

Ancient theatres as part of the soundscape of contemporary urban fabrics: The A' Theatre of Larisa.

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ABSTRACT

During the process of urban development in Greece a part of the A' ancient theatre of Larisa was revealed. Today, after several expropriations and support frameworks, the theatre is fully excavated and partly reconstructed. Recently, an International Open Ideas Competition was launched for the urban regeneration of the surrounding area and the enhancement of the theatre's value and function. This paper discusses the contemporary soundscape, competition axes and urban design approaches.

Keywords: ancient, theatre, soundscape.

1. INTRODUCTION

During the process of urban development of Greek cities in the mid- 20th century, the construction procedure revealed a palimpsest of the cities' history, a layering of materials and structures. In Larisa, a part of the A' Ancient Theatre of the city was revealed during the construction of new residential buildings. Today, after several expropriations, two Community Support Frameworks and research sub-projects, the theatre is fully excavated and partly reconstructed.

Aiming to introduce the theatre to the public, not only as a monument but also as an active cultural landmark, an International Open Ideas Competition was launched in 2021, to reconsider its reflection on its surroundings and the wider central area. The objectives of the competition included monument connections, enhancement and enrichment of the theatre's value, functional issues for its operation and landscape design.

This paper presents the A' Ancient Theatre of Larisa, it discusses the contemporary soundscape by overlaying noise maps, sound sources that rely on land uses, urban design approaches, as part of an overall investigation in the fields of soundscape planning, urban design, architecture and noise control that could be considered in similar cases, establishing the cultural significance of the monument, incorporating it in the city's contemporary social life and facilitating its use for performances.

2. ESTABLISHING THE CASE STUDY

2.1 Background information

In many Greek cities that date back to the ancient times construction procedures in the last century pro-

vided information of previous eras, a palimpsest of their history translated into a layering of materials that led the researchers back to the classic - Roman times. The palimpsest of Thessaloniki is widely discussed, especially in relation to the present construction of the underground. Similarly, in Larisa, the fourth largest city in Greece, a part of the A' ancient theatre of the city was revealed - namely a part of the koilon- during the construction of a new residential building in 1968. The new building was erected, despite the Ephorate of Antiquities' opposition and, after several years of discussion, the expropriation was completed in 1979, and the building was demolished in 1981. Today, after two Community Support Frameworks and several research sub-projects the theatre is fully revealed. Recent studies have investigated its potential regarding the cultural and financial development of the city and school education and it is important for the authorities to consider all parameters for its optimum use.

However, its position in the city center, next to high rise buildings can result in inappropriate for its use acoustic conditions, while commercial activity and nightlife of the area increase background noise.

How can the theatre be used for performances again while all city functions remain untouched; Is it possible to limit background noise and allow for optimum conditions of speech intelligibility?

In an attempt to open the theatre to the public, not only as a monument but also as an active cultural landmark, an International Open Ideas Competition was launched in 2021, to "reconsider the theatre's reflection to its surroundings and the larger central area" [1]. The objectives of the competition include carving the city's character to establish a fresh identity, con-

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nections between the theatre and other important landmarks, establishing a new attraction, landscape design, enhancement and enrichment of the theatre's value as a landmark and functional issues for the theatre's operation - namely organisation of paths, entrances / exits and supporting spaces. The competition participants were provided with a considerable number of maps, plans, elevations and technical reports. However, no mention has been made to the function of the theatre that should take into consideration the acoustic conditions, the land uses of the surrounding area, existing noise maps and future noise control, the evolving city's soundscape that continuously changes during the day and night.

2.2 The palimpsest of the A' Ancient Theatre of Larisa

The A' Ancient Theatre of Larissa, at the north-eastern part of the Thessalian plain, near the banks of river Penaeus (Pinios), was inhabited, developed and reconstructed at the same location for many centuries. The reuse of the constructing material during the reconstruction phases was common. As an immediate consequence, public buildings, markets, temples and the city walls were dismantled. Only a few monuments have survived, including the two ancient theatres [2].

The A' Ancient Theatre of Larissa lies on the slope of Frourio hill (or "Fortress" hill) coinciding with the fortified citadel of the ancient city, and one of the pre-historic Neolithic settlements on which the oncoming city was based on and evolved. The ancient city being surrounded by Pinios developed only towards the south and east of the citadel, since the north and west sides were restricted by the river. The A' ancient theatre's construction is chronologically placed in the 1st half of the 3rd century BC. It is one of the largest ancient theatres in Greece, with a 10.000 audience capacity, and it is suggested that it also served as a public place of gathering of the Thessalians.

