DIRECTORY of

American Bridge-Building Companies

1840 - 1900

VICTOR C. DARNELL

SOCIETY FOR INDUSTRIAL ARCHEOLOGY

Occasional No. 4 Publication
Washington, D.C. * 1984
A directory of American Bridge-Building Companies

1840 - 1900

Victor C. Darnell

Society for Industrial Archeology

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Washington, D.C. • 1984
THE SOCIETY FOR INDUSTRIAL ARCHEOLOGY promotes the study of the physical survivals of our industrial heritage. It encourages and sponsors field investigations, research, recording, and the dissemination and exchange of information on all aspects of industrial archeology through publications, meetings, field trips, and other appropriate means. The SIA also seeks to educate the public, public agencies, and owners of sites on the advantages of preserving, through continued or adaptive use, structures and equipment of significance in the history of technology, engineering, and industry. A membership information brochure and a sample copy of the Society's newsletter are available on request.

Society for Industrial Archeology
Room 5020
National Museum of American History
Smithsonian Institution
Washington, DC 20560

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Cover illustration: 'The above illustration is taken direct from a photograph and shows a square end view of a Parabolic Truss Bridge designed and built by us at Williamsport, Pa. The bridge is built across the Susquehanna River and consists of five spans of 200 ft. each with a roadway 18 ft. wide in the clear. Since the bridge was built a walk has been added on the north side. This is one of the longest iron high way bridges in the State of Pennsylvania and is built after our Patent Parabolic Form.' The bridge was built in 1885 and had a short life, being destroyed by flood in the 1890s. Cut and quote from an advertisement in Electrical World, October 8, 1892. For a detailed history of the Berlin Iron Bridge Company and its products, see 'Lenticular Bridges from East Berlin, Connecticut' by Victor C. Darnell in JA, the journal of the Society for Industrial Archeology, Vol. 5, 1979 and Vol. 7, 1981 (p. 73).

Back cover illustration: the heroic name plaque of Australia's Hawksbury River Bridge (1886-1946), its only surviving fabric. Photograph by D. Fraser, New South Wales.
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FOREWORD

The Society for Industrial Archeology is pleased to publish this valuable guide prepared by one of its members, Victor C. Darnell. Industrial Archeology is the study of the surviving structures and artifacts of the industrial past. Bridges are among the most significant examples of industrial design, yet there has been little previous research on the American bridge builder of the nineteenth century. With the exception of great builders such as the Roeblings, the men who erected the bridges that linked American communities and regions have remained largely unknown. Mr. Darnell's work goes far to remedy the unfortunate neglect of this important part of American social, business, and technological history.

As industrial archeologists, the members of the Society are concerned with the preservation of the physical record of American industrial development, a record which includes the products of our nation's bridge builders. Mr. Darnell's meticulous documentation will provide essential information for surveys of bridges and for historical investigations of particular structures. Knowledge is a powerful weapon in the continuous fight to save threatened but still functional bridges.

The dissemination of scholarship through publication is one of the services provided by the Society for Industrial Archeology. The Society publishes an annual journal, IA, a quarterly Newsletter, and occasional special publications. Local chapters of this international organization also produce publications of their own. For information about the Society, its activities, and publications please write to SIA, Room 5020, National Museum of American History, Washington, D.C. 20560.

Patrick M. Malone
Past President, SIA

THE AUTHOR

Victor Darnell received a Bachelor's degree in Civil Engineering from the Massachusetts Institute of Technology in 1943 and then spent three years in the U.S. Navy assigned to construction and repair of naval vessels. He then joined the Berlin Construction Company, Berlin, Connecticut, retiring in 1977. For much of that period he was Chief Engineer, responsible for most of the major design projects, and had the opportunity to inspect bridges and work with the erection department.

While active in business he also took part in civic organizations and still is a Trustee of the New Britain Museum of American Art where he had been Chairman for nine years. Since retiring, Darnell has intensified his study of the development of bridges in which he combines an interest in history with the training and experience of a professional engineer and steel fabricator. His article Lenticular Bridges from East Berlin, Connecticut appeared in IA, the journal of the SIA, and he contributed to Connecticut—An Inventory of Historic Engineering and Industrial Sites.
Flyer for Rider's patented iron bridge, ca. 1846, the first known advertisement by an American bridge company.
INTRODUCTION

Bridge builders seem to have been an anonymous group. Their products are described as finished objects, artifacts of industry and commerce, symbols in our cities and landscapes. The bridges might have appeared without the agency of man. Most studies are directed to the structures - and general histories, descriptive lists of those in a particular area, and in-depth analyses of individual projects. Perhaps this is the result of the nature of the business, for, when the construction was finished, the crews departed for the next job, the equipment was hauled away, and the only reminder of the builder was his nameplate, which often has been removed or destroyed. Perhaps this is why the completed bridges now seem to have appeared overnight. There has been little study of the men, the companies, and the methods of fabrication and erection. This guide is concerned with the organizations that signed the contracts, coordinated all the parts of the job, took the risks, and produced the spans. It is intended to be of assistance to the surveyors of old bridges, to those who study the history of technology, and to the students of nineteenth-century industry.

Until the expansion of the railroads and the introduction of the Howe truss in the early 1840s, timber bridges were constructed by traveling master builders such as Lewis Wernwag and Theodore Burr or by local craftsmen who also erected factories and mills. Most, if not all, of the material was obtained close to the site, and the fabrication was done there. The guide begins at that time, the early 1840s, and ends with the close of the nineteenth century. The Howe truss, with its small but vital amount of iron, began the move to industrialization as firms such as Boody, Stone in Massachusetts and Stone and Boomer in Chicago established shops for fabricating the materials, which were shipped to the erection site. The next step, iron bridges, required foundries and fabricating shops to form, drill, assemble, and rivet the pieces before shipment. This off-site work in turn necessitated designs, drawings, and obtaining the materials from rolling mills and other suppliers. These new activities marked the progression from a craft to an industry. The guide covers the most dynamic period of the industry's history. The changes included the replacement of wood by iron and then the use of steel, development of analytical methods of design, emergence of the independent practice of bridge engineering, the growth of the domestic iron industry, and the evolution of business organizations. This last was climaxed with the formation of American Bridge Company in 1900 with its control of half of the nation's fabricating capacity. With the exception of American Bridge's later acquisitions, no effort has been made to record any activities of the twentieth century.

The Directory shows that there was no single pattern for the companies or the proprietors. Some concerns were stable, continuing operations such as Keystone Bridge, which lasted for thirty years, or Detroit Bridge and Iron, which ran for forty, while others existed only a short time. Some men spent their working careers at one place, and others, as shown in Appendix D, made many moves. There was an equal diversity in operations, with some firms performing all the functions, extending sometimes to the foundations, and others subcontracting much of the work. Some of the companies had their own proprietary designs for bridges. Often the patentee of such a design had formed the company to sell and build his idea of a proper truss. The demands of the expanding economy, the ease of entry into the business, the moving about of managers and engineers with
the resulting diffusion of information, and the greater availability of materials all contributed to the development of the industry and its great diversity.

The data can be used to locate the builder of a particular bridge, to analyse the growth of the industry in terms of number of companies and geographic distribution, and to examine the patterns of company formation, growth, and longevity. It also suggests other questions that could be addressed only in a more complete study. Why did Ohio have such a large number of small to medium size fabricators? Why was New England's capacity so small? How did companies obtain work so far from their shops - Detroit Bridge and Iron built in every state, and Berlin (Connecticut) Iron Bridge Company sent four bridges to Indiana and seven to Texas? Why were branch plants unsuccessful? Zenas King made two attempts, and Union Bridge failed to keep both of its shops operating.

The Directory includes companies that built bridges or advertised to do so, and those concerns that erected at least one major bridge even though, as in the case of John Roach, it was not their usual activity. It also lists, until the mid-1880s, the engineers who advertised as bridge builders, signing contracts for complete projects, making the designs, and subcontracting the actual construction. Some large bridges were built in this manner, but gradually the practice disappeared as the engineering profession developed. Another group is composed of the companies listed in national directories as 'bridge builders'. Undoubtedly this included some that had no shop facilities or built only minor structures and those that did only foundations or masonry, but there is no feasible way of editing those lists at this time. The coverage of the business directories was uneven and seems to have varied with the diligence of their local agents. In some instances well-established companies were omitted and in others it is most doubtful that so many real bridge builders could have existed in the area covered. The American Iron and Steel Association directories of the 1890s were more selective and also provided fabricating capacities. The companies included in the AISA publications are marked with an asterisk (*), and the capacity data are given in Appendix A.

The word 'companies' is used in a broad sense to cover the individuals, partnerships, and incorporated bodies that fall within the scope of this work. When the parent company and the shop bore different names, the one ordinarily used in advertisements and directories has been featured and the other included in the text, and all of the secondary names are included in the index. Occasionally both names were equally prominent - Clarke, Reeves and Company and Phoenixville Bridge Works; A. and P. Roberts Company and Pencoyd Iron Works. In such cases each name has its own directory entry. The index lists all the proprietors and other names mentioned in the directory and those in Appendix D, but, in general, it does not cover the other appendices. Companies that built only for themselves, such as the Pennsylvania, New York Central, and other railroads, are not included. Agents for fabricating companies also are excluded, as are those companies that owned or promoted individual structures (the names of some are misleading). The books by Richard Allen and George Danko include many names that were not listed in national directories. As these men seem to have been on the fringe of the industry, building bridges being only one of several occupations, their names have been omitted; to have included them would give a false impression of the activity in some states.
The dates given for each entry are those of known activity or directory listing. These dates must be taken as only approximations of when the company existed, for the time between gathering data and its publication was at least half a year, and in that period a company could change its name or close. Some firms were listed for several years after they had stopped operating. Definite information is given in the text portion of the entries, and only the positive statements should be considered as describing the company's period. The year 1901 in the date column signifies only that the company was active or was listed in that year. As this study does not extend into the twentieth century, 1901 should not be taken as a terminal date.

The author gratefully acknowledges the assistance of the following people in the preparation of this directory: Richard S. Allen who has provided information over the years and David Simmons for his review and additions to the Ohio section; Nanci Kostrub Batchelor for producing the final copy from the manuscript and Helena Wright for planning the directory's format; Matthew Roth for his encouragement and direction; Richard K. Anderson, Jr., for the layout and design; and Robert M. Vogel for the suggestion that started the project and guiding it into book form, including the selection of illustrations. The author's thanks are also extended to the librarians and archivists who guided him to some of the sources and answered requests for information. Patrick M. Malone was President of the Society when this publication was approved, and the author thanks him for his support and for writing the Foreword. All of those named are members of the Society for Industrial Archeology.

This is a preliminary study and a considerable amount of work remains to be done. The author is, of course, responsible for errors of fact and interpretation, and he will be grateful for additions and corrections so that a more complete list of the nineteenth-century bridge builders can be made.

LANE BRIDGE COMPANY, Hightstown, N. J., February 28, 1894.

Dear Sir—The Forty-one foot span of your patent Railroad Iron Bridge we sold to Mercer and Middlesex counties jointly was duly erected, and, on the day appointed for the committees to meet and inspect it, I had two of my largest traction engines out there and after they had examined it otherwise, I had the two engines run across it side by side to the satisfaction of all present, and, to their astonishment the depression was hardly perceptible even in center of span—and of course the bridge was accepted unanimously.
THROUGH IRON BRIDGES
FOR RAILWAYS, PARKS, HIGHWAYS, &C.
Iron Roof Frames.
IRON BUILDINGS
Iron Trestle Work and Other Iron Structures.
Plans, Specifications & Estimates Furnished.

CORRUGATED IRON.
Painted, Unpainted & Galvanized
For Roofing and Sides of Buildings.
Sheet Plate & Forged Iron Work.

W. B. SCAIFE & SONS.
119 First Ave, Pittsburgh, Pa.
# THE DIRECTORY

## ALABAMA

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<tr>
<th>City</th>
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<th>Years</th>
</tr>
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<td>Birmingham</td>
<td>*Alabama Bridge and Boiler Company</td>
<td>1898-1899</td>
</tr>
<tr>
<td></td>
<td>Birmingham Bridge Company</td>
<td>1887</td>
</tr>
<tr>
<td></td>
<td>Birmingham Bridge and Bolt Works</td>
<td>1896-1898</td>
</tr>
<tr>
<td></td>
<td>*Southern Bridge Company</td>
<td>1896-1901</td>
</tr>
<tr>
<td></td>
<td>Southern Iron and Steel Works</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>Watkins and Hardaway</td>
<td>1896-1898</td>
</tr>
<tr>
<td>Decatur</td>
<td>Decatur Bridge and Construction Company</td>
<td>1887-1888</td>
</tr>
<tr>
<td></td>
<td>In receivership 1888.</td>
<td></td>
</tr>
<tr>
<td>Jasper</td>
<td>Alabama Bridge Company</td>
<td>1896-1898</td>
</tr>
<tr>
<td>Marion</td>
<td>B. Mickle</td>
<td>1896-1898</td>
</tr>
<tr>
<td>Mobile</td>
<td>Thompson and Bailey</td>
<td>1899-1901</td>
</tr>
<tr>
<td></td>
<td>Edgar Thompson Foundry Company</td>
<td>1896-1898</td>
</tr>
</tbody>
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## CALIFORNIA

<table>
<thead>
<tr>
<th>City</th>
<th>Company Name</th>
<th>Years</th>
</tr>
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<tbody>
<tr>
<td>Coronado</td>
<td>Coronado Foundry and Machine Company</td>
<td>1896-1901</td>
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<tr>
<td>Los Angeles</td>
<td>Baker Iron Works#</td>
<td>1872-1901</td>
</tr>
<tr>
<td></td>
<td>Founded 1872.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D.P.N. Little</td>
<td>1896-1901</td>
</tr>
<tr>
<td></td>
<td>Llewellyn Iron Works#</td>
<td>1884-1901</td>
</tr>
<tr>
<td></td>
<td>Founded 1884.</td>
<td></td>
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<tr>
<td></td>
<td>Sawyer and Arthur</td>
<td>1899-1901</td>
</tr>
<tr>
<td></td>
<td>Union Iron Works#</td>
<td>1884-1901</td>
</tr>
<tr>
<td></td>
<td>Founded 1884.</td>
<td></td>
</tr>
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* See Appendix A, typical throughout Directory
# See Appendix C
CALIFORNIA

Oakland
Cotton Bros. and Company 1899-1901
Johnson and Peterson 1899-1901

San Francisco
Bay City Iron Works 1899-1901
California Bridge Company 1887-1896
California Bridge and Construction Company 1899-1901
Dundon Bridge and Construction Company 1901
David Finley 1888
Healy, Tibbitts and Company 1899-1901

*Judson Manufacturing Company
Office at San Francisco, works at Oakland. 1894-1901

Laydon, Darby and Company 1899-1901
McCann and Sons 1899-1901
B.C. McMahon and Company 1887
Jas. A. McMahon and Company 1899-1901
Pacific Bridge Company 1887-1901
Pacific Construction Company 1901

*Pacific Rolling Mill Company 1894-1898

*Phelps Manufacturing Company
AISA Directories for 1896 and 1898 state that plant was idle.

