Historic Bridge Foundation Facebook Archives

Focus Bridges: Historic Bridges in Vietnam

January 2019

Vietnam may not come to mind as a country with many historic bridges, and indeed very few historic bridges can be found. However, a small number remain from the country's period of French rule and include some structures of noteworthy or unusual design. Unfortunately, as the country rapidly develops, many of these bridges are facing demolition and replacement.

Cầu Long Biên, originally known as the Paul Doumer Bridge, crosses the Red River in Hanoi. One of the most famous bridges in Vietnam, this bridge was built by the French company Daydé & Pillé of Paris in 1903. Consisting of a repeating series of cantilever through truss systems (including anchor arms, cantilever arms, and suspended spans) this extremely long bridge (just over a mile in length) is one of the longest cantilever truss bridges in the world, and may also have one of the largest numbers of cantilever truss spans in a single bridge. Half of the bridge is over land and smaller channels of the Red River. The section over the large, main channel of the Red River was almost completely destroyed by bombing during the Vietnam War and only a few spans are original in that area, the destroyed spans having been replaced by new spans. In contrast, the section over land retains its original materials and design. The bridge carries a railway line between the two truss lines. A cantilevered deck is present on the outside of each truss line. Each cantilevered deck contains a lane for motorbike traffic plus a pedestrian sidewalk. The bridge is served by an elevated approach in Hanoi which includes metal pony truss and concrete deck arch spans over the city streets.

Cầu Tân Thuận is a bridge located in Ho Chi Minh City between District 7 and 4 and today carries one-way traffic alongside a modern bridge which handles the other direction of traffic. Cầu Tân Thuận was a French-built bridge completed in 1905. The bridge is a bit of a mystery because it appears the short central span of the bridge was originally designed as a very small, simple (perhaps even manually operated) bascule span. However not enough historical photos could be found to confirm this. The "mystery span" consists of a riveted deck plate girder, with welded plate added at the center of the span to eliminate the original variable-depth design of the girder. The girders extend beyond the piers under the adjacent spans, which could have accommodated a counterweight system for a bascule. A historical

photo taken during the Vietnam War in 1968-9 shows this span having been supplemented with a temporary Bailey truss structure. The original girders in this photo can be seen without the welded plate added, showing the original cantilevered design which strongly resemble bascule leaves. While some catwalks are visible under the bridge, no machinery is visible to confirm the bascule design. There is the possibility that this span was built as a fixed girder, but in such a way that it could have been converted to a bascule span at a later date if marine needs arose. The other spans of Cầu Tân Thuận are also of note, and include a rare concrete bowstring-like truss span, and a European style riveted bowstring through truss span.

Cầu Phú Long crosses the Sai Gon River between Ho Chi Minh City and Binh Duong. This French bridge built in 1913 by Société de construction de Levallois-Perret. This bridge company was the new name given to Compagnie des établissements Eiffel when famous engineer Gustave Eiffel retired from the board of directors. Thus, bridges associated with this company are often called “Eiffel” bridges although Eiffel was not associated with any bridges built by the company after 1893. Cầu Phú Long includes a main span consisting of a three span continuous truss, where the ends of this three span system are cantilevered out beyond the end of the piers, a very unusual design. The cantilevered ends of the truss have bearing seats that hold the adjacent approach spans, which are riveted pony truss spans. This bridge is slated for demolition as soon as 2019.

Cầu Bình Lợi crosses the Sai Gon River in Ho Chi Minh City. The bridge consists of a European style bowstring pony truss swing span, and a larger fixed European style bowstring through truss. There also are newer (but still riveted) through truss spans that are not original to the bridge at the western end. The bridge was built in 1902 by Société de construction de Levallois-Perret. The bridge carried a combination of railway and highway traffic. As of 2018, a new bridge is being built next to this bridge and the bridge may be slated for demolition.

Cầu Rạch Cát crosses the Dong Nai River in Biên Hòa. It was built in 1903 by Société de construction de Levallois-Perret. It consists of two original European style riveted bowstring through truss spans at each end. The original center span, which was identical to the end spans, was replaced with a newer, but still riveted, through truss span. The bridge carries a railway in between the truss lines. Sidewalks are cantilevered from the outside of the truss lines. One of these sidewalks is closed to all traffic, while the other sidewalk is open to one-way motorbike traffic.

