

# The Flerio aqueduct of Naxos

*Slightly adapted text as found at the information panels along the Flerio aqueduct  
Photo's: W.D. Schram (The Netherlands)  
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The first aqueduct which conveyed water from the Flerio area to the capital of Naxos, was 11 km long and constructed in the late 6<sup>th</sup> century BCE; it was equipped with pipes. In the first century CE it was replaced by a masonry channel coated with water proof plaster, maintaining the course of its predecessor.

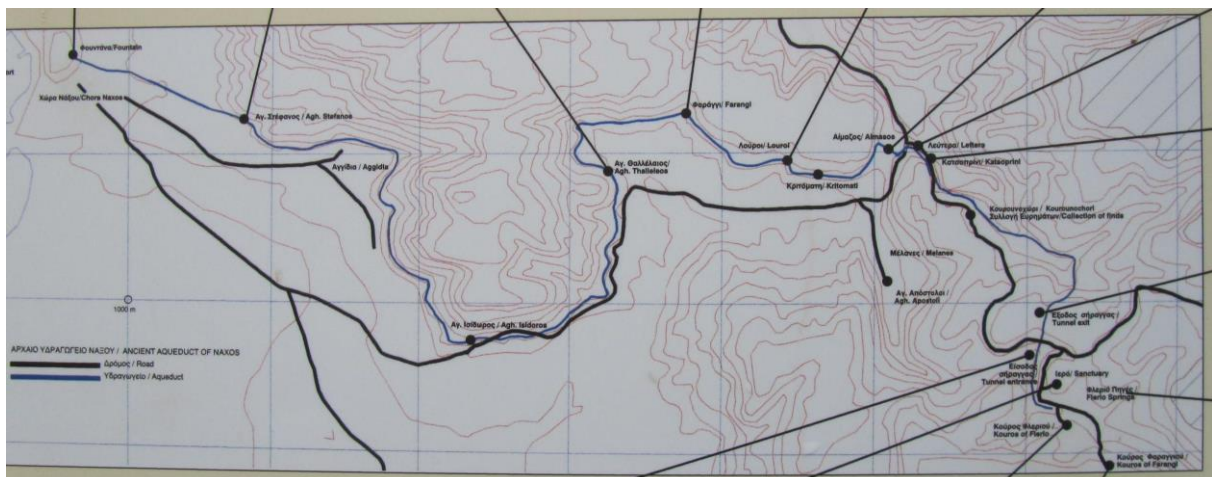
In the 4<sup>th</sup> century CE this masonry channel was replaced by a new one, running on or near the line of the former. This time the bottom of the channel was covered with square flat bricks.

Excavated fragments of pots etc. show that the aqueduct remained in function until the 8<sup>th</sup> c CE.

Over 10 sections are now nicely displayed along the main road from Chora - the present capital of Naxos - to Kinidaros, see map below.

One should start in the Flerio area, east of Mili, close to the place where the Kouros of Melanes was found.

For more photo's en GPS-locations, see <http://www.romanaqueducts.info> -> 100 aqueducts -> Naxos  
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**Literature:**

- A. Sfyroera and V. Lamprinoudakes: Conservation and display of the ancient aqueduct of Naxos (2010, in Greek), see <http://uoa.academia.edu/AlexandraSfyroera/Papers>

**Websites:**

- <http://www.romanaqueducts.info> ->100 selected aqueducts ->Naxos, with many more photo's, exact GPS-locations and statistics
- Hydria-project: [http://www.hydraproject.info/en/cases/naxos/flerio\\_aqueduct/importance.html](http://www.hydraproject.info/en/cases/naxos/flerio_aqueduct/importance.html)
- [http://azalas.de/blog/?page\\_id=2352](http://azalas.de/blog/?page_id=2352) (in German)

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## The Flerio aqueduct of Naxos

### Introduction of the Flerio area

In antiquity the area of **Melanes** was of great importance for the island of Naxos, both economically and culturally. According to epigraphic evidence the name was the same at that time: *Melas* = shady, full of trees. Especially in the area around **Flerio** (east of Mili) large strata of good quality marble exists close to the surface, which promoted the development of Greek marble architecture and sculpture. Traces of human habitation and possibly also of marble quarrying have been found, dating back to the 3<sup>rd</sup> millennium BCE. The peak exploitation of the quarries occurred in the 7<sup>th</sup> and 6<sup>th</sup> century BCE. Some of the most impressive sculptures and buildings dating to this period on the islands of Naxos and Delos and elsewhere in Greece are linked to the work carried out in the **ancient quarries** of the Flerio area, where statues and other works are still preserved half-finished or in various stages of completion often called kouros, in this area the kouroi of Flerio and Potamia.