W.R. Richardson 1888
San Francisco Bridge Company 1887-1901

SAN FRANCISCO BRIDGE COMP'Y,
Engineers and Contractors
FOR
Highway and Railroad Bridges
Sub and Superstructure.
MARINE PIERS,
Girder Pile Foundation, Pile
Driving, Contractors for Railroads and Public Works.
Designs and Estimates Furnished
Office: 42 Market St.
SAN FRANCISCO, CAL.
J. McMullen, President.
Walter Stanley, Secretary
Geo. W. Gate, Chief Engineer
CORRESPONDENCE SOLICITED.
CALIFORNIA

San Francisco (continued)
San Francisco Timber Preserving Company 1899-1901
Smith Construction Company 1899
Thomas Bridge Company 1899-1901
Western Bridge Company 1896

COLORADO

Colorado Springs
Atkinson Bros. and Company 1898-1901

Denver
Gilbert H. Denton 1896-1898
Hughes and Stewart 1901
Lane Bridge and Iron Works 1896-1898
M.J. Patterson 1898-1901
Vulcan Iron Works 1899-1901

La Junta
M.W. Lincoln 1898-1901

Pueblo
Pueblo Bridge Company 1898-1901

CONNECTICUT

Berlin
*Berlin Construction Company 1900-1901
Formed 1900 by some executives of Berlin Iron Bridge Company when that company was absorbed by American Bridge. Fabricated at Pottsville, Pennsylvania, until 1902 when shop built at Berlin.

*Berlin Iron Bridge Company 1883-1900
Started as Corrugated Metal Company which began making roof trusses in mid-1870s and bridges about 1879. Name changed to Berlin Iron Bridge Company in 1883 and acquired by American Bridge Company in 1900.

Bridgeport
Miles B. Beardsley 1879-1883

Hartford
J. McClay and Son 1879-1888
Also bought and sold machinery.
CONNECTICUT

THE CORRUGATED METAL CO.,
EAST BERLIN, CONN.

S. C. WILCOX,
President and Pres.

G. W. COOK,
Secretary.

JOHN TOWNE,
Agent.

C. M. JARVIS,
Engineer.

IRON BUILDERS.
ROOF TRUSSES, CORRUGATED IRON SHUTTERS, ROOFING, CEILING, SIDING.
And General Iron Construction.

THE BERLIN IRON BRIDGE CO.
OFFICE AND WORKS, EAST BERLIN, CONN.

Double-Track Railroad Bridge on N. Y., N. H. & H. R. R., at Riverside, Conn.
Iron Bridges, Iron Roofs covered with Slate or Corrugated Iron.
HEAVY PLATE CIRDERS.

Ca. 1883
The Berlin Iron Bridge Co.

OFFICE AND WORKS, EAST BERLIN, CONN.

Bridge over the Naugatuck River between Shelton and Birmingham (Derby), Connecticut.
CONNECTICUT

New Haven
  J.B. Buddington 1892-1901
  R. Redfield and Sons 1883-1898
  C.R. Waterhouse and Son 1883-1885
  Yale Manufacturing Company
    Succeeded by Yale Safe and Iron Company 1883
  Yale Safe and Iron Company 1891-1901

DELAWARE

Wilmington
  Delaware Construction Company 1891-1901
  *Edge Moor Iron Company 1873-1900
    Also did business as Edge Moor Bridge
    Company. Started bridge fabrication in 1873,
    but iron works began earlier. Acquired by
    American Bridge Company in 1900.

EDGE MOOR IRON CO.
MANUFACTURE
RAILWAY BRIDGES, VIADUCTS AND ROOF WORK
IN IRON AND STEEL,
and offer as Specialties in their construction

HYDRAULIC FORGED EYE BARS.

HYDRAULIC FORGINGS and HYDRAULIC RIVETED WORK.

WROUGHT IRON TURN-TABLES, IMPROVED SLEEVE NUTS.

GALLOWAY BOILERS, Sole Licensee and Manufacturer for the United
  States as Improved under the 1876 Patent.

Specifications from Railroad Companies, Engineers and Contractors solicited, upon which esti-
  mates will be promptly furnished.

WM. SELLERS, Pres.  
JOHN SELLERS, Jr., V. Pres.  
ELI GARRETT, Tres.  
GEO. H. SELLERS, Gen. Supt.  
Main Office and Works at Edge Moor on the Delaware River.  
Post Office, WILMINGTON, Del.  
Philadelphia Office: 1600 HAMILTON ST.  
New York Office: 70 LIBERTY STREET.

FLORIDA

Jacksonville
  S.S. Leonard Company 1899-1901
GEORGIA

Atlanta

Atlanta Bridge Works
Wilkins, Post and Company, proprietors.
Grant Wilkins in Atlanta and Andrew Post, engineer, in New York.

1880-1887

ATLANTA BRIDGE WORKS,
WILKINS, POST & CO.,
ATLANTA, GA., AND 102 BROADWAY, N. Y.

ENGINEERS AND BRIDGE BUILDERS.
BUILDERS OF
PRATT, POST AND WHIPPLE TRUSSES,
CUSHING'S PATENT PIERS,
IRON VIADUCTS, ROOFS, TURN-TABLES AND RIVETED CIRDERS.

GRANT WILKINS,
ANDREW J. POST.

Atlanta Bridge and Axle Company
Grant Wilkins secretary and engineer in early listings.

1888-1896

Gude and Walker

1898-1901

Grant Wilkins

1896-1901

ILLINOIS

Bloomington
Willard A. Gray

1899

Chicago

American Bridge Company
Organized 1870. Entered bankruptcy in 1878 and reopened as Rust and Coolidge.

1870-1878

*American Bridge Works
Started 1891 and purchased by American Bridge Company in 1900.

1891-1900

Austin Bridge Company
Sometimes listed 'F.C. Austin Manufacturing Company (Tubular Truss)'.

1896-1901

\* See Appendix B
Railroad and Highway Bridge across the Missouri River at Leavenworth, Kan.


BUILT (1872) BY

The American Bridge Co., Chicago.

High Bridge, 340 feet Spans.
POINT BRIDGE, AT PITTSBURGH, PENN.

SUSPENSION BRIDGE (stiffened chain) crossing mouth of Monongahela River, in process of construction, 1876. Length of Main Span, 800 feet. Height, from bed of River to top of Iron Suspension Towers, 210 feet.

THE AMERICAN BRIDGE COMPANY, Designers and Builders,

CHICAGO.

New York Office: No. 20 Nassau Street.
Address, The American Bridge Co., Chicago.

Manufacturers and Builders of BRIDGES, ROOFS, TURNING-TABLES, PIVOT BRIDGES, IRON TRESTLES, WROUGHT IRON COLUMNS, HEAVY CASTINGS, GENERAL IRON and FOUNDRY WORK, Builders of PNEUMATIC, MASONRY and SCREW-PILE SUB-STRUCTURES.

Iron Bridges and Roofs, upon the Principal Railroads in the U. S. Illustrate designs and attest the character and extent of products of Works.

A. B. STONE, No. 20 Nassau St., New York, President.
H. A. BUST, Vice Pres't and Gen'l Manager.

Proposals, accompanied by Plans, Specifications and Lithographs, promptly submitted on application.

W. G. COOLIDGE, Sec'y, Engineers.
Chicago (continued)

Lucius B. Boomer

Entered the business in this area about 1849 and was connected with the following sequence of businesses:

Boomer (L.B.) and Company 1849–1851

Stone and Boomer 1851–1857

Boomer Bridge Works 1857–1870

with interruption for Boomer, Boyington and Company before 1868.

(with American Bridge Company) 1870–c1876

L.B. Boomer and Company 1879

L. B. BOOMER, President, | Established A.D. 1849. | W. B. BOOMER, Sec. and Treasurer.

L. B. BOOMER & CO.
Bridges, Roofs, Turntables, Substructures
Office: Howland Block, Chicago, 184 Dearborn Street.

Boyington and Rust 1870

F.E. Canda 1870–1879

N. Chapin and Company 1860

Chapin and Wells 1867–1870

Exhibited at Paris Universal Exposition in 1867. Wells became partner in Wells, French and Company according to an 1871 directory.

See Appendix B
ILLINOIS

Chicago (continued)

*Chicago Bridge and Iron Company
   Formed 1889 by Horace E. Horton who had
directed a company at Rochester, Minnesota. 1889-1901

Chicago Forge and Bolt Company/
   For brief period added bridges to other lines. 1885-1891

Chicago Timber and Bridge Company 1879

W.G. Coolidge and Company/ 1887-1889

Eureka Bridge and Iron Company 1876

Gagnier-Griffin Suspended Railway Company 1896

A. Gottlieb and Company 1887-1891

Hansell-Elcock Company 1901

H.M.R. Construction Company 1898

Illinois Bridge Company 1901

T.A. Kearns Company 1901

Kelly and Atkinson 1898

*Kenwood Bridge Company 1891-1901

William E. Lamon 1896

*Lane Bridge and Iron Works
   P.E. Lane proprietor. Sometimes listed as
   P.E. Lane Bridge Company. 1886-1896

Moritz Lassig/
   Formed partnership with Alden in 1881. 1871-1881

Lassig and Alden Bridge and Iron Works
   When Lassig formed the partnership with John
   Alden 1 July 1881, his Chicago plant was
   renamed. They also leased and later bought
   the shop of Leighton Bridge at Rochester, New
   York. Partnership ended January 1886, and
   Lassig regained the Chicago operation which
   he renamed Lassig Bridge and Iron Works. 1881-1886

*Lassig Bridge and Iron Works
   See Lassig and Alden for background. Acquired
   by American Bridge Company 1900. 1886-1900

MacDonald and Onderdonk 1898

/ See Appendix B
ILLINOIS

Chicago (continued)

F.J. McCain Company 1896
W. Morava 1898-1901
Morris Construction Company 1898
Pittsburgh Construction Company 1896-1898
Rapid Transit and Bridge Construction Company 1891
Warren Roberts Company 1899-1901
Rust and Alden 1888
   Lassig's former partner?
Rust and Coolidge/ 1878-1885
Scherzer Rolling Lift Bridge Company 1898-1901
Shailer and Schniglau 1889-1901
Edward Skelsey 1896
Stone and Boomer 1851-1857
   See Lucius B. Boomer entry.
C.L. Strobel 1896-1901
William E. Traver 1899-1901
William Tweeddale 1860
   'Bridge Engineer and Contractor'
*Universal Construction Company 1898-1899
Vulcan Iron Works 1887
Thomas Walker 1899-1901
Wells, French and Company 1871-1883
   Wells had been with Chapin and Wells earlier.
   Sometimes listed as Wells and French Company.
   1887 directory listed under 'car builders'.
*Western Bridge Company 1899-1901
R.D. Wheaton Bridge Company 1890-1899
Albert H. Wolf 1888-1901

/ See Appendix B
ILLINOIS

Jacksonville
   Eli Bridge Company
   Despite the name, the principal and perhaps only product has been Ferris wheels for carnivals and amusement parks. Included because of name. Started 1900.

Joliet
   *Joliet Bridge and Iron Company

New Albany
   Ohio Falls Iron Works

Peoria
   Joseph Cody and Son
   *A. Lucas and Sons

Princeton
   McManis and Son

Springfield
   *Springfield Bridge and Iron Company

Sullivan
   *Illinois Bridge and Iron Company

1900-1901

1898-1901

1887

1899-1901

1899-1901

1899-1901

1899-1901

1901
### INDIANA

**Attica**  
*Attica Bridge Company*  
1896–1901

**Evansville**  
Crisle and Conkey  
1896–1898

**Fort Wayne**  
H.W. Tapp  
1896–1898

Western Bridge Works  
1879

**Frankfort**  
Dunn and Goar  
1901

Jno. Ross  
1901

**Indianapolis**  
J.D. Adams and Company  
1896

Two years later listed as proprietor of Indianapolis Bridge and Iron Works.

B.L. Blair and Company  
1899–1901

C.F. Hunt Company  
1896–1901

Indianapolis Bridge Company  
1873–1876

*Indianapolis Bridge and Iron Works  
J.D. Adams and Company proprietors in 1898.*  
1898–1901

Indianapolis Switch and Frog Company  
1898–1899

Parkhurst Brothers and Company  
1901

**Lafayette**  
*Lafayette Bridge Company*  
1889–1900

Acquired by American Bridge Company 1900.

**Muncie**  
*Indiana Bridge Company*  
1887–1901

**New Castle**  
*New Castle Bridge Company*  
1900–1901

**Rochester**  
*Rochester Bridge Company*  
1898–1901

**Rockville**  
Joseph J. Daniels  
Before moving from Ohio he built two wooden bridges in Indiana in 1850 and 1853.  
1861–1901
INDIANA

Rushville
Archibald McM. Kennedy
Built wood bridges from 1870 to 1883. After a few years was joined by sons Emmett and Charles. The former continued to build bridges after the latter went into other work.
A.M. Kennedy
A.M. Kennedy and Sons
Kennedy Brothers
Emmett Kennedy

Terre Haute
*Thatcher A. Parker
Terre Haute Bridge Company

Wabash
*Wabash Bridge and Iron Company

IOWA

Audubon
John Ward

Cedar Rapids
T.J. Duncan

B.F. Parks
1901 Directory listed as B.F. Parks and Son.

