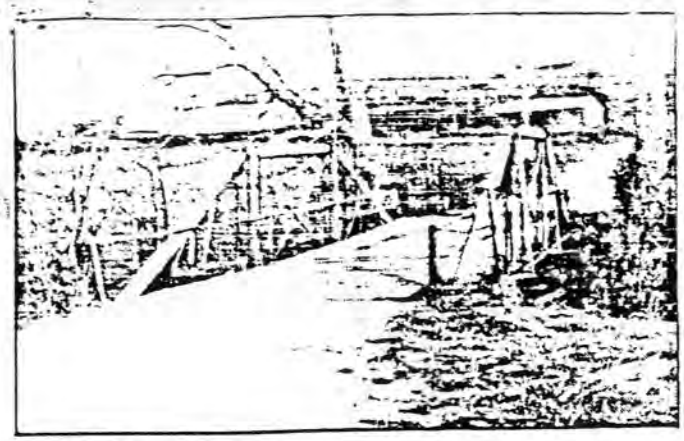




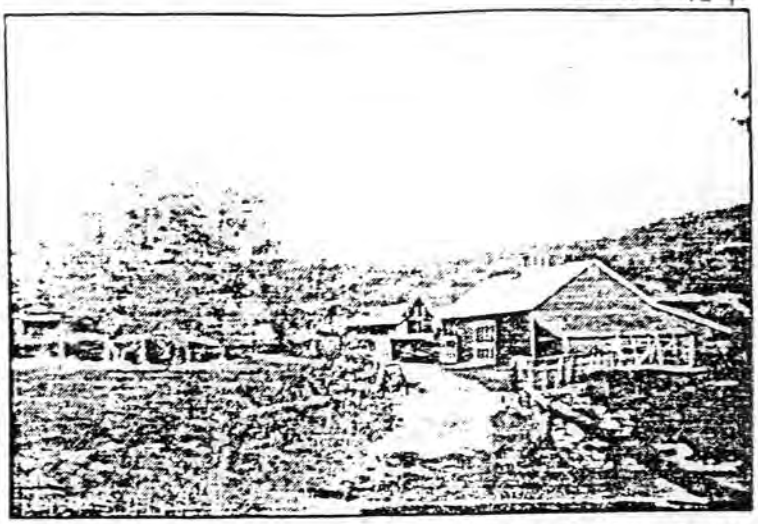
Ball Bridges In Art

At least two artists have painted Charlie Ball's bridges in recent years. Left is Windsorite Olive Volsky's scene of the bridge in Windsor Bush, painted in 1977. At right, Woldemar Neufeld of New Preston, Conn., painted the bridge which once stood at Bullard's Crossing in Hinsdale in 1976.

DAL.904



Ball bridge in Dalton



Courtesy William Seaman

Ball bridge in Allenville section of Windsor

15 feet wide and displays considerable remedial iron work installed over the years.

The bridge, painted green, sports a 6-7/8 by 9-7/8 inch plaque which reads: "Built 1894 by C.H. Ball, East Windsor, Mass. Patented July 15, 1893. S.L. Young, F.L. Warren, G.T. Pike, Selectmen of Dalton, Mass."

The Dalton town report for 1895 discloses the cost of the bridge:

IRON BRIDGE NEAR JAMES SMITH'S

Appropriation $750

PAID John Dwyer, building abutment $291.81
Geo. L. Cleveland, 160 perch stone 200.00
Charles H. Ball, for iron bridge 386.00
S.L. Young, filling in 8.00
F.L. Warren, filling in and putting up railing 22.25
858.05

Exceeded appropriation 108.06

Like many bridges marketed at the time, Mr. Ball's were pre-fabricated and custom made. Clients were directed in the sales pamphlet to submit measurements "taken on each side of the bridge between the abutments."

Each Ball bridge has builder variations. For example, the Hinsdale and Cummington spans had double vertical bracing rods, the Dalton and Windsor ones single rods.

Railings were not standard equipment; in Dalton, they were added by laborers at the time it was built. Some Ball bridges are remembered to have had sidewalks along one side.

Located on a quiet, wooded spot on Stage Road, the 28-foot Cummington Ball bridge is of the King Post pattern and is the oldest surviving Ball bridge.

The span is not on its original site. Built in 1890-91, it previously stood in the Swift River section of town, and was moved in 1924 when growing traffic needs prompted the building of a wider cement bridge on Route 9 there. Mr. Ball's rod-and-bolt construction made his bridge relatively easy to dismantle and move to its new station over Mill Brook. (The Hinsdale bridge had similarly been moved from the Skyline Trail.)

An 1894 Ball Bridge in Worthington (cost: $75) is a novelty. It stands on an abandoned portion of Clark Hill Road. Although it is a simple beam bridge, it bore two maker's plaques listing the patent.

Mr. Ball wasn't taking any chances!

Even so, the bridge building business was not a profitable one, and Mr. Ball was soon forced to give it up. Price wise, they were a bargain, costing about half that of a comparable Berlin structure.

But "these men were better engineers than businessmen, so the financial end of the project was a disappointment," commented David J. Malcolm, Windsor school superintendent, in 1928 at the time of Mr. Ball's death.

Mr. Ball in 1895 purchased a portable sawmill outfit from someone in Savoy. He launched a woodworking enterprise which would grow and thrive into the 1930s. The High Ball Mill, as it became known, made candy sticks, meat skewers, coat hangers and other wooden items. Mr. Ball, always the tinkerer, made improvements in all the machinery in his factory.

A rotund, affable gent, Mr. Ball is well remembered by many old-timers who lived in East Windsor and worked at the factory. He was a hard worker and a generous man.

"Mr. Ball was a very honest, intelligent man and he did a lot for East Windsor," said Fred Bowman, his son-in-law. "I never met anyone that did not like him."

While he kept company with senators and congressman, he also donated annually to the children's Christmas party. He served the town as selectman, school committeeman, assessor, registrar and auditor.

