

Pepa Cassinello: Eduardo Torroja. The Man and his Legacy.

Edición Fundación Eduardo Torroja and Print Color S.L., Madrid 2024, 616 pages,

The Man and his Legacy

A comprehensive biography of Eduardo Torroja

There is no doubt: Eduardo Torroja (1899-1961) is one of the most important and innovative engineers, pioneering the development of reinforced and prestressed concrete and thin shell structures of Modernity. His Institute of "Construction and Building" (founded in 1934, today well known as Eduardo Torroja Institute) and constructions like the famous cantilever shell for the Zarzuela Racecourse in Madrid, built in 1940, established his international fame. Not less important are his publications: His book "razón y ser de los tipos estucturales" first published in 1957 and translated into English just one year later as "Philosophy of Structures" inspired a whole generation of young people (like me) to study civil engineering or architecture.

Beyond his many own publications the engineering accomplishments of Eduardo Torroja have been presented, cited, commented and analysed in books and reviews all over the world. In this context the new book of Pepa Cassinello, "Eduardo Torroja. The Man and his Legacy", to be reviewed here, disserves special attention because it does not only consider his extraordinary professional legacy as a civil engineer but also presents his life as a person in his historical context within the network of architects and engineers surrounding him. As the author remarks "It is a biography that recounts the *indelible mark of the man and his legacy*, which are inseparable." and further "In addition, this biography throws light on his aspirations, worries and dreams and that special way of thinking that was the motor of both his professional and his private, personal life." The closeness of the author's family with the Torroja family confirms the authenticity of the account.

From the first chapters of the book we learn about Torrojas childhood at the turn of the past century, his early years under the stimuli of science, technology and art which would accompany him all his lifetime. The reader is invited to witness his study period at the School of Civil Engineering which encouraged his spirit for innovation: His early works already give a sense of this approach. In addition the starting a family with his wife Carmen Cavanillas in 1926 is also described as a vital step.

The central part of Eduardo Torrojas biography presents his professional development and achievements and occupies three chronologically arranged chapters.

The first period starts in 1927 when he founded his own Technical Office that gave him *the freedom to devise structural forms never imagined before*, based on scientific evidence and technical experience. He participated in the design and construction of Madrid's University Campus and in early 1930ies he designed his first thin-shell structures like the Market Hall in Algeciras, the Zarzuela Racehorse and the Recolectos Pelota Court in Madrid. In this time he also learned to use imagery as a powerful means of expression in order to explain and promote his creations.

The second period considers the years of the Spanish Civil War (1936-1939) and the postwar reconstruction of the country with a focus on infrastructural projects like bridges and aqueducts, mainly using steel and prestressed concrete. However, this was also a time of technical innovation, which was stimulated by his contacts and discussions with colleagues and at congresses in the context of the emergence of modernism in architecture and engineering.

The culmination of his career is presented as the third period of his vocation. The main events are highlighted. A key experience was a visit to Frank Lloyd Wright in 1950, the beginning of an enduring friendship and collaboration. In 1953 he inaugurated the new headquarters of his institute in Madrid, which continues to impress those who visit it even today. This building allowed him to realize many of his innovative structural and architectural ideas. In 1959 he created the *International Association for Shell Structures (IASS)* which brought together the most famous constructors of thin concrete shells. His last works reflect His last works are testimony to his outstanding creative power and immeasurable joy of innovation.

The final chapters are dedicated to the many publications of Eduardo Torroja and the documentation of to two exceptional, but unbuilt projects. The Eduardo Torroja Museum is presented as an impressive highlight of the legacy he left behind. Quotes and comments from friends and followers of Eduardo Torroja's work, both old and new, conclude the book.

To summarise, it can be said that this really comprehensive biography of Eduardo Torroja is particularly impressive due to the rich illustrations with photos, drawings and documents from Torroja's archive. They support the excitingly written text and make its content visually comprehensible. Additionally the text is enlivened by quotes and comments from friends and colleagues, demonstrating the breadth of Torroja's network and how much his work inspired and can still inspire others. The author has also succeeded in placing Torroja's personal biography in the context of contemporary history and explaining its significance for the history of technology and architecture. Finally, the book is a well worth reading and instructive contribution to the history of an exciting and multifaceted profession.

Dr. Dirk Bühler, Augsburg