

TURKEY

Threats from Development

Major engineering or development projects continue to cause considerable damage to the cultural heritage of Turkey. Decisions to build motorways, airports, bridges or dams seem to be taken without prior survey of the area to be affected by the project. It is shocking to see an airport built very close to the ancient city of Ephesos, or a highway going through the archaeological site of Belevi. Irrigation and hydro-electric dams threaten archaeological sites and historic urban centres. Such projects are to be completed in short periods and usually archaeologists have very little time to allow proper study and documentation of the cultural layers. At Alliano, 'The Land of Asclepius' near Pergamon, Izmir, excavations speed-up to record and salvage as much as possible from the flooding of Yortanlı irrigation dam. Time and funds to transfer the monuments within reservoir areas are very limited. The bridge at Çine in western Anatolia is affected by a dam construction; it has to be transferred in a very short period of time from its original position to a site that can hardly offer the same natural features.

Dams

The adverse effects of dams are widely felt in south-east Turkey. Last year, the rising waters of the Birecik Dam on the Euphrates flooded Zeugma. There was considerable chaos due to the untimely rising of the water level; with international collaboration and donations, most of the very important mosaics and architectural pieces were salvaged and transferred to the local museum in Gaziantep. Unfortunately, Zeugma was not the only site affected by flooding; many settlements along the Euphrates valley suffered from the change in the water level. The lower parts of Halfeti were inundated: Halfeti was a small town with exceptional stone architecture, beautiful mansions and a historic bath. Now the town has a totally new image with only a small part of it visible above water level.

Similarly the rising waters have changed the visual impact of Rumkale, which is a mediaeval castle, very special in many respects. Previously, it perched on a high cliff and was hard to approach. Now, with rising waters, it is easily accessible. Time and neglect have done a lot of damage to this stronghold. Now that the eroded base of the cliff on which the castle stands is in contact with water, we suspect that its destruction might be accelerated.

Istanbul

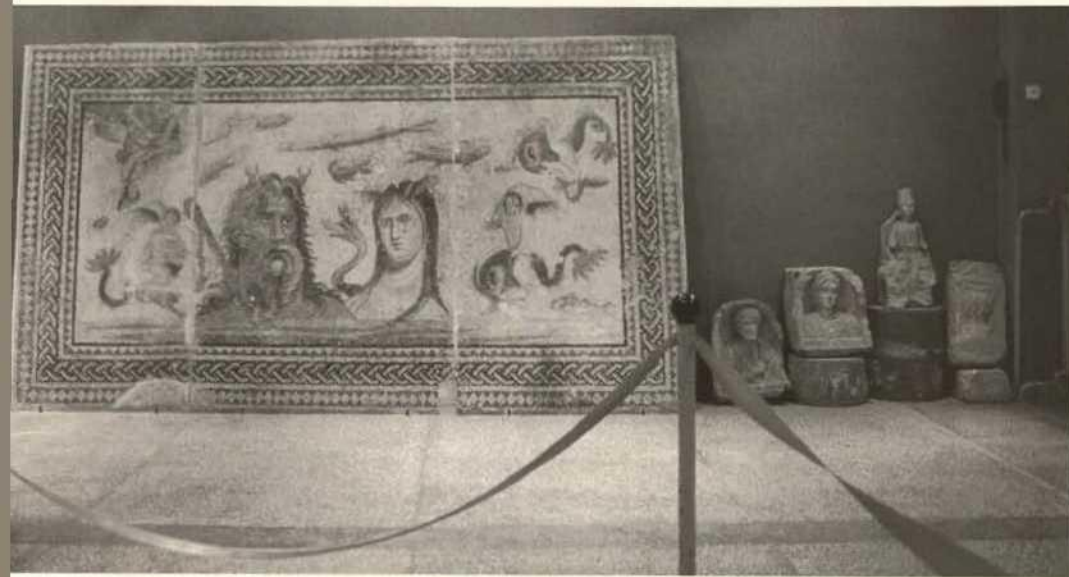
Istanbul, parts of which are listed as a World Heritage Site by UNESCO, is a metropolis with over ten million inhabitants. The historic town is suffering from pressures of urban sprawl, heavy traffic and unauthorised repairs to historic buildings. Although the historic city enjoys its situation on the Bosphorus, well known for its natural beauty and historic buildings, the increase in number of tankers transporting petroleum from the Black Sea to many parts of the world has become a very dangerous threat. The tankers are like huge bombs moving through a densely populated district. Already several tanker-collision incidents have occurred, resulting in fire, explosion or sinkings. Occasionally the tankers run off-route and crash into waterfront houses, killing people and destroying historic houses. Oil traffic through one of the most beautiful

channels of the world is a great threat for the inhabitants and cultural heritage of the city. There are serious attempts to stop the oil traffic, but it will take some time. In the meantime, the naval office decided to establish a radar system to be able to navigate the traffic on the Bosphorus. The proposal to build radar towers along the shores of the Bosphorus was rejected by the Landmark Commission, contending that the towers will spoil the natural and architectural beauty of the Bosphorus. Stressing the importance of safety measures for the city, the security officers insisted on building the towers. The construction of several radar towers along the Bosphorus is under way now. The construction of the tower at Kanlıca has received strong reaction from the inhabitants.