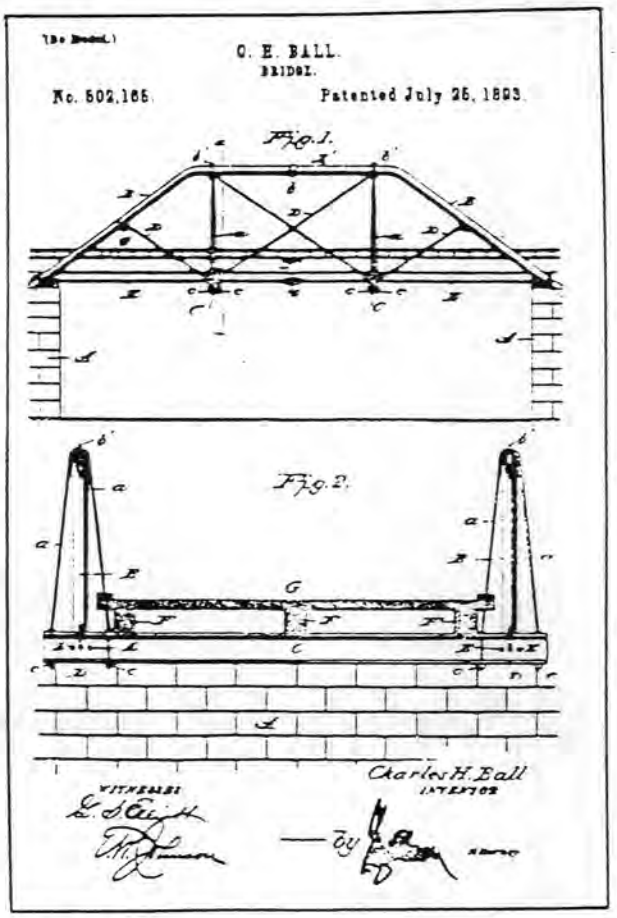
He spoke at the town's 150th anniversary in 1921, predicting that children would live to see the day when heat and power would be taken from the air, with no need for wires. He further prophesied that the day was not far off when small towns would be the shopping centers of the nation.

Charles Henry Ball died at East Windsor May 15, 1928. He was buried in Peru's North Cemetery, beside his wife, who had died in 1911.

"Charles Ball," said David Malcolm, "was a lovable, God-fearing man who loved his neighbors and shared his goods with them. There are not enough men like 'Charlie' Ball, typical of the New England old school — a rare soul who made living a pleasure."

The mill continued to operate for a few more years under Fred Bowman's management. It employed 25 hands at its peak. But keen competition closed the mill in the early '30s. The machinery was sold for scrap, the building torn down.

But Charlie Ball's bridges still carry traffic today.



Ball bridge patent

p.s.i., to a valve house at the surface.

The air-depleted water flowed along the tunnel and up a return shaft until it emptied into the river 48 ft. below the intake basin. When more air was produced than was being used, and the air pressure rose above 125 p.s.i., the water level in the tunnel was depressed and the excess air blown out, shooting a fountain of air and water over 100 ft. into the air.

From the valve house the compressed air was transmitted to Cobalt in 20-in. pipes. From there 12 and 6-in. feeders radiated to the customer mines. Air was sold by meter at $.25 1000 cu. ft. to the large mines and at a graduated scale, based upon the number of drills in operation, to the smaller customers. It was not only cheaper than steam or electric power, but was free of noxious gases, and in curious contrast to its means of generation, exceptionally dry, important in winter work.

Other Taylor compressed air plants were at Magog, Quebec (1895), Ainsworth, British Columbia (1897), Peterborough, Ontario (1899), and the Victoria Mine, Ontonagon Co., Michigan (1906). *S.A.O.*

SHAMROCK MILLS
(Hanes Hosiery Mill No. 1)

In 1911 Shamrock Knitting Mills, a manufacturer of infants' and men's cotton socks, built a one-story brick building on Marshall St. in Winston-Salem, N.C. The ground floor was a half level below grade, and the main floor was capped by a sawtooth roof which illuminated the knitting rooms. Although the building's architect is unknown, it closely resembled the 1902-03 White Oak Plant of Cone Cotton Mills in Greensboro, N.C. designed by Providence, R.I. mill architects C.R. Makepeace & Sons.

The Mill was divided into seven sections: knitting; packing; drying; dyeing; and boarding (giving shape). The large street-level knitting room housed the knitting machines as well as the looping and trimming equipment. Looping machines secured the toe of the stocking and trimmers cut the loose threads. The heels, however, were trimmed by hand. In the basement the gray goods (undyed hosiery) were stored, dyed and boarded. Each sock or stocking was boarded by stretching it over a cardboard form.

In 1914 Shamrock became Hanes Hosiery Mills, and in 1918 the firm converted to ladies' cotton—later rayon—hosiery. By 1926 Hanes had outgrown the Marshall St. plant and moved to a larger one on W. 14th St. They experienced dramatic growth in the 1930s with the development of nylon, producing the first seamless stockings in the branded retail market by using circular knitting machines. Today the firm is one of the world's largest hosiery producers.

The 1911 structure now stands vacant and is up for sale. The Historic Preservation Fund of N.C., Inc. currently is preparing a Nat'l Register nomination for the buidling. *G.S.T.*

CONTRIBUTORS TO THIS ISSUE

Field Curry, Pittsburgh; Bernard A. Drew, Housatonic, Mass.; Robert M. Frame III, Minn. Hist. Soc.; Stephen A. Otto, Ontario Heritage Fndn.; Theodore A. Sande, Natl. Trust for Hist. Preservation; Peter H. Stott, Columbia Univ.; Gwynne S. Taylor, Historic Preservation Fund of N.C. With thanks.

