

# THE WATER CIVILIZING AGENT IN THE MUSLIM GRANADA AND GARDENS



Gloria Becerra Conde y Marian Cabrera Orti  
IES FRAY LUIS DE GRANADA. SPAIN

# DIFERENT USES OF THE WATER

- Initial agricultural use: water channels and irrigation systems
- Religious use: using the water like a spirit purification
- Industrial use: using the water like motive power
- Social use: water supply for the urban population with domestic use in both public and private baths. Medicinal use by means of spas with thermal or mineral-medicinal waters
- Ornamental use: using the water for the gardens and houses embellishment

# **AL-ANDALUS inherit all the Ancient World techniques, developing and improving them**

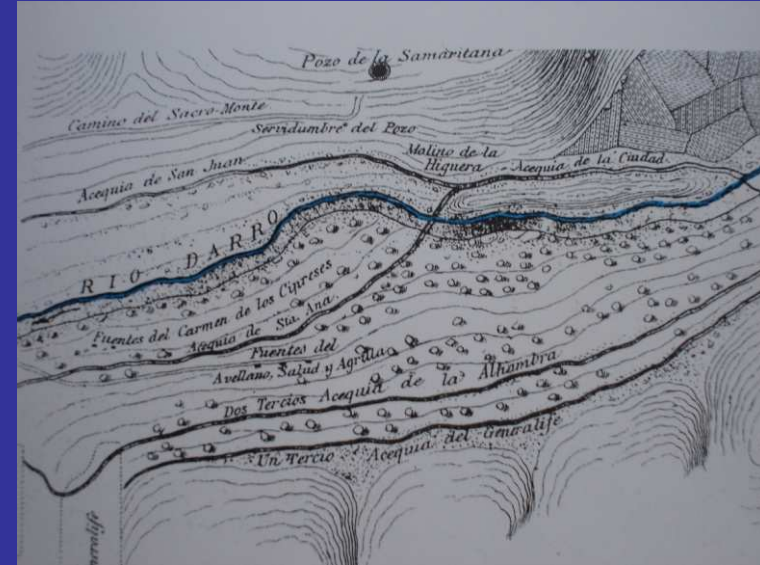
Ibn Jafaya, was a poet of the XI Century who told about it:

*“Oh al-Andalus inhabitants, what a happiness is yours for having waters, shadows, rivers and trees. The Eternal Happiness Garden is not outside but inside of your territories. If I could choose a place, this would be my choice”.*

# WATER CHANNELS AND IRRIGATION SYSTEMS

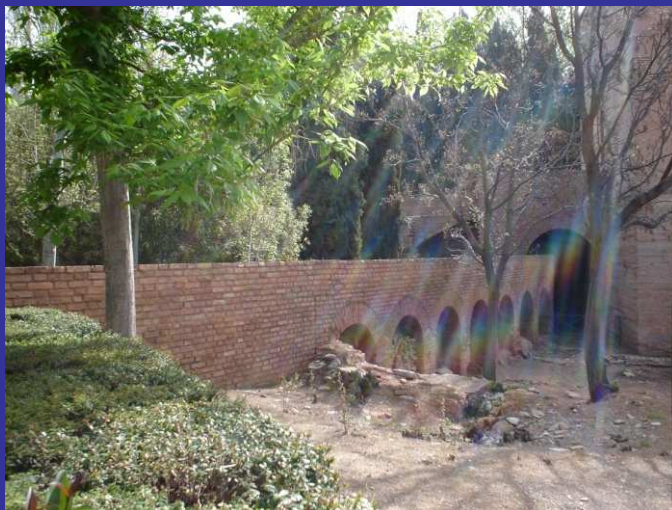


**FUENTE GRANDE SPRING:**  
source of Ainadamar irrigation channel



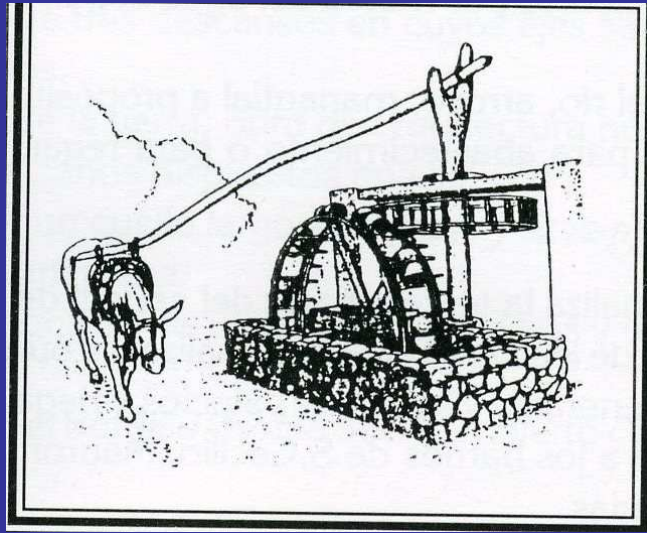
**AINADAMAR IRRIGATION CHANNEL**

In the Muslim Granada were used different methods of irrigation. One of the most popular method was to use the spring water piped by irrigation channels

