THE ANCIENT THEATRE OF SIKYON: PRELIMINARY STUDIES ON THE STRUCTURAL MATERIALS AND THE DECAY PATTERNS - PROPOSALS FOR PROMPT PROTECTION

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ABSTRACT

The ancient theatre is found in the archaeological site of Ancient Sikyon, that is located 18 Kilometres north western of Ancient Korinthos, in north Peloponnesus. The theatre is aged from the 3rd century BC and was one of the largest of the whole Peloponnesus having 122m diameter. As a structure, it combines the use of two techniques: the building with the use of enchorial porous stone and the curving of parts of the theatre on the natural rock of the area. Today only the first rows of the seats that have been excavated are apparent.

In this work preliminary studies on the structural materials were carried out for their identification and the decay patterns assessment. In situ macroscopic observations were initially performed where it was found out that the condition of the monument is extremely deteriorated. Samples were also collected and analyzed by X-Ray Diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR), Environmental Scanning Electron Microscopy with Energy Dispersive X-Ray Analysis (ESEM-EDX), Optical and Polarized Microscopy. The results obtained showed that the need for the protection and enhancement of the monument is crucial and urgent. Proposals for the prompt protection of the theatre are mentioned as well.

However, a more extensive and complete research should be carried out, that would contribute significantly to the final decision making concerning the further excavation or not of the theatre, and to what degree, as well as its conservation – restoration for the enhancement of its appearance.

INTRODUCTION

The history of ancient Sikyon – Arts and culture

Ancient Sikyon is found 18 Kilometres north western of Ancient Korinthos, in north Peloponnesus, and was renowned in Ancient Greece as the centre of arts, as was philosophy for Athens [1]. Sikyon first comes into view in the Homeric line. According to the old common belief it was there that Prometheus brought the fire to mankind. Hesiod refers Sikyon as the place where a scene of a contest between gods and men took place, when Prometheus deceived the Gods by giving them the worst parts of the sacrificed animals and keeping the best for mankind. He calls the place Mecone, an appellation which undoubtedly originated from the abundant growth of wild poppies which still, at the present day, are scattered over the plateau upon which the old city was built. During its long lifetime, Sikyon’s name had changed many times as well. Its first name was Aigialeia, coming from Aigialeos, who is mentioned, according to Pausanias, as the first king and founder of the city. Telchis or Telchinia was the second name of the city, coming from the king Telchin or probably from the Telchines, the famous excellent metallurgists, who were, according to Strabo, the first technicians of copper and iron. During the archaic period, the area was also called Asopia, an appellation originated from the Asopus river. The name Sikyon, with which the city was known for most of its history, according to Pausanias was given from Sikyon of Attica, who married Zeuxippe, daughter of king Lamedon, and became king of the city. [2]

According to the geographer Strabo, Sikyon was the first settlement of Achaean Ionians in Greece (around 1900 BC). In the eleventh century BC, the Dorians came in the area. Sikyon was from the
very few towns in Peloponnese, which resisted the invading Dorians. The city was surprised by night and conquered. Argos, Corinth, Phlius, Epidaurus, Troezen, they all submitted to the Dorians without any resistance. A subject first to Mycenae and later to Dorian Argos, Sikyon regained her independence in the 7th century BC, when the Achaean family of tyrants Orthagorides took control and governed the city for one hundred years. In 303 BC, Demetrios Poliorcetes conquered Sikyon, destroyed the city and built a new one on their acropolis, which lied on a high triangular plateau, 4km inland. Sikyon remained under the rule of tyrants for a very long period. Aratos (271 – 213 BC), a powerful and skilled diplomat Sikyonian leader of the Achaean league, was the one who freed his native city from the oppressive sway of tyrants under the Macedonian protection. After the destruction of Corinth by the Romans (146 BC), Sikyon, delivered from the rivalry of that city, increased in power, however, the period of prosperity was of short duration. Roman cupidity was tempted by the numerous and valuable works of art in the city, and many of the most precious treasures were removed. Afterwards, two catastrophic earthquakes, happened in 153 BC and 141 BC, destroyed many of the art – treasures that the Romans had left behind [3,4]. Yet, when Pausanias was at Sikyon, in the 2nd century AD, he found it, though a place of small population, but still in possession of notable works of arts. [1]