The theatre accommodated events until the 4th century A.D. Following the construction methods of that period, the koilon was initially formed on the hillside, later covered by marble. It was divided by the diazoma to the main theatre, consisting of 24 rows of seats and the epitheatre, consisting of 11 rows [3]. The orchestra, measuring 25,50m in diameter, was initially covered by marble and later by soil to accommodate Roman fights. The stage building, which is relatively well preserved, can be associated with four construction periods during the ancient times.

The theatre underwent various design stages and modifications, due to earthquake activity (3rd and 7th century A.D.). The lowest part had already been buried until the Byzantine years. In the late years of the Ottoman Empire, a large building or a complex of buildings had been erected on the theatre's territory. Seats of the ancient theatre were used as a building material for its construction. Up to 1985 the theatral area was covered by contemporary constructions and was essentially bisected by two main streets, Al. Papanastasiou

str., north to south, and Venizelou str., east to west.

After 17 centuries of the city's development in layers above the theatre (residential buildings and roads), in 1910 and 1968 preparations for the foundations of new buildings revealed parts of the skene and the koilon respectively. By 1985 the NE part of the theatre had been revealed, whereas the south and west remained under other constructions. Between 1977 and 2008, after several expropriations, private and public building demolitions and street abolishment, the epitheatre's area (traces of which no more exist), the skene, the western and eastern entrances (parodoi), the latest leading through a pathway to the B' Ancient Theatre, were found [4]. Marble seats used in their infrastructure were discovered and transferred to appropriate places. Recently, the Central Board of Antiquities of Greece approved the restoration of the theatre - initially the koilon to its later architectural phase (arena), and later the retaining walls, the stage building, which is the best preserved part of the monument, and the accessibility [5]. Figure 1 illustrates the plan and section of the theatre in its present condition, compared to the initial.

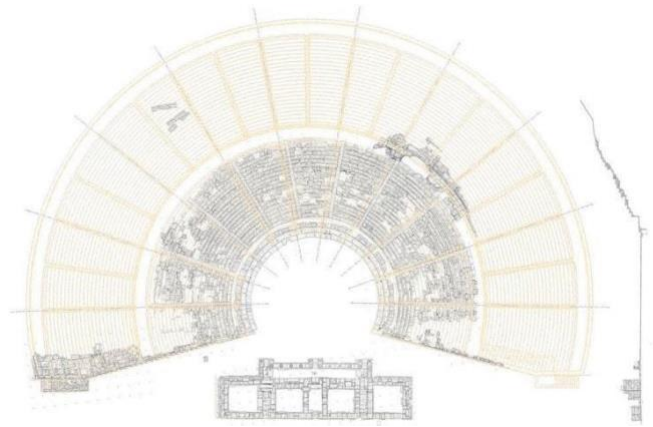


Figure 1 – Plan & Section of the A' Theatre of Larissa.

3. CONTEMPORARY USE OF THE THEATRE

3.1 Fields of research on ancient theatres

Building heritage is a multidisciplinary field of study, involving history, social science, architecture and engineering.

Since the revival of ancient drama in the 20th century many ancient theatres have been excavated, investigated and restored. Research has revealed the effectiveness of their architectural evolution on the acoustics [6]. The process of the skene's evolution enabled conventional use during the dramatic performance and changed the focal point from the orchestra to the stage, allowing for further enhancement of the actors' voices due to relative source-receiver heights. In some cases, the theatre's restoration was accompanied by appropriate architectural and acoustic interventions to ensure optimum visual and acoustic conditions during their contemporary use. Studies have indicated the contribution of ephemeral scenery, designed and applied to the theatres for performance purposes to replace missing

stage buildings, to the soundscape of ancient theatres, either positively or negatively [7], [8], and [9].

However, although scenery application can activate the acoustic capabilities of an open-air theatre, an important factor for the acoustic quality of many ancient theatres was low background noise, important for the unassisted speech to be audible. Contemporary conditions – theatres situated in Greek cities or nearby busy roads – imply the necessity of an acoustic treatment to ensure optimum conditions during performances [10]. Recent research on European cities has indicated the significance of the soundscape approach for the preservation and promotion of cultural heritage [11], where appropriate architectural and urban design can contribute to the overall experience and comfort, depending on the uniqueness of each theatre, its position, construction characteristics and background noise.

Regarding the A' ancient theatre of Larisa, apart from the architectural quality, evolution and restoration process, it is important to discuss its position within the urban fabric, mainly in terms of the acoustic environment; and consequently, to develop guidance for its contemporary use.

3.2 Soundscape analysis

The city is a place of coexistence of many different social groups, a synthesis of architectural forms, deriving from different sociopolitical circumstances over the centuries. Identifying and studying the independent elements that form the collage of urban space can lead to understanding the development and function of the city [12], based on the context, background, prior experiences, familiarity with the place, so that each person constructs a different image of the city. According to Lynch [13], grouping these images reveals common elements that emerge as characteristics of the city. He distinguishes five types of elements that constitute its structural features (paths, edges, districts, nodes and landmarks), the interrelations of which determine the clarity of the city's 'imageability'. Similarly, as previous research has indicated [14], one can identify such elements of the urban fabric associated with auditory perception.

