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MUNICIPAL ENGINEERING

INDEX

JANUARY—JUNE, 1913

VOLUME XLIV

ENGINEERING PUBLISHING COMPANY

INDIANAPOLIS, IND.

NEW YORK, N. Y.

CHICAGO, ILL.



PERSONAL

Illinois Water Supply Association

The fifth annual meeting of the Illinois Water Supply Association was held at the University of Illinois on March 11 and 12. The membership of the association is made up of water works engineers, superintendents, chemists and others interested in obtaining and conserving an abundant supply of pure water. The papers read at this meeting covered a wide range of subjects, including the study of deep well drillings in Illinois, sterilization of water by ultra-violet light, filter plants, practical methods of obtaining efficiency in water works pumping plants, bacterial examination of water supplies, conditions in small filter plants, appraisal of water works properties, fire streams and municipal laboratories. About 125 members attended the meeting. The officers elected for the next year are: President, C. H. Cobb, Superintendent, Kankakee Water Works; First Vice-President, H. M. Ely, Superintendent and Manager, Danville Water Company; Second Vice-President, W. J. Spaulding, Commissioner of Public Property, Springfield; Third Vice-President, V. E. MacDonald, Superintendent, Lincoln Water and Light Company, and Secretary and Treasurer, Professor Edward Bartow, Director, State Water Survey.

Association for Standardizing Paving Specifications

After two days of deliberation over changes in the specifications adopted at previous conventions, the Association for Standardizing Paving Specifications elected as president Norman S. Sprague, the superintendent of the Pittsburg bureau of construction; vice presidents, Nelson P. Lewis, New York; Geo. W. Tonson, Toledo, O.; Linn White, Chicago; W. P. Hempelmann, St. Louis; secretary and treasurer, John B. Hittell, Chicago. The question of amalgamation with the American Society of Municipal Improvements was voted upon and approved, with but two dissenting votes, and the method was

referred to the executive committee with power to act at the Wilmington convention of the older society.

Practical Concrete Bridge Construction

*By Will Dickinson, Contractor,
Ridgway, Pa.*

Will Dickinson is a contractor who believes in good materials and good workmanship and a fair profit, and he is building his share of concrete bridges in competition with steel.

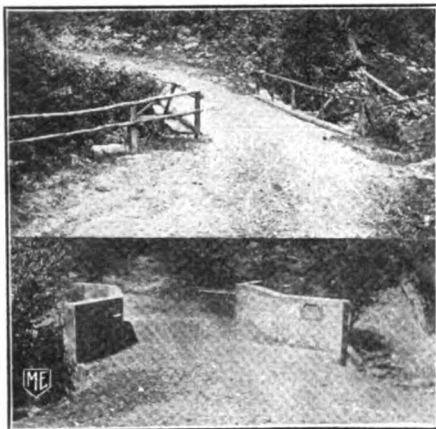
In 1906, as closely as I could keep it from published statements of contracts let, the proportion of concrete bridges did not exceed 2 per cent., while in 1912 it was in the neighborhood of 40 per cent. The North Broad street bridge, opened



WILL DICKINSON, Contractor, Ridgway, Pa.

April, 1913.

here in November (my No. 26), is 64-foot span, 35-foot roadway between curbs, two 7½-foot sidewalks, with balustrade rails,



No. 18. *Old and new Lockwood Run bridges. The concrete bridge cost \$500.*

nine arch girders, with 5-foot rise. The structure has a total weight of some 1,350 tons.

I send a few photographs, with explanation as follows: No. 4, built in 1908, a small township bridge of 16-foot span, 18-foot roadway and 5-foot walk, near the boro line of Ridgway, showing my home on the knoll. This job was done at a fair profit for \$550. (View not shown.)

Old and new of No. 18, a 12-foot span



No. 12. *Old and new bridges over Elk Creek, near Ridgway, Pa. Concrete bridge cost \$5,300.*

April, 1918.

at a dangerous place in a deep ravine at foot of a heavy grade, built for \$500, some fourteen miles from home.

Old and new of No. 12, three miles from Ridgway, on Elk creek; 92-foot span, 16-foot roadway between balustrade rails; price, \$5,300. Photographs taken just three months apart.

Advisory Good Roads Commission of the State of New York

Governor Sulzer, of New York, has appointed the following gentlemen as a special commission, to serve without compensation, for the purpose of collating facts and making such recommendations to the Governor as may seem fitting, with regard to the construction and maintenance of roads and the proper administration of the department of highways: James E. Gaffney, chairman, New York City; Geo. H. McGuire, secretary, Syracuse; Chas. E. Treman, Ithaca; Edward H. Butler, Buffalo; Col. William D. H. Washington, New York City; Prof. A. H. Blanchard, New York City; Paul L. Schultze, Troy; William Pierrepont White, Utica; Eugene W. Stern, New York City; John F. McDonald, Niagara Falls; Henry C. McCord, Merrick; Arthur A. McLean, Newburg; John J. Hopper, New York City; Gen. Amasa J. Parker, Albany; Augustus Thomas, New York City.