The area is also rich in **water springs**, which still feed the lush vegetation of the site. In antiquity an important **aqueduct** was built in several phases, in use from the end of the 6<sup>th</sup> century BCE to the 8<sup>th</sup> century CE and circa 11 km long, transported water to the capital of Naxos (now called Chora), securing in this way the city's water supply.

Already during the first phase a **tunnel** had to be dug through the mountain in the northern plain of Flerio, to make the best use of water distribution to all the fertile area's on the way to the city. A goddess of fertility and heroes / patrons of the stonecutters were worshiped in a **sanctuary** in the area of the quarries and the ancient water springs. The stonecutters were the main visitors to this sanctuary.

The University of Athens (prof. A. Sfyroera and prof. V. Lamprinoudakes), with funds from the European Union and the Regional Operational Program of Southern Aegean 2000 - 2006, excavated, studied and displayed five locations of this complex:

- a) **Flerio** - Kamina: quarries with two half-finished statues, the sanctuary near the spring, entrance and exit of a tunnel
- b) **Katsoprini - Leftera - Aimasos**: sections of all the phases of the aqueduct
- c) Kritomati / **Louroi - Agios Thalelaios**: parts of the later, Roman phases of the aqueduct
- d) **Agios Stephanos**: ruins of an early Christian church and sections of the aqueduct
- e) **Trani Fountana** and the **Tower** in the Castle of the capital of Naxos: ancient and recent water supply works.

### Kourounochori information center

The clay pipes exhibited in the Kourounochori information center (now closed) belong to the Flerio aqueduct of the 6<sup>th</sup> c BCE. This aqueduct conveyed water from the springs in the Flerio area and in the adjacent valley of Cambones, to the ancient capital of Naxos. The aqueduct reached Cambones through a tunnel piercing the heights between both valleys.



The pipes were adapted to each other, their joints have been sealed with strong lime mortar. At intervals holes in the upper part of the pipes allowed the control of its functionality. Similar aqueducts of this period are known in Athens, Samos and other places. Incrustation progressively blocked the water flow rendering them finally useless. Replacements of pipes are attested in several sections of the pipe line. Parts of this aqueduct have been brought to light or destroyed by later human activities. In the latter case some pipes were used for other purposes, for example as eaves gutter in a tower in Kourounochori or as a mouth of a channel in a cistern in Cambones.

The first aqueduct which conveyed water from the Flerio area to the capital of Naxos, was 11 km long and constructed in the late 6<sup>th</sup> century BCE. In the first century CE it was replaced by a masonry channel coated with water proof plaster, maintaining the course of its predecessor. In the 4<sup>th</sup> century CE this masonry channel was replaced by a new one, running on or near the line of the former. This time the bottom of the channel was covered with square flat bricks. Fragments of a pot found on the bottom of the access shaft at the entrance of the tunnel in Flerio, as well as similar materials found in the area of the tunnel exit, show that the aqueduct remained in function until the 8<sup>th</sup> c CE.

### **Tunnel entrance**

The aqueduct of Roman times is preserved in this place as it was at the end of its function in a very good condition. The water channel, built with stones and coated on the inside with plaster, reached here underground from the southeast, turned abruptly to the northeast and entered at this point a tunnel of 220 m (see plan), through which it came out of the valley of Flerio and continued its route to the north. The section of the channel adjoining the tunnel, covered with heavy slabs, has been kept here visible for the visitors on the lower level of the roofed space. The water ran from the channel into a deep and wide quadrangular shaft which served as an entrance of the tunnel but also as a settling basin in which the dirt carried by the water was filtered before the latter entered the tunnel. This happened as the water entering the shaft left it at a level of 0,80 m higher than the level of the bottom of the shaft. The visitor can look into the shaft by walking around the upper level of the roofed space. A vaulted passage 3 m long and 1,60 m high, built with a carefully shaped soft limestone, led in Roman times to the tunnel. This was an extension of the original entrance to the tunnel which was carved at the end of the 6<sup>th</sup> c BCE in the rock. The excavations revealed the place where this additional Roman passage joined the original entrance of the tunnel. The water follows up to this point even today nearly the same route as in antiquity. It does not however enter in the tunnel anymore, but deviates to the west flowing a bit lower in order to irrigate the orchards in the basin of the small Flerio valley.

The visitor can see from this point at a short distance to the south the building of a water mill in the modern route of the channel. The water falls there in a cascade and its roar recalls in the sense of the modern visitor the movements of water in the ancient aqueduct.



### **Tunnel exit**

The Roman channel came out of the tunnel at a level only 0,06 m lower than at its entrance, which means that its fall in the tunnel was minimal (0,03 %). It continued its route to the north, as earlier did the pipes of the original phase of the aqueduct, and behind the hill turned westwards in order to supply water for irrigation of the adjacent valley of Kambones and the fertile land, extending all the way to its final destination.

