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# Conservation, transformation, and enhancement of classical theatres and amphitheatres\*

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The architectural heritage of the Classical age, present both in Italy and in the other Mediterranean countries, has been subject over the centuries to different phenomena that have caused either its abandonment or the continuation of its use, its transformation or the loss of its integrity. These processes have ensured the survival of these buildings through a continuous integration in urban and cultural activities. The paper presents the results of research aimed at the conservation of ancient theatres and amphitheatres, understood in their multi-layeredness, suggesting strategies for their knowledge and compatible enhancement from both an architectural and a landscape point of view.

**Keywords:** knowledge project, multi-layered heritage, ruins, historical landscape, Charters for the conservation of cultural heritage

## **Conservazione, trasformazione e valorizzazione di teatri e anfiteatri di età classica**

Il patrimonio architettonico di età classica, presente sia in Italia che negli altri Paesi del Mediterraneo, è stato oggetto nel corso dei secoli a diversi fenomeni che ne hanno sancito l'abbandono o la continuità d'uso, la trasformazione o la perdita di integrità. Processi di questo tipo, con esiti sulla materialità delle architetture molto distanti tra loro, hanno però spesso garantito la sopravvivenza di questi edifici, avendoli integrati nelle attività urbane e culturali. L'articolo presenta i risultati di una ricerca finalizzata alla conservazione di teatri e anfiteatri antichi, intesi nella loro pluristratificazione, suggerendo strategie per la loro conoscenza e per una valorizzazione compatibile sia dal punto di vista architettonico che paesaggistico.

**Parole chiave:** progetto di conoscenza, patrimonio stratificato, rovine, paesaggio storico, Carte per la conservazione dei beni culturali

## 1 | Introduction

The classical architectural heritage is a significant presence in Italy, Europe, and other Mediterranean countries. Over time, it has been subjected to strongly diverse phenomena, which have led to its abandonment, use continuity, transformation, or disintegration [1]. In particular, theatres, following destructive events or interruption of use, have reached a state of ruin after transformations, re-functionalization, repairs from several types of damages, restoration and adaptations to new stylistic canons.

For this reason, they are among the buildings that, in their successive formal and structural changes, have most strongly modified their founding status: from places in which words and music resonated, they have become containers for other activities, in which acoustics no longer plays a role. Attention to this precise characteristic was instead central for the ancient architects, who had to design and realise them. For example, in his *De Architectura*, Vitruvius devoted a great deal of space to the acoustics of Greek and Roman theatres, suggesting the best form for sound to spread correctly. This was also thanks to the aid of bronze vases, which, when appropriately placed, could have improved the propagation

conditions of sound waves [2]. And it was precisely the re-discovery of the Vitruvian text that led many Renaissance architects to examine the acoustic aspect of theatres. Andrea Palladio, Vincenzo Scamozzi and Pirro Ligorio, for example, took their cue from the Roman treatise writer's indications to analyse sound propagation in ancient performance buildings, publishing these studies in their works [3]. However, all these analyses had only a theoretical implication, as the restoration of ancient forms in multi-layered buildings was of no interest at the time. And while this hindered (and still hinders, to some extent) the analysis of the typological characteristics of the original configuration of theatres and amphitheatres, it allowed their survival by integrating them continuously in urban and territorial activities. The relationship between ancient buildings, new architecture, urban environments, or landscape contexts has lasted over centuries. Following changes in their in-use destination, theatres were used for handcrafting or agricultural activities or were converted into households. Aside from subsequent adaptations to modern urban fabrics, these functions stayed unchanged until – with the rediscovery of antiquity – archaeological excavations and restoration interventions compromised their secular stratifications [4]. In many cases, the tendency has been (and still is)

to resurface ancient structures at the expense of the authenticity of artifacts and contexts, thus clashing with the goal of preservation.

Very often, such occurrences take place due to tourism-economic needs, which press for the theatres to be restored to their form and function so that they can once again host performance events. Notwithstanding these motivations and recording this trend, several international charters have been at pains to balance conservation and use, advocating multidisciplinary investigations to achieve a satisfactory result (e.g. Siracusa Charter, 2004) (Fig. 1). In this sense, acoustics has also returned to play a central role: studies have flourished in this regard, mainly concerning the original behaviour of these structures [5]. However, from a practical point of view, these works struggle to find a concrete application in the reuse of buildings because, in the re-functioning for contemporary performance activities, it is preferred to insert modern technological apparatuses rather than reintroduce classical amplification devices, albeit with modern forms and materials [6].

With this in mind, the article will present the results of research aimed at the conservation of ancient theatres and amphitheatres, understood in their multi-layeredness, suggesting strategies for their knowledge and compatible enhancement from both an architectural and a landscape point of view. The latter aspect is essential since sometimes the landscape even represented a natural scene for theatrical representations [7].



