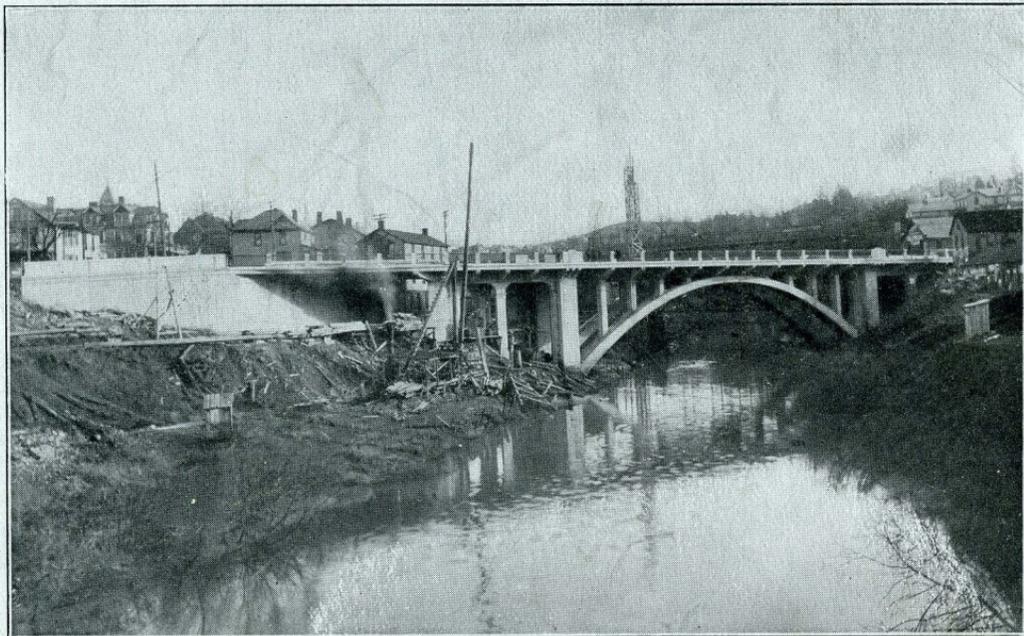


P430

SOUTH MORGANTOWN BRIDGE



MORGANTOWN, WEST VIRGINIA

South Morgantown Bridge

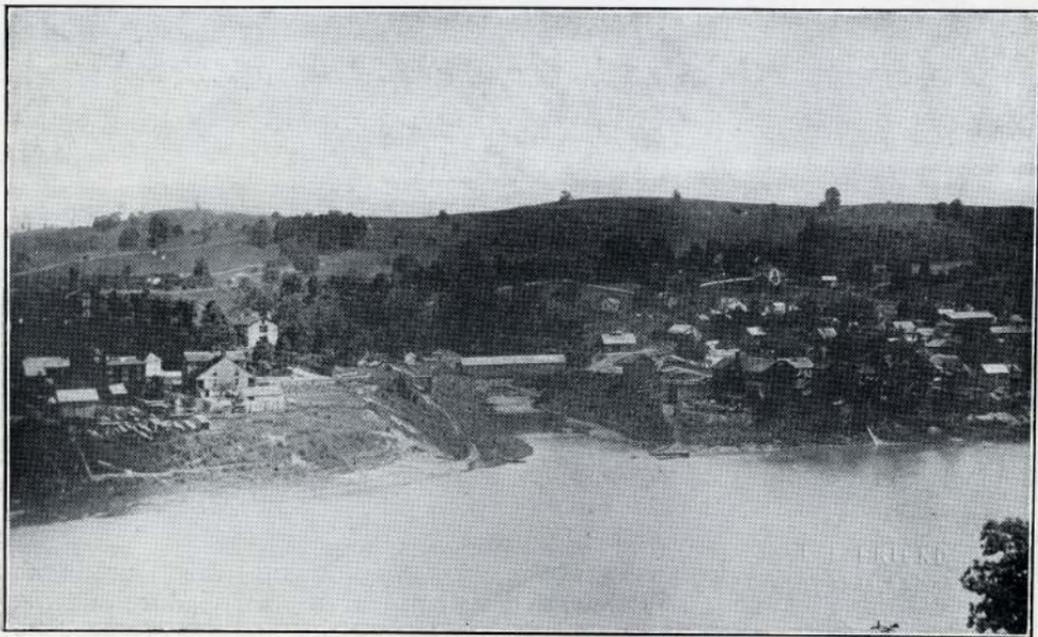
Spanning Deckers Creek and two Railroad Tracks

