The Contribution of Latin America to the Development of Long Span Bridges

Reiner SAUL
Consultant
Leonhardt, Andrä und
Partner GmbH
Stuttgart, Germany
saul@s.lap-consult.com

Reiner Saul, born 1938, received his civil engineering degree from the University of Hannover, Germany, in 1963, and his Dr.-Ing. E. h. from the University of Braunschweig in 2003.

Karl HUMPF
Manager Bridge Dept.
Leonhardt, Andrä und
Partner GmbH
Stuttgart, Germany
humpf@s.lap-consult.com

Karl Humpf, born 1951, received her civil engineering degree from the Univ. of Aachen in 1975.

Summary

The paper deals with innovative technologies which have been applied for the first time in the design and construction of long span Latin American bridges like

- deep water foundations with big diameter piles
- prestressed concrete bridges built by launching
- long span bridges with double steel composite section
- cable-stayed bridges for full railways
- protection of piers against ship impact.

Keywords: deep water foundations, big diameter piles, incremental launching bridges, double composite action, cable-stayed bridges for railroads, hydraulic damper, parallel wire cables, symmetrical free cantilevering erection, protection against ship impact, high strength steel composite piles

1. Introduction

In the post-Columbian times, the great Latin American rivers have eased the discovery of the subcontinent. In the times of cars and railways, instead, they formed important obstacles to a fluent traffic as they could be crossed by ferries only.

In the past 40 years, for the most important roads and railways the ferries have been replaced by bridges. Due to the size of the rivers, the ocean going ships sailing on them and the often extremely bad subsoils, their design and construction required uncommon techniques.

Some of the innovative technologies applied for the first time for Latin American bridges are

- deep water foundations with big diameter piles
- prestressed concrete bridges built by launching
- long span bridges with double steel composite section
- cable-stayed bridges for full railways
- protection of piers against ship impact.

2. Deep Water Foundations

2.1 General

The important water depth and thick layers of soft soils make a pile foundation mandatory in many South American rivers. Therefore, the construction of long piles with great diameters is closely connected to the bridges of the subcontinent, and the experiences there gathered have been applied all over the world.

https://doi.org/10.2749/weimar.2007.0378
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