

WE WOULD LIKE TO SINCERELY THANK THE KAPLAN FUND FOR THEIR SUPPORT



Final Report

TEMPLE OF HADRIAN Conservation Project 2012 – 2014

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Temple of Hadrian after conservation

Conservation Project 2012 - 2014

The Temple of Hadrian is one of the most famous monuments of the ancient metropolis of Ephesos. The building was excavated in 1956 and due to its excellent state of preservation and cultural and historical importance it was rebuilt with original building elements in 1957/1958.

Today, the Temple of Hadrian is considered a favorite subject of photographs of the ancient metropolis alongside the Library of Celsus and the Terrace Houses. Owing to harsh weather conditions the temple had greatly deteriorated in the last couple of years. Therefore, in 2012 the Austrian Archaeological Institute (ÖAI) began an extensive conservation project with the support of the J. M. Kaplan Fund. The work was completed in September 2014 and the Temple of Hadrian is again open to visitors.

Project Director: Sabine Ladstätter Lead Restoration: Martin Pließnig



after



before



Excavation in the 1950s



Re-erection 1957/1958



3-D Reconstruction

Interpretation and Function

The small temple-like structure is located along the Curetes Street – the magnificent boulevard of Ephesos. It was sponsored in A.D. 117/118 along with the surrounding bath complex (bath of Varius). Its original function remains unknown but it was long assumed to have been an official cult temple of the emperor Hadrian because Ephesos received permission to construct such a building. This interpretation has since been refuted but lives on in the current designation as Temple of Hadrian.



Budget

Expenses

Total	2014	2013	2012
€145.191,14	€ 89.378,78	€ 48.827,28	€ 6.985,08
\$ 175.850,14	\$ 108.252,27	\$ 59.137,79	\$ 8.460,07

Share of Expenses

	percentagewise	2012	2013	2014	Total
Kaplan Fund	42,65 %	€ 6.985,08	€ 48.827,28	€ 6.111,61	€61.923,97
		\$ 8.460,07	\$ 59.137,79	\$ 7.402,16	\$ 75.000,02
ÖAI	57,35 %			€ 83.267,17	€83.267,17
				\$ 100.850,12	\$ 100.850,12



Press Review

29.10.2013	salzburg24	Hadrianstempel in Ephesos wird restauriert
29.10.2013	Kleine Zeitung	Hadrianstempel in Ephesos wird restauriert
18.04.2014	HaberVesaire	Archaeologists restore the temple of Hadrian in Ephesus
16.07.2014	Der Standard	Verfallende Kultstätten: Relaunch des antiken Hadrianstempels
18.09.2014	Krone Kärnten	Der Tempel ist fertig
25.10.2014	Die Presse	Antiker Tempel strahlt wieder in neuem Glanz
	Antike Welt 2,	War der Hadrianstempel wirklich Hadrians Tempel? Aktuelle
	2013, 59–66	in Ephesos
	Restauro 7/2014, 14-15	Der Hadrianstempel in Ephesos. Monitoring als Notwendigkeit für die Zukunft



Filling in of pores on the surface of the cement



Removal of damaged adhesions, new bonds and joining of the block



Localisation of stone fragments in danger of collapsing at the facade



Documentation of cracks and losses at the tympanon

Damage Assessment

As the basis for the conservation work, an extensive conservational study of the building was conducted in 2010/2011 including the mapping of damage (visual documentation of the damage and conservational measures). The original, preserved blocks were used for the reerrection of the temple in the 1950's and only very few materials, such as concrete and iron rods, were used. 50 years later the reconstruction reveals extensive damage of the historical and modern materials. The temple was in a very poor state of repair and in danger of collapsing. This development was enhanced by the fact that the ancient building was originally protected by a roof which modern reconstructions are usually lacking. As a result they are not protected from weathering.



Extensive Damage

A common damage of the Temple of Hadrian was the corrosion of the iron elements that were inserted as pins and reinforcements of the marble blocks and as reinforced concrete in the 1950's. Individual iron elements had almost completely disintegrated and jeopardized the stability of the temple.

The corrosion process also placed pressure on the adjoining marble or concrete. This resulted in tension cracks and the risk of falling parts. Additional damage was caused by the deterioration of the marble surface into sugar-like crystals. This common process of weathering is the result of fluctuating temperatures and enhanced by additional factors, such as the dissolution or growth of microorganism. The structure of the crystals dissolves, individual kernels break loose and the original surface is lost.



Fixing the keystone of the arch, bust of the goddess Tyche



Keystone of the arch, bust of the goddess Tyche before - after



Wet cleaning of the woman with tendrils



Cleaned woman with tendrils





Marble element of the architrave detached from the subsurface through the corrosion of the iron element

Sugar-like decay on the frieze





Problematic iron joints



Damaged adhesion of polyester resins



Damaged adhesion of polyester resins

Extensive Damage

The number of polyester resin adhesions was also alarming. The material was frequently used for the restoration of stone in the 1950's but was shown to not be age-resistant outdoors.

The resin shows clear tears and detached from the subsurface. It no longer acted as a bonding agent.



Removal of incrustations (deposit of organic and inorganic materials)



Consolidation of disturbed marble fabric





Removal of the entablature of the façade

Removal of the upper zone of the façade



Removal of the architrave of the west wall



The woman with tendrils in the tympanon of the doorway into the cella before conservation

Reasons for the poor state of repair

The reasons for the poor state of repair of the buildings were numerous: there were natural weathering factors, such as temperature, humidity, growth of microorganism, and dissolution processes, while at the same time too little attention had been given to the water runoff during the reconstruction. Since the roof no longer exists and the wall coping is open, water can directly seep through open joints into the wall. Additionally, non-age-resistant materials were used, such as iron and polyester. Another issue was the lack of oversight as well as an insufficient care and maintenance plan.



Construction of the scaffold

Conservation Measures

Following the receipt of all necessary approvals, the conservation work began on site in September 2013. By September 2014 the temple was again open to visitors.

The main focus of the conservation design was the removal of current damages and the improvement of the reconstruction according to the current state of

knowledge while keeping the aesthetic and didactic concept of the 1950's. The work concentrated on the removal of iron elements and the adhesives of polyester resin, the consolidation of areas with sugar-like decay, the improvement of the water management and the stability and conservation of numerous materials.



Removal of the keystone of the arch, bust of the goddess Tyche



Consolidation of disturbed marble fabric with nanolime



During conservation



Tourists visiting the Temple of Hadrian at the Curetes Street



Removal of the pedestals in front of the temple

Steps in Work Progress

- 1. Removal of the entire entablature down to the capitals
- 2. Mechanical extrication of damaged and cement-bound additions, iron and polyester resin
- 3. Removal of dirt and biogenic incrustations
- 4. Stabilization of the disturbed marble with nano-lime and lime sludge
- 5. Re-adhesion with epoxy resin and glass fiber dowels

- Improvement of water management: partial lead roof and reconstruction of the cornice blocks with drip lips
- New joints between the marble blocks with stainless steel
- 8. Sealing of joints with hydraulic lime mortar
- 9. Incorporation of a circular steel construction to enhance the stability



Marble block 106F from the frieze of the pronaos before and after conservation



Marble block 030F from the frieze of the pronaos before and after conservation