

Hazen Bridge  
(Newcomb Bridge).  
Carrying Township Road 85  
Over the Sangamon River  
Mahomet vicinity  
Newcomb Township  
Champaign County  
Illinois

HAER No. IL-107

HAER  
ILL  
10-MAHO.V  
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Rocky Mountain Regional Office  
Department of the Interior  
P. O. Box 25287

HISTORIC AMERICAN ENGINEERING RECORD

HAZEN BRIDGE  
(Newcomb Bridge)  
HAER No. IL-107

HAER  
ILL  
10-MAH0.V,  
1-

I. INTRODUCTION

Present Location: Newcomb Township Road 85  
Spanning Sangamon River  
4.0 miles north of Mahomet

USGS Quadrangle: Foosland, Illinois  
Latitude 40°-16.1'; Longitude 88°-22.9'

Inventory Data: Newcomb Township Road District  
Illinois Structure No. 010-3103  
SW corner of Sec 23, T21N, R7E  
Champaign County

Date of Construction: 1893

Owner, Custodian: Newcomb Township

Present Use: Vehicular bridge, to be bypassed by new  
structure. Bridge to remain in place with  
approaches modified for pedestrian and  
recreational use.

Significance: This pin connected Pratt Through truss  
provided early settlers with access to the  
Mahomet community. The cast iron or steel  
column bents supporting the west approach  
spans are unique, the only known example.

II. HISTORY

The Hazen Bridge crosses the Sangamon River in the eastern edge of Champaign County. The area, known locally as the Grand Prairie, is characterized by low rolling terrain and meandering, slow-moving streams with wide overflow areas. During periods of high water, often in the spring, early settlers of the area recalled that fords crossing the Sangamon bottoms were often impassable to a traveler on horseback. After a heavy rain in May 1914, the Sangamon rose eight feet in nine hours (1).

Settlement was rapid in the early 19th century due to abundant timber in the bottom lands and fertile soil of the prairie. The nearest trading center was Middletown, located on the Sangamon River at a ford four miles to the south.

Middletown, a freighting center, was situated on a principal east-west wagon road, midway between the larger towns of Danville, near the Indiana border, and Blooming Grove (Bloomington), in the interior of the state. Middletown's name was changed to Mahomet in the 1860s. Although a ferry began operations in 1837, many residents preferred to use fords for soaking wagon wheels (2).

Early 19th century settlers used several fords over the Sangamon. To those living east of the Sangamon River, the Hazen Bridge, built at White Ford, provided access to Mahomet markets to the south and Shiloh Church to the north. An 1893 atlas, published the year the bridge was built, shows this road as the only river crossing between Mahomet and a bridge, near Newcomb Ford, nearly two miles to the north (3).

As early as 1876, several members of the Hazen family were principal

470 acres at the west end of the bridge. They were probably fairly affluent, having Rambler and Kissel automobiles and Ford and Avery tractors (4).

The family home, nearby and vacant, burned several years ago. The last member bearing the Hazen name in the community was living in a Mahomet nursing home in 1992 (5).

### III. THE BRIDGE

#### A. The Bridge Type

The Hazen Bridge has sixteen spans. The main span is a Pratt Through truss, 120' in length with six panels, including full panel inclined end posts and diagonal bracing of classic Pratt design.

The Pratt truss type, a 19th century American bridge design, was developed as the weight of early locomotives became too great for wooden structures. Earliest bridges of the type used vertical wooden posts in compression and diagonal wrought iron rods for tension members. Early bridge companies adapted the bridge for wrought iron assembly but after the 1890s gradually changed to steel as that material became more available and reliable (6).

In the latter decades of the nineteenth century most bridge design and fabrication operations were carried out by small independent bridge companies. Several hundred bridge companies appeared, flourished for a time, then merged or disappeared. There were no national quality standards, and many companies developed and patented designs which allowed them to build unique, if not better, bridges. As fabricators fiercely competed to outsell and out-

catalogs to often inexperienced county road commissioners (7). To the credit of the manufacturers, the majority of bridges served for many years and carried traffic heavier than the ten-ton steam tractors often used as design loads.

Pin-connected Pratts were the most widely used truss type into the early twentieth century. These bridges, an American phenomenon, were readily fabricated from standardized steel shapes in small shops, dismantled for shipping and easily reassembled at the site, frequently by inexperienced construction crews. J. L. Ringwalt stated in 1888 that truss spans up to 150 feet could be erected by a gang of 20 men in a single day if necessary (8). Steel trusses with pin connections were widely accepted in the United States, but rarely used elsewhere (9). The use of pinned connections and Pratt trusses declined as reliable methods of field riveting were developed.