Another engineering project that threatens the natural and cultural heritage of Istanbul is the construction of a new bridge over the Bosphorus. There are already two bridges linking the two sides of the Bosphorus, but due to the growing number of cars travelling from the Asian side of the city to the European, or vice versa, there is congestion at the bridges in rush hours and it takes commuters several hours to reach home or work. The project to build the third bridge over the Bosphorus was raised by the Ministry of Public Transportation; unfortunately the locality chosen for this project is a very delicate site and will do great harm to Arnavutköy and Kandilli villages. Kandilli, with its wooded areas and beautiful houses along the shore, reflects the tranquil aura of the Asian side. On the European side, Arnavutköy, a 19th-century village, is exquisite with its timber architecture. The dense urban heritage will be under risk of pollution and noise from the bridge, which will cast a heavy shadow over the conservation area and ruin its scenic beauty. The inhabitants of Arnavutköy are vehemently reacting to the project and voicing their protest in the media, but the government has not yet withdrawn the proposal.

The Metropolitan Municipality of Istanbul is seeking ways to ease the traffic problem in the city. Travelling underground is a much-coveted mode of transportation, but there are problems at points where the subway passes through cultural layers and the location of stations and their access can create problems. The construction of the Levent-Yenikapi subway started from the modern parts of the town at the north and is moving south, towards the 19th-century, mediaeval and ancient parts of Istanbul. The construction of the section between Taksim and Sishane has already caused problems in areas where the ground was not very stable and the digging for the tunnel took place close to the surface. As a result, several 19th-century buildings developed cracks.

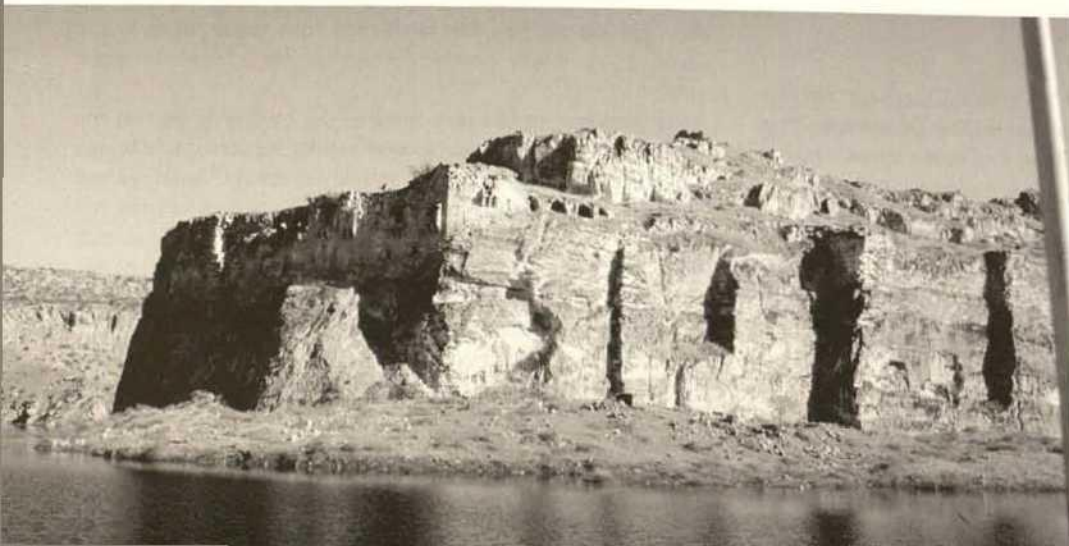
The construction has now reached the mediaeval part of the town. From Galata, the underground will be connected to a bridge that goes over the Golden Horn, roughly spanning Yenikapi and Süleymaniye hillside. The height of the bridge and its location is a great threat to the historic city; it damages the urban fabric at both ends and the silhouette of the historic city is affected negatively from this foreign element. Furthermore the proposed location and size of the subway stations in the historic city are not suitable and revision of the project is a must in order to preserve the cultural heritage of Istanbul. The Monuments Council has already asked for improvement of the project.



