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The value of itinerant fragments between Asia Minor and Europe

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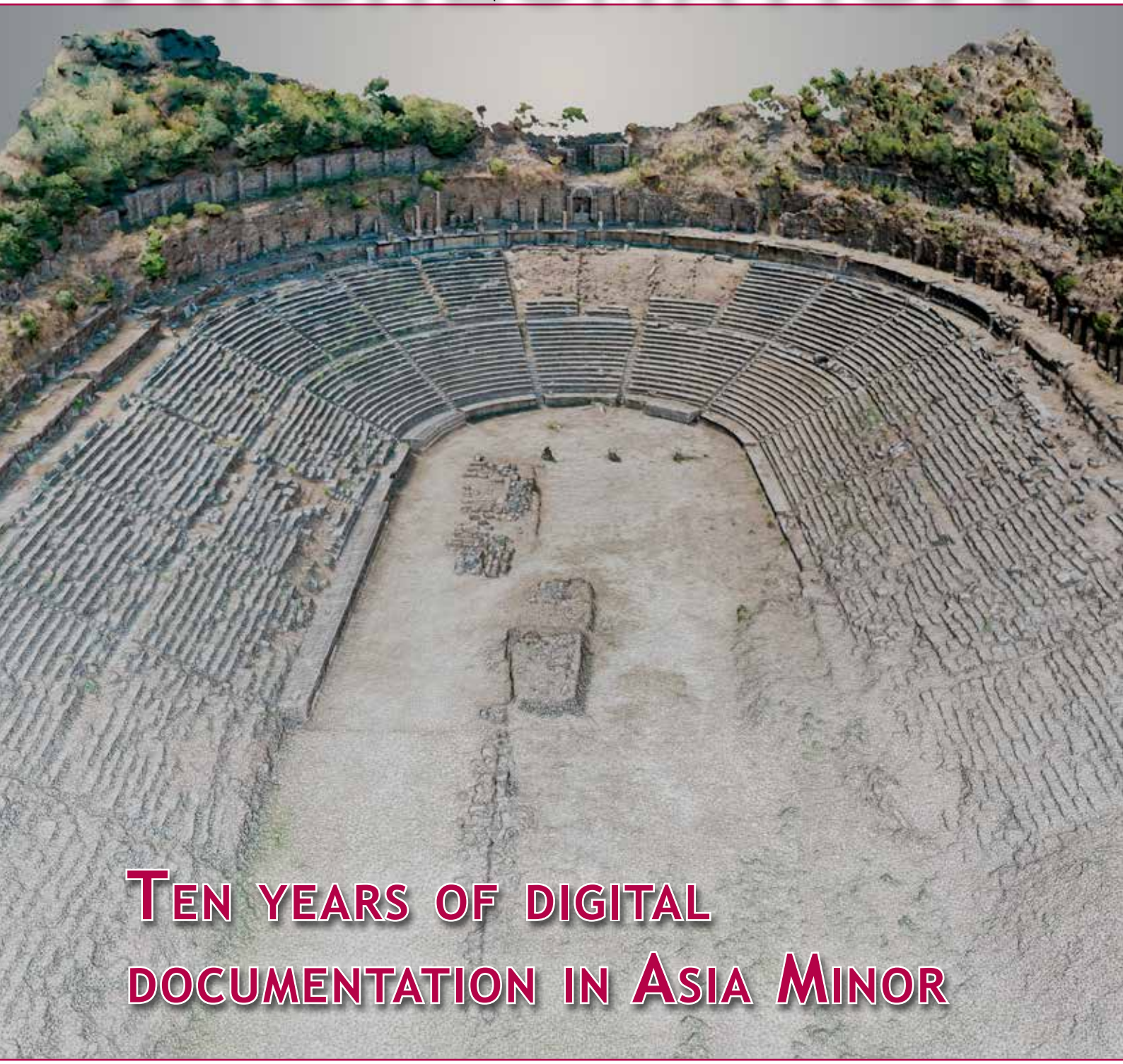

