PROCEEDINGS

of the workshop

ARCHITECTURE, ARCHAEOLOGY AND CONTEMPORARY CITY PLANNING

Multi-Layered Settlements

Sinan Burat, Giorgio Verdiani, Per Cornell
(Editors)

MERSIN, TURKEY
21-24th November 2018

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WORKSHOP PRESENTATION

In recent discussions on urbanism, the need to involve new actors has been a major theme. In this field, throughout Europe, various ways of allowing citizens to take a more direct part in planning are being developed. It is also important to look at the role or lack of the role played by particular research fields.

Traditionally, architecture plays a major role in city planning. While archaeological surveys and excavations are intimately related to land use and construction projects in historical urban environments, the discipline seldom plays an important role in city planning. In several countries and particular cities, this situation has been questioned during the last decades.

The approaches and case studies are various with different perspectives and results, but all these experiences seem to move to collective and, little by little, well-structured knowledge. All case studies, attempts and discussions underline how intelligent (or visionary?) approaches, correct documentation, critic reasoning and in-depth analysis can contribute to taking next steps in comprehension about the profitable coexistence of the past and future of our cities.

We wish to open a new kind of communication between these research fields and related praxis in contemporary city planning. The possible contributions from archaeology include questions related to preservation and conservation of the past, diffusion of archaeological information with different means including practical knowledge about the development of particular districts over time, knowledge of comparative studies of urbanism, questions of design or of 'gestalt' in urban settings, and the intersections (or dialogues?) between archaeology, architecture and public art.

In the 5th AACCP workshop in Turku in 2017, with the theme 'Reformation, regeneration and revitalisation', the workshop was open to several topics including regeneration of urban areas, building complexes or single buildings, dialogues between urban development and cultural heritage, the understanding about cultural heritage through single-site research, the potential of cultural heritage for the revitalisation of the city and the impact of individuals, ideologies, values and politics in city planning at different times. Furthermore, many presentations reflected the topics related to interpreting, creating and reforming the identities, experiences and narratives of different places and why dialogues between different fields and parties are needed in more holistic understanding and more comprehensive development of the city.

These topics were reflected both in several

(or in nineteen) presentations and in formal and informal discussions during two seminar days and four different thematic excursions combining archaeology, architecture, history, art and city planning in Turku and Helsinki in mid May in Finland in 2017. The majority of the papers given during the seminar days are collected in this publication for inspiration and discussion related to urban studies and collaboration in urban development and city planning in the future.

Sinan Burat
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PROCEEDINGS

URBAN RESCUE EXCAVATIONS FROM AN ARCHITECT'S VIEW

H. Kübra Gür D.
Mimar Sinan Fine Arts University, Turkey

Abstract: The Marmaray Project was the most important transportation project in Istanbul connecting two sides of Bosphorus which created a great opportunity for the city's history with a lot of new archaeological discoveries. There were rescue excavations of the major stations of Marmaray held under the authority of Istanbul Archaeology Museums between 2004-2012. The author of this paper worked in Sirkeci Station Excavations within the Historical Peninsula as an architect for six years. With the experience of Marmaray and other rescue excavations in Istanbul, an interdisciplinary system will be discussed for future urban archaeology with the mitigation of the law from an architect's point of view.
There are fundamental differences between working in urban and rural archaeological sites in terms of time and priorities. Urban rescue excavations are obliged to process fast enough for the project requirements according to the regulations decided by the Regional Council for the Conservation of Cultural Property. However, there could always be conflicts about the methodologies between construction and archaeology teams. So multi-disciplinary environment of the rescue excavations ought to be prepared before the project starts. Convenient legislation for urban archaeology is upon to the upper authorities. Besides the law perspective, there could be some interdisciplinary phases before, during and after the excavations. The construction and archaeology teams must have the proper knowledge about what they deal with for field operations. One of the most important approaches is to integrate archaeological research into the evolving methodologies through the process. Also, documentation, inventory, publication and later displaying of rescue excavations is crucially important for future heritage protection.