South Park Playground Director

The Chicago South Park commissioners have secured John R. Richards as director of their playground system. He succeeds Edward B. DeGroot, who has built up the playgrounds to their present state of efficiency, and has given them the reputation of being the best in the world. His selection of instructors, preparation of athletic and social programs and general management have been thoroly efficient and have made him a leader in the playground development of the country. It has not been easy to fill the place left by his resignation.

Mr. Richards is well qualified in athletic work. He began as a fullback on the Wisconsin University team and has been coach for a number of football and baseball teams, the most recent being Wisconsin and Ohio State Universities.

Albert Mohr

Albert Mohr, vice president of John Mohr & Sons, boiler-makers, has been appointed a member of the Chicago South Park Board by the Circuit Court judges.



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PROCEEDINGS
OF
THE EIGHTH ANNUAL CONVENTION
OF THE
American Road Builders' Association

Held at Rochester, New York
November 14, 15, 16 and 17, 1911
together with
Reports of the Executive Committee, Secretary and Treasurer
Presented at the Annual Meeting
February 2, 1912

Price, One Dollar

Published by the Association
150 Nassau Street
New York

AMERICAN ROAD BUILDERS' ASSOCIATION

Mr. Anderson of Illinois here? Is Mr. Hunter of Pennsylvania here? Apparently not.

Now, discussion from the floor is in order and any gentleman who cares to speak upon this subject I am sure the convention will be very glad to hear. I understand that some discussion had practically been promised. I hope that it will be forthcoming. The subject is an interesting one.

If there is no discussion we will proceed with the regular program of the afternoon. The first topic is "Convict Labor in Road Construction." This is a very interesting subject to a great many of us, I am sure, and the paper listed is a paper by Mr. T. J. Ehrhart, State Highway Commissioner of Colorado. I regret extremely that Mr. Ehrhart is not here because Colorado has had some very interesting experiences in convict labor. Mr. Dickson, will you speak to us?

MR. WILLIAM DICKINSON (Ridgway, Pa.): I have built 28 concrete bridges. I am thankful today that in every one of those 28 bridges my heart was in the work. From the start I saw the necessity of giving concrete its utmost good, taking the highest grade of concrete that could be made, if it was going into bridge construction. I was pained here the other day when I heard two or three gentlemen speak against the idea of permanency. It hurt me. I would build a bridge as I would a good road, keeping in view permanency. It is well to place our goal just as high as we can.

Now, what I most earnestly wish to do is to bring up some mistakes that I have found in the making of concrete and in specifications. All specifications should contain a requirement for clean sand. A little farther along you see, as the gentleman from Ohio read the other day, it must not contain more than 8 per cent. of clay. Why any clay? Why one per cent. of clay? I have conducted experiments along that line that have been expensive, that have been exhaustive, and I know that any amount of clay whatever in sand is deleterious. Clean, sharp sand is as necessary in the mixture as it is in the contract. Now, another thing in regard to sand. All sand has more or less fine, floury dust; sand from crushers, I mean. It should be eliminated. I know that a great many will not agree with me when I say that clay is deleterious, but before any of you put up a great, big hoot of derision satisfy yourselves by actual demonstration that I am in error and I will stand discredited.

Another point is with gravel. Round gravel—I am speaking now of concrete in its highest efficiency—round gravel is worthless for concrete, but if it is hard and crushed it is one

CONVENTION PROCEEDINGS

of the finest materials in the world. I claim that every particle, fine or coarse, should be sharp and jaggy. Clay or dust in sand is on a parallel with the man who experimented through the hard winter in feeding his cows. He told his wife about Christmas that he had really come to the conclusion that the more sawdust he put in the corn meal the better they would thrive. It is the cement that does the work. I guess that is all along that line.

You can't make concrete any harder than the aggregate you use, and the harder, the rougher, the more angular that is, the better. Sand and concrete both should be graded. You can readily understand why. The better it is graded the less the voids; the more strength you have from your cement, your cement reaches farther. (Applause.)

CHAIRMAN CROSBY: I am sure we all very much enjoyed hearing Mr. Dickinson, and he expressed some very sound views in an unusual way. Now, we got a little off the track of the program, and I suggest we come back to the program itself and carry that through, and then if there are any outside matters which are of interest I am sure the convention will be glad to hear them and discuss them to the extent of time and ability afforded. The subject for discussion now is convict labor in road construction. Mr. Williams, will you kindly lead the discussion?