Cầu Mống crosses the Ben Nghe Canal in Ho Chi Minh City and is the most famous historic bridge in the city. It was built by Société de construction de Levallois-Perret in 1894, and thus is one of the oldest known intact bridges in Vietnam. It was originally named Pont des Messageries Maritimes. The bridge is a riveted, spandrel-braced deck arch bridge. It originally carried highway traffic, however today the bridge has been preserved for non-motorized traffic only. The vehicular approach ramps have been removed, with pedestrian access being by way of stairs.

Cầu Sêrêpôk is located near Buôn Ma Thuột over the Dak Krong River. It is today three bridges, two of which have note as historic bridges. The most noteworthy bridge is deteriorated and has been closed to traffic. It is a concrete cantilever through truss, an extremely rare design on a global scale, although

several such bridges were built in Vietnam. Reportedly, the bridge was built by the French government in 1941. The other bridge of note here is a riveted Parker through truss with vertical end posts. The history of this bridge is uncertain. It also includes riveted deck plate girder spans. The bridge carries westbound traffic, with a modern ca. 1991 bridge carrying eastbound traffic.

Cầu Cai Lậy crosses the Ba Rai River in Tien Giang province. It is another concrete cantilever through truss bridge. This one has been bypassed by a modern bridge for two-way traffic. However, the historic bridge remains open to motorbike traffic and provides access to roads along the river. The history of this bridge is not known, but like Cầu Sêrêpôk it is a rare bridge design which cannot be found in many other countries.

Cầu Long Kiểng is a riveted pony truss over Long Kiểng Canal in Ho Chi Minh City. Cited in local newspapers as “nearly a hundred years old” this bridge, with a presumed ca. 1920 construction date is a representative example of a design of light weight pony truss bridge that was built in Vietnam by the French government in unknown numbers. This particular example was the victim of an overweight truck, which collapsed one of the spans in January 2018. That span has been replaced with a Bailey truss span. The narrow bridge today is in use by motorbike traffic only, of which it carries a tremendous volume.

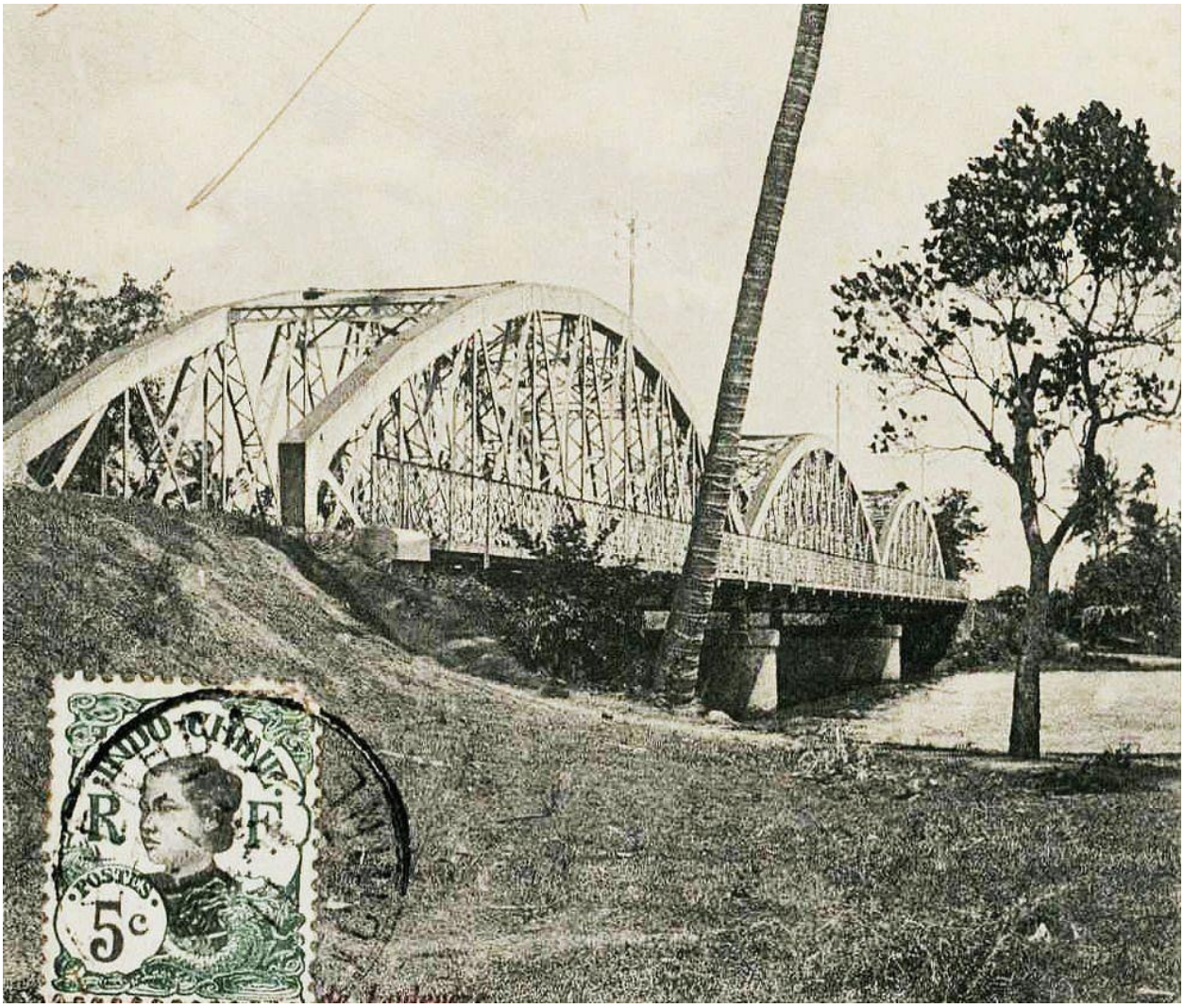
Cầu Bình Lợi.

