



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

Devoted to the Manu-
 facture and Uses
 of Portland Cement

Concrete- Cement Age

INDEX Vol. 5

Published Monthly by the

CONCRETE-CEMENT AGE

PUBLISHING Co.
 Telegraph Building
 Phone: Main 571.

DETROIT

WALTER C. BOYNTON,
 General Manager

R. MARSHALL,
 Business Manager

BRANCH OFFICES:

NEW YORK: 30 Church Street,
 F. F. LINCOLN, Eastern Man-
 ager. Phone: Cortlandt 6452.

PHILADELPHIA: 611 and 612
 Pennsylvania Bldg., ROBERT W.
 LESLEY, Consulting Editor.

CHICAGO: 1020 1st Natl. Bank
 Bldg. R. N. JACKSON, West-
 ern Manager: Phone: Central
 6502.

CLEVELAND: 794 East 95th St. JOHN
 H. BYRNE, Manager.

SPOKANE, Wn.: 1108 Spofford Ave.,
 FRED NIEDERHAUSER, Manager.

SUBSCRIPTIONS: \$1.50 a year; single copies
 15 cents. Canadian subscription, \$2.00 a
 year. Foreign subscription \$2.50 a year.
 In requesting change of address give former
 address also.

ADVERTISING: Rates upon application.
 Complete information regarding size, char-
 acter and distribution of circulation cheer-
 fully furnished upon request.

CORRESPONDENCE on all matters relating to
 the industry which the magazine repre-
 sents is solicited by the Editors. Discus-
 sions, notes and inquiries will be gladly
 received.

Readers are especially invited to report
 their own work—to explain the problems
 which they solve—so that their magazine
 may really be an institution for the ex-
 change of ideas of value in the industry.

Copyright 1914 by

CONCRETE-CEMENT AGE Publishing Co.

Entered as Second Class Matter at the Detroit Postoffice.

December, 1914

Vol. 5

JULY-DECEMBER, 1914

Nos. 1-6

ROBERT W. LESLEY,
 Consulting Editor

HARVEY WHIPPLE,
 Managing Editor

JEROME COCHRAN,
 Technical Editor

For the greater convenience of the reader this index has been made both titular and topical in nature. Original titles of articles have been amplified or condensed for the purposes of the index as seemed best. Subjects have been indexed which are treated in articles and not originally embraced in the title. Nothing has been indexed under "concrete" and nothing under "cement" except when the nature or testing of cement is involved or some statistics as to its production or use. In short, "cement" has been used as an index word only when it appeared as the only comprehensive way of designating the matter. Illustrated articles are denoted by an asterisk after the title. Editorials are designated by "E"; articles in the Information and Consultation department by "I-C"; Correspondence department matter by "C" and New Equipment Methods and Materials department articles by "Eq." The months and pages are given.

A

Acid of Silage on Concrete, The Effects of the, I-C	Sept. 125
Aggregate, Concrete Failures Due to Inferior, I-C	Nov. 214
—Crusher-Run	Nov. 206
—In Concrete, Blast-Furnace Slag as (Proceedings A. S. T. M.)	Aug. 65
—In Concrete, Use of Blast Furnace Slag as an, I-C	Dec. 247
—Magnesium Limestone as Concrete, C	Dec. 257
—Proportioning, for Portland Cement Concrete (Proceedings A. S. T. M.)	Aug. 66
Aggregates	July 26
—Further Discussion of Testing Concrete, *	Nov. 197
—In the Manufacture of Concrete Stone, Mineral Colors and Colored, I-C	Nov. 207
—Testing Concrete (Proceedings A. S. T. M.)	Aug. 65
Alkali, Use of Lined Oil as a Protection for Concrete Against, I-C	Oct. 166
American Concrete Institute, Convention of	Dec. 265
—Highway Association	Sept. 129
—Road Builders' Assn.	Oct. 170
—Roadbuilders' Assn. Convention	Dec. 265
—Road Builders, Meeting of	Aug. 82
—Road Congress	Oct. 169
—Road Congress, Atlanta	Dec. 266
—Society for Testing Materials, Annual Meeting of	Aug. 63
—Society for Testing Materials	Sept. 129
—Society of Civil Engineers, Convention of	July 41
—Society of Civil Engineers, Proposed Code of Ethics of, E	July 1
—Society of Engineer Draftsmen Joins with Technical League of Engineers	July 42
Arch Abutments in Bridge, *	Aug. 50
Arch Centering in Bridge, *	Aug. 52
—Structures, A Discussion of the Essentials of Design of Reinforced, *	Dec. 239
Architectonics (Book)	Nov. 220
Architecture, Concrete, and the Community Court Idea in California, *	Nov. 204
—Construction and Decoration, Catalog of Books Relating to (Book)	Sept. 181
Architects and Builders	Oct. 170
Artistic, The, Side, E	Aug. 46
Asbestos and Cement	Nov. 200
Asphalt, Bonding, to Concrete	Aug. 87