Truss proportions of the Hazen Bridge appear fundamentally sound, built-up members are generally lightweight but show good workmanship. Portal bracing assemblies are unique and functional but portal to end post connections are weak. Lightweight upper transverse struts, small beams mounted on the top chord with minuscule diagonal bracing angles to the vertical posts, indicate a lack of sophistication often typical of bridges built before 1900. There is no ornamentation.

The most unusual features of the Hazen bridge are the eleven pier bents supporting the west approach spans over the Sangamon River overflow area. The three columns comprising each bent are cast iron or steel, cruciform in cross section, and about 11.0' high. In a few locations, where lower ends of columns are above ground, the columns are supported in the bell end of a lower pile of similar cruciform

transverse floor beams. At each end of the columns are two cast tubes, 12" long, one on each side of the column axis, sloped to the angle of the diagonal cross bracing rods.

Minutes of the Champaign County Commissioners of Highways meetings record several visits to the bridge site at White Ford in June and July, 1883 for surveys and staking the bridge layout. On June 27 a contract for the truss span was awarded to the Seevers Manufacturing Company of Oskaloosa, Iowa, for the low bid of \$4,985 (10).

### III. B. The Manufacturer

The Seevers Manufacturing Company was formed in Oskaloosa, Iowa in 1867 when Thomas H. Seevers, nineteen years old and a native of the city, bought an old foundry. A city directory published in 1882 lists Mr. Seevers' company as a manufacturer of portable and stationery engines and builder of iron and combination bridges.

The Seevers Manufacturing Company is lauded in an 1896 souvenir booklet as "one of the most extensive and broad-gauge concerns of Oskaloosa". Bridge building was listed as the concern's principal business, "...[having] gained a reputation second to none for reliable work in this line." Additional activities of the company were the building of "boilers, steam and hot water heating apparatus". Accompanying photos show a plant of several buildings in a square block area (11).

The Directory of American Bridge Building Companies lists Seevers Manufacturing Co. in 1899 and 1901. No record of tonnage output is available (12).

A final listing of the company is found in the Oskaloosa City Directory of 1901-1902. Mrs. Grace Seevers, widow of Thomas H. Seevers, was living at

III. C. The Structure Description

Superstructure:

One main span, through Pratt truss. Length 120'-0", six (6) panels of 20'-0". Distance center to center of trusses 15'-0". Clear roadway width 13'-7", two channel railings each side may be later replacements. Height between upper and lower chord centers 20'-0". Clear height above the roadway at the portal is approximately 14'-0".

Truss members are symmetrical about center post, U3-L3.

Upper chords and L0-U1 end posts:

Built-up members, two 8" x 2'-1/8" channels with 12" x 1/4", full length top cover plates with rivets (cone heads) @ 6" centers; batten plates on bottom of chords 9" x 1/4".

Lower chords:

L0-L1, :1-:2.	two bars 1-1/4" square, loop ends;
L2-L3, 1.75	two bars 1-1/2" square, loop ends.

Diagonals:

U1-L2,	two bars 1-1/4" square, loop ends;
U2-L3,	two bars, 1" square, loop ends;
U3-L2,	one counter rod, 1/2" round, loop ends; upset threads, 9-1/2" turnbuckle.

Verticals:

U1-L1,	two bars, 7/8" square, forged pin plates
U2-L2, U3-L3	built-up post: two 5" x 1-3/4" channels.

toes out, 7-7/8" back to back,  
1-1/2"x1/4" single lacing each side @ 13"  
alternate centers.

Floor beams:

Rolled beams, 15-1/8" x 5-1/8" x 3/8" web;  
U-hangers, L1-L3, 1-1/4" square rods bent around pin,  
upset threads, bottom support plate.

Stringers:

Seven I-beams, 7"x4".

Bottom lateral cross-bracing:

L0-L1, 1-1/4" round rods, loop ends pinned to  
abutment bearings;  
L1-L3, 7/8" round rods; all other rod ends bolted  
through cast bevel sockets attached to  
ends of floor beams.

Floor:

3"x10" planks at 12" transverse;  
three 3"x10" planks, each track.

Pins:

All pins 2-3/4" round; cap nuts on 2" round threads.

Rivets:

3/4" round in main members, cone heads.

Top struts:

Light beams, 5" or 6" deep mounted on top of top chords; light  
bracing at 45° to approximate



Top lateral cross bracing:

On each panel, 3/4" round rods (approximate) with turnbuckles.