Keywords: urban archaeology, rescue excavations, Istanbul, Marmaray Project, Sirkeci.

Introduction

Rescue archaeology can be simply defined as emergency excavations of archaeological sites threatened by all kinds of the development process (Oxford). If archaeological finds emerge in the course of the construction work of any project, a rescue excavation must be planned and started immediately (Bozoki-Ernyey, 2007: 110). There are different legislations and basic rules on how to handle the rescue archaeology in every country with existing archaeological traditions (Bures, 2007:31). One of the common approaches is the 'polluter pays' principle besides all differences. This rule means that the development project owner must deal with the budget which determines the planning process of the rescue archaeology (Garezou, 2007:78).

Even the rescue excavations are still in need under the develop-led archaeology, preventive archaeology has started to take the centre stage. By means of the preventive method, rescue excavations could be eliminated beforehand or at least an established process could be followed to make rescue archaeology more efficient. The aim in that s to manage archaeological risk at minimum and to preserve the related material, alongside maximizing the performance from the archaeological research for further sustainable development processes (Carver, 2013). Also growing legislation protection change the perspective about the develop-led archaeological issues. These transformations are crucial and must be regulated immediately because almost 1000 archaeological sites are under threat due to development projects all around the world (Demoule, 2012).

Urban Rescue Excavations

Fast and dense urbanization in the last century was a potential risk to archaeological and historical values in cities which gave rise to rescue excavations first, then urban archaeological methodology (Çırak, 2010: 57). It has been a different process for every country. There are still ongoing urban rescue excavation projects because of economic reasons in some countries bearing all the aspects related to archaeological heritage protection (Engovatova, 2010).

Even the scientific excavation methodology stands still on urban excavations, they have different priorities than rural areas. Because these excavations reveal buried cities underneath the city with numerous layers of the palimpsest within the city's history (Lambertucci,2016). Urban sites have more restrictions than rural ones in terms of time, safety, administrative and economic issues. Also, in shorter periods, more material will be discovered and recorded because of the intense stratigraphy which conversely creates an opportunity for advancing methods in archaeological practice with a new ethical protocol approach (Harris, 2013).

Storing the accumulative immense material of excavations physically is the main concern which could result in building new museums or structures for conservation and exhibition. The emergence of dealing with architectural finds, in situ displays are sometimes is an option as well (Papageorgiou, 2015). Another issue about the archaeological data is the digital archive which information technology programs like GIS[1] help to create more efficient solutions. Also, publication or display of the work being held on the site is crucially important in the urban concept because the public relations and awareness are more diverse than rural areas.

All development projects or other construction programmes could cause rescue excavations, but especially underground transportation routes which usually go through the city's historical veins have the most potential. There are numerous examples of metro line rescue excavations all over the world, including Rome[2], Athens[3] and Istanbul.

The case area in this paper is Marmaray[4] Transportation Project Sirkeci Station Rescue Excavations in Istanbul. The history of rescue archaeology in Turkey goes the back to early 1970s well before Marmaray. There were significant examples, for dam constructions, energy pipelines in rural parts of Anatolia and infrastructural or new planning projects on urban areas where different procedures were followed as applicable to the project requirements. However, with the rapid change in city life, rescue excavations have been started to be more common than before, especially in big cities. Even after these experiences, Turkey has not identified the regulations or law about how to conduct rescue excavations in an urban context which was one of the challenges of Marmaray Project came across (Çeziker, 2011: 50). It was still a unique opportunity to enlighten Istanbul's invisible rich history and made a huge impact on urban archaeological expectations.