Association for Testing Materials, E	Sept. 96
Atlanta, American Road Congress	Dec. 266
Atomizer, The Concrete, * Eq.	Oct. 181
Aurora, Ill., Cost Data on Concrete Road near	Nov. 188
Autoclave Test (Proceedings A. S. T. M.)	Aug. 68
—Test for Cement, Additional Results Obtained with (Proceedings A. S. T. M.)	Aug. 65

B

Bag Asylum, A Unique, a Money Saver, *	Dec. 255
Balustrades, in Bridge, *	Aug. 50
Bar Bender, A Hand-Power, * Eq.	Sept. 186
—Bender, A Power-Operated Truck-Mounted, * Eq.	Oct. 180
Barn, An All Concrete, *	July 25
Base for Small Cannon, Concrete, *	Nov. 196
Beams, Influence Diagram for the Determination of Maximum Moments in Trusses and (Book Review)	Dec. 259
—Relation between Deformation and Deflection in Reinforced Concrete (Proceedings A. S. T. M.)	Aug. 68
—Relation between Deformation and Deflection in Reinforced Concrete	Sept. 107
Beck Wins \$1,000 Prize	July 42
Benches, Equipment for Casting Green-house, in Place, * Eq.	Aug. 88
Bin, A Unit System Storage, * Eq.	Oct. 179
Bituminous Surfaces for Concrete Roads, I-C	Oct. 159
—Surfaces for Concrete Roads, I-C	Nov. 211
Block and Brick Machines, "Double Speed," * Eq.	Aug. 90
—Building Construction, Materials, Methods and Costs, at Mooseheart, *	Aug. 53
—Business, The, E	Sept. 95
—Concrete, Better Than Required, E	Sept. 96
—Concrete, Ice Houses and Cold Storage Warehouses, I-C	Sept. 124
—Concrete, Manufacturers of Detroit Organize	Aug. 94
—Cost of Laying	Aug. 60
—for Chimneys, Unit, I-C	July 81
—House, 60-Room Concrete, with Stucco Finish, *	Nov. 192
—How to Prevent Efflorescence in, I-C	Aug. 77
—In Cleveland, Boosting Better, C	Sept. 127
—Interior Plastering on Concrete, I-C	Aug. 79
—Manufacture, Use of Hydrated Lime in Concrete, C	Nov. 213
—Manufacturers of Cleveland, Organization of, E	Sept. 95
—Objection to Concrete, and the Answers, I-C	Aug. 71
—Objections to Concrete, and the Answers, I-C	Sept. 126
—Pipe, The Interlocking Concrete, *	Aug. 85
—Specifications for Concrete	Sept. 105
—Standard Concrete, Manufacturers, E	Aug. 45
—Wall Construction of Mooseheart Buildings, One and Two-Piece	July 16
—Walls, Concrete, *	July 26
Walls, Mixture of Mortar for Laying Up, I-C	Sept. 125
Bonus Work Applied to Excavation, Task and, *	Dec. 243
Boynton, C. W., Enters New Field	July 24
Brick Chimneys, Effects of Fumes from Lignite Coal and from Wood on Cement, I-C	Dec. 246
—for Concrete, Crushing	Sept. 119
—Machines, "Double Speed" Block and, * Eq.	Aug. 90
—Manufacture, Proper Mixtures in, I-C	Oct. 163
—Specifications for Concrete	Sept. 105
—Why Are Not More Concrete, Used, I-C	Aug. 77
—Work, The Application of Stucco to, I-C	Aug. 74

Hights Run Bridge Erected For City of Pittsburgh

The Hights Run bridge is one of a number of reinforced concrete bridges erected for the city of Pittsburgh and spans a deep ravine at the western approach to Highland Park. It is 327' long and 65' 6" wide. The height of the structure from the floor to the bottom of the ravine is 80'. It consists of two parallel, three-centered arches, 216' long, 13' thick at springing line, 5' 6" at crown and 13' wide; each arch is reinforced with five members made of four angles, 6" x 6" x 3/4", spaced with radial lattice bars. The remaining length is made up of two closed abutments which contain the arch supports and columns for supporting the floor.

The floor is of slab and girder construction and is divided into a central roadway 36' wide and two sidewalks 14' 9" wide.

FALSEWORK USED

On account of the character of the soil and the great weight of the arches it was found necessary to carry the falsework foundations to rock about 20' below the surface of the ground. The piles used in these foundations were capped with 12-in. x 12-in. oak timbers.

The specifications required each of the arches to be poured in nine sections, each to be the full width of the arch and from 25' to 33' long

with a 4-ft. key separating each pair of sections. The falsework was therefore designed by the contractor as towers composed of four to six 12-in. x 12-in. posts carried to within 3' of the intrados of the arch.

RELIEVING WEDGES

Each tower is securely braced within itself and tied to the adjoining ones. The posts are capped transversely with oak caps which serve as a base for the wedges. On account of the weight of the arches and the distance between the posts it was found necessary to use 8-in. I-beams to carry the lagging. To allow for contraction of length due to settlement of the arch, the ends of I-beams were carried on the lower flanges of 10-in. channels set back to back, separated by 2-in. wedges.