Wardie and Yeager

Clinton
Clinton Bridge Company
Advertisements from 1879 to 1882 stated Clinton shop was called Union Iron Works and built wood trusses and their Cleveland, Ohio shop, Novelty Iron Works, built iron trusses. Perhaps product of Clinton shop had changed if Cleveland was added facility.

*Clinton Bridge and Iron Works

Council Bluffs
C.E.H. Campbell
Raymond and Campbell

George C. Wise and Company

Des Moines
*Des Moines Bridge and Iron Works

Des Moines Manufacturing and Supply Company

1999-1901
IOWA

Des Moines (continued)

George E. King Bridge Company 1891-1901
S.G. Magden 1901
J.B. Marsh 1899-1901
J.R. Sheely and Company 1899-1901
Iron, wood and combination
N.M. Stalk and Company 1898-1901

Dubuque

Dunleith and Dubuque Bridge Company 1896-1901
Novelty Iron Works 1896-1901

Fort Madison
Santa Fe Bridge Company 1901

Keokuk
J.B. Diver and Company 1887-1901

Manchester
D.H. Young 1896-1901

Marshalltown
*Marshalltown Bridge and Iron Works 1896-1901
Also appears as Marshalltown Bridge and Boiler Shops, A.E. Shorthill proprietor.

Monroe
Burchinal and Hurtzog 1899-1901

North English
W.H. Roller and Company 1899-1901

Oskaloosa
Seevers Manufacturing Company 1899-1901
Also listed as Seesero Manufacturing Company.

Ottumwa
*Fair-Williams Bridge and Manufacturing Company 1894-1901

Sigourney
R. Blaise 1899-1901
Storm and Parker 1899-1901

Sioux City
Goodrich and Robson 1896-1899
Baley Foundry and Machine Works 1896-1899
J.A. Robson 1901
IOWA

Waukon
J.G. Radcliffe 1899-1901

Webster City
John Quackenbush 1899-1901

KANSAS

Humboldt
Humboldt Brick Manufacturing Company 1899-1901

Iola
King Wrought Iron Bridge Manufactory and Iron Works 1871-1872
Formed 1871 by Zenas King of Cleveland, Ohio, and operated in a plant partly financed by the town. The shop closed after one year when King formed another company at Topeka, Kansas. George King, later at Des Moines, Iowa, and E.I. Farnsworth, later at Kansas City, Missouri, were agent and engineer respectively.

Leavenworth
*Missouri Valley Bridge and Iron Works 1876-1901
Insley, Shire and Tullock proprietors in 1884 listing. A.J. Tullock sole proprietor in 1890.

A.J. Tullock 1896-1901
Topeka
King Wrought Iron Bridge Manufactory and Iron Works of Topeka 1872-1873
Formed 1872 by Zenas King. As was the case at Iola, the plant was partly financed by the municipality and closed after a year.

Kentucky

Covington
Licking Iron Works 1887

Frankfort
Mason, Gooch and Hoge Company 1887
‘Railroad contractors and bridge builders’

Louisville
*Louisville Bridge and Iron Company 1868-1901

Louisville Bridge & Iron Company
Office and Works: Corner Oldham and 11th Sts., Louisville.

Triangular, Whipple and Fink Trusses.
and other forms of Iron and Combination Bridges. Also Manufacturers of Iron Roofs, Turn-Tables, Frogs, Switches, etc.

F. W. VAUGHAN, President.
J. W. AINSLIE, Vice-President.
A. P. COCHRAN, Secretary.
GILMAN TRAFTON, Engin’r.
F. H. VAUGHAN, Treasurer.

Richmond
Shanahan and Company 1896-1901

Louisiana

New Iberia
Guilfoux and Blanc 1899-1901
MAINE

Bangor
Penobscot River Steam Boiler Works 1896-1901

Portland
W.F. Bennett and Company 1901

MARYLAND

Baltimore
Baltimore Bridge Company 1869-1880
Incorporated 1869 as successor to Smith, Latrobe and Company; Charles Shaler Smith, President and Chief Engineer, Charles H. Latrobe, Secretary and Assoc. Engineer

KENTUCKY RIVER BRIDGE.

VARRUGAS VIADUCT.

REFER TO FOLLOWING STRUCTURES.

"ST. CHARLES BRIDGE," containing 8 spans, 304 feet each, deck Fink truss, 8 spans, 321 feet each, through Trinity, and 4,500 feet of iron approach viaduct, over Missouri River, on line of St. Louis, Kansas City and Northern Railroad. Total length of iron work, 6,000 feet.

"HIGH BRIDGE," containing 5 spans, 118 feet each, deck Fink truss, over Appomattox River, Atlantic, Mississippi and Ohio Railroad.

"ROCK ISLAND BRIDGE," containing double deck Whipple truss, pivot span 180 feet, 2 fixed spans 230 feet each, 2 of 230 feet, and 1 single deck span, 80 and 130 feet, over Mississippi River, built for United States Government.

"VARRUGAS VIADUCT," containing 4 spans Fink truss 100 to 130 feet each, and 3 iron piers 150 feet, 177 feet, and 230 feet high each, on line of Lima and Oregon Railroad in Peru, South America. Also, "Arequipa Viaduct," 1,500 feet long on same line.

5 SPANS 250 feet each, through Whipple truss, over Susquehanna River, at Havre-de-Grace, on line of Philadelphia, Wilmington and Baltimore Railroad.

"KENTUCKY RIVER BRIDGE," containing 3 spans 183 feet each, and 2 iron and stone piers, making, with trusses, a total height of 25 feet above water, on line of Cincinnati Southern Railroad.

A GENERAL TOTAL, Including the above, of over thirteen miles of bridges, together with many other works, such as Roofs, Depots, Foundations, Round Houses, Piers, &c., making a cost aggregate of over FIVE MILLION DOLLARS.

C. SHALER SMITH, C. E.,  FRED. H'Y SMITH, C. E.,
No. 215 Washington Ave., St. Louis, Mo.  No. 13 German St., Baltimore, Md.
The undersigned are prepared to execute orders for Bollman's Patent Iron Railroad Bridge, and to furnish Drawings, Estimates, &c., &c., for BRIDGES, ROOFS, ENGINE HOUSES, MACHINE SHOPS, &c. Or to contract for the erection of the same, in any part of the United States or abroad, with promptness and upon satisfactory terms.

Address

W. BOLLMAN & CO., Baltimore, Md.

Among other references, may be named the following gentlemen:

WM. PARKER, Esq., Civil Engineer, Boston.
WM. J. McALPINE, Esq., Civil Engineer, Albany, N. Y.
ISAAC R. TRIMBLE, Esq., Civil Engineer, Baltimore.
Col. CROZET, Civil Engineer, Washington.
HERMAN HAUPT, Esq., Civil Engineer, Philadelphia.
Baltimore (continued)

Bartlett, Hayward and Company 1896–1901

W. Bollman and Company 1858–c1863
   Formed 1858 by Wendel Bollman, John H. Tegmeyer and John Clark. Ceased operating from 1861 to 1863 because of Civil War and may have been dissolved. Bollman later formed Patapsco Bridge. Also see Tegmeyer entry below.

Campbell and Zell Company 1896–1899
   Listed as proprietors of Enterprise Iron Works in one 1896 Directory but appears without mention of Enterprise elsewhere. ( Principally boilermakers.)

J.G. Clarke and Company 1879
   'Engineers...design and construct bridges, etc.'

Clarke Bridge Company 1881–1883
   Same address as J.G. Clarke and Company.

A. and W. Denmead and Sons 1896
   Also known as Monumental Foundry. Produced locomotives, cars, engines and an unknown quantity of bridges. Bridge building activity seems to have been in the 1850s.

*Enterprise Iron Works 1896
   Campbell and Zell proprietors.

Murray and Hazelhurst 1866–1869

Patapsco Bridge and Iron Works 1865–1884
   Organized by Wendel Bollman and ended with his death.

Smith, Latrobe and Company 1866–1869
   Organized 1866 and became Baltimore Bridge Company in 1869.

*Structural Iron Company 1898–1901

John H. Tegmeyer 1855–1858
   Advertised 1855 'prepared to furnish drawings and estimates for bridges...on the plan of Bollman's Patent.' Engineer, promoter or bridge builder? One of the founders of W. Bollman and Company 1858.
PATAPSCO BRIDGE AND IRON WORKS,
WENDELL BOLLMAN, PROPRIETOR,
The only Establishment in Baltimore Manufacturing its own Bridges,

MANUFACTURE:

BOLLMAN'S PATENT SUSPENSION TRUSS,
And other forms of Iron and Combination Bridges, Roofs, Iron Fronts and every description of Cast and Wrought Iron Work for Buildings and Railroad construction.

PNEUMATIC PILE,
Having on hand all the necessary appliances for sinking the same, we would call especial attention to our great facilities for executing this branch of work.

THIEMEYER'S PATENT SWITCHES.

Eight-Inch Cast Iron Revolving Station Water Column,
Which will fill locomotive tanks in about one minute, and such as used on the Baltimore and Ohio Railroad.

MARINE WORK IN ALL ITS BRANCHES.
The most improved designs and thorough execution guaranteed in the construction of all classes of work.

OFFICE, No. S S. Gay St., Baltimore, WORKS, Canton, Baltimore.

Frederick
Potomac Bridge Works 1896-1898

Sparrows Point
*Maryland Steel Company 1896-1901
Construction of steel mill started 1887, but bridge fabrication began later.

MASSACHUSETTS

Boston
D.H. Andrews 1877-1878
Works at Cambridgeport. Followed by Boston Bridge Works.

*Boston Bridge Works 1879-1901
D.H. Andrews founder and proprietor.

Boston Steel and Iron Company 1901

G.H. Cavanaugh 1885-1888

D.F. Gallagher 1885

Garrett-Ford Company 1896-1899
Boston (continued)

Harrington Robinson Company 1899–1901

J. Harris 1885–1888

Moseley Iron Building Works 1861–1871

National Bridge and Iron Works 1868–1875

New England Iron Company 1871
Successor to Moseley Iron Building Works.

J.P. Perkins and Son 1885–1888

Cambridge
C.W. and F. Smith Iron Company 1896–1901

Chelsea
Montgomery and Howard 1879–1885

East Everett
*New England Structural Company 1898–1901

Norton Iron Company 1896–1898
MASSACHUSETTS

PARKER'S PATENT WROUGHT-IRON TRUSS BRIDGE.

National Bridge and Iron Works,
Blodgett & Lurry, Proprietors.
No. 15 State Street, Boston, Mass.

Contractors for Building and Erecting Wrought-Iron Railway and Highway Bridges and Roof Trusses.

CHAS. H. PARKER, Consulting Engineer. A. W. PARKER, Supt. of Works.

THE PARKER TRUSS WROUGHT-IRON RAILWAY BRIDGE, shown on the opposite side of this Card, was built and erected for the Vermont Central Railway Co., within four weeks after the burning of a wooden structure. It is situated on the main line, near Montpelier, Vt. It is 104 ft. 6 in. long, and is made to our standard for a single track, having an ultimate strength of six tons to the lineal foot of span, besides six times its own weight. The Bridge was tested Dec. 2, 1870, as shown, in the presence and under the direction of Hon. J. Gregory Smith, President, G. Merrill, Esq., General Superintendent, and other Railway officials, with three freight engines, showing results stated underneath.

Advertising photograph, front and rear. Enlarged.
MASSACHUSETTS

Fall River
New England Engineering Company 1898
Joseph C. Terry 1898-1901

Fitchburg
Works and Briggs 1899-1901

Lowell
Dobbins, Richard 1898-1901

Medford
W.G. Mayo 1879-1885

Northborough
A.W. Colburn and Company 1888

Palmer
Flynt Building and Construction Company 1879-1898
Location also given as Monson in some early Directories, with name as W.N. Flynt and Company.

Pittsfield
H.S. Russell 1883-1901
Listed as a bridge builder in Directories, but 1890 write-up described products as boilers, tanks and other plate work.

Somerville
John Butler 1885

Springfield

These eleven builders formed an unbroken chain, so they are listed in chronological order. Some dates may be in error by a year.

William Howe 1838-1846
Inventor of the Howe truss. His brother-in-law Amasa Stone, Jr., was associated with him on some projects.

Boody, Stone and Company 1841-1846
Azariah Boody and Amasa Stone, Jr.

Boody, Stone and Harris 1846-1848
Daniel Harris joined partnership.

Stone and Harris 1848-1859
Boody withdrew and later moved to Midwest. Stone moved to Cleveland in 1850, but the name was not changed for some time.
Springfield (continued)

Harris, Briggs and Company
Daniel Harris and Albert D. Briggs. Briggs had been employed by Boody, Stone and Company and later directed his own company.

D.L. Harris and Company

Harris and Hawkins
Richard F. Hawkins first worked for Harris in 1853, and later married niece of William Howe.

Hawkins, Herthal and Burrall
W.H. Burrall first appeared as an employee of D.L. Harris and Company in 1864. Herthal was a St. Louis, Missouri, inventor and engineer, and the firm advertised his patent bridges.

Hawkins and Burrall

*R.F. Hawkins Iron Works

Harris and Wright
Harris died 11 July 1879. Dates indefinate.

Agawam Foundry
Harris and Birnie proprietors. Started 1854 'for general work, with special reference to railroad bridge and machinery castings...'

A.D. Briggs and Company
First listed 1868, but may have been started earlier while he was mayor of Springfield. 'Builders of Truesdell's Patent Truss Bridge.' Beginning in 1870 J.R. Smith was listed in advertising. Briggs died 20 February 1881.

Dwight and Hoyt

New England Engineering

John R. Smith
Previously with A.D. Briggs

*Springfield Construction Company

Springfield Iron Works

Worcester
*Eastern Bridge and Structural Company

1859-1864
1864-1867
1867-1868
1868-1871
1871-1877
1877-1901
1868-1875
1854
1868-1881
1879-1883
1891
1881-1888
1898-1901
1891-1901
1901
Detroit

*Detroit Bridge and Iron Works
Established 1863 and absorbed by American Bridge Company 1902. Built a bridge in California in 1876 and claimed 'to have a bridge of their manufacture in every state of the union'. Successor to Charles Kellogg and Company.

