

Mahoning Avenue Pratt Double-Deck Bridge  
Spanning Mill Creek at Mahoning Avenue (CR 319)  
Youngstown  
Mahoning County  
Ohio

HAER No. OH-41

HAER  
OHIO,  
50-YOUNG,  
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
U. S. Department of the Interior  
P. O. Box 37127  
Washington, D. C. 20013-7127

ADDENDUM TO  
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HISTORIC AMERICAN ENGINEERING RECORD

Mahoning Avenue Pratt Double Deck Bridge

HAER No. OH-41

Location: County Route 319 over Mill Creek, Youngstown,  
Mahoning County, Ohio.

UTM Coordinates: 17/527530/4549850

Date of  
Construction: 1903

Present Owner: County of Mahoning (Board of Commissioners)  
County Courthouse  
Market Street  
Youngstown, Ohio

Present use: Vehicular traffic

Significance: The Mahoning Avenue Pratt Double Deck Bridge was built in 1903 by Huston and Cleveland of Columbus, Ohio. The upper level - a Pratt deck truss - spans the whole of the Mill Creek Valley, while the lower level is an adapted form of the Pratt through truss and only spans Mill Creek. The bridge is double decked at this point and is the only known example of a Pratt Double Deck Bridge in Ohio. The bridge is listed as a "selected bridge" in the Ohio Department of Transportation's Ohio Historic Bridge Inventory Evaluation and Preservation Plan.

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Ohio Historic Bridge Recording Project  
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The Mahoning Avenue Bridge in Youngstown is a double-deck bridge. The upper level - a Pratt deck truss - spans the whole of the Mill Creek Valley as part of a viaduct which has an overall length of 850 feet. At its west end it abuts a bridge built in 1961. The lower level is an adapted form of the Pratt through truss. It crosses Mill Creek and has a span of 109 feet. The bridge is double decked at this point. It is composed of lattice girders, and the double deck section has prominent pinned connections.

The Pratt truss has its upper chord and vertical members in compression, and its bottom chord and diagonal members in tension. The Mahoning Avenue Bridge is braced beneath the deck by two layers of horizontal lateral girders. Diagonal braces run vertically between most of these two layers of girders. At intervals, however, latticed bracing is used instead. Curved braces run from some of the vertical posts to the lower of the two lateral bracing girders. Diagonal braces also run longitudinally between the vertical posts.

Land was appropriated for the approaches to the bridge in early 1903.<sup>1</sup> The Mahoning County Commissioners appointed M. Scofield (the County Engineer) to assist the County Surveyor (George M. Montgomery) to make his preliminary examination of the site and also to prepare the 'necessary general plans and specifications' so that bids could be received for the bridge. The County Engineer was to receive 5% of the contract price of all sub- and superstructure work.<sup>3</sup>

In February 1903 the County Commissioners gave the contract for the superstructure to Huston and Cleveland of Columbus, Ohio.<sup>4</sup> In the County Commissioners Journals it says that they were to substitute plate girders for lattice girders. The floor system, known as the 'Buckeye Trough', was to be used and the whole was to be completed for \$150,000.<sup>5</sup>

Niedermeier and Restle(?) were given the contract for the substructure work, and Scofield, the County Engineer, is recorded as requesting that changes be made to the specifications for the substructure which would increase the cost by \$200.53. The Commissioners agreed to the change.<sup>6</sup> The contract for concrete work went to R. E. Evans.<sup>7</sup>

A number of minor changes were made to the bridge during the course of its construction. For example, in July 1903, Scofield asked that iron guards be placed on the abutments of the Mill Creek Bridge to protect the corners of the piers.<sup>8</sup> The Commissioners agreed and a bid of \$261 was submitted for the work by the Youngstown Engineering Company. In August, the Commissioners adopted Scofield's suggestion that block asphalt should be used instead of sheet asphalt at an additional cost of \$1,750.<sup>9</sup> The bridge appeared to be finished in November 1904, but a month later it was decided to raise and lengthen the abutments on the narrows at Mill Creek.<sup>11</sup> With all the improvements and changes to the original specifications for the bridge, the final cost must have been considerably higher than it was originally expected to be.

As has already been noted, the County Commissioners hired Scofield as a consultant to assist the County Surveyor. Montgomery is listed in Youngstown city directories as being the County Surveyor from 1898 to 1911. The post of county surveyor was an important one in Ohio, and as time passed it gathered more and more engineering responsibilities. The name of the post was officially changed to 'county engineer' in 1935 (although some areas seem to have been using that name unofficially for some years).

An Edson M. Scofield appears in the directories during this period, but only until 1901. This Scofield was manager of the Youngstown Bridge Company at that time, so it is possible that he is the Scofield of the Mahoning Avenue Bridge records. His obituary appears in the Transactions of the American Society of Civil Engineers. It does not mention that he ever worked for the County Engineer's Department but this is not surprising if he was a consultant. It would be a coincidence (although not an impossible one) there was another Scofield who had connections with both Youngstown and with bridge building.