The sand, gravel and cement brought in railroad cars were dropped into bins under the tracks and fed by gravity into a Ransome¹ and a Hains² mixer and the concrete was distributed by chutes from two towers 6' apart and 160' high.

Two light cableways, one over the center line of each arch, were used to erect the falsework and structural reinforcement.

The work under contract provides for the bridge complete except the paving and railings.

¹Ransome Concrete Machy. Co., Dunellen, N. J.

²Hains Concrete Mixer Co., Washington, D. C.

The quantities are about as follows:

8,300 cu. yds. concrete, 800,000 lbs. reinforcing material and 3,000 cu. yds. earth and rock excavation.

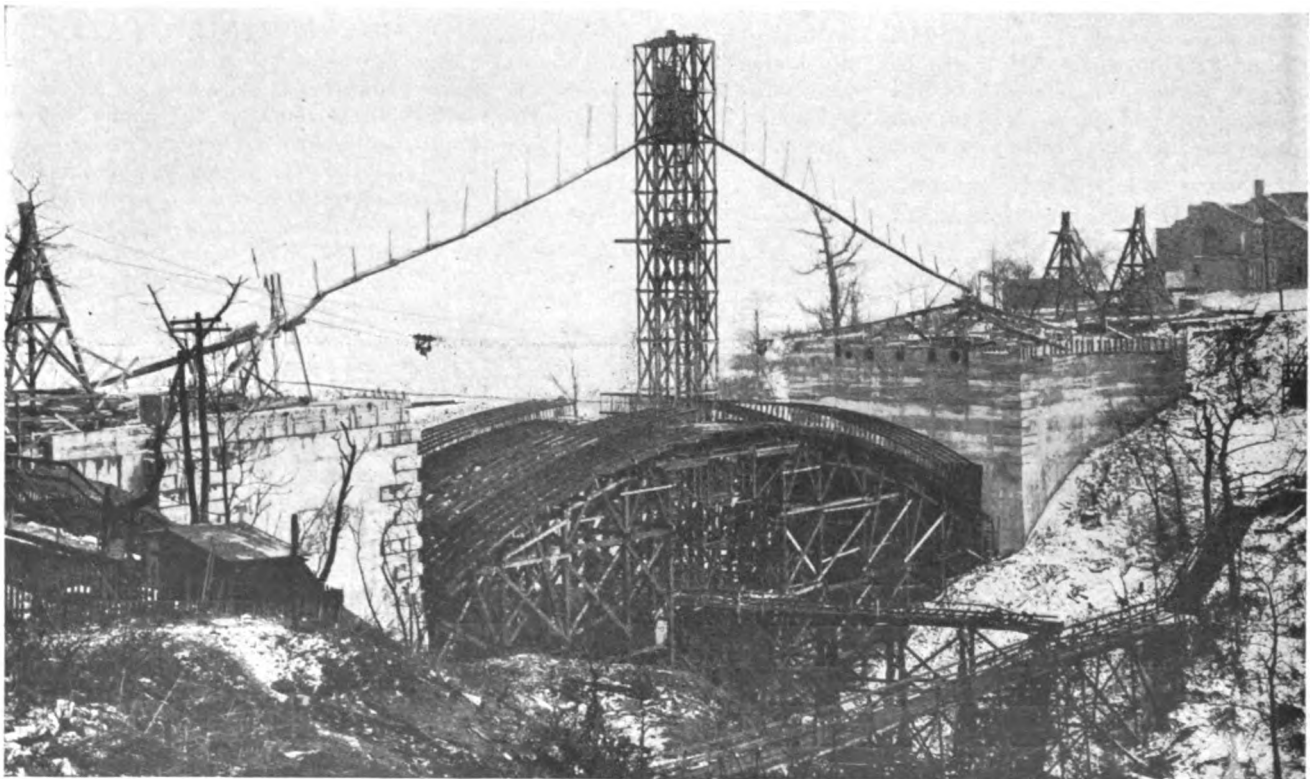
The contract was awarded to the Cummings Structural Concrete Co., Pittsburgh, for about \$109,000.

The bridge was designed by the Bur. of Construction of Pittsburgh, Robert Swan, Dir. of Public Works; N. S. Sprague, Supt. of Public Works; T. J. Wilkerson, Div. Engr.

A. E. Sortore, Asst. Engr, had direct charge of the construction for the city.

It is the duty of the concrete inspector to see that the ingredients composing concrete or cement work are up to the standard required by the specifications. He must watch the mixing of cement or concrete work and see that the proper mixture is always obtained, as to cement, sand, aggregate and water.

The foreman on reinforced concrete construction should be required to mark in ink upon the plans the date and hour when each part of the work is concreted. This must be attended to every time concreting is done, and it must not be put off until some convenient time and then filled in from memory. The reason is obvious.



HAIGHTS RUN BRIDGE UNDER CONSTRUCTION