Cầu Cai Lậy.

Cầu Long Kiểng is shown here with its heavy motorbike traffic.

Cầu Phú Long is shown in an elevation view. To the right is the unusual through truss that cantilevers out beyond the piers.

Cầu Rạch Cát.



A historical photo of Cầu Rạch Cát shows the original center span in place.

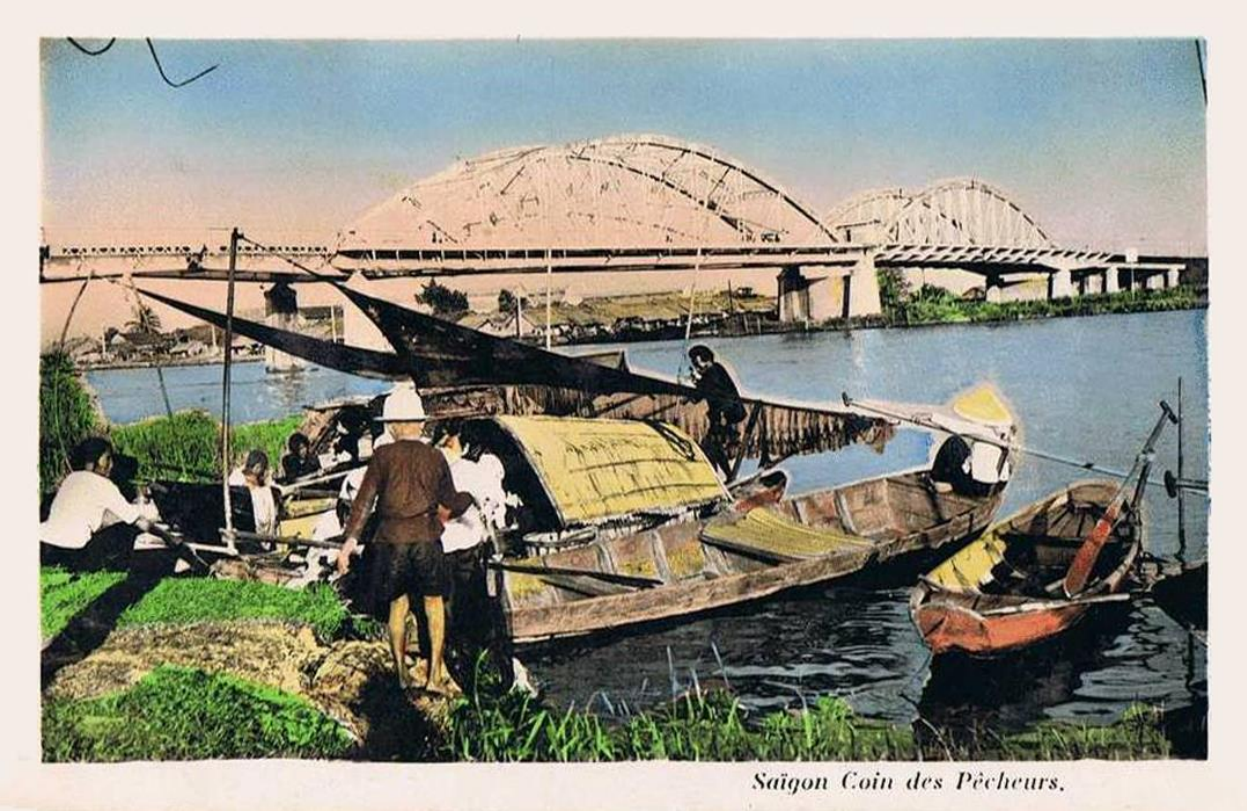
Cầu Sêrêpôk, concrete cantilever truss bridge.

