

Book Review

Story of a Steel Bridge: The Howrah Bridge
–A Testimony of Indo British Co-operation in Engineering Field

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[Books Heaven Publications, Kolkata, 2018. Pages 160, price: Rs. 295/-]

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THE HOWRAH BRIDGE

When growing up in Calcutta in the 1960's and 70's, for us Calcutta was symbolized by just one gigantic structure ... The Howrah Bridge!! Going to Howrah Station to take a train was a crisis everyday– road traffic on the Strand Road was stalled for hours. It used to take over eight hours then to reach Howrah Railway Station from Garden Reach– a distance of 14 km that we can do today in about 30 minutes. This gave us eight hours in the Taxi, and we had only one view of the skyline on the west windows of the car of the imposing Howrah Bridge. As school-going children, we knew no engineering that went into the making of the bridge. We did not know why there have to be 'two peaks' in the geometry of the bridge. But, the mere fact that it spanned the entire width of the river without any intermediate support was a wonder. Seeing boats and some ships pass under it, gave a sense of high degree of functionality. The population was small in the twin towns of Howrah and Calcutta, and it was an important link to commute by road between Calcutta and Howrah. Invariably, the bridge stood in view of the water colour sketches of every school child studying in Calcutta and Howrah. Of course, the Bengali and English literature and cinema of the times was equally excited to depict

the mysticism of The Howrah Bridge!! Even today, any reference to the twin-cities does not miss mentioning or showing the technological wonder that became the cultural pride of Bengal... The Howrah Bridge...!!

ENGINEERING OF THE HOWRAH BRIDGE

From 1943 to date, classrooms of Civil Engineering have talked about this steel truss bridge with respect. But, rarely (with the exception of the then B E College and Jadavpur University) did the teachers elaborate the details of structural system, connection of suspended span with the double cantilevers, and the hold-down anchors of the double cantilevers on either bank of the Hooghly River. No text book on design of steel structures authored by an Indian elaborates it even today.

A couple of engineering aspects are of immense interest, namely:

Suspended span on double cantilevers: Suspended span would move vertically at its supports, when loads on double cantilevers are unequal. But, the users of the bridge don't feel it, owing to the designed stiffness of the overhang. Of special interest are the extra members connecting the top chords at the ends of the

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suspended span with the two cantilever overhangs. The member is hinged and has not seen any distress till date. This is impressive.

Suspended deck for traffic: Most truss bridges would run the traffic on a platform that is supported from underneath by the bottom chords of the truss. The Howrah Bridge suspends the load of the traffic under its soffit. Special tributes must be paid to the maintenance engineers and staff members for keeping a constant vigil on the tension members and ensuring that “All is well” all the time...

ABOUT THE BOOK

India, especially Calcutta (now Kolkata) and Howrah, are fortunate to have a book on its Howrah Bridge with cross-spectral details that will keep the interest of most audiences. This is because the book is authored by two engineers and two library science persons. Hence, it offers a wide spectrum of facts about the Howrah Bridge.

Objective and Contents: The intent of writing this book was to promote further research on the history of the Howrah Bridge of Calcutta. The book contains details of design decisions taken, legal decisions, financial arrangements, construction details and construction challenges in the creation of the Howrah Bridge.

Review of Primary and Secondary Literature: The contents of the book are derived largely from many types of sources of literature – speeches of the then leadership in the government, proceedings of the Bengal Legislative Council, technical journals (like *International Association for Bridge and Structural Engineering*, the *Journal and Institution of Engineers*), technical books on structural engineering, and books of generalia. In particular, the authors depended on two sets of information, namely, reports from one Newspaper (*The Times of India*), and a few government documents (*Supplements to the Calcutta Gazette*). Clearly, the spread is relatively wide of literature referred to.

Scientific, Technical, Historical and Cultural Relevance: The book does touch on all the four aspects, namely science, technology, history and culture, but more on the technical and historical aspects. The fine details have been presented of the structural designs, structural materials, structural connections, technical decision making process, and construction method. Also, interesting and critical role played by the leader holding high office in the government has been elaborated to a reasonable extent, which evinces some interest in the reader to seek more information on the magnificent bridge. The book would have risen two levels up, had it provided more detailed notes on science and culture behind the bridge.

New Insights: The book makes a sincere effort to recall the past, as seen through the various documents available in the repository today. But, clearly, it does not have any new information that can be slated as discovery of facts, inventions adopted at the time of building the bridge, or leads that can begin new research.

Presentation: Only the classical photos and drawings available in the public domain were used in the book. It would have added value to provide the new pictures of the Howrah Bridge, as of today and show the changes in the surroundings, if not the bridge. The structural drawings are too small to be able to decipher any detail from them. This is a major drawback of a book that claims technical content related to structural design and construction. New large size pictures, drafted with modern graphics tools, would have raised the quality of the book.

The overall typesetting and layout (including inconsistent font style and size) could have been made consistent throughout to give a formal look to the book. The style of referencing does not conform to any one standard of technical referencing; this is surprising considering that two of the four contributors in the book are from the library cadre.

IN CLOSING...

The Howrah Bridge is and will stand in the center space of the twin-cities. While new bridge with higher technology will be added to link the two banks of the Hooghly River and make it more convenient for people to go across, the charm of the Howrah Bridge will not be lost. The Howrah Bridge should remain in focus constantly

reminding us of the rich history and culture of the city of Kolkata. As the early steps in this direction, more authors should feel encouraged to come forward and make available more narrations and illustrations on the past, present and future of the bridge. As a forerunner, this book should encourage the new authors.