Marmaray Transportation Project Rescue Excavations

Istanbul is a metropolis, having a population more than 15 million people, in a multi-layered city context with a very rich history dating back to prehistoric times. This complex nature of the city comes with its disadvantages. One of them is big traffic congestion and to solve this problem the biggest transportation project in city's history called Marmaray was established, connecting the existing rail system, metro lines and upgrading them with a rail tube tunnel under Bosphorus (Belkaya, Ozmen, Karamut, 2008: 26) (Fig.1). This kind of projects are a logical solution for growing need of mobility in cities, but their direct relationship with the heritage of the city which raises questions how to protect the history that is invisible and unknown to the citizens (Lambertucci, 2016) which was a similar case in Marmaray.

The Ministry of Transportation was responsible for the project which started in 2004 (Ozmen, 2007: 26). The construction instantly came across archaeological pieces in the foundation excavation which caused the rescue excavations. The responsible party of rescue archaeology was Istanbul Archaeology Museums (IAM) on behalf of the Ministry of Culture and Tourism, which is the main authority for all the archaeological excavations in the country. IAM conducted the excavation according to the decisions

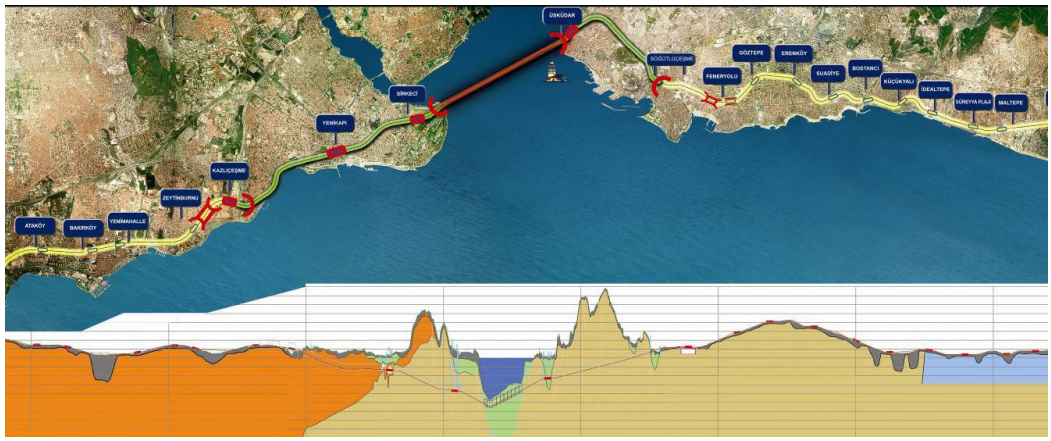


Fig. 1: The Marmaray Project Route with red line on the plan referring the Rail Tube Tunnel (Altun&Baltaş, 2014: 30-31).
Fig. 2: Üsküdar Station Rescue Excavation Area surrounded by daily of an alive city (Altun&Baltaş, 2014: 160)

of the Regional Council for the Conservation of Cultural Property. Private companies provided labour or equipment in the Marmaray Project because they are not allowed to conduct any excavations in Turkey (Çeziker, 2011: 7).

The Marmaray Project Rescue Excavations were held mainly at the station areas of the project; Ayrılıkçeşmesi, Üsküdar on the Asian side, and Yenikapı, Sirkeci on the Historical Peninsula at the European side of Bosphorus. They had all different sizes and shapes according to the project plan, but also their archaeological content was different from each other within their location.

The rescue excavations took eight years to finish from 2004 to 2012 and an additional one year for the final documentation. The timeline was not very well projected the amount of the immense archaeological and architectural artefacts through the whole deposit underneath. The Marmaray Rail Tube Tunnel was opened in 2013, but the entire transportation system has recently started to operate in 2019.

The archaeological team was formed by the coordination of the IAM from different disciplines with archaeologists, anthropologists, architects, restorators, conservators, photographers and specialists who worked on and off the site. IAM staff were also responsible for the administrative part and organising the excavation. Alongside the professionals, many workers participated in the excavations (Gür D., and Emre, 2018). Numbers of the whole crew varied throughout the project.