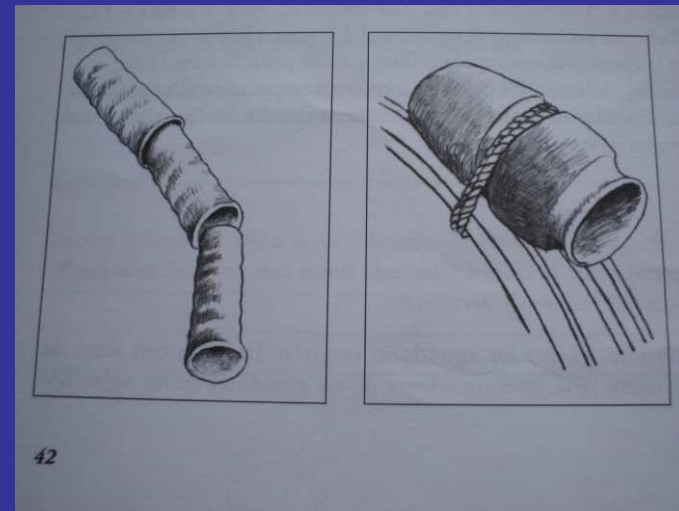


**GENERALIFE AQUEDUCT**

# WATER CHANNELS AND IRRIGATION SYSTEMS



WATERWHEEL



ATANORES & CANJILONES

- The waterwheels provided the possibility of pulling out and rising the water from rivers and wells
- The “atanores” were ceramic pieces that must be assembled in order to form the pipeline.
- The “canjilones” were pottery vessels used to pull out the water from the wells

# THE WATER PURIFICATION RITUAL



WATER STAIRCASE AT THE GENERALIFE

# INDUSTRIAL USE

The course of the rivers and irrigation channels was full of a kind of facilities called “artefactos”. These devices used the water in order to manufacture wheat flour, paper, leather tans, wood sawmill, smelting works, silk spin, thread dye or to manufacture clothes and hats.

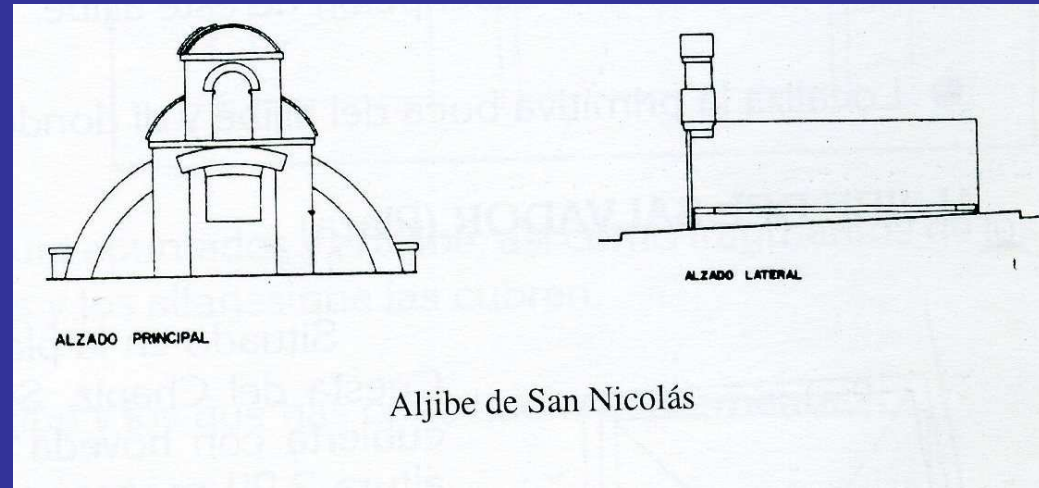
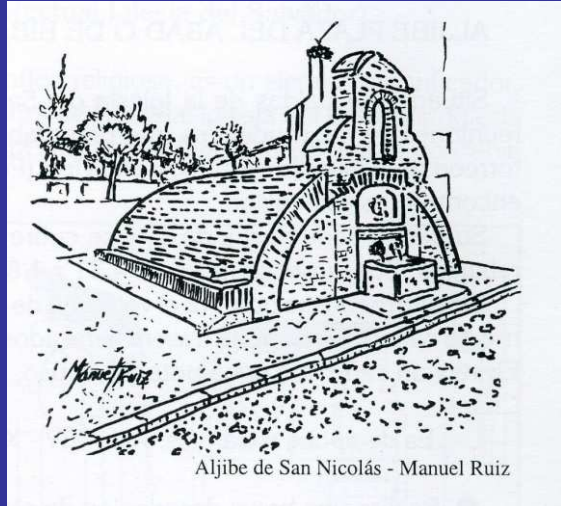