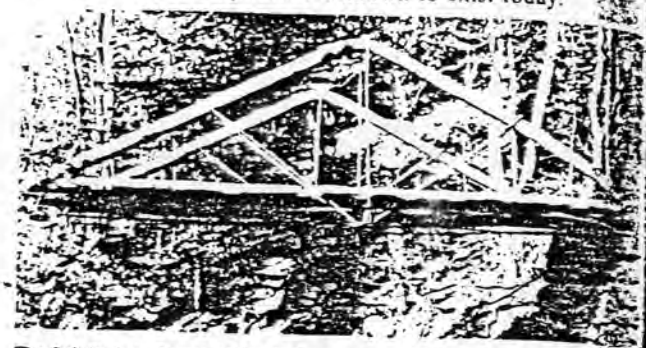
THE UNUSUAL IRON-BRIDGE DESIGN OF THE BI-MONTH

Under the above heading—which we introduce with hesitation but can't think of a catchier one—we propose regularly to publish accounts of surviving examples of some of the more obscure designs for iron truss bridges that abounded in the late 19thC. The majority, if not all, of these were highly localized and are not apt to be found much beyond their area of origin. Perhaps the most interesting of this family are the bridges formed of sections not intended for structural work: today tubing; next issue railroad rails.

BALL'S IRON-PIPE BRIDGES

Charles H. Ball (1861-1928) built tubular truss bridges in a shop in E. Windsor (Berkshire Co.), Mass., in the 1890s. He grew up on a farm outside the village, and worked for a number of years as a mechanical engineer with the Stevens Mfg. Co. of Cummington, a maker of wooden brush handles and pencils.

Ball became a partner in a machine shop in E. Windsor c1892; a few years later he began to manufacture and market iron bridges. Several were sold to neighboring towns in western Mass. and southern Vermont. Two of the bridges were erected in Windsor; they cost $200 each—but one was destroyed, apparently, in a turbulent flood in 1938. Presumably other Ball structures met similar fates, as only four are known to exist today.



The Ball "tubular" truss bridge at Cummington, Mass. *Donna Drew photograph*

Ball described his structures in a sales pamphlet: "To meet the demand for a low-priced iron bridge having all the important qualifications of strength and durability found in the best iron bridges now made, I have perfected a pipe truss bridge which is shown in the sketches. The question of artistic or architectural effect are not considered in planning this bridge. The main point being to produce a strong cheap bridge that will last as long as an iron bridge and cost but little, if any, more than a good wooden bridge.

"The pipes used are not the ordinary gas or steam pipes found in the market, but are heavier and are made for special purposes requiring great strength. The beams and floor joists are of steel and the rods and bars of best double-refined iron. Sidewalks will be added when desired. Please send dimensions of bridge needed and estimated cost will be furnished by letter, or in person . . ."

Here are brief descriptions of the surviving Ball bridges, all except Cummington's are in Berkshire Co.:

The **Dalton bridge** spans 41 ft. and is the longest. An 1895 town report indicates the cost was $386 for the bridge, $472.06 for the substructure and railing. This is the only structure still bearing the maker's plaque, which reads: "Built 1894 by C.H. Ball, E. Windsor, Mass. Patented July 25, 1893. S.L. Young, F.L. Wood, G.T. Pike, Selectmen of Dalton, Mass." [UTM: Pittsfield 530051.]

The 34-ft. **Hinsdale bridge** has no railing or other accessories; it is located near the source of the Housatonic River. [Peru 556051.]

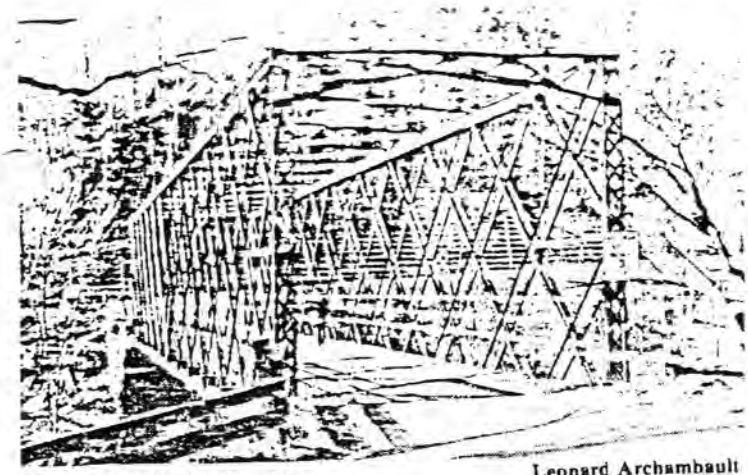
Cummington's (Hampshire Co.) 28-ft. triangular bridge was moved to its present site in 1924. [Worthington 721050.]

Windsor's 31-ft. span was constructed of pipe smaller than the other examples (5.75" vs. 6.75" diam.), and has a railing on one side. [Plainfield 648106.]

Bridge building apparently was not a profitable venture, for Ball purchased a portable sawmill in 1895 and began a woodworking business which thrived until his death. *B.A.D.*