The environmental conditions of the excavations were unique to the Marmaray Project. Today's metropolis Istanbul, which has been a central and vibrant city for centuries, had challenges to progress sometimes properly at rescue excavations. The location of the excavation areas affected the process as they were all surrounded with a lively daily life which created time pressure instinctively (Fig.2).

The excavations continued through the whole year which caused to deal with hard weather conditions. Also, even the shifts were regular from 8 am to 5 pm, for some periods, there were three shifts for 24 hours which proved to be difficult for archaeological assessments. The rescue excavation areas were a neighbour to the construction site which created a multidisciplinary work site with construction teams. The stakeholders of the whole project were various which sometimes caused difficulties.

This situation sometimes resulted in conflicts between the teams about the priority of the process where the administration interfered with the Regional Council's decisions for the final verdict. Modification of the project for in situ protection of archaeological finds, budget and time management for an unexpected number of strata[5] and safety restrictions of construction were some prominent issues. There were similar problems at the other metro excavations in urban centres which could not avoid the delays, changes and disputes because of the rigid nature of constructional and archaeological systems (Lambertucci, 2016).

All challenges aside, archaeology has the potential to raise the value of the project afterwards by displaying the remnants with the consensus of teams (Saibert, 2016). A group of experts from Istanbul Archaeology Museums visited Athens Metro to examine the integration of archaeological features into the metro stations for Marmaray Project which was a good attempt to experience the result of similar urban rescue excavations (Çeziker, 2011: 5). After construction project finished, in Üsküdar, Yenikapı and Sirkeci stations, there are some demonstrations, permanent displays and posters about the rescue excavations, but the content should have been more advanced to display the importance of Istanbul's heritage even for a glimpse of the packed commuters passing by every day.

In addition, according to the decision of Regional Council, some of the architectural remnants were protected in situ as an archaeological park area at Yenikapı Station. Also, an architectural design competition was held for Yenikapı Museum and Archeopark[6]. However, both projects are still on hold which is a vital need for artefacts[7] not just for Yenikapı but also important for Sirkeci and Üsküdar.

Sirkeci Station Rescue Excavations

The case area of this paper is Sirkeci Station of Marmaray, where the author worked for six years, is very important for its location. Sirkeci is situated in the heart of the Historical Peninsula of Istanbul, a UNESCO World Heritage Site, neighbouring Topkapı Palace and old city centre of Constantinople with a strategical position for transportation, not only for today's vibrant atmosphere of the city but from the ancient times by having the important harbour areas connecting to Asian Side and Bosporus and Sirkeci Railway Station dated back to 19th c. (Kızıltan et al., 2014: 12). There were four rescue excavation areas at Sirkeci Station. North Entrance and East Shaft were close to coast side while West Shaft and South Entrance were on a slope district close the provincial house of Istanbul (Fig.3).

Sirkeci Station rescue excavations started in 2004 and finished in 2012, but this didn't apply to all sites at the same time, due to the constructional project priorities. The archaeology team had more than 30 archaeologists, 6 architects, other professionals and more than 100 workers under the supervision of IAM.

According to the result of the preliminary drills, the depth of the archaeological deposits was so deep that for underground water, surrounding urban settlements and protection of the construction, four areas had bored piles around them for safety and technical reasons (Girgin, 2007: 98). Even though the context of the architectural elements was sometimes not clear or couldn't be followed on the same level because of these obligatory boundaries, excavations revealed the enormous amount of information about the historical stratification (Başaran& Kızıltan, 2016: 51). Architectural inventory, starting from Early Turkish Republican Period to Ottoman, Byzantine, Roman and Hellenistic Periods with archaeological artefacts, was identified.

North Entrance

This entrance is inside the Sirkeci Railway Station platform area. It is the closest site to the sea with a deep archaeological deposit, goes to -26 m., creates a new approach about the sea level change for ancient topography (Kızıltan, 2014: 70) (Fig.4).