Ten years of digital documentation in Asia Minor

Heritage in Cyprus

Digital Technologies for Archaeology

Urban Digital Survey

Ten years of digital documentation in Asia Minor

The Built Heritage always tells the story of the human actions that conceived, constructed, altered, transformed, used, or even demolished it, whether in proper or improper ways. In the brief moment when we encounter a monument, a ruin, or an archaeological site, we perceive the resonance of those intentions and events that have succeeded one another over time in that very place. This is a phenomenon of superimpositions and integrations that has taken shape through an extended temporal process, defined by human choices and natural occurrences, leading to the appearance that these architectures present today. This appearance is itself destined to evolve further. The ability to read and interpret what emerges before our eyes is a complex operation, requiring rigorous preparation, specific skills, and a refined capacity for intuition. Over the past ten years, a sustained effort to promote educational activities dedicated to architecture in its most intricate historical forms, carried out with students (mainly in architectural training), colleagues, and collaborators, has, through both personal circumstances and fortuitous events, led to the collection of a series of experiences in Asia Minor, in contemporary Turkey. These experiences have been grounded in seminars conducted in places of exceptional value and fascination, consistently combining documentation and knowledge acquisition with surveying practices, contemporary technologies, and the active transmission to participants of new abilities in representation, thinking, abstraction, comprehension, invention, and design. All of this has been achieved through interdisciplinary and collaborative approaches, often within limited timeframes, but it is hoped that with meaningful outcomes, capable of embedding what was learned into the future experiences of architects and specialists devoted to the extensive built and artistic heritage encountered in diverse contexts. In this issue of *Archeomatica*, we are pleased to present a collection of excerpts from the workshops held between 2014 and 2025 in contexts of great architectural and urban complexity. All these initiatives share the intent to balance technology, education, and the capacity to produce outputs that serve an intelligent use of knowledge and a deeper understanding of the value of cultural heritage. A crucial transition, therefore, is to view the creation of digital heritage not as a mere mechanical act, but as an opportunity to stimulate, cultivate, and consolidate passion and interest for the specific values embodied in each place, building, and fragment, fostering a productive evolution that bridges experience and culture. In the pages that follow, the proposed itinerary begins on the island of Cyprus, then moves to, and repeatedly returns to, Istanbul, a key hub of exchanges and intersections between historical and architectural periods. It proceeds to more recent explorations of cities in the Hellenistic area and concludes with a reflection on itinerant artistic elements, which are often “restless” components in the Cultural Heritage scenario and that demand particular and attentive consideration.

Enjoy your reading!

Giorgio Verdiani & Alessandro Camiz

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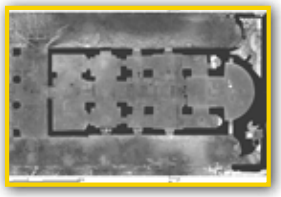

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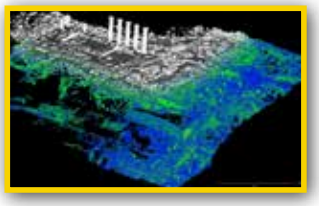

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The value of itinerant fragments between Asia Minor and Europe

by Giorgio Verdiani, Pelin Arslan, Elisabetta Caterina Giovannini

Fig. 01 - Photogrammetric 3D model of the statue of priestess Nikeso (inv. Sk 1928), with QR code for direct access to sketch-fab.com (https://skfb.ly/

Built heritage embodies accumulated layers of human activity, including construction, transformation, abandonment, reuse, destruction, and rediscovery. Each monument or archaeological site constitutes a palimpsest whose interpretation requires both technical rigor and intellectual sensitivity. When the life of a building brings it to the present time, in the form of archaeological remains, it may appear as a fascinating ruin or a poor mass of rubbles. In any case it may offer an interesting occasion of reconstruction and a complex situation of musealization or reuse. It may bring in its ruins the presence of invaluable artworks, statues, mosaics, frescoes, past items for everyday life, and even old weapons.

These elements are well known by archaeologists or other professionals in the field of cultural heritage, in practices that often collect and may take in a short trip these findings to a restoration and then to a local museum or to some abroad destination. This second condition was extremely common during the past two centuries. The collection and exhibition in the museum of findings from the smaller to entire parts of architectures, was a procedure seen as aimed at the preservation of important materials from difficult context and was supported by the early passage from a logic of "collection" to the one of "patrimony of humanity". Thus, when architectural fragments have been removed from their context and relocated to museums, the results in spatial and interpretive disconnections may complicate reconstruction efforts. The "itinerant" artworks,

parts or other archaeological findings, may be resumed into two main categories: the first collects those items, like small statues, tools, accessories and artworks which are independent from the architectural setup of a place, which may have a minimal impact on the aspect and readability of an archaeological site and/or its physical or virtual reconstruction. The second regards statues and architectural parts that are key elements in the reading and interpreting the original shape of the archaeological building, which once removed and placed in a museum cause a lack in the possibility of reading their balance between the architectural dimension and the displaced part. For example, in the course of the XIX and XX centuries, archaeological exploration of monumental sites in Asia Minor led to the discovery of large urban scenarios, recovering significant sets of findings and moving them to European museums for restoration, study, safe storage and exhibition. About one century later, digital technologies provide the means to mitigate the spatial and interpretive fragmentation caused by historical removals. Photogrammetry, modelling from point-cloud dataset, and 3D visualization enable precise comparisons between objects preserved in museums and those remaining in situ. These techniques allow scholars to virtually reunite dispersed materials, reconstruct their architectural relationships, and reassess hypotheses regarding their original placement or function. Even more, the creation of proper digital replicas, potentially allow the physical reconstruction of dispersed items, their completion with missing parts, interpolation by abstraction, or using reference models, and then allow the production of real parts that may be put back in place in the best affordable conditions. In fact, it is important to remember that all the displaced items have no chance in going back to their original site, they may, at the best, go back into another museum, while an accurate reproduction can go back on site, in a digitally enhanced anastylosis that put no threat to the original piece.