Morgantown, West Virginia

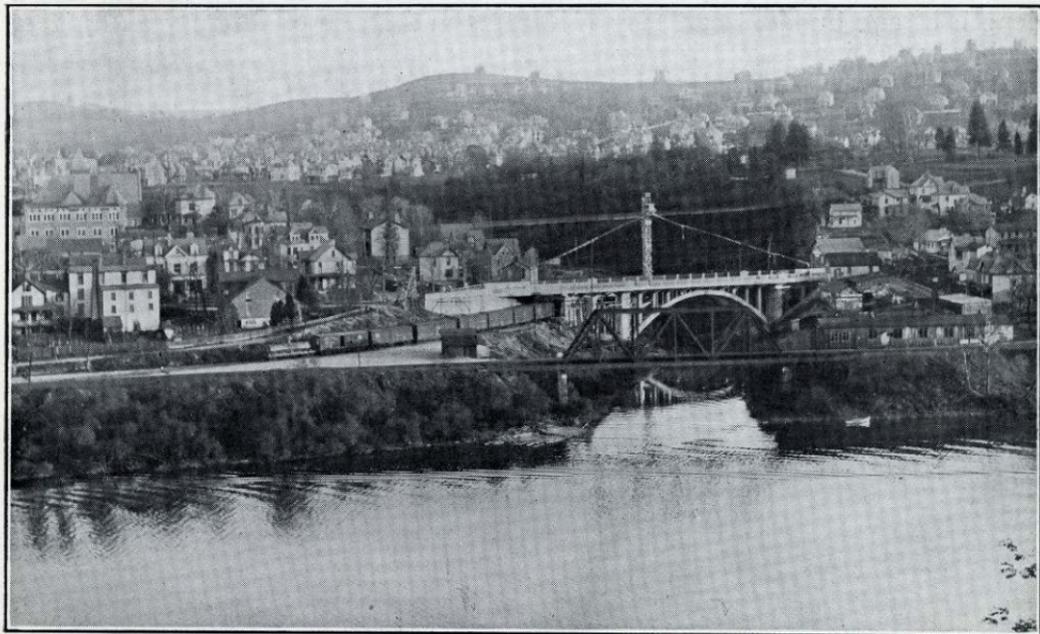


THE new concrete bridge is known as the South Morgantown Bridge, and spans Deckers Creek and the two tracks of the Morgantown & Kingwood Railroad. The bridge is four hundred thirty (430) feet long and fifty (50) feet wide out to out, connecting Front Street with Bridge Street, and was built for the County Court of Monongalia County, Jno. C. Price, President; Resin W. Sine, and William Bowlby, Commissioners. The designs and specifications were prepared by the Monongahela Valley Engineering Company, and the inspection work was handled under the direction of Robt. D. Hennen, Engineer for the County Court. The general contractors were Cole Brothers Inc.

The old wooden bridge as shown in cut No. 1 known as the "Durbannah Covered Bridge" was built in 1843, and replaced by a steel viaduct in 1898. This steel viaduct after being in service for about 16 years was replaced by the new modern and permanent reinforced concrete structure, as shown in cut No. 2, during the season of 1915.