Portal bracing:

Between tops of end post are light lattice web assemblies about 2'-0" deep; with two angle flanges, perhaps 2"x2"; below are 3/4" round rods with turnbuckles crossed in a gap about 5.0' deep. At the lower edge is a lightweight horizontal sway strut, perhaps a 4" deep beam, framed into channel webs of the sloping end posts.

Bearings:

West truss bearings are fixed, consisting of a pin connection, bent plate brackets and a 12-1/2x14"x1-1/4" base plate bolted to the caisson top plate with two 7/8" anchor bolts.

East truss bearings have an upper plate 5/8", a thin plate and a 2-1/2" bearing plate guided with "Z" plates fastened to the lower plate. Several restraining bolts are missing.

East Approach Span:

One span, 32'-0", multibeam,

Stringers: two 6"x2" channels; five 6"x3-1/2" light WF beams.

West Approach Spans:

13 spans 15'-11" centers, multibeam, total 206'-11"

Stringers: two 6"x2" channels; five 6"x3-1/2" light WF beams.

Railing consists of two wire ropes carried by stanchions at about 5'-4" centers fastened to the outer channel stringers.

Substructure:

Abutments:

are 15' long, basically parallel to the roadway, but flared. East abutment wings are masonry, west abutment masonry walls have been replaced with concrete.

Piers 1 and 2:

Each main span support consists of two sheet metal caissons, 36" diameter. A 2"x2"x1/4" angle is bolted around the top circumference and a top cover plate attached with ten 3/8" round bolts through the outstanding angle leg. The caissons are connected with upper and lower 12" I-beams and, cross bracing consisting of 1" round bars with loop ends.

Piers 3-14:

The eleven bents supporting the west approach spans over the Sangamon River overflow area are the unique feature of this bridge.

Each bent consists of three cast columns spaced at 6'-6-1/2" centers, connected by diagonal bracing in each panel. The cast columns are about 11'-0" high and cruciform in cross section, measuring 8" overall on each axis, the legs tapering to 1/2" at the ends. Near the ends of each column are centered two cast sleeves 12" long and sloped to the angle of the 3/4" round rod cross bracing between columns. Bracing rods are held with a single square nut. Horizontal steel T-struts connect the tops and bottoms of columns. Rectangular plates, 6"x10", on the column tops support the floor beam. Stringers supporting the timber deck bear on the floor beam.

Each column appears to be supported by a single cast pile of

II. D. Present Condition and Modification

The bridge has received satisfactory maintenance through its century of existence. Members are sound, eyebars and counters are snug and the pin connections are assumed to be functioning. The railing on the truss has been impacted and bent numerous times but all connections are tight.

The bridge is posted for a three ton load limit.

E. Ownership and Future

The Hazen Bridge, which is owned and maintained by Newcomb Township, is included on the Illinois Historic Bridge Preservation List. Due to the narrow roadway and low load carrying capacity, Champaign County has scheduled a replacement in the immediate future (14).

Preservation of the entire bridge is not feasible. The contracting parties have agreed on the following recommendations: The west abutment will be dismantled and eventually rebuilt east of the present location. Several west approach spans will be dismantled to provide alignment clearance for a replacement bridge at the south edge of the existing bridge. Pedestrian access is planned. The Preservation and Conservation Association, PACA, of Champaign, is sponsoring this preservation project with the cooperation of the Newcomb Township Road District and the Illinois Department of Transportation. Mr. Jack Richmond, a descendant of early landowners and PACA member, has donated five acres of land to this project (15).

IV. ENDNOTES

- 1 Isabelle S. Purnell, Mahomet Methodist Church Centennial, 1955. (n.p., 1955), pp 39 ff.
- 2 B. F. Harris, Journal, Mahomet Township Library, (loose papers), pp. 1-5.
- 3 Plat Book of Champaign County. (Chicago: George A. Ogle, 1893, 1913 [two editions]).
- 4 Prairie Farmer's Directory of Champaign County. (Chicago: Prairie Farmer's Publishing Co., 1917).
- 5 Conversation with Lynn Schmit, Librarian. Mahomet, Illinois, 16 July 1992.
- 6 Dan Grove Diebler, Metal Truss Bridges in Virginia. (Charlottesville, VA: University of Virginia, 1973), Report 1, p. 13
- 7 David Plowden, Bridges: The Spans of North America. (New York: Viking Press, 1974), p. 67.
- 8 Diebler, op. cit., p. 49.
- 9 Plowden, op. cit., p. 62.
- 10 Minutes, Commissioners of Highways meetings, Champaign County, Illinois, June 10, 14, 24, 27; July 8, 1893.
- 11 Oskaloosa Mahaska County, Iowa, Illustrated Souvenir book. (n.p., 1896).
- 12 Victor C. Darnell, Directory of American Bridge Building Companies, 1840-1890. (Washington, D.C.: Society for Industrial Archaeology, 1984), p. 16.
- 13 Oskaloosa City Directories, 1882-83, 1896-97, 1921-22.
- 14 Illinois Department of Transportation, Historic Bridge Preservation List. (Springfield, Illinois: Bureau of Location and Environment, 1992), p. 310 lm.2TP.; Conversation with Terry Gardner, Champaign County Engineer, Urbana, Illinois, 27 April 1993
- 15 Document, Recommendation and Agreement between the Newcomb Township Road District and the Preservation and Conservation Association. (Springfield, MTA Inc.). Project files.; [Karen

