

bridge spans could be cut out, removed to new sites and erected"—elsewhere. The fact is, the proposed design must not consider any portion or part of the old design, or any other feature of this failure. If the two spans just referred to are in the way, it will be wise to cut them out and consign them with the rest of the original bridge—to the scrap heap. It is not necessary or wise to consider any portion of a bridge which failed when designing a bridge that will not fail, and which will cost approximately five or six million dollars. We thoroughly agree that the features of Mr. Chapman's design for erection "cannot be over-estimated." Any design which does not take into consideration the many and varied stresses to which the bridge will be subjected during erection will result in failure. Stresses during erection must be as carefully provided for as the stresses to which the bridge will be subjected when completed. A bridge which fails during erection cannot be valuable for any purpose.

With every word of this we thoroughly agree, and recognize the importance of the statement Mr. Chapman makes when he says: "The above will upset some mistaken theories (assumptions) on this point." We take exception, however, to our esteemed Mr. Chapman when he states: "Had it been possible to erect the structure on falsework and join the chain of eyebars of the upper chords of cantilever with the members of the suspended span, results would have been entirely different." No matter how strong the chain of eyebars of the **upper** chords might be, the **lower** chord would be obliged to meet the stresses which are due to the length and weight of the long arm. The recent failure should be sufficiently convincing of this.

We further agree with Mr. Chapman's statement that: "The original design is impracticable for the Quebec span, and no engineer or body of engineers would be rash enough to repeat the experiment," especially while we remember the eminent success which attended Sir Benjamin Baker in successfully meeting similar conditions. We frequently hear of this or that engineer or other professionalist being "up to date." With the example of the last noted eminent authority before us we would respectfully suggest to all young engineers and the older portions of the "up-to-date" ones, that it is necessary for them to be more and better acquainted with those indispensable authorities, "the old masters," before they attempt to equal, imitate or surpass them.

An engineering periodical has stated that the art of engineering is not sufficiently advanced at present for engineers to successfully design bridges of the magnitude of the Quebec Bridge, mentioning particularly the uncertainty of engineering knowledge as to the stability of long columns. We believe that eminent periodical spoke from its best knowledge, but with the illustrated example before us, to which Mr. Chapman has been good enough to draw our attention, it will be readily seen that columns nearly twice the length of those required at the Quebec Bridge are an old story with engineers of half a century ago, at which time they had successfully used them, and their structures will remain monuments of their ability.

We also agree with Mr. Chapman when he expresses the hope that the "future Quebec Bridge will stand a monument to the skill and success of Canadian engineers." "The recent failure has emphasized the fact that the bridge when built will be a monument to the skill and success of Canadian engineers, because there seems to be no one else qualified to build so important a structure.

The Yankee has had his opportunity and failed.

Now that the Quebec Bridge is to be nationalized and—including its failure—paid for by Canadians, it is high time that Canadian engineers should design and erect it, for with them the habit of dropping into the river either half erected or completed bridges has not become chronic.

Yours truly,

A. G. Midford.

April 22nd, 1908.

## ORDERS OF THE RAILWAY COMMISSIONERS OF CANADA.

Copies of these orders may be secured from the Canadian Engineer for a small fee.

4579—March 10—Authorizing the C.P.R. to take additional lands adjoining station for the accommodation of traffic, being a portion of No.'s 22, 23 and 36, according to the registered plan No. 5a, Toronto, Ont.

4580—April 14—Authorizing the Brantford & Hamilton Electric Railway Company to erect, place and maintain its electric power, trolley and feeder wires over the track of the Tillsonburg Branch of the G.T.R. at a point in the city of Brantford, Ont.

4581—March 12—Authorizing the Brantford & Hamilton Electric Railway Company to cross with its tracks the track of the Tillsonburg Branch of the G.T.R. in the city of Brantford, Ont.

4582—April 14—Authorizing the G.T.R. to reconstruct the bridge over the highway known as the "Waterdown Road," 1st Concession of the Township of East Flamboro, County of Wentworth, Ont.

4583—March 31—Authorizing the Vancouver, Victoria & Eastern Railway & Navigation Company to construct and maintain a flume over the property of the Anglo-British Columbia Cannery Company, being Lot No. 23, Group Two, New Westminster, District British Columbia.

4584—March 10—Authorizing the Ingersoll Telephone Company, Limited, to erect, place and maintain its wires over the Canadian Pacific Railway Company at the right of way between lot, the First and Broken Front Concession of the Township of Oxford, Ont.

4585—April 10—Approving location of the Quebec, Montreal, & Southern Railway Company's station at St. Philomene, County of Lotbiniere, P.Q.

4586—April 10—Approving location of the Quebec, Montreal, & Southern Railway Company's station at Lake St. Paul, County of Nicolet, P.Q.

4587—April 10—Approving location of the Quebec, Montreal & Southern Railway Company's station at Becancour, Nicolet County, P.Q.

4588—April 10—Approving location of the Quebec, Montreal & Southern Railway Company's station at St. Charles, County of Nicolet, P.Q.

4589—April 10—Approving location of the Quebec, Montreal & Southern Railway Company's station at Orignaux, County of Nicolet, P.Q.

4590—April 10—Approving location of the Quebec, Montreal & Southern Railway Company's station at Gentilly, County of Nicolet, P.Q.

4591—April 10—Approving location of the Quebec, Montreal & Southern Railway Company's station at Gentilly River, County of Nicolet, P.Q.

4592—April 10—Authorizing the C.P.R. Company to cross with its spur the town of Thessalon, across the Government Road on the southeast quarter of Lot 33, in the Township of Thessalon, and Lorne, at Dymest St., Genelle St., Park St., Mowat St., and new streets, not yet opened, in the easterly limit of the said town of Thessalon.

4593—April 10—Authorizing the C.P.R. to reconstruct bridge No. 100.5 on its Sherbrooke Section.

4594—April 10—Authorizing the C.P.R. to reconstruct bridge No. 51.3 on its Prescott Branch.

4595—April 10—Authorizing the C.P.R. to reconstruct its bridge No. 46.74 on the White River Section of its Lake Superior Division.

4596—April 10—Approving location of the Quebec, Montreal & Southern Railway station, Pierreville, in the County of Yamaska, P.Q.

4597—April 10—Approving location of the Quebec, Montreal & Southern Railway Company's station at St. Gregoire, in the County of Nicolet, P.Q.

4598—April 10—Approving location of the Quebec, Montreal & Southern Railway Company's station at La Baie, in the County of Yamaska, P.Q.