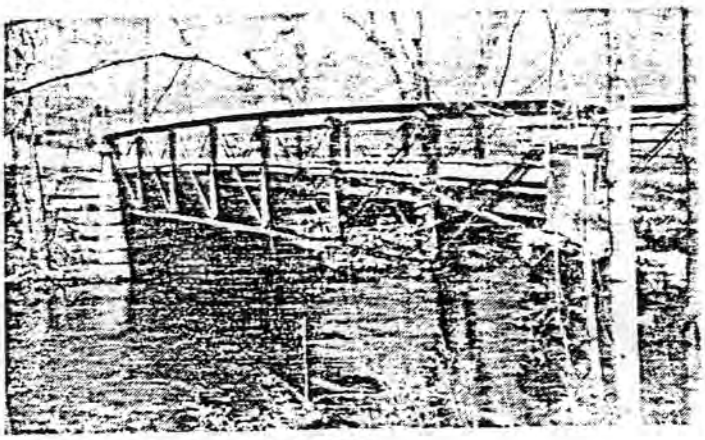
They Kept Us Out Of The Water

DRL.904

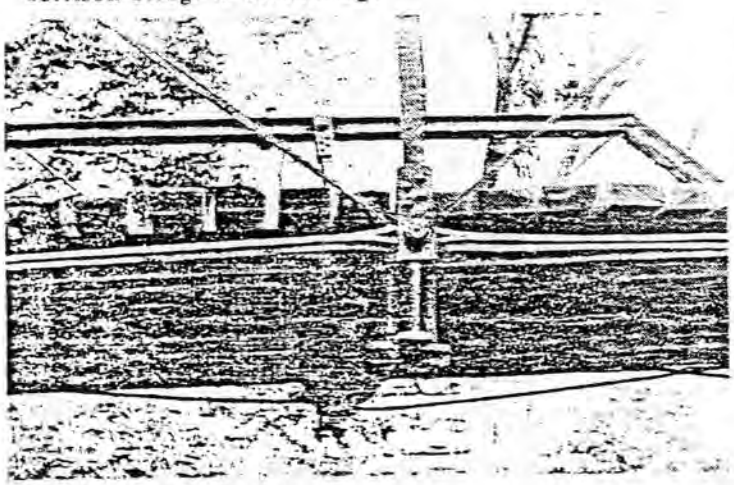


Leonard Archambault

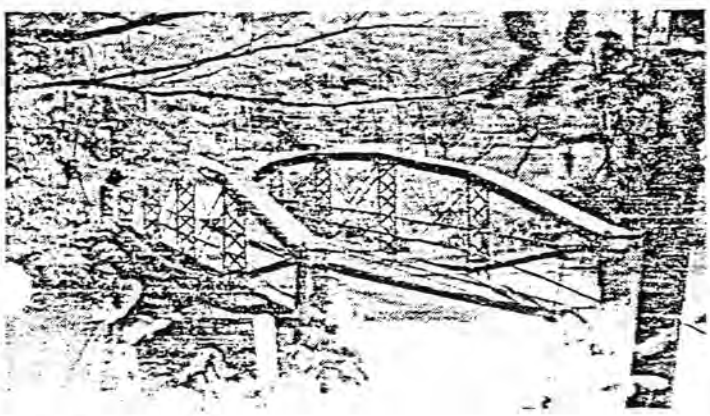
Hilton bridge in Florida



Morrison bridge in Stockbridge



King bridge in Hinsdale



Berlin bridge in Lee

Nineteenth century metal truss bridges are an endangered species of Americana, in the Berkshires and throughout the country.

Built in the era of the horse and wagon, these iron highway bridges represent a vital period in the United States' industrial past. But they may not be around much longer, thanks to floods, road salt, automobile accidents and general neglect. Federal legislation and funding have made it more attractive for communities to replace, rather than repair or preserve, old metal spans.

Our earliest bridges here were, of course, made of wood. Iron replaced timber as a bridge building material in Berkshire County in the mid 1800s.

Nationally, there was a period of enthusiastic experimentation in both materials and design. Many engineers and inventors devised new bridge patterns and variations based on the triangular truss form.

In Berkshire County, the transition to the new material was neither popular nor immediate. Townspeople at first distrusted the unproven iron. A new iron bridge might also cost as much as four times more than a comparable wooden one.

Timber bridges weathered quickly in our New England climate and communities became accustomed to replacing their bridges every 12 to 15 years. Only a few of the longer, more important spans were covered over — also a costly proposition.

The apparent durability of iron bridges and, in some communities, a rash of lawsuits because of injuries from collapsing rotten wooden bridges convinced towns here to try the new material and new designs.

Iron bridges were in wide use from about 1865 to 1900. Dozens of regional companies scrambled into the iron bridge building business. By the 1880s, a few major firms came to dominate.

Stockbridge was the first town to purchase an iron bridge for highway use in the county. The town paid the Moseley Iron Bridge Company of Boston $2,632.50 for a span in 1864. It was erected in Glendale.

Some towns had bad experiences with their first iron bridges. Great Barrington appointed a committee to investigate all bids for a new iron "Great Bridge." A.D. Briggs of Springfield was selected to build the span in 1868. It cost $10,286.23. (Committee records are on file at the Mason Library.)

But by 1884, the bridge was vibrating and shaking when loads passed over. It was soon replaced by a Berlin Iron Bridge Company "pumpkinseed" design, which cost considerably less and lasted well into the next century.

The Berlin firm, from Connecticut, was one of New England's largest bridge builders, and it eventually dominated the market in the Berkshires. It built more iron highway bridges here than any other firm during the years 1879 to 1900. Only a handful of its distinctive and rugged spans remain in use in the county — in Lee, Great Barrington and Williamstown.

Other bridge styles put up here ranged from Squire Whipple's bowstring arch (one was built on Elm Street in Pittsfield) to George S. Morrison's Pratt truss (one is still in use in Stockbridge; the 1881 structure is the oldest surviving iron bridge in the county) to Charles Hilton's iron latticework bridge (one spans the Deerfield River in Florida) to Zenas King's patent arch truss (a double-span still stands in Hinsdale).

The county had two native iron bridge builders. One was Pittsfield's Hezekiah S. Russell, a machinist who built a half dozen truss bridges for the city in the late 1800s. The other was Windsor's Charles H. Ball, who designed and patented a type of truss in 1893.

At the turn of the century, most of the large bridge builders merged into the American Bridge Company. The whole industry changed, standard bridge designs evolved and an era came to a close.