It was in the field of arts rather than of politics that Sikyon won her fame and gained the honor to be called as the symbol of arts and civilization. A powerful proof of Sikyon’s cultural flourishing was the fact that, the city possessed from the very ancient years a museum dedicated to the Apollo’s temple, in which some of the most famous ancient objects and offerings were kept. There, for a long period, was one of the chief seats of Greek artist activity as well. Indeed, one tradition places the invention and foundation of painting at Sikyon. One of the greatest schools of paintings, having its name from Sikyon (Sikyonian Painting School), was founded by Eupompos, and many great artists like Pamphilos and Apelles studied there. The fame of Sikyon was great in the field of sculpture as well. While tradition assigns to a native of Sikyon the invention of painting, Pliny mentions that Butades, a Sikyonian, was the first to make images of clay. Dipoinos and Skyllis, the early sculptors, though Kretans by birth, were connected with Sikyon in their work. The first native important sculptor was Kanachos, while two of the greatest and most famous sculptors who were born in Sikyon and influenced the sculpture art profoundly, were Polykleitos and Lysippos. Furthermore, apart from painting and sculpture, Sikyon was the place of birth of ancient lyric tragedy, by the praises dedicated to Adrastos heroisms and misfortunes, a legendary king of Sikyon who alone survived from the fatal expedition “Seven against Thebes”. Great innovations in music and dance flourished in Sikyon as well. [3,4]
Pausanias visited Sikyon at around 150 BC and started his description of the city from the Hellenistic acropolis, in which he found the temple of Tyche Akraia and a little further the Dioskouroi temple. Descending from the acropolis, he came to the ancient theatre and mentions that upon the stage the statue of a man with a shield was found, said to represent Aratos. Beyond the theatre, he refers that there was a temple of Dionysos, whose statue was made of gold and ivory. He also speaks of about fifteen temples, where some of them were already at that time in ruin, as was the ruined temple of Artemis Limnaia, a very ancient temple. This is identified today with the excavated ruins of a temple opposite to the Roman baths. The name given to Artemis "Limnaia" indicates, that at these times there was abundant water on the plateau, as also the drainage of the Theatre suggests. Diodoros confirms this. In the agora, he saw bronze statues of Zeus and Hercules, made by Lysippos. He also speaks of two gymnasia, in one of which was shown a marble statue of Hercules by Scopas.[1]
Archaeological excavations in the ancient theatre of Sikyon

The choice of the Sikyon as a field of archaeological excavation was recommended by the fact that, in spite of the antiquity of the city and its particular importance in the history of art, no systematic excavation had ever been made there. The first excavations at Sikyon by the American School began in 1886 [3, 4] and brought to light one of the most important monuments of Peloponnesus, the Hellenistic ancient theatre of Sikyon. Supplementary excavations were carried out also by the American School in 1891 AC [5,6,7] and the latest excavations were made by the Greek Archaeological Service in 1952 [8]. The ancient theatre of Sikyon, that was one of the largest ones of the whole Peloponnesus, is aged from the 3rd century BC, while it was amended at least twice by the Romans. The stage building was extended on the first century and was amended at the end of the Roman times.

The earth on which the theatre was built consists mainly of soft porous stone, and this same stone was used for the construction of the masonry [9]. As a structure, it combines the use of two techniques: a) the building with the use of enchorial porous stone, locally named oolitic stone, which is one of the main rocks of the area that has been used for the building of the most of the archaeological structures and b) the curving of parts of the theatre on the natural rock of the area.

The schematic representation of the theatre is presented in Fig.1 where as it is shown it consists of the following parts:

The koilon (κοίλον), that is on its greatest part curved on the natural rock of the slope and its two ending parts are man made. It is of 122m diameter and 58m depth. The first excavations carried out by the American School [3,4], revealed only a small portion of the western half, including three complete tiers (κερκίδες) of seats and the front of another. The lower portion of the koilon was then found to be divided into two sections of fifteen tiers and by fourteen staircases. One passageway (διάζωµα) was easily recognized by portions of a wall composed of upright slabs that formed one side of the passageway, and by a portion of an open drain that undoubtedly extended along the entire length of the wall. The general configuration of the surface, as well as the great distance from the passageway found to the summit of the koilon, gave ground for the belief that a second passageway did exist and that the seats in the upper portion were curved on the natural rock.

