

REVIEW ARTICLE

The New Bridge of Ronda (Spain): History of the construction of a landmark in the development of this city



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Abstract The municipality of Ronda, in Spain, has a rich architectural heritage, treasured by its inhabitants over the centuries. Among its numerous buildings of great heritage value, one stands out: the monumental bridge that rises above the precipice of the plateau on which this city sits. It is known as the New Bridge. This unique 18th-century engineering work favoured the expansion and growth of Ronda's population, also affecting its urban development. Currently, it continues to serve as a link between the original city centre and its expansion areas beyond the walls. This research addresses the reasons why this bridge was constructed, as well as the circumstances that marked its different construction phases. In addition, different hypotheses are put forward on how its physiognomy might have been, in the case that each of the different projects proposed for the bridge had been carried out in its entirety. All of this has led to the conclusion that the morphology of this bridge was not the result of a single design, but rather responds to the various modifications made during its construction.

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In June 1785, the Council ordered the inspection of the bridge construction works to be completed by the captain of the carabinieri and engineer, Diego de Córdoba y Pacheco. Following the inspection, Diego de Córdoba, who was serving as the general superintendent of the roads of Antequera and Vélez at that time, proposed that the architect José Martín de Aldehuela should oversee these works. José Martín de Aldehuela, renowned for his work on the San Telmo Aqueduct in Málaga, was chosen for the task (Camacho and Miró, 1994).

Martin de Aldehuela had already visited the construction works of the New Bridge of Ronda in June of that same year, 1785. Based on his study, he created a series of blueprints and assessed the completion of the works at 1,000,000 reales. With all this, the Council ordered the continuation of the works under the direction of this architect. Furthermore, he proposed that the Captain of the Navy, Diego de Cañas y Silva, who was recovering his health in Ronda at the time, serve as the works superintendent, handling issues related to the project that went beyond his usual duties (Camacho and Miró, 1994).

Martin de Aldehuela's 1786 bridge design continued Domingo Loys' solution of placing an additional arch between the lower arch, located next to the riverbed, and the upper arch under the bridge deck. However, he positioned this intermediate arch at a higher level than Manuel de Godoy had suggested in his project. Furthermore, he sealed the upper arch, making it indiscernible from the exterior of the bridge. Beneath this arch, he arranged a habitable chamber and also introduced two smaller lateral arches, whose purpose was to support the bridge deck as well (Fig. 22).

On September 15, 1787, the construction of the blind vault was completed, and only the parapets and certain decorative elements remained to be finished. On November 4 of the same year, the New Bridge was opened to carriages and horse traffic, although its ultimate completion occurred in 1793 (Figs. 23, 24 and 25). After Martín de Aldehuela passed away in 1802, some money was still owed for the work on the New Bridge. An order was issued to have this payment made to his son Antonio Martín (López, 2008).

6. Conclusions

The main conclusion drawn from the study presented in this research is that the New Bridge allowed the expansion of the city of Ronda, whose urban nucleus was until then concentrated in La Ciudad district, a walled area with no room for urban expansion. Therefore, the New Bridge granted the city's expansion towards other growing areas located on the other side of "El Tajo de Ronda" gorge.

Furthermore, the design of the New Bridge arises as a result of providing a different solution to the one initially proposed to span El Tajo gorge and connect the Mercadillo neighborhood to La Ciudad neighborhood. The initial solution led to the construction of a single-arch bridge, whose enormous dimensions with respect to the technical knowledge of the time, along with possible deficiencies in its construction and/or design, resulted in its collapse. Consequently, a new solution was devised, leading to the construction of a new bridge from the bottom of "El Tajo" gorge.

The final design of Ronda's New Bridge is not the outcome of an initial project that remained unchanged until the completion of the construction. Instead, it is a design that evolved as the work progressed, based on proposals put forth by various engineers.

In this sense, the initial solution conceived for the bridge was similar to that observed in stone bridges crossing small watercourses, with a single arch projected to skip the said watercourse. However, this solution evolved mainly due to the great height the bridge had to reach. Thus, the various arches were introduced in the final design in order to reduce weight in the construction, therefore, making it more cost-effective.

On the other hand, although historical depictions commonly attribute Ronda's New Bridge design to José Martín de Aldehuela, he was the architect who completed the construction, planning approximately the final one-third of the bridge's height, with the rest of the structure's design originating from other engineers' projects.

Finally, it's worth noting that this article is the result of a meticulous search and verification of data from existing literature, which often contains scattered and divergent information. Hence, a concise and clear interpretation of the different stages of the construction of Ronda's New Bridge is presented here, serving as a starting point for the study of other aspects, such as those related to the technical solutions implemented in the bridge, or its comparison to other contemporary public works, both, in Spain and in southern Europe.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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