

Wood Preservers' Convention

The twelfth annual convention of the American Wood Preservers Association, with its large attendance and an active discussion of its long list of papers, was indicative of the growing importance of the wood-preserving industry in this country, as well as of the rapid growth of the association. The meeting was held at the Sherman Hotel, Chicago, Jan. 18 to 20.

In addition to the regular papers and committee reports there were two addresses of special interest—one by J. W. Kendrick, formerly vice-president of the Atchison, Topeka & Santa Fe Ry. and now a consulting railway expert; the other by F. H. Newell, professor of civil engineering at the University of Illinois (and formerly Director of the United States Reclamation Service).

As president for the ensuing year the association elected Carl G. Crawford, general manager American Creosoting Co. (of Chicago), Louisville, Ky. John Foley, forester, Pennsylvania R.R., Philadelphia, was elected first vice-president, and F. J. Angier, Mt. Royal Station, Baltimore, Md., was reelected secretary-treasurer. The next meeting will be held in New York City.

PRESERVATION AND SPECIFICATIONS

The foreign creosote-oil situation was discussed by G. A. Lembcke. About 35,000,000 gal. of oil was imported from Great Britain, the embargo on this material being raised and aid extended to the distillers to get ships for their accumulating stocks. A total of about 43,000,000 gal. was imported in 1914 and 60,000,000 gal. in 1913.

The Committee on Specifications for the Purchase and Preservation of Timber presented a code that placed restrictions on knots, shakes, checks, cross-grain, density, sapwood, etc., in purchased timber, defined desirable seasoning for various woods, recommended permitting use of lower grades of oil under present conditions, gave general specifications for full-cell, empty-cell, zinc chloride, zinc-creosote and tar-creosote processes.

A special Committee on Preservative for Paving Blocks gave specifications for testing coal-gas and coke-oven derivatives, which are required to be of 1.06 to 1.12 sp.gr. at 38° C. and not over 3% insoluble in benzol and chloroform.

Fixing the quantity of zinc chloride per cubic foot of timber was called unscientific by W. F. Goltra, who proposed specifying 3.5° Bé. strength of solution at 70° F. for all species of wood and all kinds of ties. This is to be injected to refusal.

TIES AND PAVING BLOCKS

Woods suitable for crossties were classified by R. Van Metre according to a scheme based on combined mechanical properties—static and impact bending, compression parallel to grain and perpendicular to grain, side and end hardness.

The Committee on Wood-Block Paving submitted specification for wood blocks and their laying. The size, treatment, inspection, foundation, joint filler, expansion joint and method of placing the blocks are restricted.

A paper on treated-block factory floors, by C. H. Teesdale, gave the results of two mail investigations. The first covered manufacturers; 13 replied to the letters. The consensus of opinion was to use a distillate creosote except for wet situations, for which heavier half-tar compound was recommended. For ordinary work, light

absorptions (5 to 10 lb. per cu.ft.) were generally used. Most plants desired air-dried material, and only a few steamed the timber. Most of those replying preferred a concrete base and bituminous filler.

From the users 160 replies were secured, and these were tabulated. In general 3-in. Southern yellow-pine blocks were treated with 15 lb. of oil per cubic foot and laid on a sand cushion with bituminous joint filler. Use of expansion joints depended on local conditions.

An investigation of municipal practice with wood-block pavements was reported by F. W. Cherrington. From 155 letters to cities 79 replies were received. The data were tabulated. In only very few cases was the sand or mortar cushion eliminated or a cement-grout joint filler used. The favored cushion was equally divided between sand and mortar. Heavy creosote was the most popular preservative—16 lb. per cu.ft.

SERVICE TESTS; MISCELLANEOUS PAPERS

The Committee on Service Tests of Bridge and Structural Timber handed in the specifications of the Illinois Central R.R., the Norfolk & Western Ry. and the United States War Department for creosoted piling and timber. Records were tabulated of bridge and structural timber used by several railroads.

The most important part of the report of the Committee on Service Tests of Crossties was a compilation of 1,200 records of treated and untreated ties—made by C. P. Winslow and C. H. Teesdale, of the United States Forest Products Laboratory, Madison, Wis.