Augustus J. Dupuis 1889-1901
William J. Frasier 1901
M.J. Griffin 1901
Charles Kellogg and Company 1857-1863
Michigan Bridge and Construction Company 1871-1872

Grand Rapids
Grand Rapids Bridge Company 1901
MISSOURI

Kansas City
Farnsworth and Blodgett
Farnsworth had been with King Bridge, Iola, Kansas.

Freygang and Trocon 1901
J.W. Hoover 1899–1901
Kansas City Bridge and Iron Company 1878–1901
McGee, Kohlmann and Company 1899–1901

Lamar
Lamar Iron Works 1896–1899

St. Joseph
Lee Hill 1898
H.C. Hodges 1898–1899
H.J. Mayer 1898–1901
St. Joseph Bridge and Boiler Works 1896
*St. Joseph Bridge and Iron Company 1894–1898

St. Louis
Abbott-Gamble Contracting Company 1896–1901
M.S. Cartter and Company 'Engineers, Bridge Builders, and Contractors'
Received bridge patents in 1870 and 1872.

M.S. CARTTER.  A. W. HUBBARD, Eng'rs.  W. S. CARTTER.
M. S. CARTTER & Co.
Engineers, Bridge Builders and Contractors,
Room 31, Singer Building,  St. Louis, Mo.
IRON, COMBINATION, HOWE TRUSS BRIDGES, IRON
TRESTLES, TURN-TABLES, ROOFS,
Iron Substructures and Foundations.

Central Bridge Company 1901
Jno. T. Garrett 1901
James Gates 1878
Geisel Construction Company 1899–1901
Heman Construction Company 1896–1899
H.S. Hopkins and Company 1877
St. Louis (continued)

Hopkins Bridge Construction Company 1888

Hopkins Construction Company 1896

*Koken Iron Works 1893-1901

Predecessors Koken, Graydon and Company (1880-1888) and Scheope-Koken Architectural Iron Company (1888-1893), may have done no bridge work. Acquired by American Bridge Company between 1912 and 1916.

KOKEN IRON WORKS, 9th Floor, Koken Building, ST. LOUIS, MO. (Largest in the Southwest)

Bridges—All Classes. Buildings and General Structural Work, Cast Iron Columns and Heavy Castings.

...ANNUAL CAPACITY, 10,000 TONS.

R.L. Miller 1888

Charles F. Muler 1896-1898

Northwestern Iron Works 1901

R.H. Phillips 1899-1901

St. Louis Bridge Company 1882-1898

Advertisements of 1882 to 1884 listed C.S. Smith as consulting engineer and displayed the Kentucky River bridge that he had designed while president of Baltimore Bridge Company.

St. Louis Bridge and Iron Company 1896-1901

H.W. Sebastian and Company 1879

Charles Shaler Smith 1882-1898

Advertised as 'Designer and Builder of Bridges' in 1881 and from 1884 to 1886. In between he was mentioned in St. Louis Bridge Company advertisements. Smith moved to Missouri in 1868 to supervise construction of the St. Charles bridge and stayed there while serving as president and chief engineer of Baltimore Bridge Company.

*Stupp Brothers Bridge and Iron Company 1894-1901
<table>
<thead>
<tr>
<th>Location</th>
<th>Name</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bozeman</td>
<td>F.W. Vreeland</td>
<td>1899-1901</td>
</tr>
<tr>
<td>Butte</td>
<td>Perham Brothers</td>
<td>1899-1901</td>
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<tr>
<td></td>
<td>Thompson and Company</td>
<td>1899-1901</td>
</tr>
<tr>
<td>Great Falls</td>
<td>M.S. Parker</td>
<td>1899-1901</td>
</tr>
<tr>
<td>Missoula</td>
<td>O.E. Peppard</td>
<td>1889-1901</td>
</tr>
<tr>
<td>Lincoln</td>
<td>R.L. Smith Machine Works</td>
<td>1899-1901</td>
</tr>
<tr>
<td>Omaha</td>
<td>Andrews Bridge Company</td>
<td>1896-1899</td>
</tr>
<tr>
<td></td>
<td>1898 and 1899 directories gave Ogden, Utah, as second address, but was listed only at Ogden in 1901.</td>
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</tr>
<tr>
<td></td>
<td>J.R. Lehmer</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>A.A. Raymond 'wood bridges'</td>
<td>1896-1899</td>
</tr>
<tr>
<td></td>
<td>Jno. A. Templeton</td>
<td>1896-1899</td>
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<tr>
<td></td>
<td>Wood and Bancroft</td>
<td>1896-1899</td>
</tr>
<tr>
<td>Dover</td>
<td>Dover Boiler Works</td>
<td>1901</td>
</tr>
<tr>
<td>Elizabeth</td>
<td>E.G. Brown</td>
<td>1888</td>
</tr>
<tr>
<td></td>
<td>New Jersey Dock and Bridge Building Company</td>
<td>1899-1901</td>
</tr>
<tr>
<td>Jersey City</td>
<td>P.S. Ross</td>
<td>1896-1898</td>
</tr>
<tr>
<td></td>
<td>B.M. and J.E. Shanley</td>
<td>1887</td>
</tr>
<tr>
<td></td>
<td>Wallis Iron Works</td>
<td>1883-1891</td>
</tr>
<tr>
<td>Lambertville</td>
<td>William Cowin</td>
<td>1868-1870</td>
</tr>
</tbody>
</table>
NEW JERSEY

Newark
Hay Foundry and Iron Works 1896–1901

Passaic
Union Building and Construction Company 1899–1901

Paterson
Bogert and Carlough Company 1901

*Passaic Rolling Mill Company 1877–1901
Fabricating capacity in 1884 was 12,000 tons a year, one of the largest of that time.

Riverside Bridge and Iron Works 1889–1899

Watson Manufacturing Company 1869–1876
Specialized in Post type trusses. In 1876 built three 300 foot spans in Brazil, and in same year went into receivership.
NEW JERSEY

Phillipsburg
Phillipsburg Manufacturing Company
Built bridges in early 1870s. Earlier
had made bolts for bridges and other uses and
later manufactured machinery.

1871-1874

Tippett and Wood
Established 1868.

1868-1901

Plainfield
W.T. Kirk

1901

THE DELAWARE BRIDGE COMPANY.

C. MACDONALD, President,
52 Wall Street, New York.

EDWARD HEMBERLE, Engineer,
Major Block, Chicago, Ill.

CIVIL ENGINEERS AND CONTRACTORS FOR THE CONSTRUCTION OF BRIDGES, ROOFS, VIADUCTS AND IRON PIERS
WORKS AT TRENTON, N. J.

COOPER, HEWITT & CO.

34
NEW JERSEY

Trenton

Delaware Bridge Company
Cooper, Hewitt and Company, New York, proprietors.

F. C. Lowthorp
Sometimes misspelled Lowthrop. Temporarily
Lowthorp and Henderson, c1874-1876.

New Jersey Steel and Iron Company
Formed 1866 and part of the Cooper,
Hewitt and Company operations which also
included Delaware Bridge Company. This
company operated the Trenton Iron Works, but
from 1886 to 1899 advertised under its own
name as a bridge builder although Trenton
was also advertising. Acquired by American
Bridge Company in 1900.

John A. Roebling’s Sons Company
The plant to manufacture wire rope was
established in 1849 and renamed after his
death in 1869. His will required that his
name be used, and this nomenclature was
adopted to include his sons. Only suspension
bridges were constructed, and these were an
adjunct to the manufacturing.

*Trenton Iron Works
See New Jersey Steel and Iron.

Trenton Locomotive and Machine Manufacturing
Company
Organized under this name in 1853 from earlier
partnerships that manufactured locomotives,
gas plants, etc. Company was renamed Trenton
Arms Company in 1862. Apparently constructed
bridges only while bearing this name. Built
Fink’s patented trusses.

NEW MEXICO

Albuquerque

Albuquerque Bridge Company

NEW YORK

Albany

Albany Bridge and Iron Works

Albany Iron and Machine Works
Operated under three proprietors: Jones,
Haskell and Company 1866-67, Haskell and
Orchard 1868-1871, Henry C. Haskell
1872-1882. Under the last, advertised as
'Manufacturers of Rezner Patent Improved
Wrought Iron Tubular Arch Truss Bridge'.

35
Albany (continued)

Albany Iron Works

*Hilton Bridge Construction Company
Began 1880 and bought by American Bridge Company 1900. Charles Hilton was chief engineer and died 1884; he had been with New York Central Railroad and Leighton Bridge.

J. McCormick
Perhaps the man listed as president of Albany Bridge and Iron Works two years earlier.

Pruyn and Lansing
‘manufacturers of steam engines, boilers, Iron Bridges...’

Squire Whipple

S. and J.M. Whipple

Buffalo
*Buffalo Bridge and Iron Works
Established 1891 and bought by American Bridge Company 1900.

Buffalo Engineering Company

*Buffalo Structural Steel Works

Central Bridge Company
Organized 1876 and purchased shop of Kellogg Bridge Company 1881. Became part of Union Bridge Company (of New York City) in 1884, and the shop was closed c1890.

Henry Clark
Buffalo (continued)

George H. Gilmon 1896-1898

Kellogg Bridge Company/ 1870-1881
Organized November 1870 by Charles Kellogg.
Shop acquired by Central Bridge 1881.

Charles H. Kellogg 1888-1889
Son of Kellogg Bridge Company proprietor. Advertised 1889 'contracting engineer, iron work and bridge builder'. Later directed Kellogg Iron Works and perhaps Kellogg Iron Bridge Works.

*Kellogg Iron Bridge Works 1894
Listed once in AISA. Possibly an unsuccessful plan to use the Union Bridge Company shop.

Kellogg Iron Works 1891-1901
Sporadically Kellogg Steel and Iron Company.

†See Appendix D for the two Charles Kelloggs
BUFFALO (continued)

Niagara Bridge Works
Organized 1873. 1873-1896

Frederick Overhoff 1901

Union Bridge Company
See Central Bridge Company. 1884-c1890

ELMIRA

*Elmira Bridge Company, Limited/
Established 1889 by Charles Kellogg
(formerly with Kellogg and Maurice) and
others. Sold to American Bridge
Company 1900. 1889-1900

FORT EDWARD

Cooper and Nash
Established 1875. 1875-1878

GROTON

*Groton Bridge and Manufacturing Company
Founded 1877 as Groton Iron Bridge Company
and name changed to that listed in 1887.
Also manufactured punches, straightening
machines, and wood-working machinery.
Acquired by American Bridge Company 1900,
and 1901 they sold it to former owners who
adopted name of Groton Bridge Company. 1877-1900

Havana

(Name of village changed to Montour Falls about 1895.)

*W.H. Shepard's Sons Bridge Company
Followed by Havana Bridge Works of
Montour Falls. 1891-1896

HORSEHEADS

*Horseheads Bridge Company
Started 1890 and acquired by American
Bridge Company 1900. 1890-1900

HUDSON

Hudson River Bridge Works
Whitbeck and Power proprietors in 1881. 1881-1888

MONTOUR FALLS

*Havana Bridge Works
The outgrowth of W.H. Shepard's Sons Bridge
Company and the predecessor of Rochester
Bridge and Construction Company listed in 1903. 1896-1901

*/See Appendix D for the two Charles Kelloggs
A well-appointed bridge shop of the 1890s. The 80-by-400-foot building—itself presumably a product of the firm's works—was entirely of iron and glass with no wood used. The capacity was 1,000 tons of finished work per month. (Berlin Iron Bridge Company, East Berlin, Connecticut)
NEW YORK

New York City
American Bridge Company
Formed 1900. See Appendix C.

Architectural Iron Works
Daniel Badger proprietor. 1865 catalogue showed bridges, but it is not known if any were built.

Atlantic Bridge Works
Post, McCallum and Company proprietors. 'Prepared to erect Post bridges of iron and of wood and iron.'

Atlas Iron Construction Company

Blake and Duffy
1888

Alfred P. Boller
'Civil Engineer and Bridge Builder, contractor for all descriptions of engineering ironwork, Bridges...'

Brown and Lucius
1888

Burton and MacDonald
'Engineers and Contractors for the Construction of Iron and Wooden Bridges...'. Also had office in Philadelphia.

Carrere and Haas
1891

Cooper, Hewitt and Company
Proprietors of New Jersey Steel and Iron Company and related companies of Trenton, New Jersey. Although not an operating company, it sometimes advertised as a bridge builder.

Cooper and Wigand
1899-1901

*J.B. and J.M. Cornell
Started in 1847 and best known for its cast iron building facades. It was listed in Directories of the 1890s and mentioned as a possible component of American Bridge.

Edward Corning and Company
1896

Dean and Westbrook
Listed as Dean-Westbrook Bridge Company in some Directories of 1899 and 1901.

Empire Bridge Company
Formed 1900 by American Bridge Company to operate the shops in New York State. See Appendix C.

40
New York City (continued)

Empire Construction Company 1899
R.H. Hood 1898-1899
Isaac A. Hopper 1896

*Jackson Architectural Iron Works 1896-1901
Despite name was listed in Directories for period indicated. The company had provided the balustrades for the Washington Bridge over the Harlem River in 1888.

Henry A. La Chicotte 1898
Lewinson and Just 1896-1901
Frank R. Long 1896-1901
Charles MacDonald 1871-1872
Formerly a partner in Burton and MacDonald.

Charles MacDonald,
Engineer and Contractor for the Construction of

Iron and Wooden Bridges,
Viaducts, Steel Suspension Bridges, Roofs, Etc.,
80 Broadway, New-York.

Manhattan Bridge Building Company
Despite name constructed no bridges. Company was promoter of the Poughkeepsie railroad bridge of 1888.
Gentlemen:

We are prepared to furnish the Whipple Iron Truss and Arch Bridges, of any desired length of span and capacity, on short notice, as well as the celebrated "Roebling" Steel Wire Cable Suspension Bridges for long spans, where the nature of bottom makes it difficult to put in masonry, or at localities where it is deemed inexpedient to obstruct the flow of water by putting in piers; also wood and combination bridges. We invite examination of the many bridges in use, put up by us, of the above named plans, and will be pleased to show our work to all parties who may favor us with a call. Plans, Specifications and estimates furnished on short notice.