A. D. WILLIAMS (Chief Road Engineer of West Virginia): Has the main paper been read?

CHAIRMAN CROSBY: The main paper of Mr. Ehrhart's has not been read. If you prefer I will have it read.

MR. WILLIAMS: I believe it would probably be better to have someone read the paper, inasmuch as I have prepared no paper. Then we can strike into the discussion.

CHAIRMAN CROSBY: The man I relied on to read the paper has disappeared, has taken advantage of my back being turned, so with your permission the Chair will make the attempt. The paper is by Mr. T. J. Ehrhart, State Highway Commissioner of Colorado. "Convict Labor in Road Construction."

Convict Labor in Road Construction

By T. J. EHRHART

State Highway Commissioner of Colorado

The question of convict labor is a very important one, involving as it does in our state, the welfare, care and treatment of some eight hundred men, and also the consideration



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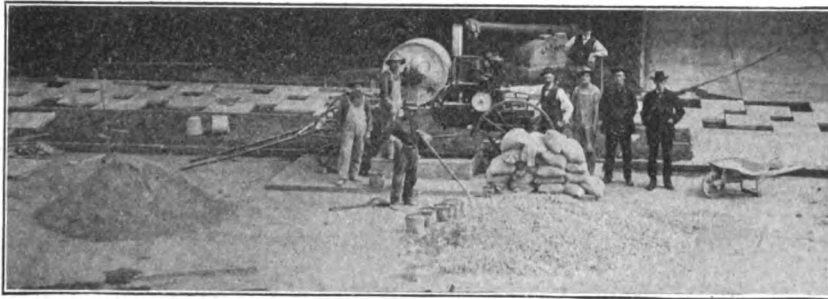
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Using a Small Marine Engine and a Concrete Mixer.

The best and most economical way of mixing concrete is a question which quite often confronts the concrete contractor.

The accompanying illustration shows how Wil Dickinson, Ridgeway, Pa., concrete contractor, converted a hand mixer into a very good power mixer at little expense. The machine used was originally a hand power Goodwin mixer and first used three years ago



A HAND-POWER CONCRETE MIXER RUN BY A SMALL MARINE ENGINE.

upon a job requiring 2,000 lin. ft. of concrete curb.

While doing perfect mixing it was found to be tedious in operation and was changed from a hand mixer to a power mixer as shown in accompanying cut by attaching to it a three-horsepower Ferro-Marine motor, running the pump from same and substituting a 20-gal. half barrel for circulating tank.

The whole outfit only weighed 500 lb., and was intended for use in large basement work. By separating the drum from the machine two men could handle it most anywhere.

Later on the outfit was mounted upon a light one-horse wagon and since has been used largely upon concrete bridge construction.

Its adaptability for this kind of work is shown by the following.

Recently the outfit was used on a contract 10 miles from Ridgeway, Pa. One horse weighing 1,500 lb. with driver took the outfit over a hilly road for 10 miles, making the trip in three hours at a cost of one dollar. On this work a batch would make a good size wheelbarrow full and 70 batches to the hour. The drum of the machine runs 25 revolutions per minute, mixes fast and perfect, has only two plows inside, right and left hand. The motor uses three to four gals. gasoline daily.

It seems very reasonable that the engine needed for operating a concrete mixer must run at a speed which is practically non-varying.

The gasoline motor used, built by the

Ferro Machine & Foundry Co., of Cleveland, operated very satisfactorily under these conditions.

Concrete Piles.

The Raymond Concrete Pile Co., of New York and Chicago, has been awarded the contract for placing the Raymond concrete piles to support a sewer on Lyman avenue and Summit street, borough of Richmond, S. I., New York. Joseph Johnson's Sons are the general contractors for the work.

Asbestos Protected Metal.—The Asbestos Protected Metal Co., of Canton, Mass., have issued a neat illustrated catalog describing the advantages of Asbestos Protected Metal in fire protection. A good catalog for contractors.

Carbide Light.—A good and sufficient light for night working is often a perplexing question to the contractor. The Walter Mader Co., Cincinnati, O., in their Catalog No. 3 give some interesting facts on the Bucier carbide light.

Mixing Concrete.—The Art of Mixing Concrete at the lowest possible cost is one of the problems of concrete construction that, at times, becomes very perplexing. The U. S. Steel Mixer Co., Atwood building, Chicago, Ill., have issued a folder describing the Cornwell rotation cube mixer, which contains some interesting facts on this subject.