The TENERIAS, located inside the precinct of the Alhambra, were the places in which the leathers were tanned, being necessary for their good working a huge flow of water.



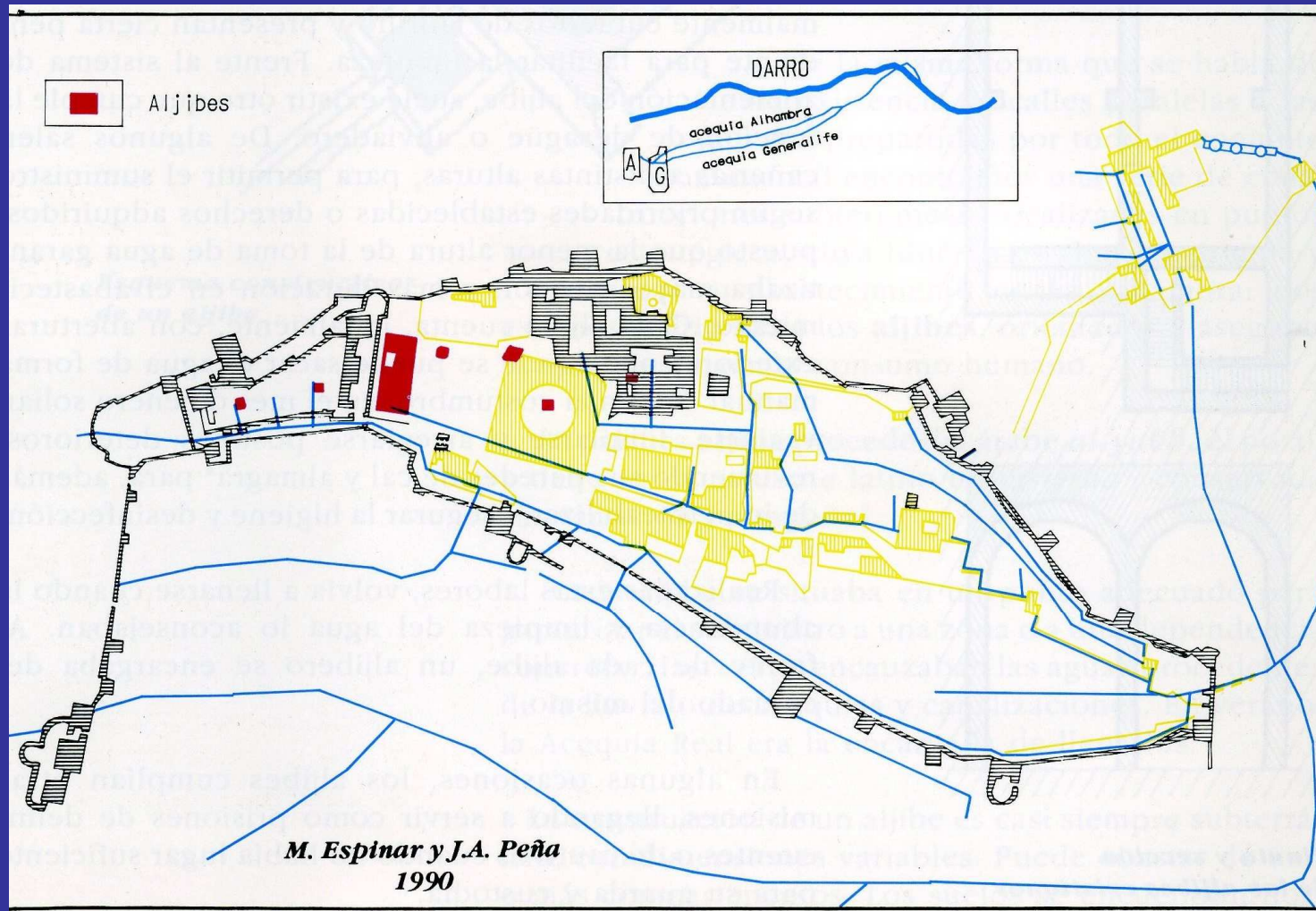


# CISTERNS

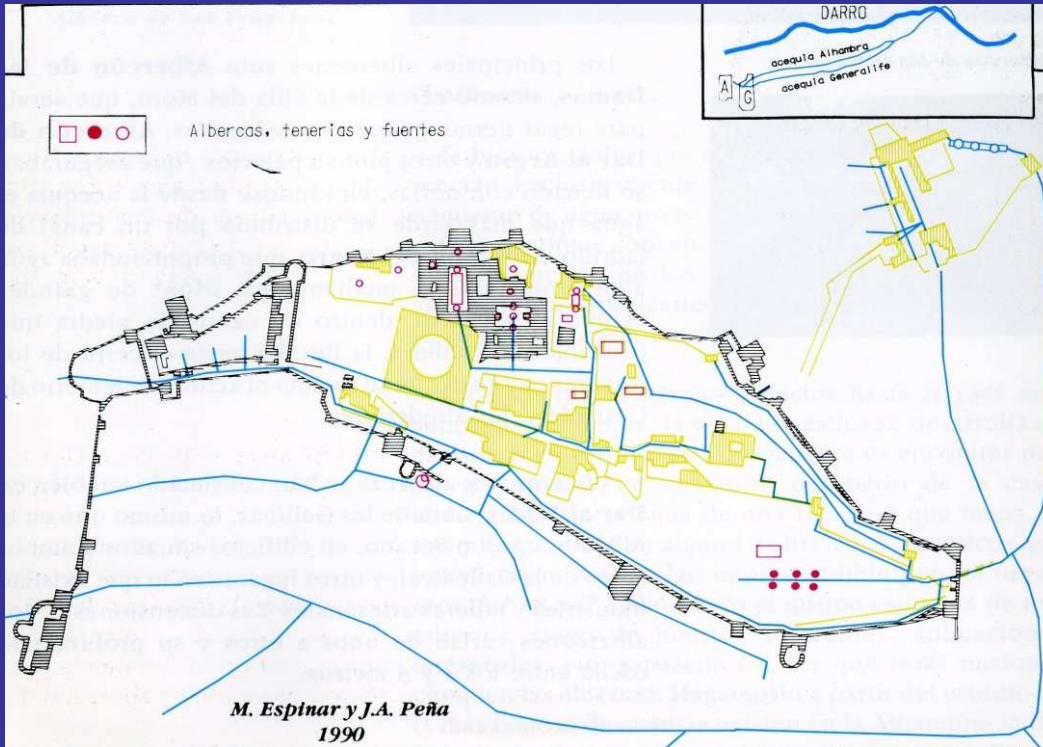


The water storage in the houses was made by means of cisterns and jars. The cisterns were public or private and, as