Notices of all Bridge Projects and Lettings will be esteemed a favor.

Very Truly Yours,

Dec. 1, 1877.
New York City (continued)

• Milliken Brothers 1891-1901

John Monks 1888

Moseley Iron Bridge and Roof Company 1867-1901
Sometimes listed as Moseley Iron Bridge and Corrugated Roof Company.

New York Bridge Company 1877
Managed by J.D. Hutchinson and J.W. Shipman.

New York Iron Bridge Company 1850-1853
Formed to continue the work of Rider Iron Bridge Company. Col. Stephen Long and M.M. White were associated. Dates approximate.

O'Brien, Sheehan and McBean 1899

• Post and McCoy 1877-1900

Started 1877 and acquired by American Bridge Company in 1900. Shop at Greenpoint, Long Island City, New York.

C.O. Richards and Company 1885-1888

Rider Iron Bridge Company 1848-1850
Formed about 1848 by Nathaniel Rider and became New York Iron Bridge Company about 1850. The change may have been caused by Rider's death which occurred about that time. Some advertisements refer to 'W. Rider and Brothers', this firm was directed by Nathaniel's brother and dealt in rubber, but it may have carried on the bridge business before the new company was formed. In 1853 G.F. Rider of the Washington Iron Bridge Company, location not given in program, exhibited a model of an iron bridge identical to that submitted by the New York Iron Bridge Company. It is not known if G.F. Rider was related to Nathaniel or had been associated with either of the two companies.

John Roach 1896
A ship and engine builder who constructed at least one bridge in the city, Third Avenue over the Harlem River, in 1864.

R.P. and J.H. Staats 1896-1899

Stephens and O'Rourke 1896

Thorp and Bond 1896
NEW YORK

New York City (continued)

Union Bridge Company
Formed 1884 by the combination of Central Bridge Company of Buffalo with Kellogg and Maurice, Athens, Pennsylvania. The office was in New York City. The Buffalo shop was closed c1890 and American Bridge Company acquired the balance 1900.

I.E. White
1888

Moores M. White
1852-1854

After working for the New York and Rider iron bridge companies, White wrote in 1854 that he was the only builder of iron bridges in or near New York, had built one in Nashua, New Hampshire, 1852 and had just shipped a 112 foot single-span bridge to Peru for the Arica and Tacna Railroad.

Oswego

Oswego Bridge Company
Apparently an error for Owego Bridge Company, as no structures have been identified as their product. Appeared in Directories 1896-1899.

Owego

Owego Bridge Company
1891-1901

Painted Post

Lane Bridge Works
D.F. Lane proprietor. Fabricated bridges that used rails for the chords and compression members as well as the usual types of trusses.

Weston Engine Company
1896-1898

Port Jervis

Barrett Bridge Company
1901

Rochester

Alden and Lassig Bridge Works
John Alden, formerly chief engineer of Leighton Bridge, and Moritz Lassig of Chicago formed a partnership on 1 July 1881. They operated Lassig’s Chicago plant and leased Leighton’s which they operated as Alden and Lassig Bridge Works ‘Lessees of Leighton...’. They purchased the plant in 1884. Partnership dissolved January 1886 with Lassig resuming ownership of the Chicago part and Alden taking Rochester which he called Rochester Bridge and Iron Works.
NEW YORK

Rochester (continued)

Leighton Bridge and Iron Works
Formed by Thomas Leighton 1870 when
partnership with Fowler ended. Leased to
Alden and Lassig 1881.

1870-1881

ORDERS SOLICITED FROM CIVIL ENGINEERS AND CONTRACTORS...

Leighton and Fowler

*Rochester Bridge and Iron Works
Formerly Alden and Lassig Bridge Works. Became
part of the American Bridge Company 1900.
Alden, the proprietor, was sometimes listed
separately as a bridge builder and may have been
a partner in Rust and Alden, Chicago, 1888.

B.P. Smith

1899

45
NEW YORK

Syracuse

Alexander Iron Works

1899-1901

Simon DeGraff

Listed as 'contractor' 1857-1865 and 'bridge contractor' or 'bridge builder' 1866-1871.

1866-1871

Troy

Reuben Comins

Also was president of Hilton Bridge Company, Albany, formed 1880. As Directories listed him as 'bridge builder' until his death in 1883, he may have continued a separate business.

1855-1883

John D. Hutchinson

Later associated with J.W. Shipman in the construction of a bridge at Stockport, New York (1875), and then in New York Bridge Company.

1859-1870

Van Hornesville

J. Shipman and Company

Built shop 1856 for the manufacture of iron bridges and axles. See Appendix D for later career.

1856

Trial assembly of a bridge truss in the shop, ca. 1872
NORTH DAKOTA

Fargo
W.J. Haskins 1899-1901
Jno. Jardine 1899-1901
Jas. Kennedy 1899-1901

Grand Forks
A.F. Turner 1901

Wahpeton
North Western Construction Company 1896-1899

OHIO

Bellaire
*Standard Boiler and Bridge Company
Incorporated 1891. Directories of 1894 and 1896 specify 'light bridges'.

Bellefontaine
*Bellefontaine Bridge and Iron Company
Successor to Buchanan Bridge Company.

*Buchanan Bridge Company
Started 1890 and name changed 1894.
Canton
*Canton Bridge Company
Reorganized or incorporated 1891. 1876-1901

John Laird and Company
Organized 1864 as a development of Laird's foundry which started in 1840. 1864-c1871

*Wrought Iron Bridge Company
Organized 1864 by David Hammond and incorporated 1871. Absorbed by American Bridge Company 1900. Job Abbott who joined the company in 1872 was one of the organizers of Toronto (Canada) Bridge Company c1879 and Dominion Bridge Company 1883, and served as first president of both. 1864-1900

**COMMUNICATE WITH NEAREST OFFICE.**

Canton, 136 Liberty Street, 1309 Monadnock Building, OHIO. NEW YORK CITY. CHICAGO, ILL.

New York Life Building, Kansas City, Mo.

Cincinnati
*Brackett Bridge Company
Name changed about 1890 from Lomas Forge and Bridge Works after F.J.P. Brackett gained control. c1890-1901

Cincinnati Architectural Iron Works 1896-1898

Cincinnati Bridge Company
J.W. Shipman manager. Company was active for only short time but built several large bridges. It submitted a proposal for a suspension bridge with a 734 foot main span over New York City's East River. 1873-1877

Cincinnati Bridge Company
Incorporated 1896. 1896
Cincinnati (continued)

Charles Graham
1872-1875

Gregory, Bandon and Robinson
Built Moseley's patent trusses. Bandon, which appears on a c1860 advertising pamphlet, may be a misprint for Brandon.
1857-1860

Lomas Forge and Bridge Works
Started 1880 and became Brackett Bridge Company about 1890. Evolved from William Lomas and Company, makers of tools and hardware.
1880-c1890

Moseley and Company
1856-1861

**Moseley's Tubular Wrought Iron**

**Arch Bridges and Roofs.**

These bridges and roofs have now been fully tested in this vicinity, and it is universally conceded that they cannot be excelled. The roofs are wholly of wrought iron, or mixture of wood and iron; sheeting always iron.

The bridges are wholly wrought iron except the floor, which is wood, like the floors of ordinary bridges.

We are prepared to make these structures in any quantities, at prices about as follows:

- **Railroad Bridges, 50 feet span, 8,000 lbs.** $17.50 per foot lineal.
- **Common Road or Turnpike, 50 feet span, 2600 lbs.** $5.75 per foot lineal.
- **Roofs, all iron, 50 feet width of building.** $25 per 100 square feet, part wood and part iron, from $12 to $20 per square.

Nunning and Lubbering
1888

Queen City Bridge and Steam Forging Company
1888

*L. Schreiber and Sons Company
Listed in AIS of 1898, but advertisement in a different directory for 1899 does not mention bridges.
1898

*Stacey Manufacturing Company
In existence 1868 and incorporated 1880.
1868-1899
Cleveland

Buckeye Bridge Company
Miller, Jamieson and Company proprietors in 1872.

Buckeye Bridge and Boiler Works
Perhaps same as above or its successor.

Cleveland Bridge Company

Cleveland Bridge and Car Works
McNairy and Claflen Manufacturing Company proprietors.

Cleveland Bridge and Iron Company

Cleveland Erecting Company
Incorporated 1895.

Clinton Smith Bridge Company

Zenas King
Began his connection with the industry in 1858 as an agent for Moseley. In 1861 King established a partnership with Peter Frees to build boilers and bridges. This was dissolved after a few years with King retaining the bridge portion. Formed company in 1871. Names of businesses before 1871 not known.

*King Iron Bridge and Manufacturing Company
Incorporated 1871 by Zenas King. Name changed to King Bridge Company about 1893. See related companies at Iola and Topeka, Kansas.

McLaughlin and McKenna

Novelty Iron Works
Zwilling Brothers and Company, early proprietors. Advertisements of Clinton (Iowa) Bridge Company in 1879 to 1882 Directories listed this name and location as their shop for iron bridges. Either Clinton acquired the shop or there were two with the same name.

Ohio Bridge Company
Rezner, Stone and Company, proprietors, may have operated under their own name before starting Ohio Bridge.

Standard Contracting Company

W.A. Stevens and Company
Cleveland (continued)

Thatcher, Burt and Company 1863-
Had the local franchise for Howe trusses in the 1850s and were succeeded by McNairy and Claflin Manufacturing Company (Cleveland Bridge and Car Works) by 1870.

Van Dorn Iron Works
Incorporated 1891.

*Variety Iron Works
1888-1901

Columbus

Joseph Braun

Columbus Bridge Company
Started about 1885 by Reuben A. Sawyier, incorporated 1886 and apparently closed about 1894, although some Directories listed it later.

Etna Construction Company

*Iron Substructure Company
Incorporated 1884.

*New Columbus Bridge Company
Incorporated 1894 and absorbed by American Bridge Company in 1900.

Reuben A. Sawyier 1884
Assembling a small prefabricated bridge truss in the shop using a portable hydraulic riveter. (Edge Moor Iron Works)
Coshocton
Coshocton Iron Works
James Shipman, manager.
1861-1874

Dayton
Columbia Bridge Company
D.R. Morrison started building wood bridges in 1848 and received a patent in 1867 for an iron one. The following year he built a fabricating shop and the company probably was formed at that time. Later he was joined by his son C.C. Morrison.

Dayton Architectural Iron Works
McHose and Lyon proprietors.
1888-1893

Dayton Bridge Company
Incorporated 1883.
1883

Hamilton
Champion Iron Bridge Company
See Champion Bridge Company, Wilmington, Ohio.
1874-1875

Hamilton Bridge Company
1896-1901

Hamilton Tool and Construction Company
1896-1898

Zimri Wall and Company
See Champion Bridge Company, Wilmington, Ohio.
1860-1871

Z. and J. Wall and Company
See Champion Bridge Company, Wilmington, Ohio.
1871-1874

Kenton
*Champion Iron Company
1896-1901

Lancaster
August Bornemann and Sons
Later were proprietors of Rocking Valley Bridge Company.

Rocking Valley Bridge Company
Started by Bornemann in the early 1880s. After his death about 1890, the company was acquired by Benjamin F. Dum.
c1881-1901

Lima
Lima Bridge Company
1873

McCurdy and McDurmuth
1872-1874

Logan
Motherell Iron and Steel Company
1896-1901
Marietta
Stephen Daniels
Agent and builder of S.H. Long's patented trusses.

Marietta Bridge Company
1890

Marysville
Reuben L. Partridge
Wooden bridges.

Massillon
Massillon Bridge Company
Established in 1869 as Massillon Iron Bridge Company. Incorporated in 1887, and name may have been changed at that time.

Russell Bridge Company
1872

Middleport
Ohio Machine Company
1896–1898

Mount Vernon
Mount Vernon Bridge Company
Incorporated in 1880, company was in receivership in 1894 but resumed business.

Newark
Lane Brothers Bridge and Construction Company
1890–1898

The Lane Brothers Bridge & Construction Co.,
IRON AND STEEL
Bridges, Jails and Court House Work
NEWARK, OHIO.

New Bremen
Lanfersieck and Grothaus Company
1895–1901

Oregonia
Bradbury and Spencer
Started as blacksmiths and built first bridge in 1888. Became Oregonia Bridge Company about 1897.

*Oregonia Bridge Company
Formerly Bradbury and Spencer.

Portsmouth
*Portsmouth Structural Steel and Iron Company
1898

Sidney
Bemis and Krum
1899–1901
Springfield
  Jno. V. Clayton  1901

*Rogers Iron Company  1896-1901

Tippicanoe City (later Tipp City)
  Robert W. Smith  1867-1869
  Moved to Toledo. See Smith Bridge Company.

Toledo
  T.H. Hamilton  1885-1888

Legget and Berry  1896-1898

Ohio Bridge Company  1896-1901

Smith Bridge Company
  Smith moved from Tippicanoe City where he
  had built his patented wood bridges in
  1869. At the new location he also built
  composite trusses and in 1870 formed
  Smith Bridge Company which he sold in
  1890. The new owners changed the name to
  Toledo Bridge Company and sold it to (continued)
Toledo (continued)
American Bridge Company in 1901.
Robert W. Smith 1869-1870
Smith Bridge Company 1870-1890

*Toledo Bridge Company 1890-1901
See Smith Bridge Company for history.

Upper Sandusky
John H. Junkins and Son 1861-1889

Urbana
Urbana Bridge Company 1879-c1885
William A. Black proprietor.

Wilmington
*Champion Bridge Company
The last and longest used of five names at two locations. 1874 and earlier dates are approximate.
Zimri Wall and Company Hamilton 1860-1871
Z. and J. Wall and Company Hamilton 1871-1874
Champion Iron Bridge Company Hamilton 1874-1875
Champion Iron Bridge Company Wilmington 1875-1878
Champion Iron Bridge and Manufacturing Company Wilmington 1878-1881
Champion Bridge Company Wilmington 1881-1901

Youngstown
Morse Bridge Company 1878-c1889
Founded in 1878. Name changed to Youngstown Bridge Company between 1888 and 1891.