V. BIBLIOGRAPHY

A. Books

Cooper, James L. Iron Monuments to Distant Posterity, Depauw University, FHWA, Indiana Department of Highways and others, 1987. (Indiana's metal bridges).

Darnell, Victor C. Directory of American Bridge Building Companies, 1840 - 1900, Washington, D.C.: Society for Industrial Archaeology, 1984. (An authoritative source book published by a branch of the Smithsonian Institution).

Diebler, Dan Grove, Metal Truss Bridges in Virginia, Charlottesville, Virginia, Department of Highways and Transportation and the University of Virginia, 1975, seven reports. (An examination of the development of the truss form including an annotated list of nineteenth and twentieth century bridge companies).

Ketchum, Milo S., C.E. Structural Engineers' Handbook, Chicago: McGraw-Hill, 1924. (An early classic on bridge design practices, originally published in 1908).

Oskaloosa Mahaska County, Iowa, Illustrated Souvenir Book, n.p., 1896.

Oskaloosa City Directories, 1882-83, 1896-97 and 1921-22.

Plowden, David. Bridges: The Spans of North America, New York: Viking Press, 1974. (An overview and illustrated history of the advancement and romance of bridge building).

Plat Book of Champaign County, George A. Ogle, Chicago, 1893, 1913 (two issues). (Hazen Family).

Purnell, Isabelle S. Mahomet Methodist Church Centennial, 1955, n.p., 1955. (Early area history).

B. Newspapers

None, no references to this bridge have been found in early issues of the Mahomet Sucker State newspaper, first published in 1885, issued sporadically, and discontinued in 1972.

C. Pamphlets

Prairie Farmer's Directory of Champaign County,  
Chicago, Prairie Farmer's Publishing, 1917. (Hazen family).

D. Maps

Illinois Counties of 1876 (An Atlas), Reprint ed.,  
Knightstown, Indiana: Mayhill Publications, 1972.

E. Reports

Bulletin, Preservation and Conservation Association, "PACA becomes  
a Landowner", [Karen Kummer]. Champaign, Volume 11, July-August  
1991, No. 4.

Document, Recommendation and Agreement between the Newcomb Township  
Road District and the Preservation and Conservation  
Association, signed 12 September 1991. MTA Inc. files,  
Springfield, 1992.

Historic Bridge Preservation List, Illinois Department of  
Transportation, Springfield: Bureau of Location and  
Environment, 1992.

Minutes, Champaign County Commissioners of Highways Meetings,  
Urbana, Illinois, June 10, 14, 24, 27, July 8, 1993.

F. Manuscripts

Harris, B. F. Journal, Mahomet Township Library, undated, (loose  
papers).

Historic and Legendary Sites in and Around Mahomet and the  
Sangamon River, Mahomet Historical Society, Inc., May 1970.

G. Conversations

Terry L. Gardner  
Champaign County Engineer  
County Office Building  
1905 East Main Street  
Urbana, Illinois 61901  
Telephone 217/384-3800. 27 April, 1993

Hazen Bridge  
(Newcomb Bridge)  
HAER No. IL-107  
Page 14

Karen Kummer  
Executive Director  
Preservation and Conservation Association  
PO Box 2555, Station A  
Champaign, IL 61825  
Telephone 217/328-7222 June 21, 1993

Lynn Schmit, Librarian  
Mahomet Township Public Library  
512 East Main Street  
Mahomet, IL 61853  
Telephone 217/586/2611. 16 July, 1992

Beverly Van DeVender  
Administrative Assistant  
Oskaloosa Public Library  
301 South Market  
Oskaloosa, IA 52577  
Telephone 515/673-0441 17 June, 1993

-----  
Report prepared by:

John B. Nolan, S.E.  
66 Circle Drive  
Springfield, IL 62703-4805

June 22, 1993