the roman ones, collected both rainwater and the water from ditches

# The Alhambra cisterns



# The Alhambra pools



# THE MEDICINAL WATER

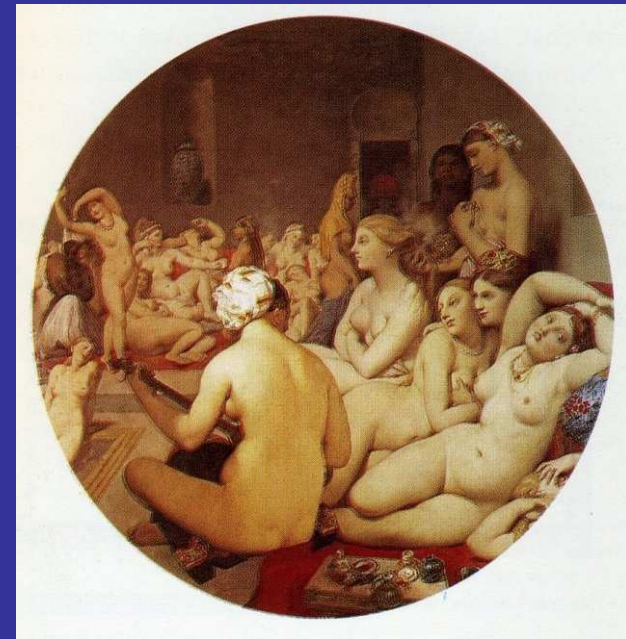


The mediaeval Granada inherits the roman tradition of the fondness for the thermal and medicinal waters. For the Arabic Philosophy and Medicine, the water and the preventive medicine were strong allied.