The tiers (κερκίδες), consisted of rows of the ordinary seats and the proedria (προεδρίες). The front tier, excavated by the American School [3,4], consists of thirteen proedria that were plainly intended
for the accommodation of official figures. The proedria correspond to the marble chairs in the Dionysian theatre at Athens, but unlike the Athenian chairs, they are made of the same porous stone as the ordinary seats. Each proedria extents across the front of a tier (κερκίς), and has backs and arms at the end. Some of the arms showed remains of ornamental scroll-work on the outer side. The entire number of tiers seemed to have been sixty. The rock – cut seats still remaining in the upper portion of the koilon differ in form from the lower ones.

The orchestra, that is of 24.04 m diameter, comprising somewhat more than half the circumference of an entire circle. At the Roman times it became semicircular. The removal of the heavy deposit of earth by the American school, revealed the form of the orchestra as well as its floor (κονίστρα), which was found to consist mainly of stamped earth like in the theatre of Epidaurus [3,4].

The elaborate drainage channel system that was one of the mayor characteristics of the orchestra. A carefully constructed drainage channel, of about 1.25 m wide and 1m deep, was revealed by the American School [3,4], extending around the orchestra and dividing it from the proedria. Resembling that in the Dionysian theatre at Athens, stone slabs cover the drain opposite each staircase of the koilon, serving as a bridge. Another drain extends from the centre of the orchestra, and is covered within the orchestra with blocks of stone laid transversely, some of which were found displaced. A third drain extends from the west side of the orchestra, at a point opposite the termination of the koilon, to the central drain.

The underground passage, hat was extended from the centre of the orchestra to the circumference of the proedria and the rear of the stage structure, ending in slabs that may have served as steps.[3-7]

The eastern and western parodos, that provided entrance to the orchestra. The American School [3-7] removed the earth from one parodos, that on the west side, which was found to be in a very ruinous state. It had a width at the entrance of 4.08 m, while its opposite side was enclosed by the natural rock. The eastern parodos, of the same width and with a rock cut entrance as well, was the better preserved.

The retaining walls (αναλήµµατα), which support the walls of the koilon that are opposite to the parodos, and consist of tectonic stones. [5-7]

The vaulted passages, one on the east and the other on the west side of the koilon, that served as entrances by which the people could pass directly from without, and issue upon the first passageway. The vaults, during the first excavations by the American School [3,4], were found in good preservation, and they are excellent, as well as rare examples of vault architecture of the Hellenic period. According to the American School, their original length, width and height may have been about 16m, 2.55m and 2.60m respectively.

The stage structure consisting of the skene, the proskenion that “looks” towards the orchestra and the paraskenia. The excavations by the American School [3,4] revealed a stage structure of 24.5 m width and 12.11m depth and showed that there were five main foundation walls belonging to the stage building, marked A, B, C, DD ,E. The A and E were the front and rear walls respectively of about the same length, while the walls A and B were parallel. In front of the base of the wall A, a marble step extends almost the entire length. The saved parts of the stage indicate the Hellenic structures as well as the Roman amendments at the end of the Roman times. According to the American School reference, both the material and the method of construction of the wall A mark it as of Roman origin. The construction of the wall B is entirely different from that of A, and is undoubtedly of the original Hellenic walls. The wall C is of mixed construction, part being of the same nature as B, and of Hellenic origin, while the remainder is like A and Roman. The Cross wall E, extending between B and C, is Hellenic while the wall DD, composed of a single course of stones, is evidently of Roman date, as is the fifth and last main foundation wall E. Furthermore, during the Roman imperial times, the stage building was first extended, while later a deep and low stage was built occupying part of the Hellenistic orchestra, which became semicircular.
For centuries the view of the theatre was the one presented in Fig. 2. In 1952, the latest excavations carried out by the Greek Archeological Service [8], revealed entirely the proedria, as well as some ordinary seats which had not been excavated by the American School. The stage building, that had been partly filled in with earth again, as well the drainage channel around the orchestra, were thoroughly cleaned. The stone slabs covered the northwest vaulted passage were also removed.