*Youngstown Bridge Company
Formerly Morse Bridge. Acquired by American Bridge Company in 1900.
<table>
<thead>
<tr>
<th>Location</th>
<th>Company Name</th>
<th>Year(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland</td>
<td>American Bridge and Contract Company</td>
<td>1896-1899</td>
</tr>
<tr>
<td></td>
<td>Bentley Construction Company</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>N.J. Blagen</td>
<td>1901</td>
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<tr>
<td></td>
<td>Bullen Bridge Company</td>
<td>1896-1899</td>
</tr>
<tr>
<td></td>
<td>C.A. Bullen</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>Columbia Bridge Company</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>Hoffman and Bates</td>
<td>1896-1899</td>
</tr>
<tr>
<td></td>
<td>*Portland Bridge and Building Company</td>
<td>1896-1901</td>
</tr>
<tr>
<td></td>
<td>Sanderson and Maney</td>
<td>1898</td>
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<tr>
<td></td>
<td>Wakefield and Jackson</td>
<td>1898-1899</td>
</tr>
<tr>
<td></td>
<td>Robert Wakefield</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>Willamet Iron Works</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>Wolff and Zwicker Iron Works</td>
<td>1897-1901</td>
</tr>
</tbody>
</table>

*Also built several torpedo boats for U.S. Navy. Bankrupt in 1901.*

<table>
<thead>
<tr>
<th>Location</th>
<th>Company Name</th>
<th>Year(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodburn</td>
<td>R.L. Morris</td>
<td>1896-1899</td>
</tr>
</tbody>
</table>

Erection of a Berlin Iron Bridge Company lenticular truss
PENNSYLVANIA

Allegheny (now part of Pittsburgh)
Chester B. Albree
1901 Directory lists only as manufacturer of bridge railings.

Allentown
*Allentown Rolling Mill Company 1886-1901

Athens
Charles Kellogg (See Appendix D) 1865-1871
Started constructing wood railroad bridges in central New York and North-central Pennsylvania about 1865, and built shop at Athens in 1870. The next year he formed partnership with Maurice.

Kellogg and Maurice 1871-1884
Organized in 1871 when Kellogg formed a partnership with Charles S. Maurice. They worked with Central Bridge Company, Buffalo, and joined with them to form Union Bridge Company in 1884.

*Union Bridge Company 1884-1900
Office at New York City. Operated Athens shop until acquired by American Bridge Company in 1900. Built 600 ton testing machine in 1885, one of few in U.S. at that time.

Beaver Falls
*Penn Bridge Company 1868-1901
Established 1868.

*Fort Pitt Bridge Company 1896-1901
See listing under Pittsburgh where main office was located.

*Pittsburgh Architectural Iron Works 1894-1896
See listing under Pittsburgh where main office was located. Plant was bought by Fort Pitt.
<table>
<thead>
<tr>
<th>Location</th>
<th>Company Name</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chambersburg</td>
<td>Nelson and Buchanan</td>
<td>1891-1901</td>
</tr>
<tr>
<td></td>
<td>Previously agents for Pittsburgh Bridge Company.</td>
<td></td>
</tr>
<tr>
<td>Corry</td>
<td>E. and E. Love</td>
<td>1901</td>
</tr>
<tr>
<td>Dauphin</td>
<td>Dauphin Bridge and Construction Company</td>
<td>1898-1901</td>
</tr>
<tr>
<td></td>
<td>*Evolved from business started by C.J. Schultz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c1850 to supply iron parts for wood bridges.</td>
<td></td>
</tr>
<tr>
<td>Germantown</td>
<td>H.D. Warden</td>
<td>1888</td>
</tr>
<tr>
<td>Gettysburg</td>
<td>Gilbert and Smith</td>
<td>1886</td>
</tr>
<tr>
<td>Kane</td>
<td>C.W. Grout</td>
<td>1899</td>
</tr>
<tr>
<td></td>
<td>F.R. Walker</td>
<td>1901</td>
</tr>
<tr>
<td>McKees Rocks</td>
<td>*Schultz Bridge Iron Company</td>
<td>c1890-1900</td>
</tr>
<tr>
<td></td>
<td>Evolved from business started by C.J. Schultz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c1850 to supply iron parts for wood bridges.</td>
<td></td>
</tr>
<tr>
<td>Milton</td>
<td>Murray, Dougal and Company</td>
<td>1878</td>
</tr>
<tr>
<td>New Brighton</td>
<td>Penn Bridge and Machine Works</td>
<td>1876</td>
</tr>
<tr>
<td></td>
<td>Location is just across river from Beaver Falls where Penn Bridge Company was located. Perhaps same company.</td>
<td></td>
</tr>
<tr>
<td>Philadelphia</td>
<td>Armstrong and Printzenhoff</td>
<td>1896-1899</td>
</tr>
<tr>
<td></td>
<td>Barnes Culvert Bridge Company</td>
<td>1898-1899</td>
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<tr>
<td></td>
<td>Benner and Opdyke</td>
<td>1891-1899</td>
</tr>
<tr>
<td></td>
<td>Apparently descended from Jones and Benner and followed by Stacy, Opdyke and Company.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>J.E. Brenneman</td>
<td>1898</td>
</tr>
<tr>
<td></td>
<td>Burton and MacDonald</td>
<td>1870</td>
</tr>
<tr>
<td></td>
<td>Also had office in New York City.</td>
<td></td>
</tr>
</tbody>
</table>
Phenixville Bridge Works of Pa.

DESIGN AND CONSTRUCT ALL KINDS OF

IRON RAILWAY BRIDGES, VIADUCTS, ROOFS,
And Similar Structures.

The attention of the officers of Railway Companies is called to our "ALBUM OF DESIGNS," showing the various styles of Iron Railway Bridges, Viaducts, etc., that we have constructed and are prepared to construct, which we will send by mail to any person requiring such structures. We are prepared to furnish first-class Iron Bridges in as short a time as any other bridge builders can do, and at very reasonable rates. We refer to the officers of the following Railway Companies, for whom we have constructed since October 1870, and are now constructing 223,604 linear feet of first-class IRON BRIDGES, or over 53 miles:

Chicago, Burlington and Quincy—Illinois Central—Chicago and Northwestern—
Philadelphia, Wilmington and Baltimore—Connecticut Air-Line—Portland and
Kennebec—Northern Pennsylvania—Philadelphia and Reading—Portland and Og-
densburg—New York Central and Hudson River Bridge Co.—Cambria Iron Co.—
Catarissa P. R. Co.—Chesapeake and Ohio—Camden and Amboy—Philadelphia
and West Chester—Ohio and Mississippi—Grand Trunk of Canada—Inter-Colonial
of Canada—Louisville and Nashville—Elevated Railway of New York—Galveston,
Harrisburg and San Antonio of Texas.

Address:

CLARKE, REEVES & CO.,

49 William Street, New York.
410 Walnut St., Philadelphia.
Phenixville, Penn.
Philadelphia (continued)

Clarke, Reeves and Company 1870-1884
Formed 1870 by Thomas C. Clarke and the Reeves family which controlled Phoenix Iron Company. Plant at Phoenixville was called Phoenixville Bridge Works. Clarke left in 1883 and the following year the company was succeeded by Phoenix Bridge Company.

J.H. Cofrode and Company 1870
Followed by Cofrode and Saylor

Cofrode and Evans 1891
Followed by Louis P. Evans

Cofrode and Saylor 1877-1896
Proprietors of Philadelphia Bridge Works with shop located at Pottstown.

Continental Bridge Company 1871-1877
'Builders of Henszey's Patent Wrought Iron Arch Bridge.'

CONTINENTAL
BRIDGE Co.,
110 SOUTH FOURTH STREET,
PHILADELPHIA.
BUILDERS OF
HENSZEY'S PATENT
Wrought Iron Arch Bridges,
WITH IRON OR WOOD FLOOR BEAMS.

The HENszey PATENT WROUGHT IRON BRIDGE we claim has decided advantage over many others now in use, for the reason: Firstly, the Bridge is Warranted sound throughout. Secondly, that the combination of the iron is such as to insure strength in a great degree. Thirdly, that the different parts are so arranged as to be easily觉修for painting. Fourthly, No Nuts and Bolts, requiring constant attention. Fifthly, Durability. Sixthly, Bareness of appearance. Seventhly, Not the real valued far-dated, the cheapest.

The PATENT WROUGHT IRON ARCH, the great element of strength, is in the mid of sections of the PHOENIX IRON COMPANY'S COLUMN 11/2, so put together that while in handsom in appearance it is strong enough in every point.

Delaplaine and West 1901

H.O. Duerr and Company 1891-1896
Listed as bridge builder in 1891 and 1896, but in 1894 was manager of Lehigh Valley Construction Company.

Louis P. Evans 1895-1898
Succeeded Cofrode and Evans

John P. Eyre and Company 1887
Philadelphia (continued)

KELLOGG, CLARKE & CO.,
Engineers and Contractors, 410 Walnut St., PHILADELPHIA, Pa.

Keystone Structural Company
Shop at Royersford. 1896-1901

Leonard, Foley and Company 1898-1899

*Levering and Garrigues
See Jones and Benner for earlier activity. 1890-1901

W.C. Livengood 1896

Thomas W.H. Moseley 1876

Novelty Iron Works 1888
We herewith send you a Stereoscopic View of an Iron Bridge, erected some few years since, near Mauch Chunk, Pa., on the Beaver Meadow Rail Road, a Road of very extensive Coal traffic. This structure has given the highest satisfaction to all parties concerned, has endured a trade of some 20,000 tons per week, moved by the heaviest class of Locomotives; and notwithstanding the rigorous climate incident to its location, the Thermometer marking, in some instances, 30 degrees below zero, it has stood the test of the trade and temperature, and is believed to be as permanent and durable as the material out of which it is constructed. This structure is of the Murphy Whipple plan, and is one of many that have been built within the last few years with the same signal success. We take the liberty of referring you to another heavy structure of 156 feet span, built for the North Pennsylvania Rail Road, near Bethlehem, as well as some seven other Roadway Bridges which we have constructed for the Eeale (Government) Wagon Route to the Pacific. Should you contemplate the erection of any Bridges, we should be glad to hear from you.

Yours, Truly,

JOHN W. MURPHY, Engineer.
A. & P. ROBERTS.
Philadelphia (continued)

*Pencoyd Iron Works

Pennsylvania (or Penn?) Erecting Company

*Philadelphia Bridge Works
Shop at Pottstown. Started 1877 by Cofrode and Saylor. 1898 Directory gave owners as C.R. Baird and Company and stated that plant was idle and for sale. The plant was bought by Pottstown Bridge Company who sold it to McClintic-Marshall in 1900. The works were on the location of the repair shop of Philadelphia and Reading Railroad where the first American metal railroad bridge was constructed in 1845.

*Phoenix Bridge Company
Formed 1884 from Clarke, Reeves and Company.

Phoenixville Bridge Works
See Clarke, Reeves and Company.

A. and P. Roberts
Proprietors of Pencoyd Iron Works and sometimes listed instead of the fabricating company.
Philadelphia (continued)

Stacy, Opdyke, and Company
Possibly related to Benner and Opdyke.

Standard Roof and Bridge Company

Steele and Wike

L. Sykes and Son

Phoenixville

Clarke, Reeves and Company
Proprietors of Phoenixville Bridge Works.
See listing under Philadelphia where office was located.

J. Denithorne and Company

*Phoenix Bridge Company
See listing under Philadelphia.

Phoenix Iron Company
Built a 151 foot span for Smith, Latrobe and Company (1866-1869). Such work probably led the Reeves family, which controlled Phoenix Iron to form Clarke, Reeves and Company in 1870.

*Schuylkill Bridge Works
John Denithorne Son and Company proprietor.
Name was used 1903 by Lewis F. Shoemaker for company located at Pottstown.

Pittsburgh

George R. Buchan

Carnegie Steel Company
Sometimes listed in the late 1890s instead of its subsidiary, Keystone Bridge Works.

D.W.C. Carroll and Company

Carroll Porter Boiler and Tank Company

H.E. Collins and Company

Curran and Hussey

Ferris, Kaufman and Company

*Fort Pitt Bridge Company
Bought Canonsburg shop of Pittsburgh Architectural Iron Works at sheriff's sale 7 May 1896.

*Heyl and Patterson
Started 1890.
Newport and Cincinnati Bridge.

BUILT BY THE

Keystone Bridge Company, of Pittsburgh, Pa.

RIVER SPANS, 1871.
Span No. 1, - 137 feet.
Span No. 2, - 418 feet.
Span No. 3, - 237 feet.

Span No. 4, - 260 feet.
Span No. 5, - 202 feet.
Span No. 6, - 202 feet.

CHAS WALDACK, Photo.

FROM
J. H. HOOVER,
Wholesale & Retail Dealer in
STEREOSCOPES AND VIEWS,
FRAMES, PICTURES, &c.
No 130 Walnut St. CINCINNATI, O.

Advertising stereograph, front and rear. Full size.
PENNSYLVANIA

Pittsburgh (continued)

Iron City Bridge Company 1876-1896

Gustave Kaufman 1899

Keystone Bridge Company

Keystone Bridge Company 1865-c1893
*Keystone Bridge Works c1893-1900

George W. Knopf 1899

C.N. Kuntz 1901

James Lappan and Company 1888

*McClintic-Marshall Construction Company 1900-1901
Shop at Pottstown which was purchased from Pottstown Bridge Company. Formed 1900 by two officials of Shiffler Bridge Company who left when it was acquired by American Bridge Company.

C.J. McDonald 1896

Fred. K. Melber 1896-1901

Pennsylvania Construction Company 1896

Piper and Shiffler 1862-1865
Organized in 1862 under the leadership of Andrew Carnegie. Became part of the newly formed Keystone Bridge Company in 1865.

*Pittsburgh Architectural Iron Works 1894-1896
Purchased land at Canonsburg in 1894 and built shop with cupola and 80 hp. Corliss engine. Plant sold by sheriff to Fort Pitt Bridge Company 7 May 1896.