**Fig. 1 – The stage front of the theatre in Orange with the new roof to contain all the installations necessary for cultural performances**

***La fronte scenica del teatro di Orange con la nuova copertura a cui è affidato il compito di contenere tutti gli impianti necessari alle rappresentazioni culturali***

## **2 | Commemorative value and present-day value in ancient classical theatres**

Ancient theatrical architectures can be categorized according to three factors: the historical vicissitudes that have allowed their conservation, their use over history, and their appreciation in the past. Hence, they can be divided into four

categories: buildings located in archaeological sites; formally recognizable buildings, located in urban areas; buildings that, despite being still present in cities and territories, can only be identified through small traces, or are incorporated into modern buildings or complex urban fabrics, through modifications that, while preserving archaeological monuments, have limited their architectural interest by hiding their classical typological features; finally, still poorly examined buildings that are located in landscape contexts. These latter have a variable conservation state, are often abandoned, and are rarely the object of cultural enhancement strategies [8]. This distinction is essential, as until now artifacts in archaeological areas, or in urban centers when evident and tourism-attractive, have received a much wider interest. The present and past cultural conditions have been suggesting – too often – recovery or (stylistic) restoration interventions to remove additions and revert to the original appearance of the monument: however, this has led to the loss of the historical traces accumulated on these buildings over time. The presence of stratified elements has not been subjected yet to a recognition process, especially because of the lack of suitable tools for the comprehension of the underlying secular stratification processes [9]. This framework is compounded by the execution of badly conceived works of ‘functional actualization’, which have mostly overlooked investigation actions and conservation practices, proposing valorization strategies exclusively aimed at immediate returns in terms of economic efficiency and tourism.

The interest in the protection of the cultural heritage in Italy, Europe, and extra-European countries, and the launch of initiatives for the restoration of the archaeological heritage [10], require an improvement in the knowledge tools of this heritage, and strategies for conservation and cultural development for sustainable fruition project. This latter has been encouraged more than 50 years ago by the Franceschini Commission [11], and more recently reiterated by the Siracusa Charter in 2004 [12]. This also requires total respect for the transformation dynamics that have always guaranteed a close relationship between theatrical building, city, and landscape, in addition to the awareness that valorization could also be performed by letting nature ‘use’ the archaeological ruin for the sublimation of a specific urban or landscape context.

Here, then, are some methodological reflections for the reading of such archaeological heritage, aimed at suggesting tools for the analysis of transformation processes, for the verification of the current state of preservation, and, finally, for the proposal of appropriate strategies of culturally sustainable promotion [13].

As is well known, some areas of the Italian, European, and Mediterranean basin countries have been the subject, in recent years, of studies that have sometimes served as a starting point for projects for the enhancement of the widespread archaeological heritage [14]. Starting from the existing literature [15], the research, presented here briefly, aims to include, within such programs, also theaters and amphitheatres, for which only in rare cases has interest been found

in the context in which they are located. On the contrary, enhancements for tourism have often resulted in the devastation of the landscape and the isolation of the monument with its consequent desertification.

The study requires a complex knowledge process that, starting from the monument's origins, considers all the stages of its history, including the most recent ones, that is, those that have created that surprising symbiosis between human life and the continuous regeneration of nature.

In summary, the primary operations are the identification and cataloging of the recreational and performing arts buildings; the interpretation of literary and epigraphic sources; the reading of cartographic, graphic, iconographic, and photographic evidence; the direct reading of the stratifications and the analysis of the state of conservation of the buildings; the planning of interventions aimed at the preservation of the examined assets; and the identification of possible enhancement strategies extended to the urban contexts and the landscape in which theaters and amphitheaters are inserted. The changing-of-function process should be started just after all these actions.

First, it is necessary to locate in the territory, through topographical maps, all known buildings comprising mainly those later stratified complexes. Such an investigation must begin with identifying cities of Greek or Roman foundations within which there must have been performing arts buildings. In many cases, these cities coincide with present-day urban settlements, albeit with conspicuous transformations and reshaping; in others, they are ancient settlements abandoned over the centuries and resurfaced only after archaeological excavation campaigns. In both contexts, the study of sources helps recognize what today appears not so evident but exceedingly latent. One of the investigation tools is the interpretation of literary and epigraphic evidence and the reading of the most recent scientific publications, interrelating their respective findings. Unfortunately, this last point has not yet become a regular habit, highlighting the inadequacy of a little interdisciplinary approach. At the same time, the collaboration between archaeologists, topographers, and architects could facilitate the identification of traces of a classical building even in the absence of specific evidence [16]. Conversely, even in the absence of overt traces, the presence of epigraphic references would make it possible to identify archaeological sites that belonged to theaters and amphitheaters, legitimizing excavation and survey campaigns. In this sense, the study of cartographic, graphic and iconographic sources is undoubtedly helpful, as they allow us to read the history of the buildings by providing indications of their use after their decommissioning; however, the identification of latent traces should be accompanied by the cataloging of the spolia present in urban contexts. The study of documentary sources must be accompanied by verifying existing graphic documentation, both current and reference to the 19th and 20th centuries. Starting from that period one can find a certain amount of drawings and graphic material produced to support the first actions of protection and preservation, up

to the most recent documents attesting to the interest of preservation bodies in the play and theater buildings.