**EXPERIMENTAL**

*The present view of the ancient theatre of Sikyon – In situ macroscopic observations*

*In situ* macroscopic observations were initially performed where it was found out that the condition of the monument is extremely deteriorated. The present view of the theatre is shown in Fig. 3, where only the first seven rows of the seats in the central part and the four rows in the left and right part of the *koilon* that have been excavated are apparent (Fig. 4). The orchestra of horseshoe shape as well as the drainage channel extended around the orchestra has been revealed. In the stage building area, only remains of the short separating walls are saved, as presented in Fig. 5, while the north eastern and south western cambers are revealed.
For centuries dense vegetation (plants and trees) covered the under the earth tiers of the upper portion of the koilon, as shown in Fig. 2. The vegetation was undoubtedly the main cause of the intense deterioration phenomena that the monument presents today. Also, parts of trunks and roots of the trees from the past still remain (Fig.8), stressing the structural material of the under the earth seats and resulting in decay and breaking of parts. The present view of the proedria (Fig.6) is indicative of their deteriorated condition. Parts of the drainage channel building blocks are broken as well, as shown in Fig.7.

Figure 7: Present view of the drainage channel (Photo M. Koui, 2010).

Figure 8: Remained parts of trucks and roots of the trees from the past in the ancient theatre (Photo M. Koui, 2010).

Regarding the vaulted passages, the eastern one has been cleaned and restored (Fig. 9). During the latest restoration intervention, which was carried out recently, great parts of the weathered building stones inside the vault were replaced and reinforced by artificial stones, as clearly shown in Fig. 10. The removal of the trunks and especially the roots of the trees, which had penetrated in the structural porous stones, have caused loss of cohesion and decrement of their mechanical properties, resulting in the disintegration as well as the detachment of parts of the building stones as presented in Fig. 11. Moreover, the biological colonization of the stone by microorganisms and other organisms such as animals nesting on and in stone combined with the removal of the trees roots, are responsible for the stone degradation indicated in Fig.12.

Figure 9: Present view of the eastern vaulted passage (Photo M. Kou, 2010).

Figure 10: Restoration intervention inside the eastern vaulted passage (Photo M. Koui, 2010).
As far as the western vaulted passage is concerned, a great part of it has been collapsed, as presented in Fig.13. This is owed mainly to the strong mechanical stresses induced by the remained parts of the trunks and roots of the trees and the continuous plants growth causing statical weakening of the structural material. Moreover, the stress – pressure generated by the earth, the stone weathering due to the water action, as well as the earthquake tremors happened in the past are responsible for the present view of the vaulted passage.

Furthermore, the corrosion of the building porous stone, due to the biological effect (algae, fungi, lichen) and the action of water accumulation as the theatre remains unprotected from the water of the region that flows there, is apparent on the stone surface with the formation of large black and yellow stains (Fig.14).

*Environmental factors in the region of Sikyon*

The mayor deterioration factors for a monument found in a rural area are not usually the same
with those observed in an industrial area. However in a rural environment, the same mechanisms and deterioration patterns may be observed, depending on the specific natural and anthropogenic factors that affect the monument. For instance, the action of water, provided by rainfalls or by capillary rise from the ground, as well as environmental factors such as frosts, winds, temperature variations, relative humidity, are responsible for the ageing of the structural materials. For this reason, the gathering of information concerning the meteorological parameters of the region of Sikyon was considered to be essential for the investigation and evaluation of the major decay factors threatening the ancient theatre. The climatic data of the broad area collected for the period 1987 – 2002 were provided by the Hellenic National Meteorological Service.

Probable provenance of the structural material of the ancient theatre

On the broad area of Ancient Sikyon towards Korinthos, a large number of quarries (over one hundred), all differing in size, have been located, as quarrying was the main occupation activity of the inhabitants. According to the literature, the structural material with which the theatre was built is porous limestone, locally named oolitic stone, coming from the quarries of the area. [9]

Materials and methods of analysis

Samples for laboratory study and analysis were collected from different representative parts of the archaeological place of the ancient theatre. The samples, totally ten, were collected from the ordinary seats, the proedria, the stage building (the northeastern chamber and the paraskenia), the eastern and western vaulted passage and one marble sample from the proskenion. The aim of the analyses was the identification of the structural materials and the decay patterns assessment. The samples were analyzed by X-Ray Diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR), Environmental Scanning Electron Microscopy with Energy Dispersive X-Ray Analysis (ESEM-EDX), Optical and Polarized Microscopy, at the laboratories of the Chemical Engineering School, NTUA [10].