Victor Darnell collection

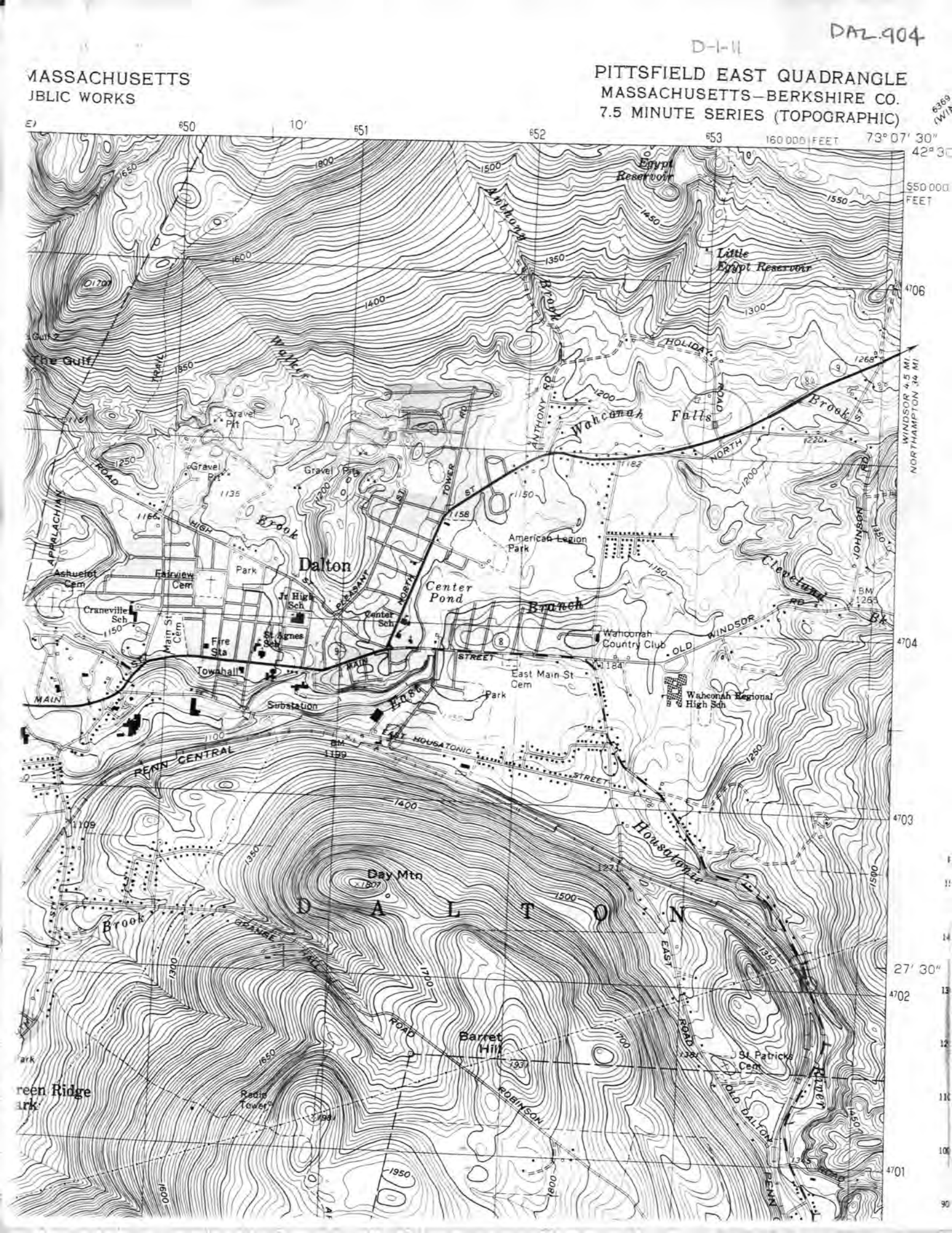
Now-gone Berlin bridge on Cottage Street in Great Barrington