It is then necessary to draw up a historical record of the factories with the identification of transformations due to functional adaptations, pointing out the elements belonging to older additions and denouncing the incongruous ones of more recent insertion [17]. Consequently, to accelerate the processes of protection, it is necessary to check the regulatory status and the existence of constraints extended to the same, to the urban context or surrounding landscape or to the elements of later stratification. In such a case, one should start by consulting cadastral data, both in terms of the ownership of the properties built above the old play and entertainment buildings and verifying the permanence of the building type whose plan form has a distinct radial pattern. This points to another analysis: the reading of urban land registers that indicate the permanence of ancient traces or structures [18], evident or latent, and the interpretation of toponymy.

In addition, for those theaters that still have residential use, an analysis of contemporary uses is indispensable, aimed at studying the compatibility between the preservation of the buildings, protection of the landscape, and current function [19]. Therefore it is necessary to draft thematic tables on the state of conservation of the buildings and the identification and cataloging of any artifacts preserved at museum facilities and traceable to the buildings examined to facilitate their understanding. Finally, it would be desirable to draw up a charter of methodological guidelines to define both tools and priorities in knowledge processes, as well as conservation and enhancement actions that provide for planned maintenance, consolidation, and restoration of artifacts as well as plans for the cultural enhancement of urban and landscape contexts.

Through such a knowledge process, results could be achieved that are respectful of the cultural value of this category of assets, attentive also to the preservation of materials and construction elements, the permanence of distributional and functional characteristics, the relationship with the territorial and landscape context, and the relationship with current socio-cultural realities [20]. However, even at the regulatory level, protection, preservation, and enhancement should be more intertwined. At the same time, there is an increasing tendency to divide them, as if protection and preservation were matters of culture, while enhancement of a business to be delegated to local authorities and administrations. Ancient theaters should be managed with expertise and foresight and in the knowledge that their most significant value lies not so much in the possibility of being transformed or even distorted but in need to continue to be manifestos of culture. Only in this way can classical performing arts buildings, through their transformations and reconfigurations, renew and reinforce their interrelationships with the land and landscape, becoming points of accumulation of the memory of centuries, of historical events, and the economic and social processes of a people or an entire society (Fig. 2).



**Fig. 2 – The stage front of the theatre in Arles with the discrete contemporary installations to allow cultural events to take place**  
*La fronte scenica del teatro di Arles con le discrete installazioni contemporanee per consentire lo svolgimento delle manifestazioni culturali*

### 3 | From the abandonment of ruins to sustainable reuse

In the framework of interventions on archaeological artifacts, especially on theatrical structures from the Roman age, one of the key items is the full understanding of the intrinsic meaning of the ruins, of their symbolic and semiotic value, in addition to their tangible characteristics, which are the object of physical modifications. The re-functionalization of an archaeological ruin implies a new conceptual and interpretative paradigm, which is an integral part of a multi-disciplinary transformation project. As highlighted above, ruins recall void, absence, gap, silence, and have a deeply strong relationship with the past [21]. Ruins must be intended as architectures on the theme of silence, and that is the reason why for scholars, researchers, and artists these contexts and remains have originated important reflections, which have influenced Western artistic, literary, and architectural culture in the last centuries. Probably for this characteristic and unicity, architectural ruins are a rich and invaluable heritage, whose conservation is frail and exposed to many threats: when transformed into a ruin, a building loses its function and shifts from being architecture to being a memory, a monument, and a simulacrum of the past [22]. The transition from an abandoned ruin to a restored building, with a new design, valid acoustic performance, and regulatory compliance cannot be implemented through the conversion of a single theatrical architecture; instead, it requires the semantic transformation of the surrounding landscape and context. In this perspective, the re-functionalization of the heritage can be performed only in a shared multi-disciplinarity and trans-disciplinarity, which allows a mutation of the historical context under careful supervision aimed at the conservation of archaeological and cultural ground [23]. Notably, some areas of the Italian, European and Mediterranean heritage have been the object of studies that

served as a starting point for valorization projects on the diffuse archaeological heritage. However, this has been rarely supported by an interest in the landscape or urban context of the artifacts; instead, tourism-driven valorization projects have often led to landscape devastation and monument isolation, resulting in its desertification. Indeed, the study of a monument requires a complex knowledge process, starting from its origins and entailing all its historical stages, including the most recent ones, which have produced a surprising 'symbiosis' between human life and natural regeneration [24]. Hence, the main operations are: the individuation and cataloging of the heritage; the interpretation of the literary and epigraphic sources [25]; the consultation of cartographic, graphical, iconographic, and photographic records; the direct analysis of stratifications and the analysis of the conservation state of the buildings; the planning of interventions aimed at the conservation of the examined artifacts; the individuation of possible enhancement strategies extended to the urban contexts and the landscape where the ancient places of performance are located [26].