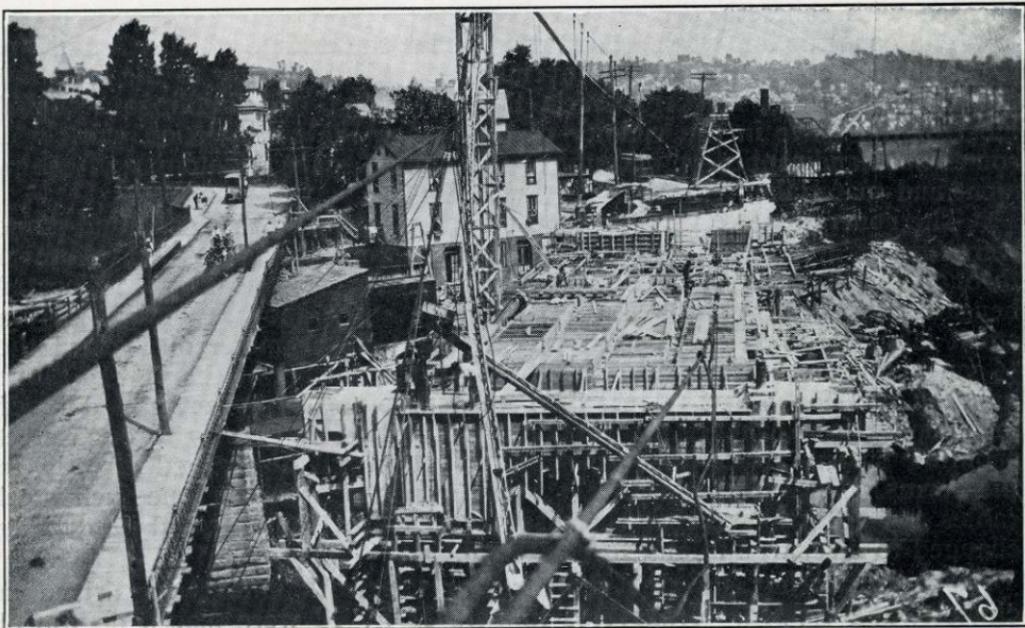
Old "Durbannah" Bridge across Deckers Creek (about 1880).



Present Bridge, 1915.

The main arch of the new bridge, which spans Deckers Creek, has a length of one hundred and fifty (150) feet and a rise of thirty six (36) feet and four (4) inches and is at present the longest concrete arch span in the state. The steel encased girder span over the tracks of the Morgantown & Kingwood Railroad is sixty (60) feet in length and on a sharp skew. The length of bridge between abutments is three hundred (300) feet and the length out to out of abutment wing walls is four hundred twenty-five (425) feet nine (9) inches. The driveway is thirty (30) feet wide and paved with vitrified paving blocks and laid on a cushion of slag and cinders and the brick joints filled with a pitch filler, making the paving waterproof and practically noiseless.

The bridge is designed for two trolley tracks carrying the heaviest of interurban cars; however but one track was installed. On either side of the roadway is an eight foot concrete sidewalk supported on cantilever brackets under which all lighting and telephone wires are carried in conduits. The sidewalks are protected by artistic metal hand-railing attached to concrete posts. Technically the bridge is known as the "Open Spandral Rib Arch" consisting of two arch ribs each four feet thick by eight feet wide. These concrete ribs are reinforced with structural steel arch trusses imbedded in the concrete. Upon these arch ribs rest reinforced concrete columns two feet by four feet, which carry the deck or roadway of the bridge proper. The allowable headroom clearance between the tracks of the Morgantown & Kingwood Railroad and the roadway required special treatment. In this



Forms for Pier Columns and Roadway System.

case heavy steel girders with "I" beam floor supports were installed and encased with concrete.

The construction work was started about the middle of March and the bridge finally completed about November 1st, 1915. Owing to the fact that the railroad tracks, Deckers Creek, the old bridge, and buildings occupied most of the space in the vicinity of the bridge the construction work was somewhat handicapped on account of the limited space for storage of equipment and materials.

The concrete plant was located below the tracks so that sand and stone were discharged from bottom leaf cars to storage and mixing platform through gravity chutes. A one-half yard batch concrete mixer was located beneath the platform and the cement storage house above, requiring only a small labor force to operate the mixing plant. The mixer discharged the $\frac{1}{2}$ yard concrete batches directly into the tower bucket at the foot of a one hundred and forty foot tower, then hoisted to top of tower, and dumped into hopper from whence the concrete was carried by gravity through steel spouting system to various parts of the work and discharged directly to the forms. The steel spouting system was supported on one inch steel cables and so arranged that the discharge ends of spouts could be quickly changed to discharge in any form desired.

For supporting the arch centering or falsework, piles were driven in clusters, and capped. Transverse timbers 12 by 12 were placed on top of the caps and on top of these timbers rested longitudinal lines of steel "I" beams forming the foundation or floor for the arch centering.