DAZ.904

D-1-11

MASSACHUSETTS
JBLIC WORKS

PITTSFIELD EAST QUADRANGLE
MASSACHUSETTS—BERKSHIRE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

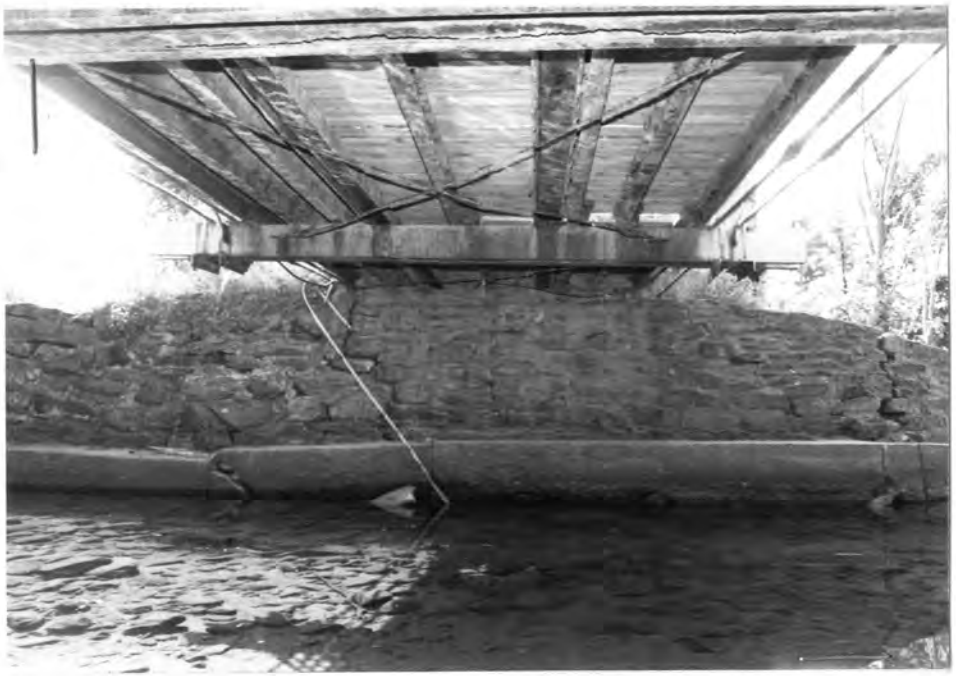


5-14-1981

5-14-1981

FROM SW

N ABUTMENT FROM S

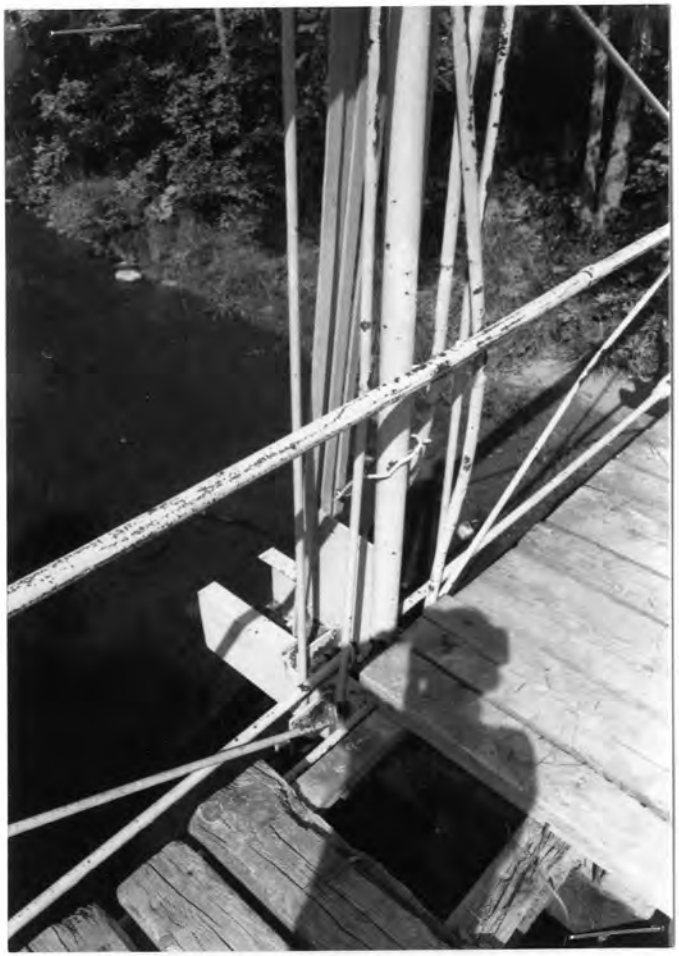


S ABUTMENT FROM N

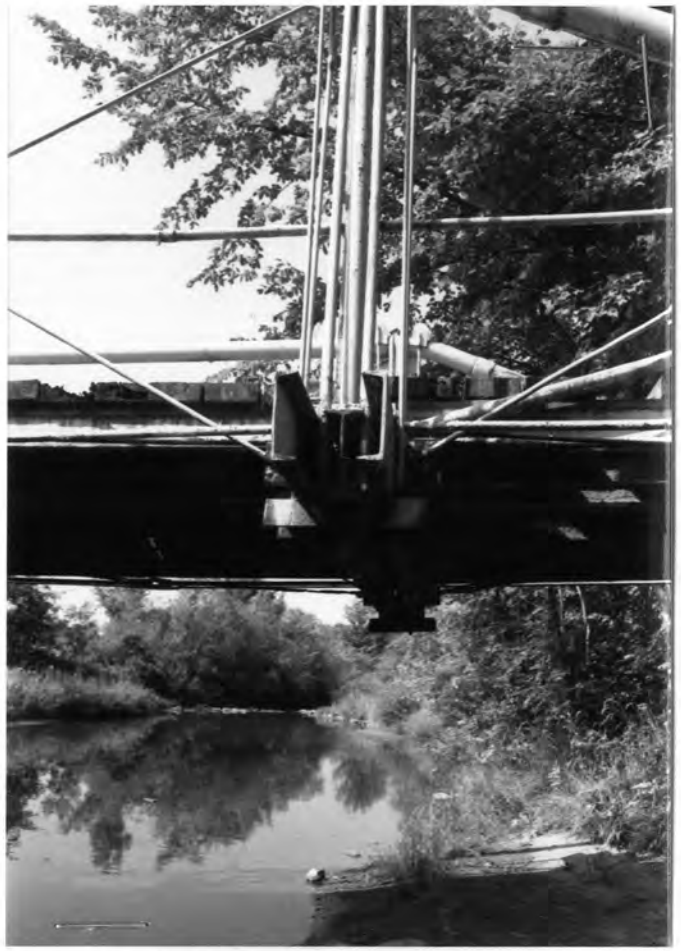
W TRUSS, N END, DIAGONAL CONNECTION TO INCLINED END POST, FROM SE

9-7-89

W TRUSS FROM S



W TRUSS, SOUTHERN LOWER PANEL POINT, FROM SE



N FLOORBEAM, FROM E

9-7-89

EAST TRUSS, SOUTHERN UPPER PANEL POINT, FROM SW

W TRUSS, NORTHERN UPPER PANEL POINT, FROM E

9-7-89

W TRUSS, Sern lower panel point, from E

W truss, Sern lower panel point, from N

E Truss, Sern lower panel point, from S.

9-7-89


Photo: Steven J. Schwartz, 1989

DAL.904

TO: BETSY FRIEDBERG RETURN TO REVIEWER BY _____ (DATE)

FROM: WM. SMITH

DATE: 12/10/90

TOWN: Dalton

PROPERTY: D-1-11 Holiday Road over Wahconah Brook
(NAME AND ADDRESS)

1. Does this property meet the criteria for NR eligibility?

☒ YES Previously Reviewed by MHC & determine potentially

☐ NO Eligible 10/6/81

A. Criteria

a. events
b. lives
c. characteristics
d. information

B. Local X State X National _____

2. Statement of Significance: OR Why not eligible?

1894 1 SPAN BALL Queenpost pony truss

one of only two surviving examples of Chantes

BALL unique patented pipe truss bridge

☐ DOE LETTER WRITTEN FILED IN ER FILE _____

_____ (DATE)

Owner - 2/6/91 - AT

DAL.904

DETERMINATION OF ELIGIBILITY (MHC OPINION)

TO: VAL

RETURN TO REVIEWER BY _____ (DATE)

FROM: phs

DATE: 9/8/81

TOWN: DALTON

PROPERTY: D-1-11 Holiday Rd over Wahconah Brook
(NAME AND ADDRESS)

1. Does this property meet the criteria for NR eligibility?

☑ YES

☐ NO

A. Criteria
   a. events
   b. lives
   c. characteristics
   d. information

B. Local _____ State _____ National _____

2. Statement of Significance: OR Why not eligible?

Unusual ~~pipe~~ patented pony truss design by C.H. Ball of East Windsor, Mass. Date appears to be 1884 not '94. Bears considerably further study.