In this perspective, the discipline of architectural restoration represents a potential coordination system for the activities aimed at the re-functionalization and enhancement of the heritage. It can combine the fundamental study of archival and documental sources with the technique of building design and regulatory retrofit, hence coordinating transformations and ensuring a sustainable reconversion of the heritage. In fact, sustainability is not only related to the characteristics of the architectural work (soil consumption, material choices, programmed management criteria, ...) but also to the cultural dimension, including social and communicational aspects. Transforming the ruins of Roman theatres into new, efficient places, yet preserving the historical value of the archaeological space and ground, appears to be the fundamental challenge of our time for the conscious conservation of the built heritage (Fig. 3).



**Fig. 3 – The Roman amphitheatre in Trier during the erection of the stage equipment necessary for staging musical performances**  
*L'anfiteatro romano di Treviri durante l'allestimento delle attrezzature sceniche necessarie per lo svolgimento degli spettacoli musicali*

#### 4 | The Charters on the ancient places of performance, across conservation and reuse

In addition to the abovementioned feature, another peculiar characteristic of ancient places of performance is the specific focus received by the International Charters, where the general strategies for the conservation of the cultural heritage are intertwined with more the cogent guidelines for archaeological artifacts. The Segesta Declaration (1995), the Verona Charter (1997), and the Siracusa Charter (2004), despite not having a doctrinal nature, have become the reference documents for the compatible and sustainable use of theatres and amphitheatres, and have influenced many European and Mediterranean cultural strategies in this field.

They follow the *European Convention on the Protection of the Archaeological Heritage* (Valletta, 1992), adopted by the European Council, which had a mainly socio-political purpose, that is to fortify European identity also through the development of the heritage [27]. The pursuit of this goal has triggered the activation of many knowledge projects on this theme, in relation to the acoustic performance or the geometric and material configuration of buildings [28]. Moreover, it supported the restoration of the original in-use destination of many theatres, opening them to events and performances.

This approach, directed preponderantly toward utilization, risks overshadowing actual archaeological studies and interventions that seek to preserve ancient ruins in their state and authenticity [29]. However, this should come as no surprise, when in the work of constructing the Siracusa Charter, the authors stated that the “theoretical basis of reference” could be summarized in the formula “knowledge for reuse” [30], with the significant risk of ferrying these architectural-archaeological assets into a sphere of critical apriorism. And all this even though it is clearly stated within it that reuse should adhere to the minimum intervention and be commensurate with the state of conservation, while practice often seems geared toward not considering this as a limitation, giving rise to substantial additions that lead to highly criticized and criticizable and, unfortunately, often irreversible results [31]. In this way, various theaters and amphitheatres are abstracted and extracted from their present and projected beyond it, evaluated mainly in the susceptibility to become (or instead, to return to be) something else, preferring an imaginary to reality [32]. Indeed, from this point of view, it is almost impossible, or at least challenging, to make them remain in a state other than that of functional efficiency [33], which also brings a substantial return in the image for the owning or managing entities [34]. And it is also for this reason that, often, theaters and amphitheatres succeed in catalyzing resources to reactivate performance-oriented use, at the risk of causing other buildings or sectors of the city that are equally important but, perhaps, not similarly appealing to tourist influx to be overlooked. And such an occurrence may also jar with an increasingly focal need in the architectural heritage field, namely that accessibility that is as cross-cutting and all-encompassing as possible [35]. In-

deed, suppose it is true that “taking care of the visitability of a site [...] means allowing the usability of its most significant spaces and, above all, encouraging an overall view of it” [36]. In that case, it may be essential and strategic to make only a portion of it accessible, i.e., the most neuralgic for its understanding. However, this portion does not necessarily have to be identified with the theater or amphitheater, even though they are very often the best accessible, pertain to the sphere of familiarity of a generalist audience, and thus are easily interpreted in their unity, which moreover has a “topical value, as an emblem of the Ancient” [37], and therefore arouses considerable fascination. The same desire that, moreover, involves “geographically and culturally distant populations” who “through identification with ancient Greece and Rome see [...] realized membership in the cultural elite of old Europe” [38]. And precisely this last aspect that opens up further questions that, in an increasingly interconnected world, are certainly not secondary: what theory(s) should one appeal to to set up a project for the preservation and enhancement of theaters and amphitheatres falling on multiple continents [39]?