A Treatise on Waterproofing.—This book issued by the Standard Waterproofing Co., Indianapolis, Ind., treats upon the subject of waterproofing all classes of buildings. It contains much useful information and data.

Partition Block.—An interesting leaflet that should interest contractors and architects is one issued by the Dodd's Interlocking Brick Co. The Dodd's interlocking partition block which is manufactured in San Francisco, Cal., has been used extensively throughout the west and has points that give it certain advantages over metal and tile partitions.

Concrete Mixed and Placed at Five Cents a Cubic Yard.—The catalog just issued by Barron & Cole, 127 Franklin street, New York, describing the Nims concrete mixer, calls attention to a point of great interest to contractors. In it are cited several cases where concrete has been mixed in a Nims mixer and placed at a cost of 5 cents per cu. yd. This mixer has special feeding machinery that is automatic and said to be absolutely accurate. Several types of Nims mixers are made and are interesting. The catalog will be sent upon request.

Universal Bulletin.—The monthly Bulletin of the Universal Portland Cement Co., Chicago, is one of the most regular publications that come to us. The August issue contains the usual two pages of editorial notes besides the several pages of half tones and descriptive matter. Every person interested in concrete should have his name placed on the mailing list to receive this publication.

Wanted Position. Technical graduate. Hard worker, have good recommendations and desire a place with a chance that is sure. Four years' work on road, railway, railroad, mine and municipal construction and surveys. Six in general office work, collecting and selling. H. B. Pope, Brooks, Ky.

POSITION as concrete inspector. Five years' experience on location and construction of railways and hydrographic work. Expert instrument man and fairly good at figuring. Some experience inspecting plain concrete on railroad work. Would like position with large contracting firm where experience in concrete can be obtained. Box 91, CONCRETE ENGINEERING.

SITUATION WANTED.—Seven years' general engineering experience as instrument man in charge of party and as draftsman. Railroad, waterworks and mine. One year on concrete construction. Address, R. S. Quick, 221 McComb street, Pittsburg, Pa.

FOR SALE ADS.

25 cents a line. Count seven words to a line.

FOR ENGINEERS.

Four Reinforced Concrete Charts and six other tables of Engineering Data on standard 3 x 5 Index Cards. Send 10c and stamp for circular and Series No. 5 containing about ten cards to Penny Engineer, Room 719 at 167 Dearborn St., Chicago, Ill.

DON'T let "Bill" use an excess of cement in starting the job and then wind up by using less than he ought to. Your work properly done will remain as a monument to your credit. That is, provided you use clean materials.

Chicago Portland Cement Co.

CATALOGS AND TRADE PUBLICATIONS OF VALUE.

Polygon Mixers.—The Waterloo Cement Machinery Corporation, Waterloo, is about to issue a new 64-page catalog of the Polygon concrete mixer and sundry contractors' equipment which they manufacture. They advise us that they have spared no expense in getting out a catalog that will be a beautiful specimen of the printer's and engraver's art and will very comprehensively portray the line of machinery which they manufacture. The catalog is now in the hands of the printers and will be off the press about the middle of August. Parties contemplating the purchase of a mixer will do well to write the Waterloo Cement Machinery Corporation, Waterloo, Ia., and receive a copy of the catalog which the company will be pleased to send to anyone requesting it.

White Cement.—The Sandusky Portland Cement Co., Sandusky, O., has just issued a very finely illustrated bulletin on the uses of Medusa White Portland cement. This contains much useful information and data on this subject.

Slotted Steel Studding.—A well illustrated pamphlet has just been issued by the United Steel Studding Co., Chicago. The purpose of this pamphlet is to present to the attention of architects, engineers, builders and owners, a system of fireproof construction for partitions and furring of buildings, which not only possesses great merit in point of mechanical construction and fireproof qualities, but is economical in point of cost.

Concrete Posts.—The Moore Post Mold Co., Sterling, Ill., have issued a circular and price list on their improved method of manufacturing cement posts.

Road Machinery.—Catalog No. 7 issued by the Acme Road Machinery Co., of Frankfort, N. Y., is at hand. It is well bound, illustrating rock crushers of different types, combined rock crusher and elevator, steel pan conveyors, portable bins and screens, belt hoists for stationary crushing plants and repair parts for all classes of road machinery used by the general contractor.

Filtration.—Everyone knows that pure water is necessary for all domestic and industrial purposes, from a hygienic as well as a commercial standpoint. Sucro—Pure Water by Gravity Filtration, for every person and every purpose, is the title of an illustrated booklet issued by the Sucro Filter Co., 42 Broadway, New York, which contains information and data on filtration.