The quadrangular shaft, similar to the one constructed at the entrance, was built in Roman times at the exit. It served equally as an access to the tunnel and as a settling basin in which the water was filtered by sinking the dirt. A vaulted passage, also similar to the one at the entrance, connected the shaft to the original entrance of the tunnel, which was hewn in the rock. This construction however, left poor traces. In its place, the excavations brought to light boulders origination from the adjacent rocky masses, deeply cut already in antiquity and extensively eroded to our days. We can assume that the last users of the aqueduct tried to restore severe damages at the exit of the tunnel, caused by landslides, and removed the materials from the vaulted passage with the intension to rebuild it; nevertheless this was never realized. The present restoration of the vault is made out of concrete.

The water entered from the shaft into the spacious underground channel, roofed with slabs, and after 20 m the aqueduct assumed its normal form as a smaller subterranean conduit with an incorporated channel.

Thallelaios Kondylis, owner of the fields in which the exit of the tunnel was found, kindly made the investigations and preservation of this site possible.

### **Katsoprini - Leftera - Aimasos**

In this area the most characteristic sections of the original phase of the aqueduct (a line of jointed clay pipes) are preserved. One can see sections of this system in four different places in this area:

- a) In a distance of 50 m from a parking lot along the road from Chora to Kindaros, just after the crossroad to Eggares, sections of the subterranean pipeline were brought to light during the construction of the road to Kindaros which cut into the acclivity. Large sections of the line were destroyed at that time.
- b) In between the crossroad to Eggares and the parking lot, one can reach a shelter following the stairs and a paved path, under which another section of the pipeline is preserved. It measures 12 m and it equally came to light when the acclivity was cut for the creation of a vineyard. In this section the visitor can see the successive layers of calcification in the pipes, which progressively blocked up the system.
- c) In a small distance from the parking lot to the west, the crossroad to Eggares cut deeply again and brought to light all the phases of the aqueduct on a transversal section. On the other side of the same road, further to the west, another section of the pipeline is visible under a protective glass cover in front of the ruins of the later Roman phase of the aqueduct.
- d) At the same place, the visitor can also see important sections of the late phases of the monument, dating to the Roman domination of the island. An impressive 80 m long section of the channel is preserved.



## Aimasos

Large sections of the aqueduct were preserved, but in a very bad condition.

- On the east side of the road to Eggares, pipes and channels were cut obliquely during road construction work. One can see a highly comprehensive presentation of all phases of the aqueduct: the pipeline of the 6<sup>th</sup> c BCE runs on the lower level; just above it a by-pass was constructed when the older system was blocked up by calcification. On a higher level the remains of the two phases of the Roman channel, replacing the older pipeline.

- In front of an information panel a large section of the Roman aqueduct, disintegrated by modern activities, has been restored.

- In a glass-covered shaft the visitor can see a small section of the pipeline, belonging to the original phase of the aqueduct (6<sup>th</sup> c BCE) which ran here at a lower level and in a



short distance to the south from the Roman construction which was therefore not destroyed by it.

- To the west an impressive section of the aqueduct of Roman times is preserved crossing a shallow depression. It continued its route to the opposite side towards the capital of Naxos. Here one can easily understand the structure of the aqueduct: it consisted of a strong base (substruction) built of stones and mortar, on which the water channel ran. In a later period the channel was reconstructed at a higher level, while the disused one was enclosed in the elevated base. Today this can be seen at a point where the elevation of the base is not preserved to its full height. This section of the aqueduct had a second parallel function; it retained the earth of the fields in the north which always lay at a higher level, and was at the same time the border of this field. In ancient Greek it was called *αιμασία* (emassia) for walls which functioned as a boundary. It is clear that the ancient word continues to live in the modern place-name *Aimasos*.

The restoration and display of these sections of the aqueduct were made possible thanks to the kind granting of the permanent usage of the necessary plots for this purpose by Argyris Anevlavis and by the Pittaras family.

## Louroi - Kritomati

In Roman times (1<sup>st</sup> c CE) the original pipeline aqueduct (late 6<sup>th</sup> c BCE) was replaced by a masonry channel internally covered with plaster. At Louroi a 50 m long section of this aqueduct is preserved. Before its restoration the channel functioned here as a retaining wall in the fields which lay higher up and was covered with wild vegetation. The intervention for the restoration created under the channel a new base of stones at a lower level, where the foundation of the aqueduct has been undermined. Above and behind it a new retaining wall was erected. After this consolidating measures the extant parts of the aqueduct were conserved. They preserve two distinct phases of the channel. The original one was enclosed in the elevated base, when the newer channel replaced is at a higher level.