Having briefly clarified what might be considered dyscrasias between preservation and enhancement but, conversely, reiterating the assumption that enjoying a building means ensuring its maintenance, the question arises as to whether it is essential to bring all ancient theaters back into such efficiency as to make them usable again.

Since the three Charters pursue this goal, are they antithetical to the criteria of restoration? Definitely not. Indeed, they have deeply influenced the cultural climate, fostering an in-depth technical analysis of every aspect of ancient places of performance. In particular, the Siracusa Charter provides well-founded support to the whole methodology of data acquisition and improved comprehension of these architectural organisms and contains useful management suggestions. However, not all ancient places of performance should receive the application of these directives, simply because not all of them are compatible with transformation. Or rather, they could be, but they would be turned into mere simulacra of design hypotheses.

The fulfillment of the transversal validity of the Charter requires clarifying that use is not an absolute postulate, but only one of the possible paths: probably, this path can be chosen only for a limited number of buildings. Different scenarios should be envisaged for all the others, in compliance with the indicated procedure: these could range from simple structural reinforcement to partial reconstruction, making them understandable but not usable, or even to the conservation of their collapsed state, with simple safety interventions [40]. In all these cases, as suggested in the Valletta Convention, there could be a more intense focus on virtual reconstructions, through shared scientific modalities, using the results of research activities also for communicational purposes [41]. If this were not to occur, the undoubted critical validity of the Siracusa Charter would keep being hindered. It would end up being a *checklist* for the achievement of good results, yet perceived as univocal. This should not

happen, as restoration is, first of all, a philosophy [42], and its results – be they satisfying or not – derive from a cultural reflection that technique must merely put into practice [43]. For all these reasons we believe that, after almost twenty years, the Charter should be revised: not in its prescriptions – which are still functional and effective – but in its premises, freeing it from eminently political interests. This opinion is also motivated by the introduction of new documents, which are changing the approaches to the heritage, such as the Faro Convention [44]. However, these documents must also be contradicted when they give higher importance to identity and processes than to the constraining role of architectural material, for the definition of orientation principles and operational models in restoration [45]. These latter must be questioned even more than the postulate of use; at least, they must no longer be the base for reflections that produce effects on the authenticity of the cultural heritage [46].

## 5 | Conclusions

In light of the methodology concerning the knowledge, preservation and enhancement of ancient theatres and amphitheatres, of the special status of ruin they may be invested with, and considering the international charters that deal with their use, we believe in conclusion this to be the time to debate again the fate of ancient places of performance. However, the object of the debate must not be “how” to intervene to preserve and use them at best, but “why” doing that. Almost thirty years of Declarations and Charters-driven restorations have certainly produced food for thought, together with the results of research in this field (Fig. 4). However, these latter must be critically interrelated, leading to a trans-disciplinary – not only multi-disciplinary – comparison, based on a complex, global, and, above all, inclusive vision of knowledge [47].



**Fig. 4 – The Greco-Roman theatre in Taormina with the erection of the stage platform required for the holding of musical events**  
**Il teatro greco-romano di Taormina con la messa in opera della pedana scenica necessaria per lo svolgimento delle manifestazioni musicali**

## Conclusioni

Alla luce della metodologia relativa alla conoscenza, conservazione e valorizzazione dei teatri e degli anfiteatri antichi, del peculiare status di rudere in cui possono versare, e considerando le carte internazionali che si occupano del loro utilizzo, riteniamo in conclusione che questo sia il momento di ridiscutere il destino degli antichi luoghi di spettacolo.

Tuttavia, l'oggetto del dibattito non deve essere “come” intervenire per preservarli e utilizzarli al meglio, ma “perché” farlo. Quasi trent'anni di restauri guidati da Dichiarazioni e Carte hanno certamente prodotto spunti di riflessione in tal senso, insieme con i risultati delle ricerche in questo campo.

Tuttavia, questi ultimi devono essere criticamente interconnessi, portando a un confronto transdisciplinare – non solo multidisciplinare – basato su una visione complessa, globale e, soprattutto, inclusiva della conoscenza.

## References and notes

\* The paragraph *Commemorative value and present-day value in ancient classical theatres* is authored by Emanuele Romeo, *From the abandonment of ruins to sustainable reuse* by Emanuele Morezzi and *Using ancient theatres: the Charters on the ancient places of performance, across conservation and re-functionalization* by Riccardo Rudiero. Introduction and Conclusions were jointly drawn by the three authors.