The XRD analyses were performed with a Siemens D-500, X-Ray Diffractometer based on an automatic adjustment and analysis system, with Diffrac-Eva quality analysis software. The FTIR analyses were carried out with the use of a Biorad Excalibur Series FTS 3000MX device. For the Optical and Polarized Microscopy analyses an apparatus of LEITZ type was used. All ESEM-EDX analyses were done by the Scanning Electron Microscope Quanta 200 FEI combined with Energy Dispersive X-Ray Detector (SEM-EDX). Initially, images were taken with relatively small magnification (up to X50) and then images with higher magnifications in various areas of interest were taken for textural analysis. The surface composition was determined by EDX detector by using: spot analysis, locally at a point of our choice and surface analysis (mapping), on the whole image.

RESULTS AND DISCUSSION

XRD results

The XRD analysis showed that all the porous stone samples contain mainly calcite (CaCO₃ Calcium Carbonate/Calcite, syn) and secondly quartz (SiO₂ quartz silicon oxide), except from the eastern vaulted passage sample which contains calcite and a- quartz. In Fig. 15 two representative XRD diagrams of the ordinary seats and the eastern vaulted passage samples are presented. The XRD analysis of the marble sample, revealed the presence of pure calcite, indicating that it is not of enchorial origin and probably comes from Paros island.
FTIR results

The FTIR analysis, carried out on the eastern and western vaulted passages and the proedria samples, indicated the presence of mainly calcite on all three samples, which don’t vary much. Indicative FTIR spectra are presented in Fig.16. The following general remarks were common for the three samples:

- The first detectable band appeared at 3620 cm\(^{-1}\). This band is obtained in the region between 3640 - 3160 cm\(^{-1}\) and is attributed to the presence of stretching vibrations that present the characteristic groups which contain O-H of the free crystal water moleculars, which are involved in the structure.

- The two neighboring bands at 2984 and 2869 cm\(^{-1}\) are attributed to the symmetric and antisymmetric stretching vibrations of vCH\(_3\) and vCH\(_2\). The bending vibrations of the characteristic groups δCH\(_3\) and δCH\(_2\) are within the region between the 1490 - 1350 cm\(^{-1}\), while the absorption vibrations of the carbonic ions within 1800 - 1400 cm\(^{-1}\). Thus, the band at 1798 cm\(^{-1}\) is attributed to the metallic carbonic salts (Me\(^{n+}\) - CO\(_3^{2-}\)), because the shift of this band to higher wavenumbers shows that calcium cations were replaced by cations of heavier metal. The bands at 1426, 875 and 712 cm\(^{-1}\) show that carbonic calcium has the crystal structure of calcite.

The obtained FTIR spectra of the eastern vaulted passage sample indicated that it consists by almost pure calcite. The western vaulted passage spectra (Fig.16a) presents some medium absorbance bands between 1200-1000 cm\(^{-1}\), the most important of which are at 1177, 1086 and 1030 cm\(^{-1}\), that are attributed to admixtures with vaterite and/or aragonite. Two visible bands at 798 and 779 cm\(^{-1}\) are probably attributed to the existence vaterite, which was not detected by XRD. As far at the proedria spectra are concerned, presented in Fig.16b , a wide band with peak at 1031 cm\(^{-1}\) and a small "shoulder" at 1089 cm\(^{-1}\) are observed, indicating the presence of admixtures together with the presence of another crystal structure of CaCO\(_3\) (vaterite or aragonite); however in lower ratio than in the previous sample.
Figure 16: Indicative FTIR spectra of a) the western vaulted passage and b) the proedria samples.

Optical and Polarized microscopy results

From the results obtained from the Optical and Polarized Microscopy, the different grain size distribution amongst the samples was observed. Particularly it was found out that the eastern vaulted passage sample presents the biggest grain size in relation to the western vaulted passage and the proedria samples, as shown in Fig. 17. Furthermore, chemical etching was performed on the samples with the use of dense hydrochloric acid, for the investigation of the different phases. The images obtained after the chemical etching procedure, revealed the presence of white bright crystals owning to the quartz presence, as the calcium carbonate reacted with the acid and does not exist in the surface. During the chemical etching process, more intense foaming was observed on the surface of the eastern vaulted passage sample in relation to the western vaulted passage and the proedria samples surface, indicating the presence of greater content of calcium carbonate. Indicative images of the eastern vaulted passage sample, obtained with polarized light after the chemical etching procedure by different magnifications are presented in Fig. 18.

Figure 17: Images obtained without polarized light of the a) eastern vaulted passage sample, b) western vaulted passage sample, c) proedria sample, magnified by 100X.