Similar sections of the Roman aqueduct are preserved in a bad condition east of Louroi, in the area of the church of Virgin Mary, the Kritomati. One of the longest sections preserves poor remnants on a brow of a very deep excavation, made during the leveling of the fields at its foot.

Following the dirt road to the left for about 500 meters (see local drawing), the visitor can see yet another section of the aqueduct at a site called Faraggas (this side road is now blocked - September 2014)



### **Agios Thallelaios**

Large parts of the aqueduct are preserved in the recess formed by the heights which surround the small plain of Agios Thallelaios.

The original aqueduct comprised of a pipeline from the 6<sup>th</sup> c BCE; in Roman times, presumably in the 1<sup>st</sup> c CE, the pipes were replaced by a masonry channel, internally covered with plaster, which is at display at the east side of Agios Thallelaios.

This section of 80 m in length is preserved at the border between two fields, retaining with the help of big agaves on its top. The aqueduct channel has been built directly on the soft rock, but the field on the lower level had undermined the foundation and the rock, creating serious damage to its exposed side. Interesting details of the structure of the Roman aqueduct are preserved in this section, such as a settling basin, to cleanse the water and equipped with steps to descend to the bottom, a culvert, and buttresses on its north side where the level of the ground was already dropping even in antiquity.

Other parts of the Roman aqueduct are preserved on both side of this location. Beyond the road the channel continued its route eastwards, turning southwards at the corner of the courtyard of the modern school building.

### **Agios Isidoros**

In the area between Agios Thallelaios and Agios Isidoros large parts of the aqueduct were destroyed when the main road from Chora to Kinidaros was constructed. Just 200 m before the chapel of Agios Isidoros, on the perpendicular cut rock, one can still see the cross-section of the channel and its masonry which get into the ground continuing their way to the capital.

Three large pieces of the dismantled parts of the aqueduct were abandoned on the opposite side of the road.

### **Agidia - Agios Stephanos**

Just 150 m on the main road from Agidia to Chora, opposite the chapel of Agios Stephanos, a three-aisled Christian basilica with two colonnades of five columns was (re) excavated and restored by the University of Athens during the period 2004 - 2008.

Behind this site a corridor was created to an interesting section of the ancient Flerio aqueduct. Here one can observe:

- a) fragments of the clay pipes from the 6<sup>th</sup> c BCE, which
- b) in the 1<sup>st</sup> c CE was replaced by a Roman aqueduct masonry channel, which
- c) during the last phase in the 4<sup>th</sup> c was rebuilt on a little higher level, with
- d) a settling basin for cleansing of the water.

### **Tower of Sanoudos (Chora)**

In the 1950's the municipality of Naxos-town constructed a water reservoir of heavy concrete walls in the ground floor of the tower of Sanoudos (1207 CE) at the Kastro of Chora, rendered useless today. At that time the supply of water must have been equally indispensable for the security of the city as it was in antiquity. One can assume that the marble pipes, found scattered at the foot of the castle and near the route of the ancient Flerio aqueduct, belong to the original phase of this

work (6<sup>th</sup> c BCE), which consisted of a pipeline, and especially to its final part which supplied the citadel with water.



### **Trani Fountana**

The cistern (reservoir), subterranean today with an additional quadrangular parapet, is traditionally known as Trani Fountana, the Great Cistern. It is located behind the Apollon hotel in Chora, along the Michael Margariti road in Chora which is a former river bed. Recent investigations of its interior showed that it originally was a free standing vaulted building constructed in Roman times. The water springs up today at the base of its eastern side. The known route of the Roman aqueduct to the capital of Naxos makes it ending at this cistern quite possible. Unfortunately the recent growth of the modern town has totally destroyed the final part of the aqueduct. Nevertheless, information from local people who still remember what the suburbs looked like in the past, supports this option.

The building relies upon strong foundations consisting of big boulders. It was gradually buried under the surface of the rising ground, as the openings in its walls show; at the end of its south side there was originally a door which during a second phase, as the ground rose, was restricted to a low opening, and in a third phase, when the level of the ground rose even more, it was closed with a heavy upright slab. Note: on the picture on the spot one can see in the trench the successive levels of the ground of the original and the later periods of use.

These pieces of evident support the identification of the Great Cistern with the "Fountain of Ariadne", mentioned frequently by travelers of past centuries, see for example the map of F. Camocio, 16<sup>th</sup> c CE. The "Fountain" at a short distance to the south, is not a possible candidate. According to tradition, the water of the Great Fountain is salted because it was mixed with the tears of Ariadne, the daughter of the Cretan king Minos, abandoned by the Athenian hero Theseus, on Naxos.