- [1] Concerning the conservation and enhancement of the archaeological heritage, see the two publications containing the results of the two PRIN coordinated by E. Romeo's local research unit: *Indagini conoscitive e strumenti operativi per la conservazione e valorizzazione del patrimonio archeologico fra l'età classica e il tardo antico nel Mediterraneo orientale* (2004-2006) and *Conservazione e rifunzionalizzazione del patrimonio archeologico di Elaiussa Sebaste: analisi, valutazioni e interventi di restauro* (2011-2013). E. Romeo, *Problemi di conservazione e restauro in Turchia. Appunti di viaggio, riflessioni, esperienze*. Torino: Celid, 2008; E. Romeo, E. Morezzi and R. Rudiero, *Riflessioni sulla conservazione del patrimonio archeologico*. Roma: Aracne, 2014.
- [2] Vitruvio Pollione, *De Architectura*, introduzione di S. Maggi, testo critico e traduzione a cura di S. Ferri. Milano: BUR, III, pp. 283-289, 2002.
- [3] E. Bastianello, “Architetture dell'eco. Vincenzo Scamozzi e Athanasius Kircher, alle origini della scienza acustica”, *Atelier Antico*, no. 154, pp. 14-28, marzo 2018. doi.org/10.25432/1826-901X/2018.154.0006.
- [4] See also the recent publication E. Romeo, *Monumenta tempore mutant et mutatione manent. Conoscenza, conservazione e valorizzazione degli edifici ludici e teatrali di età classica*. Roma: WriteUp Site, 2021.
- [5] A. Astolfi, E. Bo, F. Aletta, L. Shtrepi, “Measurements of Acoustical Parameters in the Ancient Open-Air Theatre of Tyndaris (Sicily, Italy)”, *Applied Sciences*, August 2020. doi.org/10.3390/app10165680; E. Bo, L. Shtrepi, D. Pelegrín Garcia, G. Barbato, F. Aletta, A. Astolfi, “The Accuracy of Predicted Acoustical Parameters in Ancient Open-Air Theatres: A Case Study in Syracusae”, *Applied Sciences*, August 2018. doi.org/10.3390/app8081393.