The ancient city of Zeugma was founded on the Euphrates River during the Hellenistic period, in 300 B.C. There was a timber bridge connecting Zeugma to Apameia, another ancient city across the river. During the Roman period, the city flourished with trade. Roman villas with mosaic floors dating from the second century B.C. witness the high quality of the artistic achievement in the city. In 1999, as the waters of Birecik Dam started to rise, there was great concern to salvage the most significant architectural pieces and beautiful mosaics of Zeugma. The panel showing Okeanos and Thetis is one of the salvaged pieces now on exhibition in the museum of Gaziantep.



Halfeti was a spectacular hillside settlement on the Euphrates valley. The rising waters swallowed large parts of the town. Many houses and the 19th-century bath are under water now.



Located 5 kilometres to the north of Halfeti, Rumkale is a medieval fortress which was strategically located on the caravan route leading from northern Mesopotamia to inner Anatolia. The castle was totally deserted around the mid-19th century. Remains of some houses, a big cistern, churches and monasteries are still visible. The rising waters of Birecik Dam have changed the landscape around the castle drastically. Now the waters touch the foot of the hill on which the fortress rises.

Case Study: Küçük Ayasofya Mosque

The Mosque of Küçük Ayasofya (Little Hagia Sofia) is one of the most beautiful and important of the surviving structures of the Byzantine era in the city. The structure was constructed in 527 as a church commissioned by Justinian and his Empress, Theodora, 5 years before the commencement of Hagia Sophia. It was converted into a mosque after the fall of Constantinople in 1453.

In plan, the church is an irregular octagon inscribed in a very irregular rectangle. These irregularities may be partly due to the fact that the church had to be squeezed between two already existing buildings, the church of Saints Peter and Paul, and the Palace of Hormisdas.

The dome is divided into sixteen sections, eight flat sections alternating with eight concave ones above the angles of the octagon. This gives the dome an oddly undulatory or corrugated effect.

The octagon has eight polygonal piers, between which are pairs of columns, alternately of verde antique and red Synnada marble both above and below, arranged straight on the axes but curved out into the exedras at each corner.

On 13 July 2001 some members of ISCARSAH Committee¹ visited the Küçük Ayasofya Camii in Istanbul and made a cursory examination of the condition of the structure.

The existing vertical cracks on the north-east and south-east corners through the dome as evidenced on the interior plaster surfaces have increased in width since the earthquake of 1999. This suggests that cracks through the masonry behind may have also increased; therefore, there is a danger of partial collapse, especially during future seismic activities. Other damage may exist that is not easily discernible that might also contribute to this safety concern.

In the past, the acceleration induced by the vibrations from trains that run-by very closely has been measured, but this effect does not seem to be the main cause of the damage.

The cracks are mainly related to soil settlement and, in particular, outward rotations of the walls probably produced by rising water in the soil.

As a consequence of this phenomenon, in addition to the cracks, the dome has suffered significant deformations and, in some zones, reduction of the original curvature; it is particularly this factor that has reduced the safety margins of the structure and produced risky situations.

Some temporary restraint needs to be provided as a matter of urgency. This would entail the installation of temporary tension devices on the exterior of the structure, beneath the dome; the provision of scaffolding on the interior to protect visitors; close-up inspections, and the shoring of areas of the dome as necessary to prevent partial collapses. However, there is insufficient information at present to design any permanent strengthening measures. We recommend that, having provisionally placed the dome in safety conditions, no further work be undertaken until full examination of the structure has been carried out to enable these measures to be properly designed.

ISCARSAH

¹ The members of ISCARSAH (International Scientific Committee for Analysis and Restoration of Structures of Architectural Heritage) who have prepared this report are Nikolas Charkiolakis (Greece), Giorgio Croci (Italy), Predrag Gavrilovic (Macedonia), Kenichiro Hidaka (Japan), Stephen J. Kelly (USA), Androniki Miltiadou-Fezans (Greece), Juhani Penttinen (Finland), Ya'acov Schaffer (Israel), Christian Schmuckle-Mollard (France), Ramiro Sofronie (Romania), Koenraad Van Balen (Belgium), David Yeomans (UK), Gorun Arun Ozsen (Turkey).