*Pittsburgh Bridge Company 1878-1900
Established in 1878 and incorporated in 1881. Purchased by American Bridge Company in 1900.

Pittsburgh Iron and Steel Engineering Company 1896-1898

Pittsburgh Locomotive and Car Works 1896-1898
Organized 1865 and absorbed by American Locomotive Company in 1901. Advertised 'iron or steel bridges' at unknown date.
THE PENNSYLVANIA OLD SHOPS.

THE KEYSTONE BRIDGE COMPANY.

NEW BRIDGE WORKS.

THE KEYSTONE BRIDGE CO.
BUILDERS OF LONG SPAN BRIDGES.

NEWPORT AND CINCINNATI, 455 FT.
PARKERSBURG, 325 FT.
BELLAIR, 305 FT.
STUEBENVILLE, 305 FT.
DUBUQUE, 325 FT.
KANSAS CITY, 325 FT.
KEOKUK AND HAMILTON, 327 FT.
FAIRMOUNT, PHILA., 328 FT.
ST. LOUIS, 515 FT.


MAIN OFFICE AND WORKS—PITTSBURG, PA. WESTERN OFFICE—211 WASHINGTON AVENUE, ST. LOUIS.

J. H. LINVILLE, President, 428 WALNUT Street, PHILADELPHIA
James M. Riter 1863-1873
Established business in 1863 and was killed in railroad accident in 1873. Concentrated on plate and tank work—perhaps for oil wells north on the Allegheny River.

Riter and Conley 1873-1898
Formed to continue James Riter's business by his brother Thomas and William B. Conley. Conley had provided the financial backing and was bookkeeper of the original firm while Thomas Riter had been shop foreman.

*Riter-Conley Manufacturing Company 1898-1901
Formed 1898 in reorganization of Riter and Conley.

*William B. Scaife and Sons 1883-1901

*Shiffler Bridge Company 1870s-1900
Organized in 1870s and absorbed by American Bridge Company in 1900. Shiffler had been treasurer and superintendent of Keystone Bridge. See Appendix C for comment about the expansion of late 1890s.

THE SHIFFLER BRIDGE WORKS,
J. W. WALKER, PROPRIETOR
DESIGNER AND MANUFACTURER OF STEEL, I RON AND COMBINATION RAILROAD BRIDGES,
Iron Viaducts, Train Sheds, Girders, Roof Trusses, Iron Buildings, Etc.,
Office and Works: 48th Street and A. V. R. R., PITTSBURGH, PA.

E.L. Stratton and Company 1896-1898
Lewis Stratton 1899-1901
J.W. Walker 1886-1890
Sometimes listed as bridge builder although he was proprietor of Shiffler Bridge Company at the time.

Western Pennsylvania Bridge Works 1888

Plattsburg 1896-1898
Plattsburg Bridge Company
Pottstown
*McClintic-Marshall Construction Company
See listing under Pittsburgh.

*Philadelphia Bridge Works
See listing under Philadelphia.

Pottstown Bridge Company
Purchased plant of Philadelphia Bridge Works
and later sold it to McClintic-Marshall
Construction Company.

*Lewis F. Shoemaker and Company
Started 1896. Using name of Schuylkill
Bridge Works in 1903.

Pottsville
*Pottsville Bridge Works
Operated by Pottsville Iron and Steel Company
and the two were listed interchangeably. An
1886 mill catalogue mentioned fabrication
of roof trusses, columns, and girders. Berlin
Construction Company leased shop in 1900.

Reading
Reading Rolling Mill Company

Spartansburg
F.C. Black

Steelton
*Pennsylvania Steel Company
Started steel production in 1867, and the
fabrication shop began about 1891.

Stroudsburg
S.B. Palmer and Company

Williamsport
M.M. Perry

York
S. Stouffer

C. J. SCHULTZ, PITTSBURGH, PA.
<table>
<thead>
<tr>
<th>Location</th>
<th>Company</th>
<th>Years</th>
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<tr>
<td>RHODE ISLAND</td>
<td>Providence Architectural Iron and Metal Works</td>
<td>1888-1898</td>
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<tr>
<td></td>
<td>Providence Pile Driving and Bridge Building Company</td>
<td>1883-1888</td>
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<tr>
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<td>James H. Tower</td>
<td>1879-1899</td>
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<td>SOUTH CAROLINA</td>
<td>Charleston</td>
<td>1896-1901</td>
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<td>H.W. Crouch and Brother</td>
<td>1896-1901</td>
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<tr>
<td></td>
<td>B.F. Kramer</td>
<td>1896-1901</td>
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<td>TENNESSEE</td>
<td>Chattanooga</td>
<td>1896-1898</td>
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<td></td>
<td>Cowan Bridge Company</td>
<td>1896-1898</td>
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<tr>
<td></td>
<td>George E. Crept</td>
<td>1896-1898</td>
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<tr>
<td></td>
<td>Ridgedale</td>
<td>1896-1901</td>
</tr>
<tr>
<td></td>
<td>*Converse Bridge Company</td>
<td>1896-1901</td>
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<tr>
<td>TEXAS</td>
<td>Austin</td>
<td>1899-1901</td>
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<td>C. Horton</td>
<td>1899-1901</td>
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<td></td>
<td>Dallas</td>
<td>1899-1901</td>
</tr>
<tr>
<td></td>
<td>George L. Austin and Brother</td>
<td>1899-1901</td>
</tr>
<tr>
<td></td>
<td>Harris and Leversedge</td>
<td>1896-1898</td>
</tr>
<tr>
<td></td>
<td>Fort Worth</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>M.S. Hasie Jr.</td>
<td>1901</td>
</tr>
<tr>
<td></td>
<td>*Southwestern Bridge and Iron Company</td>
<td>1894-1898</td>
</tr>
<tr>
<td></td>
<td>Plant under construction in 1894.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Houston</td>
<td>1899-1901</td>
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<tr>
<td></td>
<td>E.P. Ashbury and Son</td>
<td>1899-1901</td>
</tr>
<tr>
<td></td>
<td>B.A. Riesner</td>
<td>1896-1901</td>
</tr>
<tr>
<td></td>
<td>Southern Bridge and Construction Company</td>
<td>1899-1901</td>
</tr>
<tr>
<td></td>
<td>Waco</td>
<td>1896-1901</td>
</tr>
</tbody>
</table>
A late-19th-century bridge shop. The tools for drilling, facing, and other machine work are ranged along the column line at center; bays for assembling are at either side. (Probably the King Bridge Company, Cleveland)
<table>
<thead>
<tr>
<th>UTAH</th>
</tr>
</thead>
</table>
| **Ogden**  
Andrews Bridge Company  
Moved from Omaha, Nebraska.  
1898-1901 |
| **Salt Lake City**  
Anderson Bridge Company  
1898-1899 |

<table>
<thead>
<tr>
<th>VERMONT</th>
</tr>
</thead>
</table>
| **Clarendon**  
Nicholas M. Powers  
1883 |
| **Rutland**  
C.H. Bagley  
1883-1885 |
| **J.H. Holmes and Company**  
1896-1901 |
| **St. Albans**  
*Vermont Construction Company*  
Organized by E.F. Hawkins who had a similar company at Springfield, Massachusetts.  
1890-1901 |

<table>
<thead>
<tr>
<th>VIRGINIA</th>
</tr>
</thead>
</table>
| **Richmond**  
Tredgar Iron Works  
Opened in 1837 and built several bridges in 1861. Extent and duration of this activity unknown. |
| **Roanoke**  
*American Bridge and Iron Company*  
Started in 1889 and reorganized as Virginia Bridge and Iron Company in 1895 after financial problems.  
1889-1895 |
| **Cushman Iron Company**  
1896 |
| **Salem**  
Camden Iron Works  
Established about 1887.  
1887-1901 |

<table>
<thead>
<tr>
<th>WASHINGTON</th>
</tr>
</thead>
</table>
| **Seattle**  
Allen and Nelson Mill Company  
1896-1901 |
| **Puget Sound Dredging Company**  
1901 |
WASHINGTON

Seattle (continued)
Seattle Bridge Company 1901

Van Norman Bridge Company 1901

Tacoma
N.W. Bridge Company 1899-1901

L. Vanden Stein 1896-1898

Tacoma Bridge and Construction Company 1896

WEST VIRGINIA

Charlestown
Charlestown Bridge Company 1899-1901

Vulcan Road Machine Company 1891-1901
Proprietor of West Virginia Bridge Works but often listed in its own name.

Walker Brothers 1900

West Virginia Bridge Works 1891-1901
See Vulcan Road Machine Company.

Wheeling
West Virginia Bridge and Construction Company 1894-1901
Incorporated 1894.

WISCONSIN

Ashland
E.E. Durkee 1884-1892
Later at Phillips, Wisconsin.

De Pere
John Grandville 1896-1898

Milwaukee
Milwaukee Bridge and Iron Works 1875-1900
Founded in 1875. Cunningham and Keepers were proprietors in 1880, Keepers and
Riddell in 1886, and J.G. Wagner Company from about 1895 until its absorption
by American Bridge Company in 1900.

Milwaukee Bridge and Steam Forging Company 1888-1890

Milwaukee Variety Iron Works 1895-1896
Riddell and Morris proprietors.

F. Weinhagen 1887
Earlier had been agent for Penn Bridge Company at Milwaukee and later was connected
with Wisconsin Bridge and Iron Company.
Wisconsin (continued)
*Wisconsin Bridge and Iron Company

Milwaukee
 George Danielson

Neenah
 Ontario Iron Bridge Company

Ontario

Phillips

Prairie du Sac
 Wisconsin Bridge Company

Watertown

E. Kunnert Manufacturing Company
Structures built by us, nearly all of which are from our own design:

Cheapside Bridge, over Deerfield River, for Connecticut River R. R., .................................................. Length 710 feet
Connecticut River Bridge, Double Track, for Fitchburg R. R., ................................................................. " 650 feet
Blackstone River Bridge, Double Track, for Providence & Worcester R. R., ........................................ " 230 feet
Canal Bridge, Lowell, Mass., Three Tracks, Boston & Lowell R. R., ......................................................... Span 160 feet
Cochecho River Bridge, Double Track, Boston & Maine R. R., ................................................................. " 160 feet
Fitchburg and Boston & Lowell R. R., crossing Somerville, Three Tracks, F. & B. & L. R. R's, .......... " 122 feet
Biddeford Bridges, Double Track, Boston & Maine R. R., ................................................................. Spans, 120, 104, 124 feet
High Viaducts, height 61 feet, Manchester & Keene R. R., ... Total length 1075 feet
Seakonk River Bridge, with 215 feet draw, City of Providence, ................................................................. Total length, 1250 feet
Broadway Bridge, City of Boston, ................................................................. Width 60 feet, span 155 feet
Groveland Bridge, with 168 feet draw, over Merrimack River, ................................................................. Total length, 800 feet
Deer Island Bridge, with draw 154 feet over Merrimack River, ................................................................. Total length, 404 feet

And many others of various dimensions.

Also, many large Iron Roofs, of which the New England Manufacturers Institute Building, Boston, covering five acres, and containing 850 tons of iron truss work, is a fair example.

In addition to our regular bridge work, we have manufactured a large number of superior wrought-iron Turn-tables which are now in satisfactory use on many of the leading railroads of the country, of which the following may be named: Boston & Albany R. R., Baltimore & Ohio R. R., Atlantic & Pacific R. R., Atchison, Topeka & Santa Fe R. R., Mexican Central R. R., Chicago, Rock Island & Pacific R. R., Cincinnati Southern R. R.

Yours respectfully,

BOSTON BRIDGE WORKS.
APPENDIX A

SHOP CAPACITIES IN THE 1890s

The 1894 Directory of the American Iron and Steel Association was the first to provide annual capacity data for the larger bridge shops, and they provide a measure of the industry and each company's share. Unfortunately there is no issue closer to our termination date than the 1903 Supplement, corrected to January 1903. Material from that issue is included for companies named in this guide although some figures undoubtedly include plant expansions after 31 December 1900.

### Annual Operating Capacities

<table>
<thead>
<tr>
<th>Company</th>
<th>1894</th>
<th>1896</th>
<th>1898</th>
<th>1903</th>
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<tbody>
<tr>
<td>Alabama Bridge and Boiler Works</td>
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<tr>
<td>California</td>
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<td>Judson Manufacturing Company</td>
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<tr>
<td>Pacific Rolling Mill Company</td>
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<td>6.0</td>
<td>6.0</td>
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<td>Phelps Manufacturing Company</td>
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<td>NR</td>
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<tr>
<td>Connecticut</td>
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<td></td>
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<tr>
<td>Berlin Construction Company</td>
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<td>Berlin Iron Bridge Company</td>
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<td>12.0</td>
<td>12.0</td>
<td>(18.0)</td>
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<td>Delaware</td>
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<td>Edge Moor Bridge Works</td>
<td>30.0</td>
<td>30.0</td>
<td>40.0</td>
<td>(30.0)</td>
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<td>Illinois</td>
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<td></td>
<td></td>
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<td>American Bridge Works</td>
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<td>Lane Bridge and Iron Works</td>
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<td>Lassig Bridge and Iron Works</td>
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<td>Universal Construction Company</td>
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<td>Western Bridge Company</td>
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<td>Indiana</td>
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<tr>
<td>Attica Bridge Company</td>
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**APPENDIX A**

<table>
<thead>
<tr>
<th>State</th>
<th>Company Name</th>
<th>1894</th>
<th>1896</th>
<th>1898</th>
<th>1903</th>
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<tbody>
<tr>
<td>Indiana</td>
<td><strong>(continued)</strong></td>
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<td></td>
<td>Thatcher A. Parker</td>
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<td>Rochester Bridge Company</td>
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<td>Terre Haute Bridge Company</td>
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<td>Wabash Bridge and Iron Company</td>
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<td>NR</td>
<td>NR</td>
<td>7.5</td>
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<tr>
<td>Iowa</td>
<td>Clinton Bridge and Iron Works</td>
<td>*5.5</td>
<td>*5.5</td>
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<td>Des Moines Bridge and Iron Works</td>
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<td>Fair-Williams Bridge and Manufacturing Company</td>
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<td>Marshalltown Bridge ...</td>
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<td>Kansas</td>
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<td>20.0</td>
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<td>Kentucky</td>
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<td>Eastern Bridge and Structural Company</td>
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<td>R.F. Hawkins Iron Works</td>
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<td>Springfield Construction Company</td>
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<td>Michigan</td>
<td>Detroit Bridge and Iron Works</td>
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<td>12.0</td>
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<td>Jackson Bridge and Iron Company</td>
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<td>Minnesota</td>
<td>Gillette-Herzog Manufacturing Company</td>
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<td>St. Paul Foundry Company</td>
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# APPENDIX A

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<td>L. Schreiber and Sons Company</td>
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* NR: Not Reported
# APPENDIX A

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<td><strong>TOTAL REPORTED</strong></td>
<td>603.3</td>
<td>691.1</td>
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NOTES

- Company not listed.