- [6] L. Lavagna, L. Shtrepi, A. Farina, A. Bevilacqua, A. Astolfi, "Acoustic design optimization through the use of auralization: how does it sound?", *Proceedings of the 2nd Symposium: The Acoustics of Ancient Theatres, Verona, Italy, 2022*.
- [7] E. Morezzi, E. Romeo, and R. Rudiero, "Some thoughts on the conservation and enhancement of archaeological heritage", in *Best practice in heritage conservation management. From the world to Pompeii* (C. Gambardella, ed.), pp. 302-311, Napoli: L.V.M., 2014.
- [8] E. Romeo, "Paesaggi spettacolari. Conservazione e valorizzazione degli antichi edifici ludici e teatrali", *Agribusiness Paesaggio & Ambiente*, vol. XV, no. 1, pp. 17-25, 2012; E. Romeo, "Monumenta tempore mutant et mutatione manent. Conservazione e valorizzazione degli antichi edifici ludici e per lo spettacolo", *Confronti*, nos. 6-7, pp. 38-48, 2016.
- [9] E. Romeo and R. Rudiero, "Ruins and urban context: analysis towards conservation and enhancement", *International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. XV, pp. 531-535, 2013; E. Romeo, "Presenze romane latenti nei tessuti urbani in area alpina e prealpina", in *Studi e ricerche per il sistema territoriale alpino occidentale* (C. Devoti, M. Naretto and M. Volpiano, eds.), pp. 401-419, Gubbio: ANCSA 2015.
- [10] G. Volpe, "Verso una visione olistica del patrimonio culturale e paesaggistico: alcune considerazioni sulla riforma Franceschini", in *Patrimonio e tutela in Italia. A cinquant'anni dall'istituzione della Commissione Franceschini (1964-2014)* (A. Longhi and E. Romeo eds.), pp. 15-25, Roma: WriteUp Site, 2019.
- [11] M. Pallottino, "Indagine sui Beni Archeologici", in *Per la salvezza dei Beni culturali in Italia. Atti e documenti della Commissione d'indagine per la tutela e valorizzazione del patrimonio storico, archeologico, artistico e del paesaggio*, vol. I, pp. 306-307, Roma: Editrice Colombo, 1967.
- [12] *Carta di Siracusa per la conservazione, fruizione e gestione delle architetture teatrali antiche*. The document was drafted during the 2nd International Conference *La materia e i Segni della Storia*, Siracusa 13-17 October 2004.
- [13] E. Romeo, *Paesaggio e spettacolo. Considerazioni sulla valorizzazione degli edifici ludici e teatrali*, in *Che almeno ne resti il ricordo* (E. Romeo and E. Morezzi, eds.), pp. 63-70, Roma: Aracne, 2012.
- [14] P. Ciancio Rossetto and G. Pisani Sartorio, *Teatri greci e romani*, Roma: Edizioni Seat, 1994; D. De Bernardi Ferrero, *Teatri classici in Asia Minore*, voll. I-IV, Roma: L'Erma di Bretschneider, 1974; D. De Bernardi Ferrero, G. Ciotta and P. Pensabene, *Il teatro di Hierapolis di Frigia*, Genova: De Ferrari, 2007; G. Tosi, *Gli edifici per spettacoli nell'Italia romana*, Roma: Quasar, 2003; F. Sear, *Roman Theatres: an architectural study*, Oxford: Oxford University Press, 2006; V. Cammineci, M. Concetta Parelo and M. S. Rizzo, *Theaomai. Teatro e società in età ellenistica*, Firenze: All'Insegna del Giglio, 2019.
- [15] C. Varagnoli (ed), *Conservare il passato. Metodi ed esperienze di protezione e restauro nei siti archeologici*, Roma: Gangemi, 2005; B. Billeci, S. Gizzi and D. Scudino, *Il rudere tra conservazione e reintegrazione*, Roma: Gangemi, 2006.
- [16] E. Romeo, *Presenze romane latenti nei tessuti urbani in area alpina e prealpina*, in *Studi e ricerche per il sistema territoriale alpino occidentale* (C. Devoti, M. Naretto and M. Volpiano eds.), pp. 401-419, Gubbio: ANCSA 2015.
- [17] M.C. Preacco (ed.) *Augusta Bagiennorum, Celid*, Torino 2014, pp. 99-122.
- [18] E. Romeo, R. Rudiero, "Ruins and urban context: analysis towards conservation and enhancement", *International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. XV, pp. 531-535, 2013.
- [19] S. Caccia Gherardini, *L'anfiteatro di Lucca nel palinsesto urbano. Studi e indagini per la conservazione*, Firenze: Didapress, 2016.
- [20] E. Romeo, *Riuso e sostenibilità culturale. Note sulla conservazione delle architetture per lo spettacolo*, in *Che almeno ne resti il ricordo* (E. Romeo and E. Morezzi, eds.), pp. 71-84, Roma: Aracne, 2012; E. Romeo, "Valorizzazione degli antichi edifici ludici e teatrali tra conservazione del rudere e sostenibilità d'uso", in *La cultura del restauro e della valorizzazione. Temi e problemi per un percorso internazionale di conoscenza* (S. Bertocci, G. Minutoli and S. Van Riel eds.), pp. 875-882, Firenze: Alinea, 2014.
- [21] S. Gizzi, "Il vuoto e il suo contrario nella progettazione architettonica e nel restauro", in *Topos e Progetto. Il vuoto* (Mario Manieri Elia ed.), pp. 69-87, Roma: Gangemi, 2011.
- [22] M. Cacciari, "Conservazione e memoria", *ANANKE*, no. 1, pp. 22-24, 1993.
- [23] M. Dezzi Bardeschi, "Archeologia e città: profondità d'ascolto e qualità del progetto", *ANANKE*, no. 59, pp. 2-3, 2010.
- [24] E. Morezzi, "La valorizzazione del teatro romano e dell'agorà di Elaiussa Sebaste attraverso l'uso della luce", in *Riflessioni sulla conservazione del patrimonio archeologico* (E. Romeo, E. Morezzi and R. Rudiero), pp. 195-216, Roma: Aracne 2014; E. Morezzi, "Landscape and necropolies between memory and actuality", in *Paesaggi culturali* (E. Romeo and M.A. Giusti eds.), pp. 35-42, Roma: Aracne, 2010.
- [25] E. Morezzi, "Il teatro di Elaiussa Sebaste in Turchia: tra conservazione e valorizzazione", *Confronti*, nos. 6-7, pp. 127-133, 2017.
- [26] See the bibliography of E. Romeo, footnote 1.
- [27] R. Pickard (ed.), *European cultural heritage (Volume II). A review of policies and practice*. Strasbourg: Council of Europe Publishing, 2002.
- [28] Including the ATHENA and ERATO Projects. C. Bianchini, *Documentation of mediterranean ancient theatres. ATHENA's activities in Mérida*. Roma: Gangemi, 2013; W. Fuchs, "The Geometric Language of Roman Theater Design", *Nexus Network Journal*, vol. 21, no. 3, pp. 547-590, 2019 (part. 1: doi.org/10.1007/s00004-019-00434-7; part 2: doi.org/10.1007/s00004-019-00436-5); J.H. Rindel and M. Lisa Nielsen, "The ERATO project and its contribution to our understanding of the acoustics of ancient Greek and Roman theatres", in *Proc. of ERATO Project Symposium*, pp. 1-10, 2006.
- [29] J.-C. Moretti, "L'architecture des théâtres en Grèce antique avant l'époque impériale: un point de vue sur les études publiées entre 1994 et 2014", *Perspective – La revue de l'INHA*, no. 2, p. 196, 2014.
- [30] *Teatri antichi nell'area del Mediterraneo. Conservazione programmata e fruizione sostenibile. Contributi analitici alla Carta del rischio*, p. 28, Palermo: Regione siciliana, 2007.
- [31] Consider, for example, the Frejus arena. E. Romeo, "Alcune riflessioni sulla conservazione e valorizzazione degli antichi edifici ludici e teatrali gallo-romani", *Restauro Archeologico*, no. 1, pp. 14-37, 2015. doi.org/10.13128/RA-17572.
- [32] M. Augé, *Rovine e macerie. Il senso del tempo*, Torino: Bollati Boringhieri, 2004.
- [33] E. Morezzi, *Gli edifici per lo spettacolo di età classica: l'impossibile conservazione dell'abbandono e la traduzione del valore culturale*, in *Monumenta tempore mutant et mutatione manent. Conoscenza, conservazione e valorizzazione degli edifici*

