128. *On the Inoura Narrows Bridge (the Saikai Bridge)*

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The Inoura Narrows Bridge is a highway bridge over the Inoura Narrows at the mouth of Omura Bay, near Nagasaki, Japan, and the bridge will be opened to traffic on Oct. 18th, this year (1955), when the bridge will be named "the Saikai Bridge".

The center span of the bridge between the piers on both shores is 244 metres long and supported by a braced fixed arch of 216 metre effective span, which is believed to be the record span braced fixed steel arch in the world, and the third longest span fixed arch, next to the Rainbow Bridge at Niagara Falls and the Henry Hudson Bridge in New York City.

At the bridge site, as the water is 40 metres deep and the maximum speed of tidal current is 15 kilometres per hour, the main arch truss was erected by cantilever tieback system with minute operations of the forward cables.

On closing of the arch, by operating eight 300 ton capacity jacks at its crown, the following adjustments were performed.

(a) Eliminating the erection stress by those jacks, the stress distributions in the arch members were led to the conditions of the fixed arch proper.

(b) By prestressing by those jacks, the tensile reactions at the upper shoes were eliminated.

The method (a) was tried at the Rainbow Bridge, while the method (b) was applied newly to the present steel arch. And by using strain meters, we carefully measured the stresses in the important members during the erection and checked the stresses at every stage of erection.

The fundamental planning and the design of this arch span performed by our staffs of the Construction Ministry, and the fabrication of the main span structure and its erection work were taken charge of by Yokogawa Bridge Works, Ltd. Tokyo, Japan.

General views and dimensions of the bridge (in metres) are as shown in Fig. 1 and Fig. 2, and summaries of materials used are as shown below.