Edson Mason Scofield was born in Hermon, New York, on 26 September 1867. He was educated at Union College, Schenectady, New York, and graduated from there in 1888 with a degree in civil engineering. He began his career at the Youngstown Bridge Company, and progressed from the post of assistant engineer to that of chief engineer, and finally manager. He went on to become the manager of the National Bridge

Company, Pittsburg, Pennsylvania. In 1903 he and his brother (Glenn Mason Scofield) began the Scofield Engineering Company in Philadelphia. In 1920 the brothers, together with two other men, organized the Scofield Engineering and Construction Company of Los Angeles, California. The Company specialized in large earthquake-proof buildings, and was responsible for about 100 large buildings in and around Los Angeles between 1920 and 1929. Scofield died in Los Angeles on 28 December 1939. His brother Glenn's career was in fact almost exactly the same, but he was assistant manager, and then manager of the New York office of the Youngstown Bridge Company. It would seem more likely that the Scofield who had been based in Youngstown would assist the County Surveyor.<sup>12</sup>

The bridge was built by the firm of Huston and Cleveland (Engineers and Bridge Contractors), which is first listed in the Columbus City Directory for 1902-3.<sup>13</sup> William N. Cleveland was the nephew of Grover Cleveland, and he is previously shown in the directories as working for a number of other construction companies. In the 1899 and 1900-1901 volumes, for example, he is listed as being President of the New Columbus Bridge Company. In 1900, he is listed as being manager of the Cleveland, Cincinnati, Chicago and St. Louis Railway Company. By the 1902-3 volume he is noted as being the Cleveland of Huston and Cleveland, and it is here that Robert W. Huston's name first appears in the Directory. Their company last appears in the 1906-7 Directory. In the volume for 1909, Cleveland is said to be president of the Capitol

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Construction Company with Huston as vice president. Capitol

Construction is also listed in the 1907-8 edition.

In 1901, Cleveland acted as manager for the American Bridge Company (New Columbus branch).<sup>14</sup> This is interesting because there appears to have been some kind of connection between the American Bridge Company and Huston and Cleveland in the latter's dealings. It is the latter company which was given the contract for the superstructure of the Mahoning Avenue Bridge, but the names of both companies appeared on the drawings for the bridge. It seems likely that in this situation Huston and Cleveland were given the contract, and they then passed on their specifications (already cleared by the County Commissioners) to the American Bridge Company which made up the parts. Huston and Cleveland may or may not have been involved with the erection of the bridge on site, but the American Bridge Company appears to have been involved with its maintenance thereafter. There are records of a number of repairs made to the Mahoning Avenue Bridge by the American Bridge Company.<sup>15</sup>

An American Bridge Company existed from 1870-1878, but the famous bridge building conglomerate used the same name when it started operating in 1900. In 1901 it became a subsidiary of the United States Steel Corporation. In the first year of operation, it bought up 24 companies (50% of the United States' bridge fabricating capacity), including the new Columbus bridge company of which Cleveland was President. Several other companies were bought in later years.<sup>16</sup> Although Huston and



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Cleveland was connected with the American Bridge Company, it was apparently not taken over. The company seems to have ceased operating as a result of the investigations into bridge pools in Ohio in the early 20th century. Huston and Cleveland was one of the small companies involved. Bridge pools were alliances between participating companies which helped to keep prices paid to companies for their work at a certain level. The companies would decide which of them would put in the lowest bid before submitting their supposedly secret bids for a bridge contract. For more information on bridge pools please see the report on the Forder Pratt Through Truss Bridge (HAER No. OH-42). Huston and Cleveland did not operate for very long, but in the four or five years of its existence, it received many contracts for bridges in Mahoning County. There are a large number of entries for bridges built by Huston and Cleveland in the County Commissioners Journals.<sup>17</sup> (For a report on another bridge built by Huston and Cleveland, please see HAER No. OH-40 on the Main Street Parker Pony Truss Bridge in Poland, Mahoning County.)

NOTES

- 1 Mahoning County, Ohio, County Commissioners Journal (19 January 1903) vol. 8: p. 243.
- 2 Mahoning County, County Commissioners Journal (19 January 1903) vol. 8: p. 244.
- 3 Ibid.
- 4 Mahoning County, Ohio, County Commissioners Journal (2 February 1903) vol. 8: p. 254.
- 5 Ibid.
- 6 Mahoning County, Ohio, County Commissioners Journal (2 February 1903) vol. 8: p. 351
- 7 Mahoning County, Ohio, County Commissioners Journal (25 July 1904) vol. 8: p. 457.
- 8 Mahoning County, Ohio, County Commissioners Journal (20 July 1903) vol. 8: p. 305.
- 9 Mahoning County, Ohio, County Commissioners Journal (31 August 1903) vol. 8: p. 315.
- 10 Mahoning County, Ohio, County Commissioners Journal (21 November 1904) vol. 8: p. 487.
- 11 Mahoning County, Ohio, County Commissioners Journal (19 December 1904) vol 8: p. 492.
- 12 Edson Mason Scofield's obituary is in the Transactions of the American Society of Civil Engineers 105 (New York: American Society of Civil Engineers, 1940) pp. 1908-12.  
Glenn Mason Scofield was born on 3 May 1873, and died on 21 December 1926. His obituary is also in the Transactions vol. 93 (1929), pp. 1895-6.
- 13 Columbus City Directory (Columbus, Ohio: R. L. Polk and Co., 1902-3).
- 14 Bridge files, O.H.S. (compiled by David A. Simmons, O.H.S.).
- 15 Mahoning County, Ohio, County Engineer's records (structure file numbers 5058074, 5058449).

16 Victor C. Darnell, Directory of American Bridge-Building  
Companies 1840-1900, Society for Industrial Archaeology, Occasional  
Publication No. 4 (Washington D.C., 1984).

17 For example volume 8: pp. 159, 162, 168, 191, 196, 198, 217,  
218, 254, 265, 276, 278, 280, 282, 290, 293, 295, 305.

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