GARDENS AND LANDSCAPES

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Book Reviews

Mohammed El Faïz, *Os Mestres da Água: História da Hidráulica Árabe*, Olhão: Universidade do Algarve, 2018.

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The Portuguese translation of one of my favourite books *Les Maîtres de l'Eau*, by Mohammed El Faïz (2005), was published in 2018. The translation is authored by Ana Ferreira de Almeida and was published by the University of Algarve, committed to promoting knowledge about Mediterranean heritage. The water culture undoubtedly unites the two sides of the Mediterranean, as water management and water devices of Arab influence developed during al-Andaluz, left an imprint that extended in some regions of the Iberian

Peninsula to the mid-twentieth century.

The book is divided into three parts that reflect the chronology of the history of Arab hydraulics: its background, covering both the pre-Islamic contribution from Mesopotamia and the Greek legacy; its golden era corresponding to the period of expansion of Islam between the seventh and fourteenth centuries, and the evolution of Arab hydraulics up to the nineteenth century in a path far from being linear or one of continuous progress.

The author demonstrates how the concern with water quality, the art of finding natural springs, techniques for building wells, methods for elevating water, as well as ways of manipulating rivers in order to increase the irrigation area, was knowledge already reported in the documentation on the use of water in Mesopotamia long before the appearance of Islam.

Regarding the classical heritage, El Faïz highlights its theoretical production, such as the principles of Aristotelian hydraulics, the theory of the Four Elements, the explanation of meteorological phenomena, the Aristotelian account for the origin of springs, the salinity of the sea, and ends with a small subchapter dedicated to the Arabic translation of the *Book of Pneumatic Devices and Hydraulic Machines* by Philon of Byzantium, one of the brilliant translators of the Abbasid era.

The book's second part is devoted to the birth and splendour of the school of Arabo-Muslim hydraulic thought. The author draws attention to the construction of hydraulic structures, such as *qanâts* and large reservoirs, as a political response to the chronic lack of water in regions inhabited by Arab peoples. Between the ninth and twelfth centuries, the golden age of Arab-Muslim hydraulics stems from the work of Iraqi hydraulic engineers, the invention of various hydraulic wheel systems and machines to ventilate wells, the pulley system, the underground tunnel technology and the *qanât* revolution. All this dynamic was reflected in the various treatises that dealt with these themes, and in specific legislation that accompanied this evolution and complexity. The al-Andaluz and Marrakesh stand out as 'pockets of innovation' of this wisdom.

The book's third part addresses the outcome of the knowledge produced in this context. Although the rest of the story is generally one of decline, the author highlights five moments of the rebirth of Arab-Muslim hydraulics' wisdom: The invention of pumps made by Taqî Al-Din (1525-1585) in Egypt while working for the state; the mathematical model for the hydraulic network

of Fez developed by D'Al-Fachtâlim (d. 1649); the book on hydraulics by Ahmad Al-Damanhûrî (1696-1778); Muhammad al-'Attâr (1764-1828) and the distribution of water in Damasco; and, finally, the legacy of this Arab-Muslim hydraulic culture in the Mediterranean.

This book review ends up being addressed to the two books – the original by Mohammed El Faïz (2005) and the translation into Portuguese (2018) – because they are interconnected, even because the translation into Portuguese reflects for me some errors in the translation or interpretation of the ancient texts since the term “ingénieurs hydrauliciens” is already used in the book published in French by El Faïz. It is used to designate the medieval artisans who dealt with water when it is known that in the Middle Ages, there were no “engineers”, a profession that appears much later. Some notes about the translations from Arabic into French, as well as from French into Portuguese should have been given.

Mohammed El Faïz, a historian of agronomy and Islamic gardens, was professor at the Cadi Ayyad University in Marrakech (Morocco). Beyond *Les Maîtres de l'Eau*, among his publications on the themes of water, agronomy and gardens in the Arab-Muslim civilization, I highlight the following: *Agronomy of ancient Mesopotamia: analysis of the Nabatean agriculture of Qûâtâmâ* (J. Brill, Leiden-Köln-New York, 1995), *Les jardins de Marrakech* (Actes Sud, Arles, 2000), Ibn al-Awwâm, *The Book of Agriculture* (Kitâb al-Filâha), revised and corrected edition with introduction of Mohammed El Faïz (Sindbad / Actes Sud, 2000) and *Marrakech: heritage in danger* (Actes Sud / Eddif, 2002). This acknowledged scholar on both shores of the Mediterranean left us in 2018, and several research projects on Iberian gardens designed under Arab-Muslim influence were left behind.

In Portuguese, *Os Mestres da Água* facilitates the access of younger generations less familiar with French language, not only to one of the best books on the history of water but also to the millenary wisdom of water manipulation inherited from the peoples of the desert.