

Survey of Constantinople's Water Supply System

During work on the Anastasian Wall (begun in 1994), a separate project was initiated that focused on Constantinople's water supply; the specific aim was to study the longest and latest complex of antique aqueducts, constructed towards the end of the fourth century AD. In 1995 the survey focused on one of the aqueducts that was over 123m long and 30m high. The survey noted particularly the Christograms and other features and inscriptions displayed on the stonework. The water channels were traced for many kilometres, sometimes using GPS technology.

In 1997, team members visited 11 sites connected to the water supply system.

In 1998, a more systematic investigation of the water supply was launched, comprising visits of the main channels and sources and a general study of the geology in the area. A system of springs near Papuç was identified as the source for one of the systems. The remains north of Saray were visited, as were the aqueduct ruins across the Ayvacık Dere and the Ergane Dere. A tunnel was found near the crossing of the Galata Dere, as well as some aqueduct remains. Finally, a survey of three tunnels near Kurşunlugerme was undertaken.

The majorly destructive İzmit earthquake of August 1999 meant the postponement of any fieldwork to 2000. In October 1999 a brief visit was conducted in order to assess the damage caused to sites there; no damage to the aqueduct at Kurşunlugerme was found, and some features around the area were recorded.

As work on the Anastasian Wall was reduced, the Byzantine water supply system became the main point of focus in 2000. In this season, the hydrogeological team from La Sapienza University (Rome) continued exploring Thracian water channels and spring sources, visiting sites in Vize, Kırklareli, and Halkalı and recording information about the water sources there. Two new aqueducts were found and explored, one in Civiz Dere and one near Çiftlikköy. Three days were spent planning, photographing, and otherwise investigating the open-air Fildamı reservoir near Bakırköy, one of four belonging to the late antique city.

2001 was the first season to focus exclusively on the water supply system, with no work conducted on the Anastasian wall. Surveying was done with the help of GPS technology, and hydrological analyses were conducted and sinter samples collected at spring sources. A systematic investigation was undertaken along the aqueduct system as a whole, and for the first time the complexity and scope of the water supply system was appreciated, as it was followed both inside the city and into Thrace. The line of upper and lower systems was investigated, to see whether or how they converged at any point. Küçük Kemer and Büyük Kemer were visited. The Kurşunlugerme valley and the aqueduct bridge there were the main focus for the season and an accurate plan, including elevations, was produced. The principle Ottoman aqueducts near Kemerburgaz, Uzunkemer and Kovukkemer, were inspected, primarily with the intent of determining whether they had replaced earlier Byzantine aqueducts on the Kırkçesme line; the Kovukkemer aqueduct showed strong evidence for the existence of an earlier Roman or Byzantine bridge. For three days the major open-air reservoirs of the city, Aetius, Aspar and Mocius, were studied as a continuation of the Fildamı reservoir project.

Fieldwork continued in 2002, focusing primarily on the main Danamandıra tributaries, as well as the section east of the Ballıgerme aqueduct. Here they discovered two principle phases of the system: a channel from the fourth century, and a lower channel that represented a supplement likely constructed in the fifth century. Between Vize and the Danamandıra tributary, archaeological remains were fragmentary, but many bridges were visited and a number of new observations made.

A complex series of structures was seen between Ayvacık Dere and Galata Dere. Detailed survey work was conducted on the Ballıgerme and Büyükgerme bridges using a total station; accurate plans and drawings were created, and the mason marks on the bridges were also studied. The Ottoman supply line around Halkalı was also investigated; the Ma'zulkemer bridge was studied for evidence of connection to an earlier Byzantine or Roman system, but it was found to have no earlier precedent. The city's smaller Byzantine cisterns were explored in a ten-day spring season; over 30 were studied. This was done with the main motive of understanding the topographic relations between cisterns, and of looking at the city's water distribution.

A final season of work was undertaken in September 2003. The first week investigated the aqueduct system around Binkiliç, Safaalan, and Çakılı. The remnants of a bridge over Gökcesu were surveyed. The course of the main channel was also followed north of Saray. The season's main achievements centred around the narrow channel in the Vize-Saray-Safaalan sector, which helped resolve some extant questions about dating and construction phases.