Figure 18: Indicative images, obtained with polarized light after the chemical etching, of the eastern vaulted passage sample magnified by a) 100X, b) 200X, c) 500X.
**ESEM-EDX results**

The ESEM -EDX analysis indicated the different crystalline texture of the samples. It also revealed the presence of cracks in the microstructure of the *proedria* materials, as shown in Fig 19, due to the development of mechanical stress in the interior of the material. Furthermore the analysis showed that the *proedria* consist of more compact structural material, presenting more uniform grain size distribution in relation to the eastern and western vaulted passages samples (Figs. 20,21,22).

![Figure 19: SEM analysis of the *proedria* sample, detector SSD (x 500)](image1)

![Figure 20: SEM analysis of the *proedria* sample, detector LFD (x1000).](image2)

![Figure 21: SEM analysis of the eastern vaulted passage sample, detector LFD (x1000).](image3)

![Figure 22: SEM analysis of the western vaulted passage sample, detector LFD (x2000).](image4)

The EDX analyses results indicated the similar elemental compositions of all the samples, except from the *paraskenia* sample, that presents higher content of carbon and lower calcium content (8.75%). The calcium percentage of the rest samples ranges from 18-26%. The percentage content of silicon ranges from 2-6 % in all the samples, excepting the western vaulted passage sample that presents an increased Si concentration. The *proedria* sample contain higher magnesium percentage (9.88%) in relation to the other samples, where the Mg content ranges from 0.25- 1.21 %
Furthermore, the EDX analyses of all the samples resulted in remarkable similarities concerning the oxygen content, which presents the stoichiometric ratio that is found in the calcium carbonate (48%). As far as the eastern and western vaulted passages samples are concerned, the carbon percentage approaches the corresponding one of the CaCO$_3$ stoichiometric ratio, while on the rest
samples the C content is increased. Indicative EDX analyses of the proedria, the paraskenia and the western vaulted passage samples are given in Tables 1, 2, 3.

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<th>Table 1: EDX analysis of the proedria sample.</th>
<th>Table 2: EDX analysis of the paraskenia sample.</th>
<th>Table 3: EDX analysis of the western vaulted passage sample.</th>
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**Estimation of the climatic data**

The study of the meteorological data for the period 1987 – 2002 led to the conclusion that the climate of the region is in general characterized calm. During the cold months, snowfalls, low temperatures and frost cycles are not observed, while the average wind speed presents a normal annual variation. During the spring and summer the daily highest temperature rarely exceeds the 33°C, while the minimum temperature falls down the 13°C often. Moreover, the average distribution of relative humidity (RH) reaches the percentages of about 75% and 55% during winter and summer months respectively. Rainfalls are frequent during winter as well. The monthly rainfall height during winter ranges from a maximum of 79mm, especially during January, to a minimum of 50mm especially in February, while during the summer months it ranges from 23mm to 5mm.

**CONCLUSIONS**

From the results obtained and taking into account the extremely deteriorated condition of the theatre described above, the need for the prompt protection and enhancement of the monument is crucial and urgent. For this reason, the following protection proposals which are considered to be essential in order to avoid further damage are mentioned:

1) The complete removal of the plants from the theatre’s archaeological place, as well as their constant drying up in order to prevent their growth during all the year, should be performed systematically and in a continuous way.

2) The remained parts of the trunks and roots of the trees from the past which have penetrated in the structural material and continue to cause intense statical weakening, should not only be removed but also in a very careful and attentive way, so as to avoid further disintegration and detachment of the building stones.

3) The collapsed western vaulted passage, as well as the broken parts of the drainage channel building blocks extended around the orchestra, need to be restored immediately in order to avoid further collapse.

Furthermore, a more extensive and complete research should be carried out including the
comparative analysis of samples obtained from the quarries of the area with the structural material of the theatre for the identification of its origin. This is considered essential in the case that conservation – restoration of the theatre might be carried out, so as the restoration interventions to be performed with the same original material and the monument to preserve its originality and high aesthetics. Moreover, supplementary measurements with the use of Non Destructive and Evaluation Techniques (such as Infrared Thermography, Ultrasonics and especially Ground Penetrating Radar) for the investigation of the existing state of the under the earth theatre structure as well as the decay patterns mapping and evaluation, should be performed.

The above mentioned are considered necessary for the final decision making concerning the further excavation of the Sikyon theatre or not, and to what degree, for the enhancement of its appearance, as well as its conservation – restoration.

REFERENCES

[2] Internet website: www.sikyon.com