East Shaft

East Shaft had two areas one small and one large round shaped shaft for ventilation which

is now also used as another entrance for Marmaray Station (Fig. 5).

Early archaeological pieces dated to BC 7th c. to until today were found at the small shaft

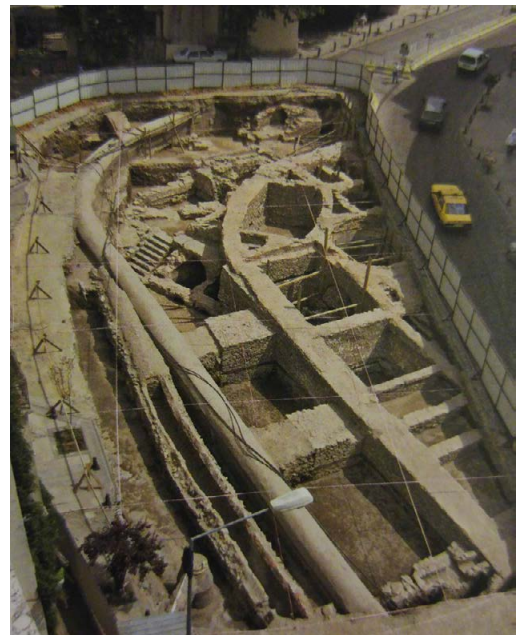


Fig. 3: Sirkeci Station Rescue Excavations with neighbourhood (adapted from Nyakin.com).
Fig. 4: North Entrance (Kızıltan et al., 2014).
Fig. 5: East Shaft (adapted from Irmak,2010).
Fig. 6: South Entrance (Kızıltan et al., 2014).
Fig. 7: West Shaft (Kızıltan et al., 2014).

(Girgin, 2007: 101). After removing a Byzantine building complex dated to AD 5-7th c. at large shaft according to the Regional Council decision to rebuild, waterfront stones were found at below level which provided evidence of ancient Proshorion Harbour with the wooden structure of a harbour and some ship pieces found at North Entrance (Kızıltan et al., 2014). This rebuilding decision is important as an example for a protective solution.

West Shaft

It is a ventilation shaft for Marmaray which its north part was ruined in early 20th c. until the Byzantine Period level while the whole shaft had complicated but very important architectural deposit (Girgin, 2007: 104) (Fig.7).

South Entrance

It is situated on a steep street close to Provincial House of Istanbul Mayor. On the south part

of the site, a 20th-century building complex was found right under the street level which had strata, sometimes destructed, dating to different periods (Fig.6) (Kızıltan et al, 2014).

Not just this part, but all the south entrance has an architectural deposit sometimes merged into each other which demonstrates an uninterrupted urban life for long ages (Kızıltan, 2014: 71).

Architectural Documentation of Sirkeci Excavations

Urban rescue excavations have the same archaeological scientific methodology. Yet, due to the constructional and safety reasons of the site, to follow stratification could be more difficult. Archaeologist and architects work co-ordinately under the instruction of supervisor of the excavation, in Marmaray case - IAM. Architect' s main responsibility is to collect data of architectural remnants on the site and draw them as 2D architectural plans, sections and elevations on a CAD-based program, if necessary or asked for to render 3D visuals and to prepare a submission to the Regional Council.

The process of architectural documentation on the site started with a proper sketch. Architects followed coordinated data flow with this sketch while a survey team used total station equipment for digital measurements. Next step was to take photographs from every point possible view of the remains. There were sometimes constructional obstacles to take a proper photo, but this situation was always stated in the documentation. After gathering information on the site, office work started. The architect combined all the visual data and prepared the sheets which included an overview plan material, mass-void, periodical analysis etc beside regular drawings (Fig.8).

These files were submitted to the Regional Council with a detailed report prepared by IAM. This documentation process continued unless any request comes from the board such as protecting the remains in-situ, new files are prepared and handed to IAM for applications (Gür D. and Emre, 2018). An archive of Sirkeci Excavations was prepared by the architectural team at the end of the excavations. All data were first classified according to the areas with the submission date and year and sent to IAM on paper and digital form.