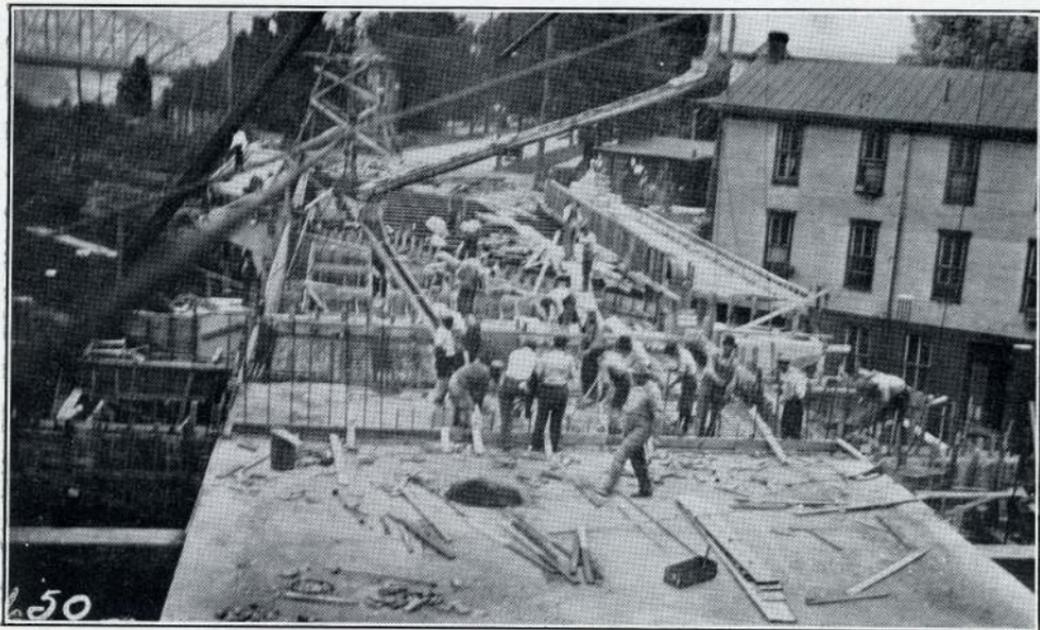


Arch Centering and Supports for Floor System.

Full detail designs were prepared by the contractors for all arch centering, falsework, etc., which greatly facilitated the carpenter work. The bridge being located on a skew, it was not practical to duplicate much of the falsework, nor to remove and use over again much of the floor system forms.

Along the railroad tracks it was necessary to carry the excavation for foundations some forty feet below the tracks through soft fill to bed rock. As the excavation was within two feet of ends of ties and heavy railroad traffic immediately above, it required the utmost care in planning and executing the work to avoid the giving away of the shoring which would have meant the possible wrecking of railroad equipment. The work was carried to completion, from beginning to end, without a single accident on the part of the contractors.

The Engineer for the County Court, Robt. D. Hennen, is President of the Monongahela Valley Engineering Company and is prominently identified with numerous engineering projects in the way of bridge and railroad work in this section. The contractors, Cole Brothers Inc., have their main office in Baltimore, Md. H. O. Cole is President and E. L. Cole is Secretary and Treasurer, both members of the firm being natives of Monongalia County and graduates of the West Virginia University. Prior to forming the corporation each had wide and varied engineering experience. H. O. Cole was from 1908 to 1911 with the Isthmian Canal Commission, first as Office Engineer, in charge of designs for Division, later Engineer in Charge of the Construction of the Pacific Locks, Dams, Canal Excavations, etc. E. L. Cole, who was Resident Engineer in charge of the Construction of the new South



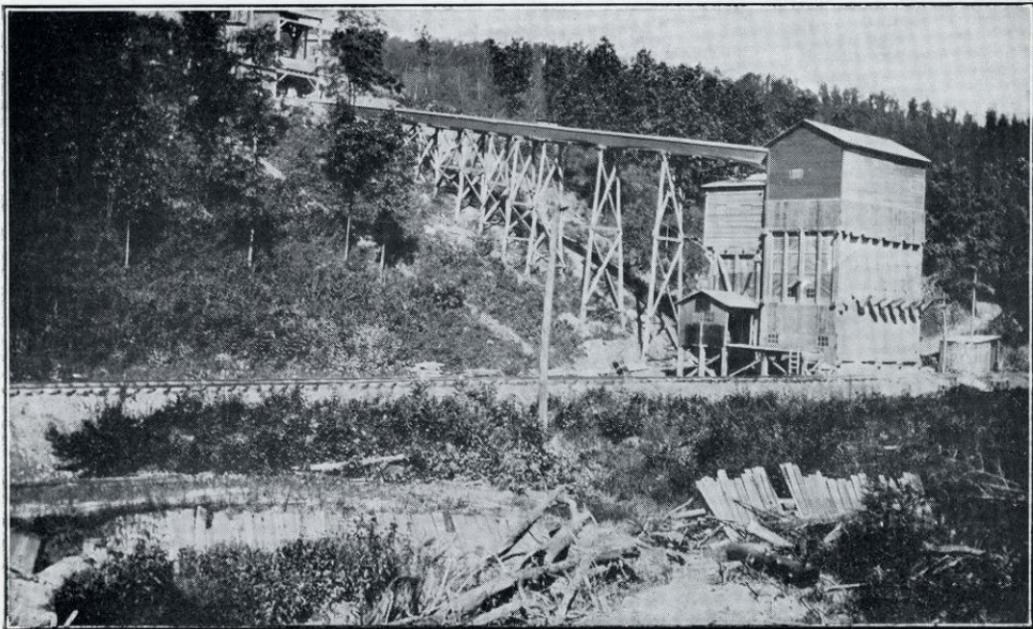
Pouring the Roadway System.