The acoustic environment of the urban fabric surrounding the theatre was investigated through the collection of the latest noise maps [15] and the use of the sound map technique, as a research tool from Amphoux's 1st approach, sound memory [16]. Figures 2 and 3 present the overlapping of the two illustrations, namely the noise maps that present the Lden and Ln and the sound map that focuses on the land use that characteristically provides different sound sources for day and night. As expected, linear sources act as boundaries / axes and omni-directional sources provide distinct features to the sound environment. Size of symbols reflects intensity of phenomena. Traffic noise prevails (Lden>70dB that exceeds 75 at crossroads - Ln>60-65 dB), forming strict boundaries at the perimeter, intruding the area where no building bounda-

ries exist. At this end, an important decision by the municipality to demolish the two building blocks marked with black at the south will increase the impact of traffic noise at the area. Some of the competition design proposals include new city tower landmarks (1st prize) or sheds replacing these blocks, that would reduce traffic noise propagation but at the same time create visual obstacles for the view of the theatre.



Figure 2 –Lden map with overlapping sound sources.

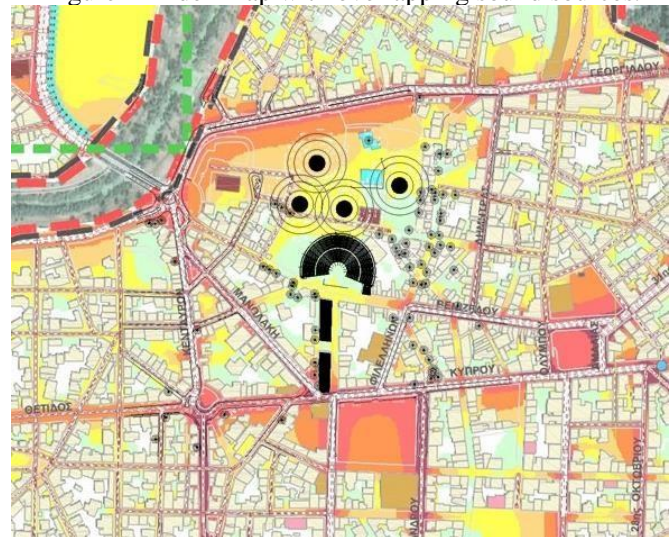


Figure 3 –Ln map with overlapping sound sources.

Pedestrian roads surrounding the theatre present lower values in Lden and Ln (56-60 and 45-55 dB respectively), while the Lden and Ln at the theatre is above 50-55dBA and 40-45dBA respectively. It needs to be mentioned that these noise maps (created in 2014) present residence as the prevalent land use surrounding the theatre. Since then, the city has evolved and, apart from its commercial life, the recreational quarter (cafes, restaurants, bars etc.) has moved from the city centre to the eastern and northern parts of the theatre, as indicated by the omnidirectional source symbols. In total, 69 bars and restaurants are located in this area, out of 82 that can be found at this part of the city, all of which mostly use their outdoor space. Addi-

tionally, as can be seen in Figure 3, the area at the top of the Frourio hill is the new “meeting point” (symbolised by the large sources), mostly occupied by traffic noise during the day ($L_{den}>60\text{dB}$ – since there is a difference in level from the main road), but also characterized by natural sounds of birds due to the thick tree foliage), accommodating several thousands of young people between 7pm and after midnight during the summer. A recent urban installation created a promenade and resting points at the linear pathway at the tangent of the epitheatre area.

Another important factor that controls the soundscape of the area of the theatre and its surroundings are the building shells that function as sound reflectors. This could be altered by the architectural treatment of building surfaces [11]. The analysis presented in this paper will be further investigated through future soundwalks and the application of the Swedish Soundscape Quality Protocol (SSQP) [17].

4. CONCLUSIONS

Considering the wider theatre area as surrounded by road axes, one can easily distinguish three areas: the high density building area at the east, where commercial uses and leisure are mostly concentrated, the open area at the top of the Frourio hill that provides a vibrant and rich soundscape at the north, fluctuating in level and sound source categories, according to the season and time, and an urban environment, concentrating commercial, leisure, administrative, educational and similar functions at the south and west. The distinction coincides with the spatial distribution of existing land uses.

Overall, establishing the cultural significance of theatre as a monument and ensuring its operation, requires an interdisciplinary study that will reconsider the impact of the surrounding land use on the soundscape, apply urban design decisions for monument connections and architectural design for building treatments. Only when the basis of its functionality is set, the acoustic simulation of its current condition and the layout of its restoration can be carried out to suggest further improvements and scenery design applications.

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