The GIS Database of Sirkeci Excavations

The author has been studying her PhD thesis called "Stratification in Urban Archeology: The case of Marmaray Sirkeci Station Rescue Excavations North Section"[8] for over a year. The process of thesis lead to a project called "Implementation Process of the Architectural Data of Marmaray Sirkeci Excavations on GIS to interpret the stratification in an example of urban archaeology"[9]. This project was prepared with co-author Bedel Emre whose expertise is on creating archaeological GIS database.

Sirkeci Rescue Excavations architectural archive was transferred to the Bedel Emre's Istanbul Archaeological GIS database which includes Istanbul's archaeological inventories, historical maps, natural environment knowledge, present physical information and plan decisions for the future approach[10](Fig. 9).

This database was prepared according to the studies covering the 40-year period between 1970 and 2010 of archaeological soundings and determinations carried out under the control of the IAM (Gür D. and Emre, 2018)[11]. The implementation was for four excavation areas which were recorded with more than 150 CAD files like in the example of east shaft archive (Gür D. and Emre, 2018) (Fig. 10).

Firstly, all files were converted into spatial data and then from the street level, which is the youngest strata of the city, each file was transferred to the database by adding the only new parts from each one to the system until the bedrock with the information in the attribute table (Gür D. and Emre, 2018). The database has the architectural elements with the elevation, period and material knowledge. Nowadays, the Sirkeci Excavations Database is enhancing with more detailed input from the architectural archive such as in-situ or re-used materials, analysis numbers and ancient infrastructure elements to synthesize all our knowledge of architectural periods, structural evolutions, urban design principles. As well as thesis evaluations, other study results about Sirkeci by different scholars will always be implemented to the database and create interdisciplinary search options.

Fig.8 Architectural documentation on and off the site (Author's personal archive).

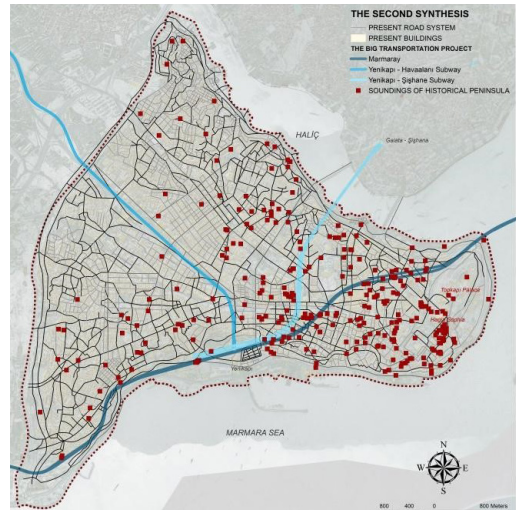
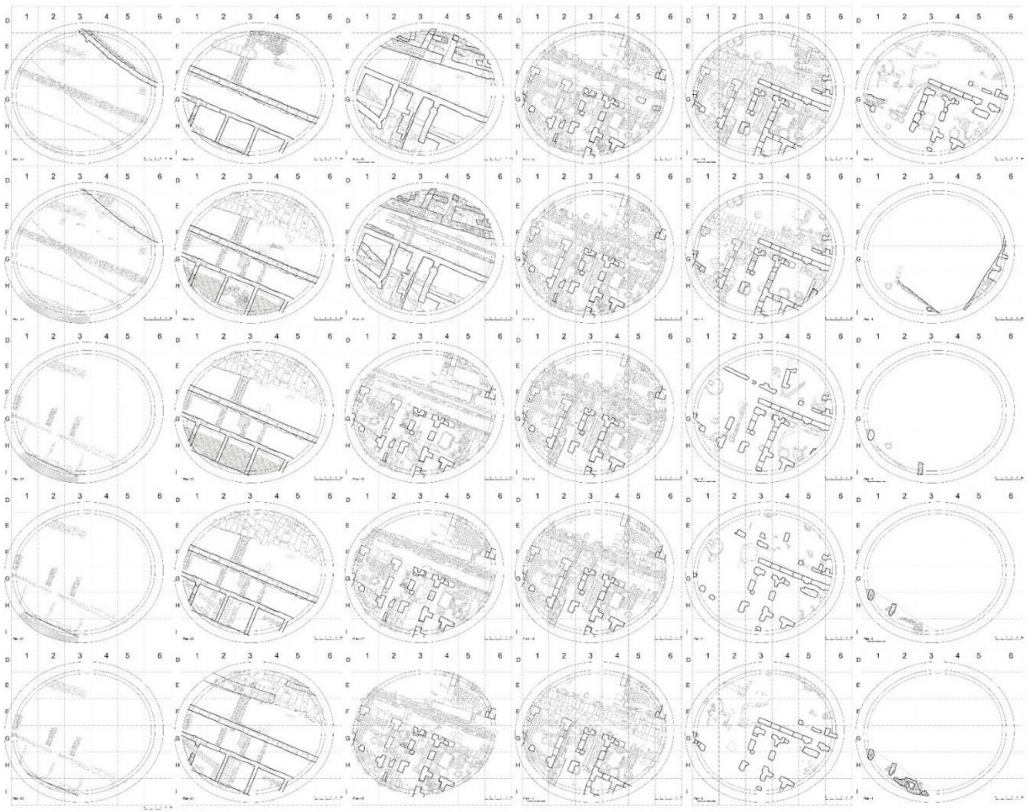