A paper by O. P. M. Goss showed how Douglas fir was being treated satisfactorily by (1) heating in oil to 190° for 5 hr., (2) boiling at 190° and 27-in. vacuum for 16 hr. and (3) finishing under pressure of 135 lb. per sq.in. for 6 hr. By this scheme 10 to 14 lb. of oil per cubic foot can be forced in. Tests of two shipments of bridge stringers, as to modulus of rupture, fibre stress at elastic limit and modulus of elasticity, showed results very close together for treated and natural sticks.

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Bridge Falsework Washed Out; Kansas City, Mo.

A 2½-in. rainfall, over a short period, caused most of the falsework under the west span of the East Kansas Ave. highway bridge over the Kansas River, Kansas City, to be washed out or pushed out by ice on Jan. 21. The north truss of the west span had been erected and bolted for five panels beyond the pin (or for 65 ft. west of pier 2) and rested on six bents of falsework when the sudden rise came. Four of the bents were washed out. The south truss of the west span is erected four panels beyond the pin (or for 48 ft. west of pier 2) and rested on four falsework bents, which washed out. The west end of the unsupported truss was lowered 9 ft., coming to rest on a partly constructed 1-panel bent. A few pin plates and some lateral members were bent; but according to a report from the job, no main truss members were damaged. Repairs should not exceed \$1,000 or \$2,000. The river had fallen 5 ft. on Jan. 22.

This crossing over the Kansas River is 1,635 ft. long and consists of the following elements, beginning at the west end: Concrete retaining walls and sand-fill, 358 ft.; steel viaduct, 401 ft.; main deck-truss river spans, 727 ft.; steel viaduct, 149 ft. The contract price, which

included the cost of removing an existing structure, was \$479,700. The west span is 267 ft. long, while the length of the east span is 317 ft. exclusive of a cantilever at each end—58 ft. on the west end of the north truss and 45 ft. on the south truss; 95 ft. on the east end of the north truss and 88 ft. on the south truss. The east span, with the cantilever ends, has been erected and riveted.

The bridge is designed to carry two street-railway tracks, one of which will be bracketed from the north trusses, while the other will be laid inside the trusses. There will also be a 36-ft. clear roadway and a 6-ft. sidewalk along the south side of the structure.

The plans and specifications of the bridge were prepared by Hedrick & Cochrane, Kansas City. The work is being done under the direction of R. L. McAlpine, County Engineer of Wyandotte County, Kansas. The general contractor is the Kansas City Structural Steel Co.



Rain and Flood Conditions

A remarkably heavy rainfall occurred in Los Angeles and vicinity during the six days ending Jan. 20, giving rise to serious flood conditions. There were also flood conditions in a number of other parts of the country at about the same time. Local records of the storm in southern California, as given in a table published in the *Los Angeles Times* of Jan. 19, show that the highest precipitations were 4.79 in. at Monrovia and 4.47 in. at Pomona. The Los Angeles figures, as reported to *Engineering News* by the United States Weather Bureau from Washington, showed a total of 7.14 in. in the six days ending Jan. 20, distributed as follows: Jan. 14, 0.30 in.; 15, 0.60; 16, 0.36; 17, 4.06; 18, 1.40; 19, 0.60; 20, 0.32. The *Los Angeles Times* record already mentioned gave a total rainfall for the storm (up to Jan. 19) of 14.73 in. at Upland, 11.51 in. at Monrovia, 10.37 in. at Sierra Madre and 9.07 in. at Pomona, and from this down to 0.97 in. at El Centro in the Imperial valley. The rainfall record for the season throughout this whole southern California district was in most instances far in excess of that for last season.

The floods caused by the storms in southern California resulted in apparently heavy damages to railroads, bridges, country roads and city streets, the latter more particularly at Pomona. There was also much damage to land under cultivation. A dam was reported washed out near Pomona. Apparently it was a small structure. Large quantities of silt were carried into the Los Angeles harbor.