- Iudici e teatrali di età classica* (E. Romeo), pp. 481-492, Roma: WriteUp Site, 2021.
- [34] L. Migliorati, "Il futuro delle nostre città è nello spettacolo?", *Quaderni di Archeologia d'Abruzzo*, no. 2, p. 182, 2010.
- [35] L. Cappelli, *L'accessibilità multiscalare e la fruizione inclusiva. Questioni metodologiche per il restauro di antichi edifici ludici e per lo spettacolo*, in *Monumenta tempore mutant et mutatione manent. Conoscenza, conservazione e valorizzazione degli edifici ludici e teatrali di età classica* (E. Romeo), pp. 493-513, Roma: WriteUp Site, 2021.
- [36] A. Pane, *Oltre le linee guida: l'accessibilità delle aree archeologiche e il caso di Pompei*, in *Pompei accessibile. Per una fruizione ampliata del sito archeologico* (R. Picone, ed.), p. 70, Roma: L'Erma di Bretschneider, 2013.
- [37] P. Mascilli Migliorini, "Manufatto, preesistenza e archetipo. Avventurose vicende degli anfiteatri e dei teatri antichi", *Confronti*, nos. 6-7, p. 49, 2016.
- [38] G. Calcani, "I beni culturali tra memoria e progetto per una cultura di pace", *Processi Storici e Politiche di Pace*, no. 3, p. 23, 2007.
- [39] E. Romeo, "Quale storia e quali teorie del restauro nell'era della globalizzazione culturale?" in *RICerca/REStauo*, pp. 134-144, Roma: Edizioni Quasar, 2017.
- [40] If they are functional to the illustration of history and dynamics which would not be visible otherwise: these include catastrophic events, such as earthquakes. R. Rudiero, "Valorizzare un paesaggio archeologico: proposte per Elaiussa Sebaste", *Cultura e prassi della conservazione in Turchia* (E. Romeo), pp. 145-176, Roma: WriteUp Site, 2020.
- [41] M. Limoncelli, "Ricostruzioni digitali per lo studio degli spazi teatrali dall'età arcaica all'età imperiale: alcuni casi studio", in *Gli spazi del teatro greco e latino. Indagini archeologiche e ricostruzioni digitali. Visioni e prospettive* (E. Matelli, ed.), Milano: Educatt, 2019.
- [42] R. Pane, *Attualità e dialettica del restauro. Educazione all'arte, teoria della conservazione e del restauro dei monumenti*. Chieti: Solfanelli, 1987.
- [43] S. Caccia Gherardini, *L'eccezione come regola: il paradosso teorico del restauro*. Firenze: Didapress, 2019.
- [44] *The Council of Europe Framework Convention on the Value of Cultural Heritage for Society*, Faro 2005.
- [45] D. Fiorani, "Materiale/immateriale: frontiere del restauro", *Materiali e Strutture*, nos. 5-6, pp. 9-23, 2014.
- [46] R. Rudiero, *Comunità patrimoniali tra memoria e identità. Conoscenza, conservazione e valorizzazione nelle Valli valdesi*, pp. 15-40. Perosa Argentina: LAReditore, 2020; L. Pavan-Woolfe and S. Pinton (eds.), *Il valore del patrimonio culturale per la società e la comunità. La Convenzione del Consiglio d'Europa tra teoria e prassi*. Padova: Linea, 2019.
- [47] M.A. Giusti, "Complessità", *ANANKE*, no. 72, pp. 46-47, 2014.