In the Granada territory there are a lot of spas like the one placed at Alhama of Granada.

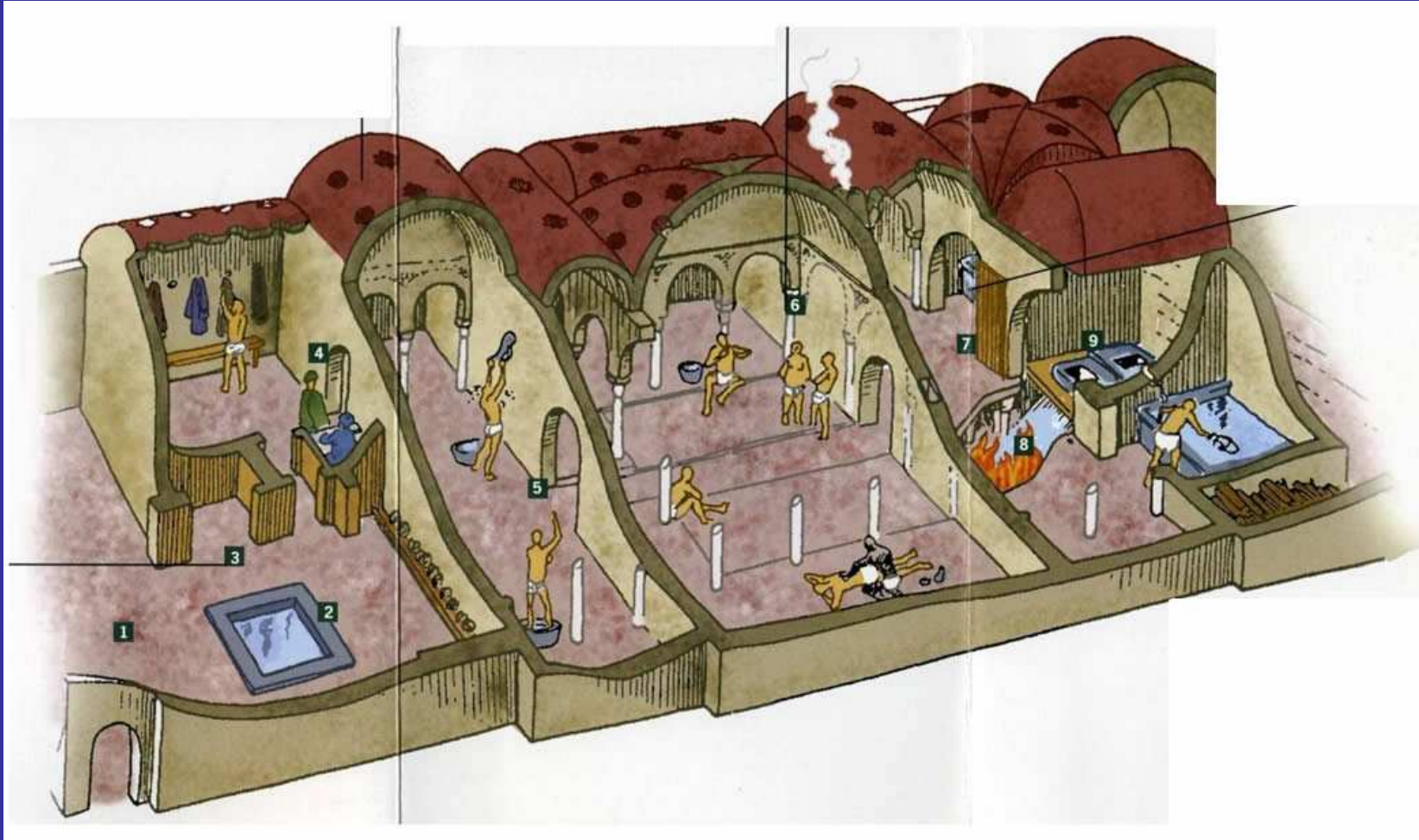
# AL-HAMMAM. THE BATHS

The Hamman is based on the roman and Byzantine hot springs. Although their size was reduced and the floor layout was standardized, it keeps the previous function of the different rooms and the architectural elements of the buildings. One these are the vaults that were full of skylights in order to allow both the come in of the light and the way out of the steam throughout them