Natural Threats

Natural disasters are affecting the heritage in different ways. The flooding of Antakya, ancient Antioch, caused serious damage to the service facilities of the historic town. In 2001 there were several earthquakes in Turkey, mainly damaging the rural architecture. The damage inflicted on monuments and urban rural areas by the earthquakes of 1999 in Izmit and Düzce continue; some of the damaged buildings have not received any care for 2 years. Either there are not enough funds or the problem is very complex and calls for careful study before starting actual work. Unfortunately some monuments are being repaired without expert advice, or the interventions to retrofit the structures are very heavy. The Mosque of Küçük Ayasofya, originally the Church of Saints Sergius and Bacchus from the 6th century, had structural cracks for some years – the earthquake of 1999 aggravated the situation, making the monument very sensitive. The causes of the cracks have to be assessed and consolidation treatment should follow the diagnosis. However, some groups are eager to make injections to the foundations before studying them carefully. One of the striking examples of bad intervention carried out after the 1999 earthquake damage

can be seen at the Feyzullah Efendi Madrasa in Istanbul. The contractor was very harsh on the monument, which dates to the beginning of the 18th century. To stabilise the cracks on the walls and domes, a steel frame was inserted into the masonry construction. This intervention, which was carried out without permission from the Monuments Council, has spoiled the original masonry; it will probably cause a lot of damage to the structure in the event of future earthquakes.

In rural areas, where old houses were either cracked or fell victim to wall-collapse during tremors, a lack of understanding caused considerable damage. In many cases the old houses were demolished on the basis of reports by technical staff who were not trained about historic preservation in any way.

Many deserted buildings, houses, churches or mosques are awaiting funds and care. In Hasan A'ga village of Bursa, the villagers built a modern mosque across the historic one. The timber-framed mosque was neglected for a long time and the earthquake in 1999 damaged the southwest wall. The villagers do not care for their old mosque any more; they want to remove it and have an open space instead. Luckily the Monuments Council of Bursa has not consented to this and the old mosque still stands.



The danger of fire and explosions emanating from tankers is a growing threat for Istanbul. Tankers 250 meters long and weighing 100,000–150,000 DWT are passing through the Bosphorus without asking for guidance from the local naval office. Along the eastern shoreline (right side) of the photograph there are some timber houses that were designed as summer residences during the Ottoman period. There is a great contrast between the scale of the old architecture and the second Bosphorus Bridge. Construction of bridges over the Bosphorus has encouraged encroachment around the woodlands of the Bosphorus shores. Although protected by law, due to mass migration and population increase it is a difficult task to preserve the natural and historic assets of the Bosphorus.

The Church of Saints Sergius and Bacchus (now Mosque of Kucuk Ayasofya) in Istanbul is suffering from structural problems. The growth of the cracks on the dome, arches and walls of this important monument from the 6th century needs careful study and treatment.



Re-use of historic buildings for tourism purposes usually exerts pressure on them. The Maiden's Tower in Istanbul was leased to a private investor who turned it into a restaurant. The rehabilitation project did not respect the architectural form of the historic building; instead, spaces that would normally be open to the sky, such as the courtyard of the castle, were roofed. In addition a mezzanine floor was inserted to allow more space for commercial use. The natural form and contours of the island on which the tower stands was changed to increase the usable open area.

Loss of Traditional Methods

Construction methods using wattle and daub, clay and wood are nearly forgotten and lost. Many villages in the timber region or in the south-eastern part of Anatolia are reverting to brick and concrete structures, instead of continuing the traditional system. In particular, timber architecture is very fragile and suffers from negligence and adoption of modern materials for repairs. The oldest surviving *yalı* waterfront house on the Bosphorus, Yalı of Amcazade, dating from the end of the 17th century, is suffering from lack of maintenance. Urgent measures are needed to save this unique building. It exemplifies Istanbul's waterfront house that was designed in such a way that people could enjoy both the beautiful interior and the scenery of the Bosphorus.

Lack of proper craftsmen and expertise results in the simplification and loss of original details. The case of the pointing in Yıldız Palace enceinte walls, which date from the 19th century, is a striking example. A special kind of pointing that was done – probably by craftsmen coming from Lesbos Island – was totally lost during recent repairs carried out by masons who were not familiar with this technique. Perhaps the supervising technicians did not attach importance to the details, missing the significance of a special finish. It is essential to train people to identify and execute such details. Publications are needed to inform architects and other technical staff about historic pointing techniques and renderings.

Industrial Heritage

Industrial heritage of the 19th century is suffering from neglect and desolation. Changes in production technology, or a decline in the demand for certain goods, have led to the abandonment of old factories. Silk factories, olive-oil plants, flour mills, gas plants and docks are some of the industrial buildings suffering from changes in the 20th century. Some of these buildings are being assigned new functions, but many have lost their original interior elements and several have been demolished to give way to modern buildings.

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