Only 3 others known in the state. See Bernard Drew, "Ball Iron Pipe Bridges," in Stone Walls v.3 n. 2 (Summer 1977) pp. 26-29.

☑ DOE LETTER WRITTEN

10/6/81
(DATE)
(attached)

FILED IN ER FILE _____

DR 904

Chicopee/Holyoke C-13-12/H-21-30 Cabot Street (Rte. 116) over Conrail

1891 Six span steel Pennsylvania through truss. Oldest of the five known Pennsylvania through trusses and is one of the earliest known steel bridges in Massachusetts. Designed by Edward Shaw and built by the R.F. Hawkins iron works.

Dalton D-1-11 Holiday Road over Wahconah Brook

1894 One span Ball Queenpost pony truss. One of only two surviving examples of Charles Ball unique patented pipe truss bridge. Previously reviewed by the Massachusetts Historical Commission and determined eligible 10/6/81.

Erving/Montague E-10-3/M-28-0 Central Vermont Railroad over Millers River, Newton Street

1905 Five span pin-connected Pratt deck truss. Impressive example of a pin-connected long span deck truss which was favored by American railroads in the 19th century. Bridge is eligible individually and as a contributing element to a potential National Register District.

Framingham F-7-5 Main Street over Sudbury River

1878 Rare wrought iron bowstring arch pony truss. It is the only known surviving bowstring metal arch in the Massachusetts Department of Public Works database. It is one of six surviving metal truss bridges in the MDPW database built prior to 1880.

Holyoke/South Hadley H-21-1/S-18-4 State 116/Bridge Street over Connecticut River

1889 Ten spans wrought iron lattice through truss. A landmark bridge, which is the oldest metal lattice through truss in Massachusetts. It is the only known truss bridge to have ten spans. Bridge was determined to be eligible for the National Register 1/9/79.

Lancaster L-2-4 Bolton Road over Nashua River

1870 Pinned and bolted wrought iron and cast iron Post's type pony truss. Very early and unique metal truss bridge with national significance entered in the National Register of Historic Places 9/10/79.

Lancaster L-2-8 Ponakin Road over Nashua River

1871 Post truss. This bridge is the only known surviving Post truss in the United States. This nationally significant bridge is located near a potential historic district.

Lowell L-15-8 Hale Street over B & M Railroad

1892 One span pin-connected wrought iron Pennsylvania through truss. Early example of an uncommon bridge type in Massachusetts. Only one of the five Pennsylvania trusses to be pin-connected, virtually unaltered. This bridge is also located near the South Common National Register Historic District.

DAL.904

March 6, 1991

Mr. Anthony J. Fusco
Division Administrator
Federal Highway Administration
Transportation Systems Center
55 Broadway - 10th Floor
Cambridge, MA 02142

ATTN: Mr. H. Pearlman

RE: Massachusetts Bridges, National Register Eligibility

Dear Mr. Fusco:

The Massachusetts Historical Commission has reviewed the historic bridge inventory forms prepared by the Massachusetts Department of Public Works. The Massachusetts Historical Commission concurs with the preliminary findings of Massachusetts Department of Public Works that the following bridges meet criteria for listing in the National Register of Historic Places.

Bourne (Bourne Bridge) B-17-4 State 28 over Cape Cod Canal

1934 Three span continuous truss with deck/through riveted steel truss, Warren type truss web. Central span is arched, and highway deck is suspended from its lower chords. Two single intersection Warren deck truss approach spans at each end of the main structure. A landmark, award winning bridge, known internationally for its design and setting.

Bourne (Sagamore Bridge) B-17-5 U.S. 6 over Cape Cod Canal

1935 Three span continuous truss. It is virtually identical to the Bourne Bridge, without the approach spans. The bridge won Honorable Mention in 1935 for its graceful design. Both bridges are elements in a much larger engineering project of significance in its own right, the Cape Cod Canal, a potential National Register Historic District.

Massachusetts Historical Commission, Judith B. McDonough, *Executive Director, State Historic Preservation Officer*
80 Boylston Street, Boston, Massachusetts 02116 (617) 727-8470

Office of the Secretary of State, Michael J. Connolly, *Secretary*

DAL 904

Lowell L-15-19 Bridge Street over Merrimack River

1937 Three span cantilever Warren type through truss. This visual landmark is a rare example of a major structural type in Massachusetts. Adjacent to the Locks and Canals Historic District (NR, NHL).

Lowell L-15-21 Textile Avenue over Northern Canal, Merrimack River

1896 Three span pinned steel Pratt deck truss. Oldest example of an uncommon highway bridge type in Massachusetts. It spans over the Northern Canal and Great River Wall of the Locks and Canals National Register Historic District.

Montague M-28-18 Bridge Street over B & M Railroad/ C.V. Railroad

1897 Latticed type through truss designed by Edge Moor Bridge Company of Delaware. It is the only known example of this unique bridge type..

Northfield N-22-2 East Northfield Road over Connecticut River

1901-1903 Three span steel Pennsylvania through truss. Unique variation of an uncommon bridge type. Gracefully designed bridge in an outstanding natural setting. The bridge is designed to function as a continuous truss under live loads and a simple truss with cantilevered ends under dead load.

Stockbridge S-26-3 Butler Road over Housatonic River

1881 Pin connected wrought iron half through Pratt pony truss with Borneman type stone pedestals rising above abutments. A rare and unique bridge design by a world famous bridge designer - George Morison. Bridge has national significance.

Waltham W-4-9 B & M Railroad over State Rte. 60, Linden Street

1894 Steel lattice through truss with quad web system. Intact example of an uncommon bridge type severely skewed. Reviewed and entered in the National Register of Historic Places 9/28/89.

Windsor W-41-11 Windsor Bush Road over Phelps Brook

1893 One span iron and steel Ball Queen post. One of only two surviving examples of Charles Ball unique pipe truss bridge.

DAL.904

The following bridge does not appear to meet National Register criteria at present. However, as this bridge reaches 50 years of age, its National Register eligibility should be reassessed.