Cầu Sêrêpôk, concrete cantilever truss bridge.

Cầu Sêrêpôk, riveted steel through truss bridge.

Cầu Tân Thuận.

A photo of Cầu Tân Thuận taken in 1968-9 showing a temporary Bailey truss spanning on top of the girder span. In this photo, the girders under the Bailey truss show the original design, without the welded plate that has since been added to them.



A historical postcard showing Cầu Tân Thuận in its earlier years of service.

Cầu Tân Thuận. To the left is the concrete bowstring span, and to the right is the steel bowstring span.

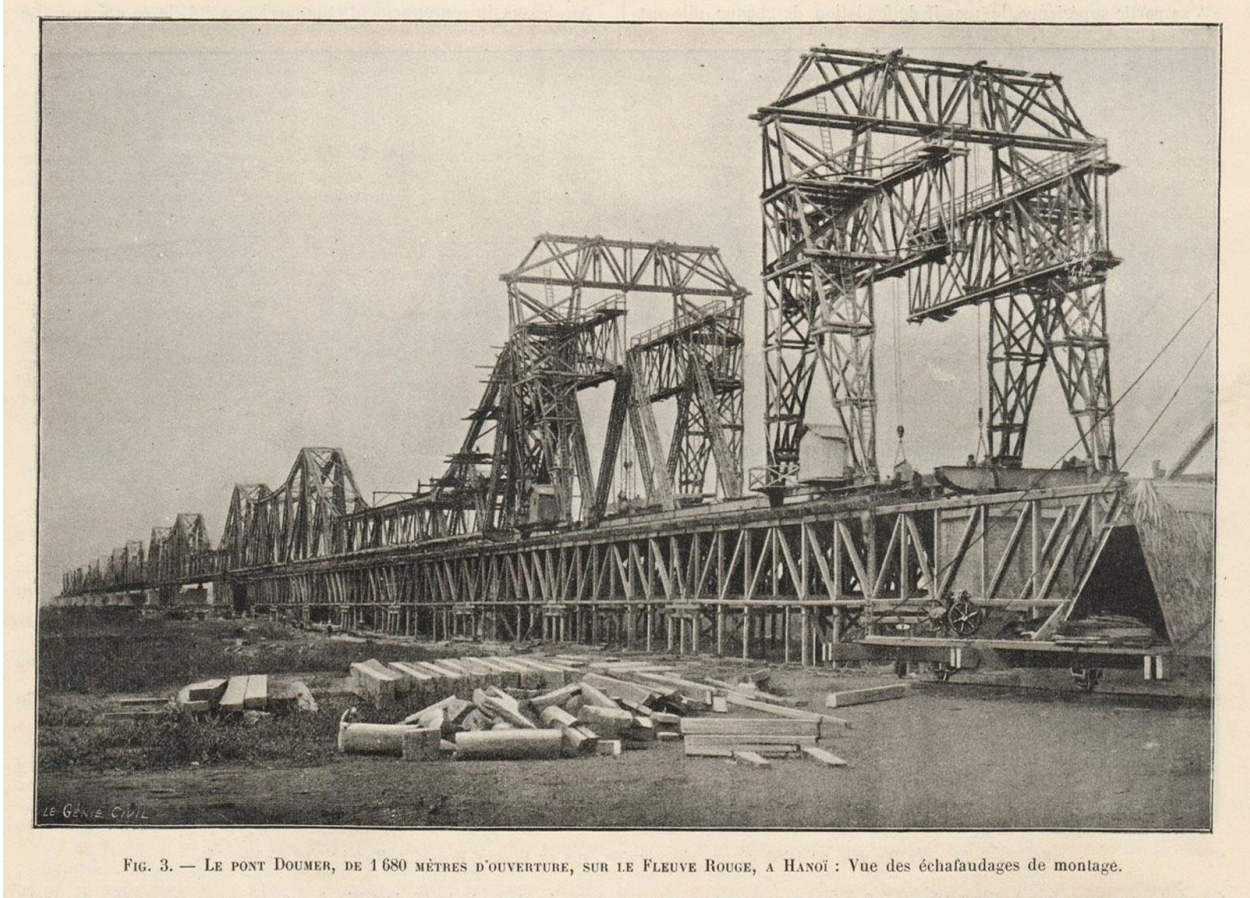
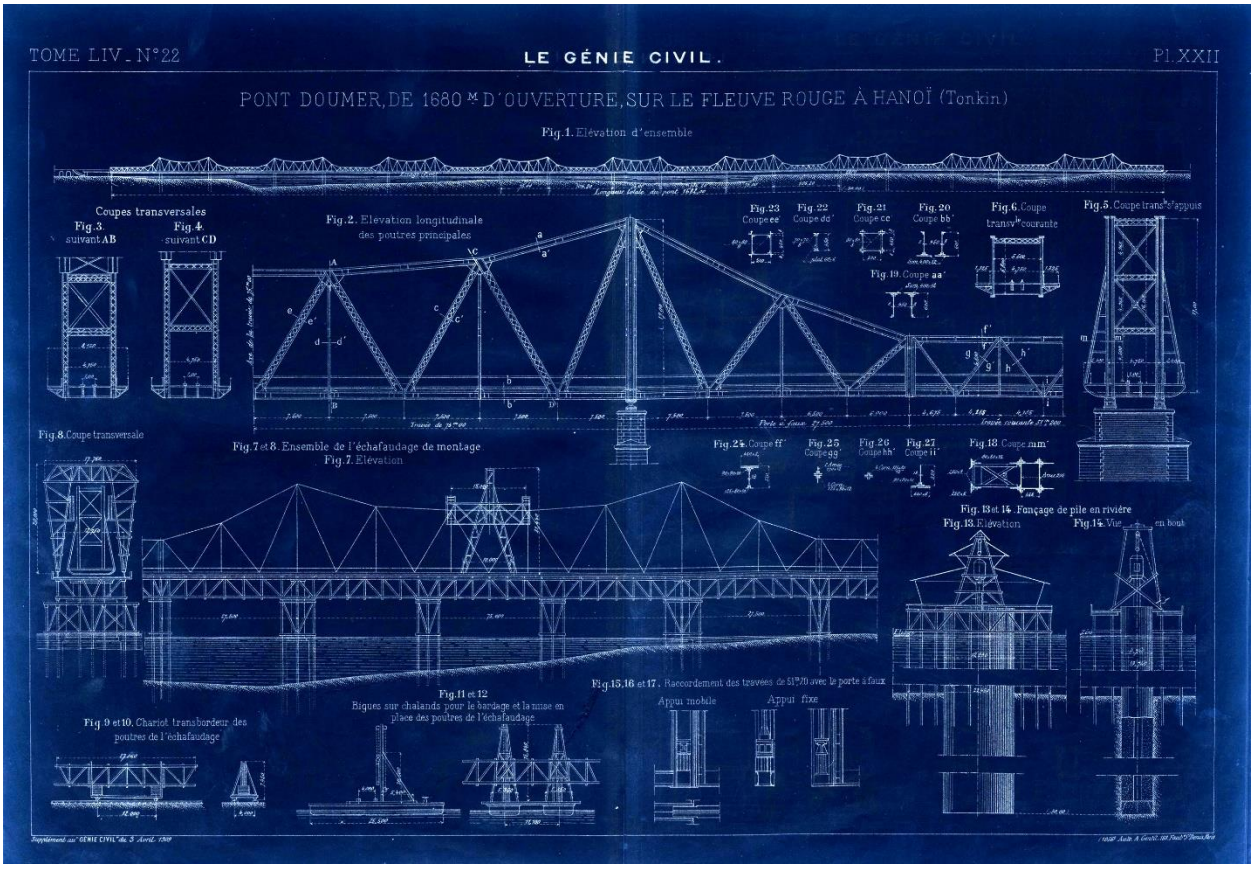


FIG. 3. — LE PONT DOUMER, DE 1 680 MÈTRES D'OUVERTURE, SUR LE FLEUVE ROUGE, A HANOÏ : Vue des échafaudages de montage.

A historical photo showing the original construction of Cầu Long Biên. While one positive aspect of the design of a cantilever truss bridge was the ability to erect portions without the use of falsework, note that the builders of this bridge nevertheless opted to make use of falsework for easier construction of this bridge.

A historical photo of Cầu Long Biên showing all spans in place.



One of the original engineering drawings for Cầu Long Biên.

Cầu Long Biên. This photo shows a distant view of the bridge and a view of its builder plaque.

Cầu Long Biên.

Cầu Long Biên.

Cầu Mống.