

The Alhambra and Granada in the al-Andalus

MODULE 4

4.4. HYDRAULIC INFRASTRUCTURE

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The earliest references to the occupation of the Sabika or Alhambra Hill date back to the 9th century when, thanks to its excellent strategic qualities, a rudimentary defensive settlement had been established there. Over the course of the 11th century, this fortification was progressively consolidated and enlarged with the buildings –dwellings, baths and aljibes (underground cisterns)– that came to comprise the Alcazaba (citadel). Archaeological evidence has determined the existence of a primitive hydraulic system to supply this community, with the water being obtained and transported manually through a coracha (wall with a high walkway) that went down to the

Bab al Difāf (Puerta de las Compuertas or Gate of the Sluices) in the Darro River. The water brought up from the river was stored in cisterns, the largest of which was located in the vicinity of the original gate to the primitive enclosure and near the baths, to which it was connected by pipes that ran under a street. This storage system remained in use until the thirteenth century, after which it was integrated into the general hydraulic system.

With the arrival of the Nasrid dynasty, the city of Granada became the capital of the sultanate. The first monarch, Mohammed I, chose the Alhambra Hill for his residence and court, the symbol of the newly-established political power. This decision entailed a veritable transformation of the compound's natural surroundings, whose characteristics with regard to geology and water were not conducive to supplying a large population. The hydraulic infrastructure that began to be designed in 1238 represents the subjugation of water for the sake of the territory, a marvel of medieval engineering consisting of the construction of an azud (water storage dam) to divert the river water to an acequia (channel) carved out of the rock halfway up the hillside. This conduit runs approximately 6 km, carrying water downwards by the action of gravity until it reaches the Alhambra from an adjacent hill, the Cerro del Sol (Sun Hill).

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From this point, the water traverses the Generalife, acting as an axis as it passes through the Patio de la Acequia (Courtyard of the Water Channel), using its branches and intakes to water the horticultural gardens all along it: the Huerta Colorada, Huerta Grande and Huerta de Fuentepaña. The very layout of the Generalife building and its gardens are determined by the existence of the channel, which functionally and formally defines this space. After leaving the Generalife, part of the water flows towards the old Realejo and Torres Bermejas neighbourhood, while the rest is channeled by an aqueduct next to the Torre del Agua (Water Tower), through which it finally enters the walled Alhambra enclosure, crossing it from end to end.

A study of the topography of the land, water collection and water transport dictated the route of the so-called Acequia Real (Royal or Sultan's Channel). Its creation also marked the beginning of a crucial phase during which the fortress developed into a palatial city. A complex spatial plan organized the location of the urban or administrative zone and the various residential and trade areas using an intelligent system of terraces that descended down both sides of this channel, thus guaranteeing water supply to the entire medina (city).

Agricultural activity was concentrated on the adjacent Cerro del Sol hill, where the arable land was structured into a system of almunias (horticultural gardens in rural areas). Here the use of water was not at odds with indulgence or recreation. An example is found in the Generalife. Its orchards and crops were developed in the context of a major revolution in Islamic agriculture and the practice of intensive irrigation farming. Yet, very nearby, the palace and splendid gardens were and are a true delight for the senses.

Later sultans extended the irrigated areas on the hillsides above the Cerro del Sol hill, successively expanding the original network. One example of this is the hydraulic complex known as the Albercón de las Damas (Water Pond of the Ladies), a large tank that filled with water from the Royal Channel, raised to the higher level using a system composed of an underground passageway and a well with a noria (waterwheel). The Acequia del Tercio (Channel of One Third), a high offshoot of the main channel, was later built for the same purpose. As its name suggests, this channel used a third of its water to supply the new Huerta de la Mercería (Haberdashery Orchard).

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The continuity of the hydraulic system was guaranteed after the Kingdom of Granada was conquered by the Castilians, when the urban palatial city was replaced by a fortified military compound. The defensive system was reinforced and new productive uses and functions were introduced along with hydraulic structures that ensured a stable supply of water in case of siege. The Count of Tendilla, the first governor of the Alhambra, was responsible both for building the large cistern in the esplanade leading to the Alcazaba and enacting the 1517 Royal Channel Ordinances, which regulated water use up through the 19th century.

Today –with the logical transformations that occur over time– it is possible to appreciate almost the entirety of the Alhambra’s hydraulic structure. It is a complicated network where water flows through a wide variety of channels, cisterns and underground offshoots, revealing its vitality in artistic fountains, spouts and albercas (pools), fertilizing orchards and gardens and giving shape to transparent architectures and ingenious feats of craftsmanship.