Morgantown Bridge, was formerly Designing Engineer with the American Bridge Company and the Carnegie Steel Company.

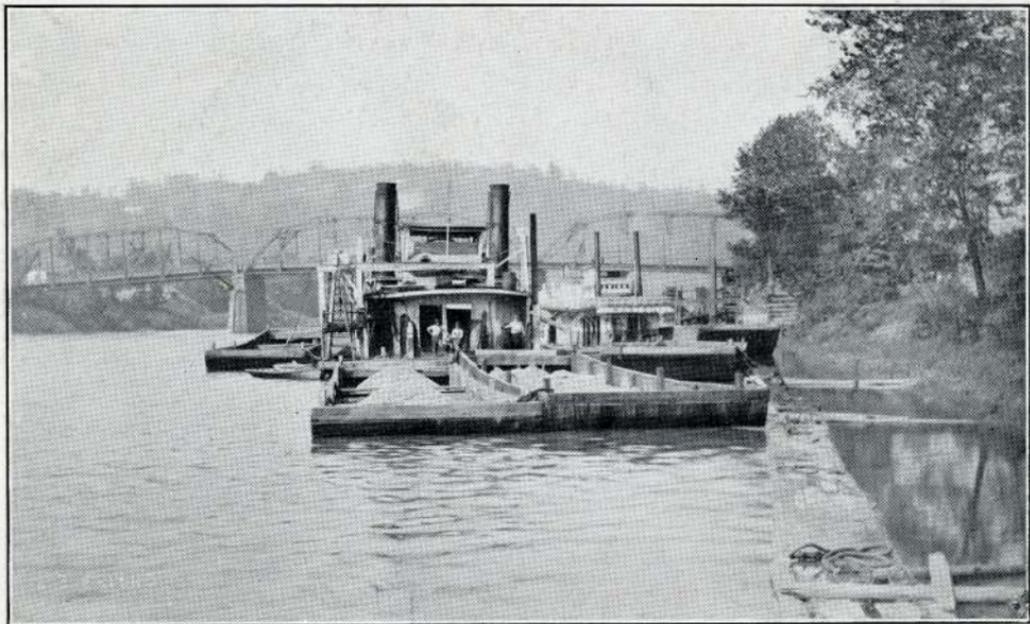
The contractors were ably assisted by E. E. Hormell, as Superintendent, who has had a prominent experience in the construction of River Locks, Railroad and Bridge Work.

The bridge, costing \$62,700.00, contains 4,500 cubic yards of concrete and 170 tons of steel. For the concrete work 100 cars of crushed stone and gravel were required and about 60 cars of sand and 6,000 barrels or 30 cars of cement.

Most of the materials used in the construction, except the steel, were secured locally: Sand and gravel from the McLean Sand Company of Point Marion, Penna.; crushed limestone from the Greer Limestone Company from their Deckers Creek Plant at Greer, W. Va.; the cement from the Manheim plant on the M. & K. R. R. of the Alpha Portland Cement Company of Easton, Pa.; the vitrified brick for the roadway from the Morgantown Brick Company; the structural steel and metal hand-rail from the Penn Bridge Company, Beaver Falls, Penna.; and the reinforcing steel from Dietrich Brothers of Baltimore, Md. The steel concrete spouting system was supplied by the Insley Manufacturing Company of Philadelphia, Penna.



Greer Limestone Company Plant—Greer, W. Va.



McLean Sand Company Plant—Point Marion, Pa.

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