Boston/Chelsea	B-16-17/C-9-6	United States Route 1 over Mystic River

1950 Three span cantilever Warren type web through truss. Double deck bridge is a Boston landmark.

Montgomery/Russell	M-30-8/R-13-18	I90 over U.S. Route 20, Westfield River

1957 Eight span, two continuous span riveted steel Pratt deck truss. A landmark bridge and the only Pratt deck truss to be designed with continuous deck truss spans.

The following bridges did not appear to meet National Register criteria for individual listing. However, the bridges are within, or adjacent to an historic district or potentially eligible historic district, and plans for replacement should take into consideration potential impact to adjacent properties.

Fitchburg	F-4-12	State Rte. 31/Rollstone Street over North Nashua River, Broad Street

This bridge is located adjacent to lower Rollstone Bridge (1870 Parker pony truss).

Greenfield/Montague	G-12-20/M-28-1	Montague City Road over Connecticut River

This bridge stands between East Greenfield and Montague city. Though inventory is incomplete, significant historic resources are in both areas. There is a group of turn of the century cottages on Montague City Road that may be eligible for listing in the National Register.

Lawrence	L-4-24	Salem Street over B & M Railroad

This bridge is adjacent to mill building and Victorian Gothic church; however, the level of information on this area is not well documented at this time.

The MHC concurs with the preliminary findings of MDPW that the following bridges do not appear to meet criteria for listing in the National Register of Historic Places.

Amesbury/Newburyport	A-7-16/N-11-17	I-95 over Merrimack River

DAL.904

Boston/Quincy	B-16-368/Q-1-50	Long Island Bridge over Quincy Bay
Conway	C-20-7	Hickory Ridge Road over South River
Erving/Montague	E-10-5/M-28-5	Paper Mill Road over Millers River
Montague	M-28-20	C.V.R.R. over North Leverett Road/ Sawmill River
Northfield	N-22-26	B & M Railroad over Caldwell Road/ Connecticut River
Westfield	W-25-4	United States Route 20 over Westfield River

If you have any questions, please feel free to contact William Smith of this office.

Sincerely,

Judith B. McDonough

Judith B. McDonough
Executive Director
State Historic Preservation Officer
Massachusetts Historical Commission

JBM/WS/kab

cc: Frank Bracaglia, MDPW

DAL.904

Williamstown	W-37-1	Cole Ave., over B&M Railroad
Williamstown	W-37-5	Cold Spring Rd (Rt. 7) over Hemlock Broo
Williamstown	W-37-17	Green River Road over Green River

MHC also concurs with the findings of the MDPW that the following bridges may meet the critiera for listing in the National Register, and should be further studied:

Dalton D-1-11 Holiday Rd. over Wahconah Brook
(Unusual patented pony truss design by C.H. Ball of East Windsor, Massachusetts, dated 1884 or 1894 in undisturbed setting.)

Chester C-11-23 Smith Rd., over Middle Br., Westfield R
(1887 Pony truss built by R.F. Hawkins Ironworks of Springfield. A pin-connected truss of unusual configuration which bears further study.)

West Bridgewater W-18-7 Belmont Street over Salisbury Plain Riv
(Single span stone arch bridge identified both by the town and by the MHC Reconnaissance Survey as historically important. Until recently, the town had an unusual number of long span stone-arch bridges. Of the major structures, only the Belmont Street bridge survives, though the town honors a smaller 3-arch bridge at the town center.)

About the Commercial Street Bridge in Adams (A-4-3), MHC concurs with the findings of MDPW that the integrity of the structure has been impaired. Nevertheless, the importance of the bridge to the district (as identified by the local historical commission) MHC feels, enhances the significance of the bridge and outweighs the superficial alterations to the upstream side. Consequently, MHC feels that the structure may meet the criteria for National Register listing.

The Montello Street Bridge over Salisbury Plain Brook in Brockton (B-25-11) is a single span stone arch bridge built in 1889. It is the most northerly of a series of stone arch bridges built over that brook between Brockton and East Bridgewater in Brockton's peak period of industrial expansion. In addition, the bridge is adjacent to the 7-span railroad viaduct which itself may meet criteria for National Register listing. Further study of this area, as noted by MDPW, is advisable.

If you have any further questions, please contact Valerie Talmage, State Archaeologist.

Sincerely,

Patricia L. Weslowski

Patricia L. Weslowski, Executive Director
Massachusetts Historical Commission
State Historic Preservation Officer

PLW/VT/PS/pb

DAR.904

COMMONWEALTH OF MASSACHUSETTS
Office of the Secretary of State

MASSACHUSETTS HISTORICAL COMMISSION
294 Washington Street
Boston, Massachusetts
02108
617-727-8470

MICHAEL JOSEPH CONNOLLY
Secretary of State

October 6, 1981

Justin Radlo, Chief Engineer
E.O.T.C.
Massachusetts Department of Public Works
100 Nashua Street
Boston, MA 02114

RE: Historic Bridges, National Register Evaluation

Dear Mr. Radlo:

MHC staff have reviewed several historic bridge inventory forms prepared by MDPW. MHC concurs with the preliminary findings of MDPW that the following bridges do not appear to meet criteria for listing in the National Register of Historic Places.

Belmont	B-7-1	Clark Street over B&M Railroad
Cheshire	C-10-9	South Street (Rt.8) over Kitchen Brook
Chester	C-11-27	Old State Highway over Penn Central RR
Dalton	D-1-9	Hinsdale Road over East. Br., Housatonic
Dalton	D-1-7	Hinsdale Road over East. Br., Housatonic
Hinsdale	H-16-13	Curtis Street over Conrail
Hinsdale	H-16-4	Washington State Road (RT. 8) over East B
Lakeville	L-1-3	Vaughn St., over Nemasket River
Littleton	L-13-1	Great Road (Rt. 118) over B&M Railroad
Mattapoisett	M-9-3	Acushnet Road over Mattapoisett River
Pittsfield	P-10-47	Peck's Road over Onato Brook
Richmond	R-6-2	Sleepy Hollow Rd. over Penn Central RR
Weston	W-29-1	Merriam Street over B&M Railroad