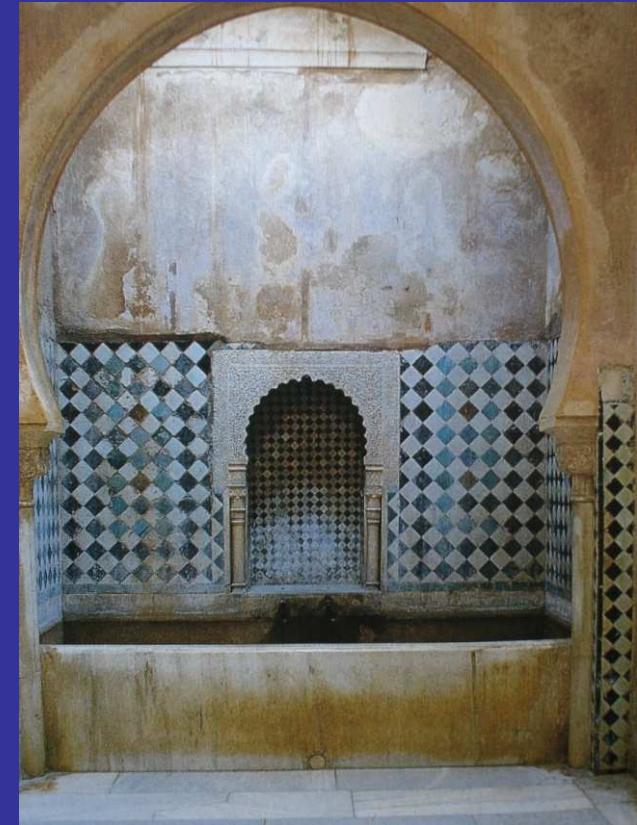
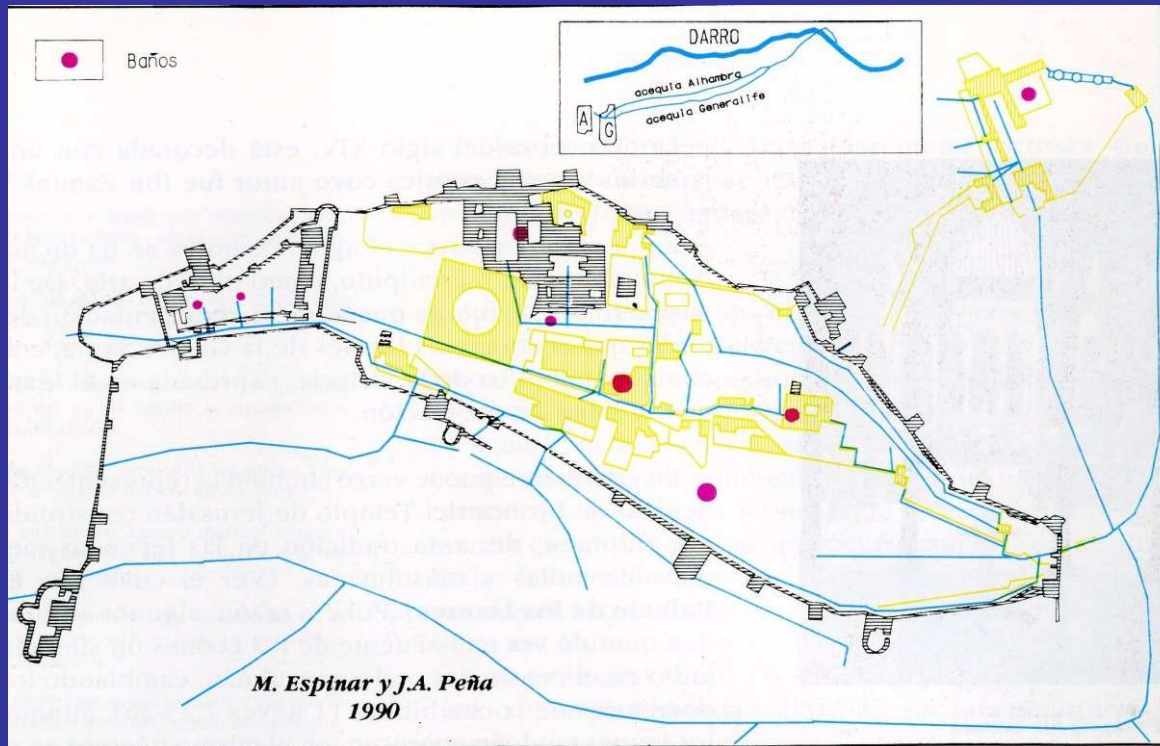