NR Company listed but capacity not recorded.

( ) Plant part of American Bridge. Smaller capacities may be result of elimination of duplicate facilities.

* Capacity reported as range (6,000 to 8,000 tons); the average is entered in table.

(a) 1903 capacity of Horseheads included in Elmira’s.

(b) Previously located at Philadelphia, the office had been moved to New York City and the shop was at New Market, New Jersey.

(c) Listed in Directory as 100,000 tons. As this was twice the size of Keystone Bridge it has been assumed that a decimal error had been made.

(d) See Appendix C for comment about Shiffler’s Walker Shop which is not included in this table.
APPENDIX B

THE AMERICAN BRIDGE COMPANY OF 1870

This Chicago company was one of the largest of its period, comparable in size to Keystone Bridge Company and Clarke, Reeves and Company, both of which started about the same time. Its contracts ranged from Texas, through the Midwest, to New England, where a two-level railroad and highway bridge was built at Fall River, Massachusetts. In addition to the usual structures the company built the Point Bridge at Pittsburgh, an 800-foot suspension bridge supported by trussed eyebars, and part of the Ninth Avenue El in New York City.

It was organized in 1870 by Lucius B. Boomer with some of his former associates. Boomer had formed L.B. Boomer and Company in 1849 after coming to Chicago from Massachusetts. Two years later he was joined by his brother-in-law Andros B. Stone and they operated as Stone and Boomer. Stone's brother, Amasa Stone, Jr., was the brother-in-law of William Howe who had developed the widely used Howe truss, and both the Stones had built Howe's patented bridges in the Springfield, Massachusetts area as had Boomer. Stone and Boomer constructed the first railroad bridge across the Mississippi at Rock Island and built many others throughout the Midwest, some of them for Amasa Stone, Jr., who had moved to Cleveland and become a railroad contractor. After their shop was destroyed by fire in 1857, Stone moved to Cleveland, but Boomer stayed and operated the Boomer Bridge Works.

American Bridge's general agent was L.C. Boyington who had worked on the Rock Island bridge and had been Boomer's partner for a brief period. H.A. Rust, a former employee of Boomer and later a partner of Boyington, was vice president, and Moritz Lassig, also employed at Rock Island, was general superintendent. An 1875 advertisement showed several changes. Boyington no longer was listed. Boomer had retired and his former partner, A.B. Stone, was president although living in New York City. Lassig had left after one year to form his own company. Rust still was vice president and had added the duties of general superintendent. A new name was that of W.G. Coolidge, engineer and secretary. The plant had about three acres under roof on a thirty-two acre site and included besides the usual shops a foundry with a daily melting capacity of fifty tons. The equipment also included floating pile drivers and barges as the firm's contracts sometimes included the bridge foundations.

A railroad bridge across the Hudson at Poughkeepsie, New York had been discussed for years. The State finally approved the idea in 1871, but financial problems halted the first attempt after a contract had been signed with Keystone Bridge Company. In 1876 the promoting company received new proposals that included not only foundations and superstructure but also assistance in raising funds or accepting partial payment in stock. American Bridge received the contract and as part of the agreement A.B. Stone became head of the Poughkeepsie Bridge Company so that he was both customer and supplier. Even this arrangement did not save American Bridge. The cofferdam for pier #2 failed in 1877 and this, combined with troubles on other contracts and general business conditions, forced the company into liquidation the following year.
Rust and Coolidge, formerly vice president and secretary, began operating the plant in 1878 and continued until Chicago Forge and Bolt Company leased it in 1885 and bought it soon afterwards. In both instances the new operators used their own names, and the American Bridge Company name disappeared after nine years. When that name reappeared it was borne by a completely new concern. In 1891 a new company, the American Bridge Works, was organized and leased the shop from Chicago Forge. They purchased it in 1895, and five years later sold the business to J.P. Morgan's just organized American Bridge Company.
APPENDIX C

THE AMERICAN BRIDGE COMPANY OF 1900

After more than a year of rumors and speculative articles the American Bridge Company was formally organized by J.P. Morgan and Company and incorporated in New Jersey on 14 April 1900. It was an independent company for less than a year as most of its stock was acquired by United States Steel Corporation, of which it became a subsidiary on 1 April 1901. However, this development did not affect its corporate organization. Statutory offices were maintained in New Jersey, and the headquarters were in New York City until 16 May 1901, then in Philadelphia until 1 April 1904, and finally in Pittsburgh.

Twenty-four companies, fifty percent of the nation's fabricating capacity, were purchased the first year. Those in New York State became part of a subsidiary, Empire Bridge Company, which started at the same time as its parent and existed until 2 July 1914. The others apparently reported directly to the main headquarters except, perhaps, for A. and P. Roberts Company (Pencooyd Iron Works) which had its own company officers, and the precise relationship here is not known. In addition to Empire Bridge there was another subsidiary, American Bridge Company of New York, which was responsible for all sales, contracts, and erection from 10 January 1901 until 31 December 1913. It is not known how the activities at each plant were fitted into this corporate structure, especially with A. and P. Roberts and Empire Bridge, but there was some degree of central control as shop drawings sometimes were made at one office and distributed to several different shops for fabrication.

As American Bridge's organization matured some shops were expanded, others closed, and the huge plant at Ambridge (formerly Economy), Pennsylvania constructed. When completed in 1903 its capacity was triple that of the previous record holder and was roughly equal to the combined capacity of the five largest companies bought by American Bridge. Part of the site had been purchased by Berlin Iron Bridge Company in 1899 for a western division, but the final plans were so much expanded that more land was acquired. The twenty-four companies acquired in 1900 were:

American Bridge Works, Chicago, Illinois
Berlin Iron Bridge Company, Berlin, Connecticut
Buffalo Bridge and Iron Works, Buffalo, New York
Edge Moor Bridge Works, Wilmington, Delaware
Elmira Bridge Company Ltd., Elmira, New York
Gillette-Herzog Manufacturing Company, Minneapolis, Minnesota
Groton Bridge and Manufacturing Company, Groton, New York
Bilton Bridge Construction Company, Albany, New York
Horseheads Bridge Company, Horseheads, New York
Keystone Bridge Works, Pittsburgh, Pennsylvania
(from Carnegie Steel Company, Limited)
Lafayette Bridge Company, Lafayette, Indiana
Lassig Bridge and Iron Works, Chicago, Illinois
Milwaukee Bridge and Iron Works, Milwaukee, Wisconsin
(from J.G. Wagner Company)
APPENDIX C

New Columbus Bridge Company, Columbus, Ohio
Pencoyd Iron Works, Philadelphia, Pennsylvania
(A. and P. Roberts Company)
Pittsburgh Bridge Company, Pittsburgh, Pennsylvania
Post and McCord, New York, New York
Rochester Bridge and Iron Works, Rochester, New York
Schultz Bridge Iron Company, McKees Rocks, Pennsylvania
Shiffler Bridge Company, Pittsburgh, Pennsylvania
Trenton Iron Works, Trenton, New Jersey
(New Jersey Steel and Iron Company)
Union Bridge Company, New York, New York
(plant at Athens, Pennsylvania)
Wrought Iron Bridge Company, Canton, Ohio
Youngstown Bridge Company, Youngstown, Ohio

Several other large fabricators—Passaic Rolling Mill, King Bridge, and Phoenix Bridge—had been linked to the new company in the speculative articles, but they remained independent.

To complete the history of American Bridge's expansion it is necessary to go into the twentieth century. The later additions were:

Toledo Bridge Company, Toledo Ohio (1901)
Detroit Bridge and Iron Works, Detroit, Michigan (1902)
Koken Iron Works, St. Louis, Missouri (between 1912 and 1916)
Virginia Bridge and Iron Company, Roanoke, Virginia (1936)

In 1955 United States Steel transferred three shops from its Consolidated Western Steel Division to American Bridge. All in Los Angeles, California, they originally were Baker Iron Works (founded 1872), Llwyllyn Iron Works (1884), and Union Iron Works (1884). They had joined to form Consolidated Steel in 1928. This later became part of Consolidated Western Steel Corporation which United States Steel bought in 1948.

Alabama Bridge and Iron Company is listed as one of American Bridge's acquisitions in Talbot's American Bridge Company History and Organization. Although its date of incorporation is given as 4 August 1900, it was not listed in the American Iron and Steel Association directories of 1903, 1908, or 1916 as either an independent company or a part of American Bridge. For this reason, and also because a location is not given, the company is not included in the directory portion of this work or the list of acquisitions.

The AISA directories of 1903 and 1906 offer a puzzle concerning one of American Bridge's shops as they include 'Walker Plant, West Homestead, Pennsylvania, Annual capacity 16,000 tons. (Formerly operated by the Shiffler Bridge Company.)' Earlier directories: 1894, 1896, and 1898, do not include any such plant, and it would appear that Shiffler had started an expansion between 1898 and the formation of American Bridge. Perhaps this shop, which doubled Shiffler's capacity, and Berlin Iron Bridge's start of a second plant provided the impetus for the formation of the bridge combine.
APPENDIX D

SOME ITINERANT ENTREPRENEURS

While most men remained with the same company, or at least in the same area, for most of their working lives, others moved and held several important positions. These individuals may not have been typical, but their movements show the restless nature of the developing industry. Also they were channels for the diffusion of engineering and construction ideas. Frequently the obituaries and memoirs do not record all the company associations. So that the information gathered in compiling the directory will be available, the more important affiliations of a few of the more notable participants are listed. The two Charles Kelloggs are included not only for their multiple companies but also to distinguish between the two competitors, who lived within 140 miles of one another.

Thomas C. Clarke 1827-1901

Kellogg, Clarke and Company Philadelphia, Pennsylvania 1868-1870
Clarke, Reeves and Company Philadelphia, Pennsylvania 1870-1883
Union Bridge Company New York, New York 1884-1887

His memoir in the Transactions of the American Society of Civil Engineers states 'Mr. Clarke had intended to study the Law; but being in delicate health at that time, he decided to adopt the profession of Civil Engineering.' (The present author, a civil engineer, refrains from comment.)

Charles Kellogg

wood railroad bridges north central Pennsylvania c1865-1871
Kellogg and Maurice Athens, Pennsylvania 1871-1884
Union Bridge Company Athens, Pennsylvania 1884-1887
Elmira Bridge Company, Ltd. Elmira, New York 1889-c1892

Charles Kellogg 1891

Charles Kellogg and Company Detroit, Michigan 1857-1863
Superintendent of Detroit Bridge and Iron Works Detroit, Michigan 1863-1868
Kellogg, Clarke and Company Philadelphia, Pennsylvania 1868-1870
Kellogg Bridge Company Buffalo, New York 1870-1881

Charles A. MacDonald 1837-1928

Burton and MacDonald New York, New York 1870
consulting engineer New York, New York 1871-1872
Delaware Bridge Company (a) New York, New York 1880-1883
Union Bridge Company New York, New York 1884-1900
American Bridge Company New York, New York 1900-1901
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Thomas W.H. Moseley 1813-1880

Moseley and Company
Moseley Iron Building Works
Moseley Iron Bridge and Roof Company (b)
Moseley Iron Building Works
Moseley Iron Bridge and Roof Company (b)

Cincinnati, Ohio
Boston, Massachusetts
New York, New York
Philadelphia, Pennsylvania
New York, New York

1856-1861
1861-1871
1867-1880
1876

Moseley sometimes was referred to as 'General' as he had been Adjutant General for Ohio during the Mexican War.

James W. Shipman

Manufacturer of bridges and axles
Coshocton Iron Works
Cincinnati Bridge Company
New York Bridge Company

Van Hornesville, New York
Coshocton, Ohio
Cincinnati, Ohio
New York, New York

1856
1861-1874
1873-1877
1877

submitted bids for bridges at Lowell, Massachusetts in his own name
New York, New York

1880-1881

Shipman was a nephew of Squire Whipple, the pioneer designer and builder of iron bridges.

NOTES
(a) It is not known when MacDonald became associated with Delaware Bridge or if he remained in New York City even though the shop was at Trenton, New Jersey.

(b) The company continued long after his death. It was listed in directories until 1905.
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Additional material has been collected from correspondence, advertisements, town histories, and financial reports.
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37 Asher and Adams
39 Engineering News, October 3, 1891
41 Poor's, 1872-73
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45 (bottom) Poor's, 1875-76
46 'Iron Bridges and their Construction', in Lippincott's Magazine of Popular Literature and Science, January 1873, p. 9 (Lippincotts)
47 Lippincott's, p. 17
48 American Society of Civil Engineers Transactions, January 1894 (ASCE)
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69  Engineering and Building Record, July 20, 1889
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No. 1. THE RIDHAU WATERWAY, by William D. Naftel. April 1973. 12 pp., illus. [out of print; Xerox copy $2.00]

No. 2. THE BURDEN WATER-WHEEL, by F. R. I. Sweeny. Reprint of a 1915 article, with annotations. April 1973. 12 pp., illus. [out of print; Xerox copy $2.00]

No. 3. SYMPOSIUM—INDUSTRIAL ARCHEOLOGY AND THE HUMAN SCIENCES, Dianne Newell, editor. April 1978. 21 pp., illus. $1.00

No. 4. A DIRECTORY OF AMERICAN BRIDGE-BUILDING COMPANIES 1840–1900, by Victor C. Darnell. August 1984. 120 pp., illus. $7.00