Fig. 02 - Entrance of the Demeter and Kore's Sanctuary in Priene, partial view of the area where once the statue of priestess Nikeso was placed. September 2025.

Developing researches in this field appears extremely interesting, recomposing the parts has also the additional value of recreating a two ways condition that is very valuable, from one side it is possible to bring back virtually or even physically one or more missing parts to their original location, not as ruins, but as working part of a reconstructed system; from the other it is possible to enrich the present location of the item or parts with a virtual environment that re-connect the subject to its original location. A sort of double site-specific setup that can be considered one of the most innovative progresses in exhibition setup.

Taking as subject a small set of statues and architectural remains from Priene, in the Hellenistic area of the actual Turkey, whose excavation and subsequent dispersal of artefacts, particularly to Berlin, appeared like an ideal test research aimed at the digital reunification of items and places using digital solutions. The occasion to start this experiment of virtual recompositing of the parts between Priene and the European museum

Fig. 03 - Photogrammetric 3D model of the partial reconstruction of an altar, Priene, Sanctuary of Athena Polias, ca. 200 BCE, Pergamon Museum, Berlin, with the QR code for direct access to sketchfab.com (https://skfb.ly/pEuOw).

was supported by the kind availability from the Altes and Pergamon Museum in Berlin, in the specific, a special thank goes to the director of both museums, Martin Maischberger, who hosted and gave full availability welcoming and trusting a first series of surveys in both museum collections. In October 2022 and in May 2024, two single days of photogrammetric operations allowed taking the data from some significant items and starting a study about how to restore a link between places and elements using digital models. The Altes museum hosts mostly statues, with only one, the Priestess Nikeso, with a clear and specific relationship with the architectural space; all the architectural parts are instead preserved at the Pergamon museum. In the case of the statue of Priestess Nikeso, its finding happened in 1898 in the

Fig. 04 - The 3D digital model of the entablature from Priene exhibited in the archaeological museum in Mileto, with the QR code for direct access to sketchfab.com (https://skfb.ly/prJS9).

ruins next to the statue in-situ plinth, in front of the main entrance to the Sanctuary of Demeter and Kore. The sculpture consists of two main parts: the statue, missing the head, and its plinth, the overall height is of about two metres. The statue of the priestess is made of fine-grained yellowish-white marble, while the plinth is made of grey crystalline marble it may be supposed to be a reused element, on it there is a write in Greek indicating "Nikeso, daughter of Hipposthenes, wife of Eukritos, priestess of Demeter and Kore". The figure is upright, with her upper body and shoulders slightly turned left. The other statues digitalized at the Altes Museum and coming from Priene are: a Statuette of Dionysus (height: 70.5 cm), a Statuette of Aphrodite (height: 61.5 cm), a Statuette of a Young Man (height: 76.5 cm), a fragmented statuette of Alexander the Great (partial height: 31.6 cm). All these statues present a high artistical value, thus they can't be defined as key elements of an architectural space. Instead, the statue of Nikeso looks clearly in a robust relationship with the spatial organization of the Demetra's Temple, defining a specific aspect of its entrance. The architectural parts at the Pergamon museum were a partial reconstruction of an altar, with a statue and a small fragment of bass-relief coming from the Sanctuary of Athena Polias, ca. 200 BCE, a partial reconstruction of the Sanctuary of Athena Polias' entablature, and a partial reconstruction of the temple entablature, from the Temple of Asklepios, the Agora, IVth-Ist centuries BCE. For the entablature from Athena Polias, it was possible to have a parallel with another part, this time hosted at the Archaeological Museum in Mileto, Turkey another part of the same architecture, migrated not that far, but another fragmentation of the original building. The full survey work in Berlin was conducted by photogrammetry, using specific cameras and lenses to help achieve the most complete and optimized results and with the benefit of using movable scaffolding in the case of the Pergamon Museum. The survey operation in Priene was completed using both photogrammetry and 3D laser scanner survey, this second option was extremely efficient for the survey of the large architectural remains in Priene in 2022 during the workshop. The photogrammetry was instead used on architecture for the Demetra's temple, covered by a combination of terrestrial and drone/UAV shooting as side activity during the workshop in Magnesia in 2025. At the moment of writing the development of the research is still ongoing, the first complete digital recompositing will be probably the virtual recoloration of the Priestness Nikesa in the ruins of the Demetra's temple on the Priene hill.

Abstract

Built heritage constitutes a layered record of human activity, often surviving as fragmented architecture and dispersed artefacts. Historical excavation practices frequently removed architectural elements from their original contexts, generating spatial and interpretive disconnections. This study explores the potential of digital technologies to virtually reunite displaced heritage, focusing on selected statues and architectural fragments from the Hellenistic city of Priene, now divided between the archaeological site and museums in Berlin. Through photogrammetry, laser scanning, and 3D modelling, the research investigates original spatial relationships and proposes a dual framework in which digital recomposition enhances both archaeological interpretation and museum presentation while preserving the integrity of the original artefacts.

Keywords

Built heritage; digital recomposition; digital technologies; fragments; photogrammetry; laser scanning; 3D modelling; spatial relationships

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