# AL-HAMMA: THE BATHS



The public baths were used as cleaning, meeting, resting and pleasuring places

# The Alhambra baths



The rulers had in their palaces baths for their own enjoyment



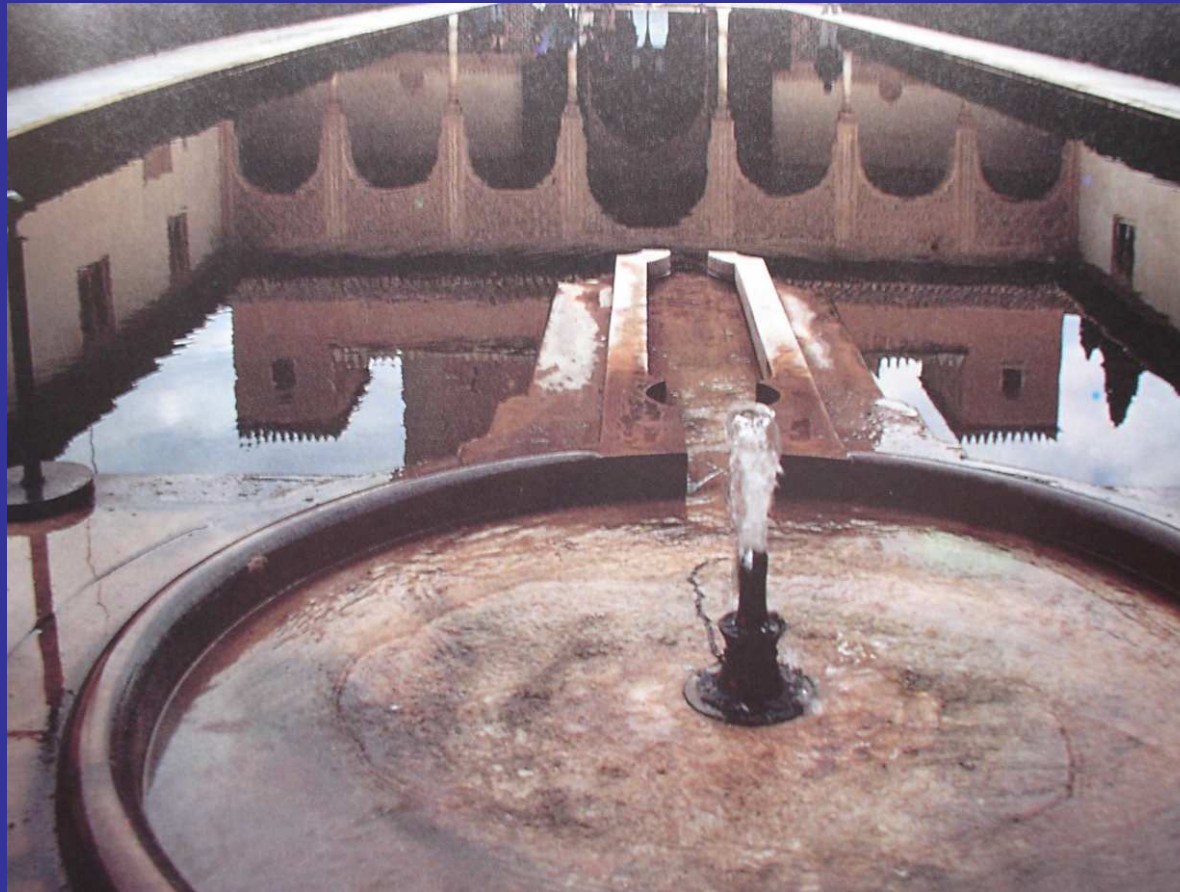
# THE WATER AS A ARCHITECTURAL AESTHETIC ELEMENT

In the Granada buildings, the concurrence of the water, architecture and vegetation is one of the most frequent designs.

The sensual pleasure of the senses are favored by the soft murmuring of the water that spring and fall, the refreshing atmosphere that it provides, the green shade of the water because of the plants and the peaceful calm of a closed space.