A part of the Colorado River levee near Yuma is reported to have been washed out early in the week of Jan. 23 with a resulting flood in Yuma. There was also an unverified report of the carrying away of the headgate in the irrigation canal leading from the Colorado River to the Imperial Valley. Farther north than California much trouble was reported from heavy rains.

At Chicago a rainfall of 2 in. on Jan. 19 to 21 (0.06, 1.04, and 1.90 in.) was reported. At this time, the Weather Bureau states, there was a layer of 3 to 6 in. of snow on the upper and middle parts of the Illinois River drainage area. On the day of heaviest rainfall the temperature was 50° F. This combination of rain and snow threatened to reverse the flow of the Chicago River and the drainage canal and imperil the water-supply of

Chicago. Warnings to boil the water were given. The effect of the rain and melting snow conveyed through the Des Plaines River raised the Illinois River at Peoria 10 ft. above flood stage on Jan. 21, although only 0.52 in. of rain fell at Peoria in the three days ending with that date.

High water and ice at Kansas City, Mo., last week damaged a bridge under construction there, as reported elsewhere in these news pages. The Ohio and Mississippi Rivers were also reported in flood at various points last week, and flood stages were predicted on the Arkansas.



Estimates for a New Water-Supply Conduit for Seattle, Wash., are to be made by A. H. Dimock, City Engineer, in compliance with a unanimous vote of the city council on Jan. 17. Apparently parts of the conduit are to be of steel and other parts of concrete. It is to extend from the present Cedar River intake at Landsburg to the city. Each of the present two wood-stave pipe conduits is about 30 mi. long. A break in one of them occurred a few weeks ago, as noted in "Engineering News," Jan. 20, 1916, p. 141. In Mr. Dimock's annual report for 1915, made just before he received the instructions here noted, he recommended (1) the building of two dams about 20 ft. high to raise the level of Swan Lake and impound a four to five months' supply for Seattle and (2) the enlargement of the present Volunteer Park and Lincoln Park storage reservoirs and the construction of a reservoir and standpipes in West Seattle, which is now dependent upon a single pipe line for its supply. Ultimately, Mr. Dimock stated in this report, a third conduit with a capacity of 100,000,000 to 150,000,000 gal. should be built—the larger part of steel and the remainder of concrete. Evidently the city council prefers to reverse the order of Mr. Dimock's program, or to ignore part of it entirely. The Swan Lake storage plan would be independent of the present source of supply, but would connect with the existing conduits until a new one was built.

More Memphis Bridge Falsework Washed Out—Seven more bents of falsework under the cantilever arm of the Harahan Bridge at Memphis, Tenn., were carried away, two of them shortly after the accident of Dec. 23 (described in "Engineering News," Jan. 6, 1916, p. 43), five more several days later. Several tons of temporary steel was lost. No damage was done to any of the permanent construction, as the lower chord of the cantilever arm, extending out from Pier 3 and temporarily supported by the bents that were carried away, had been held guyed back to the fixed span (completed) by steel cables. The last failure is attributed to the wash of packets coming along the Arkansas shore, as there was practically no current on this side. It is believed that the danger to the bridge is now at an end.

Settling the Spokane Bridge Damages—Conferences are being held between city officials of Spokane, Wash., and the Washington Water Power Co., jointly interested in the Division St. bridge, which recently collapsed, to settle the victims' claims for damages. This legal work is delaying determination of the engineering questions involved. The claims are said to aggregate over \$400,000, but officials think they can be settled by compromise for less than one-fourth as much. A press account says: "The first step necessary is to bring the city and the power company together, after which overtures looking to a compromise can be taken up with the claimants. Where compromises cannot be worked out, the plan is to have the city and the company jointly fight the cases through the courts."

PERSONALS

Mr. Thomas Swithin has been appointed Commissioner of Public Works of Quincy, Mass.

Mr. Francis J. Brennan has been appointed Street Commissioner of Boston, to fill the vacancy caused by the death of the late Salem D. Charles.

Mr. Henry G. Vollmer, Assoc. M. Am. Soc. C. E., City Engineer of Burlington, Iowa, has been chosen as the first City Manager of Webster City, Iowa, by the city council.

Mr. Maynard D. Church, M. Am. Soc. M. E., formerly Chief Engineer of the Dayton Turbine Pump Co., Cleveland, Ohio, is now Chief Engineer of the Terry Steam Turbine Co., Hartford, Conn.

ment will be provided to perfect further the facilities of the library for the use of engineers.

The present house of the civil engineers in West 57th St. has been appraised by experts at \$325,000, of which, however, \$290,000 is in the land and only \$35,000 in the building, which has cost the society about \$175,000. By the sale of its present property, the society could pay all the cost of its entrance to the Engineering Societies' Building, would have between \$115,000 and \$140,000 in its treasury and would own in addition an interest in the Engineering Societies' Building, valued at about half a million dollars.

In addition to the financial and business aspects of the proposition the Board of Direction remarks: "It is one of the purposes of this movement to strengthen the bonds of brotherhood which should exist between all engineers."

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Further Notes on Kansas River Bridge Falsework Collapse

The accompanying photographs show the extent of the damage to the East Kansas Ave. bridge over the Kansas River at Kansas City, Mo. As reported in last week's issue of *Engineering News*, high water and floating ice pushed out some of the falsework bents under the suspended trusses of the bridge on Jan. 21.

The bridge was erected from the Missouri side (the far side in the views) and had been completed to the end of the cantilever arm on the Kansas side. The first three panels of the Kansas shore span had been partly erected on rather light separate pile bents under each truss when the ice flow carried away all but the two end bents, which were nearly at the shore line.

The north truss (on the left, Fig. 1) had been practically all assembled to its bent, which held sufficiently to prevent any visible damage to this truss; but the south truss had only the lower chord member resting on the falsework. This dropped 7 or 8 ft., eventually coming to rest on the two inner piles of the bent, the cap being

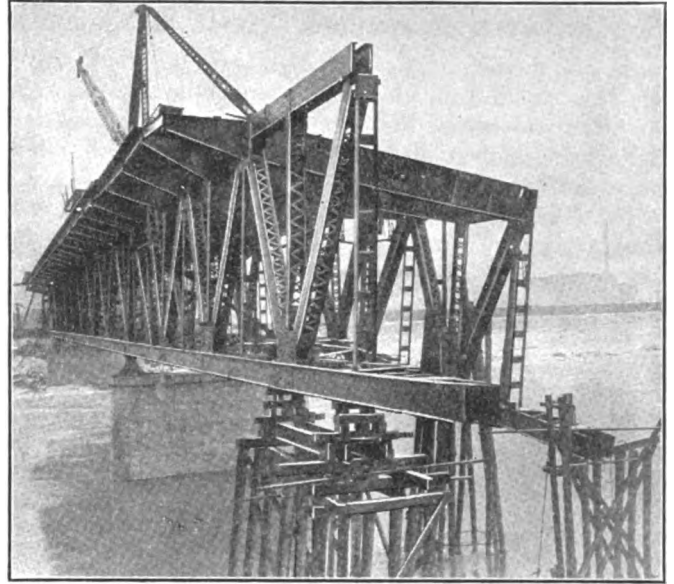


FIG. 1. KANSAS AVE. BRIDGE AFTER WASHOUT OF FALSEWORK

Looking toward Missouri shore. North truss on left

raised from the tops of the other three piles as shown in the views. The fall of the south truss caused the loss of six stringers and a 50-ton jack, which were on the superstructure, sheared off several pin plates and badly twisted the end floor-beam and crossbracing of the two end panels. These members had not been riveted, or the damage would have been greater, as the structure dropped by shearing off the bolt heads and breaking of pin plates without distorting many of the main members.

For the week following the collapse, rain and freezing weather made it impossible to work on the structure, and to Jan. 27 nothing had been done save to assemble some groups of piles under the distorted truss. The contractor proposes to drive groups of piles under this truss, cap them and bring the truss back into line by jacks.



FIG. 2. LOOKING NORTHERLY TOWARD KANSAS AVE. BRIDGE AT KANSAS CITY