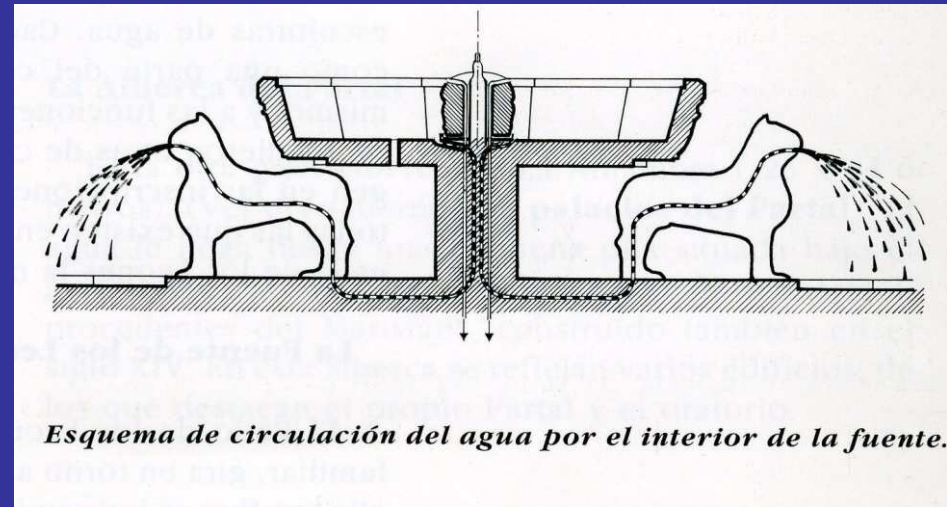


# The water as aesthetic element



In the pool, the water is not just water but a mirror.  
In the garden, the pool is not just a pool, but a  
world turned upside down, is a dream world

# THE WATER AS AESTHETIC ELEMENT



Remembering the Koran, the fountain was thought as the spring that offers the water from the floor to the living beings. So, the water becomes a monument since it flows from a central spout, goes throughout the lions to be expelled by their mouths and falls down to the floor again

# FACTORS THAT CONDITIONS THE CONFIGURATION OF A GARDEN:

- Water: it influences in the cultivation of the species and the necessity of water that these demand (they need).
- It is an element that defines the culture, history, and aesthetics of Granada, in reservoirs, ponds, fountains, spouts...



Carmen de los Mártires

# Other factors

- Climatology: The cultivation of species is limited by the cold winters and dry and hot summers of Granada.
- History/ time: The changes carried out by human beings have influenced in their configuration.
- Fashions: The substitution of species along the history has contributed to the disappearance of some of them.



Botanical Garden of Granada

# Other factors

The introduction of species: Among the most important there are the mediterranean ones as: myrthes, oleanders, ivies, laurels, arbutuses...



García Lorca Park of Granada

and...

The journeys to the Asian east increased the number of imported species, such as: bitter orange, tree, hollyhock...It highlights the presence of *Ginkgo biloba* in the Botanical Garden of Granada.



*Ginkgo biloba*

# Activities in the gardens of Granada

The most representative species will be classified by the binomial systems, standing out the study of the cypress, a tree highly attached to the landscape of Granada, which grows and grows in gardens of the whole city and of exotic species as *Ginkgo biloba* that inspired poets from Granada.

It will be classified species like: Cypress, (*Cupressus sempervirens*), Grenade (*Punica granatum*), aromatic plants as: Myrtle (*Myrtus communis*), Lavender (*Lavandula*), Rosemary (*Rosmarinus officinalis*), and they will search for: How many trees from the ancient vegetable garden and garden have been conserved? , They will out which trees and bushes accumulate polluting elements of air and of ground, in their leaves.



# ACTIVITIES FOR THE UNDERSTANDING OF THE IMPORTANCE OF WATER THROUGH HISTORY AND AT THE PRESENT TIME

## COURSE 2007-2008

- Water in the Alhambra and the Albayzín. 1º de ESO
- Guided visits to the Alhambra. 2º y 4º de ESO.
- The Albayzin. 3º ESO.
- Educational program: Environmental education versus climatic change/ global warming. 4º ESO.
- Educational program: Energy saving and responsible consumption. 2º and 3º ESO.
- Lectures about water to celebrate Andalusia's Day.
- Travel to Zaragoza to visit the EXHIBITION of WATER.

# ACTIVITIES FOR THE UNDERSTANDING OF THE IMPORTANCE OF WATER THROUGH HISTORY AND AT THE PRESENT TIME

COURSE 2008-2009

- Continuation of the “historical” visits about water in our city.
- Cycle of lectures.
- Competition of ideas for the embellishment of the garden-canal, or Arabic inspiration, our high school.
- Exhibition of paintings and poetry “Water in the XIX and XX century in Spain.
- Classification of species and reading of poems by Elena Martín Vivaldi, Federico García Lorca, Eduardo Marquina, Gerardo Diego during the visits to the Botanical Garden, Carmen de los Mártires and García Lorca Park.
- Travel to water distillery plant to Granada’s.