Fig. 9: Archaeological soundings of Historical Peninsula with present underground transportation lines (Gür D. and Emre, 2018).

Fig. 10: Archaeological soundings of Historical Peninsula with present underground transportation lines (Gür D. and Emre, 2018).

The main aim of this database is to assess the enormous architectural archive from a holistic perspective which has not always been possible in the environment of the rescue excavations. Stratification of the excavations will be evaluated and analysed with multiple interrogations which could be efficient by overlap features of GIS.



Conclusion

The main important points of conclusion are inventory, field operations, multidisciplinary aspects and displaying the results of the rescue excavations in Istanbul example. First, it is a responsibility to emphasize that rescue excavations in urban context must be defined by the law which is upon the governmental responsibility (Çeziker, 2011:50).

Alongside regulations and law, urban archaeology debate must be addressed academically and practically[12]. In the point of preventive urban archaeological approach, to minimize the rescue excavations, the archaeological database must be taken into consideration. All the archaeological inventory with architectural drawings and the existing information of the sites must be implemented into the GIS database for evaluation of decision-making process of urban development projects in Istanbul (Gür D. and Bedel, 2019). Besides GIS, all evolving technologies should be considered as a preventive tool for future studies.

Architectural documentation on the field operations of rescue excavations must be also regulated by the Regional Council for the Conservation of Cultural Property. This regulation should have a systematic layer of property. A layer system based on the material, period, analysis numbers and etc must be established immediately which will be coordinated with the GIS database. This regulation must be enforced to use by all architects who work individually or as part of a private company on urban rescue excavations. Even the best work of the architectural team of Marmaray Rescue Excavations who made a great effort to document the dense and complicated architectural inventory of the sites within the limitations, spatialization of the architectural data of Sirkeci took more than six months to implement into GIS database. Therefore, one united established system by the control of the Council which could be integrated into the GIS database will save time and labour. This methodology of GIS for documentation of the urban archaeological inventory reveals many opportunities to understand the urban pattern of the past periods of the city and the planning process for the future of the city (Gür D. and Emre, 2018).

The multi-disciplinary environment of the rescue excavations ought to be prepared before the project starts. There could be workshops and seminars about archaeology and construction for every discipline involved with the project. Parties of urban archaeological work usually see each other as an obstacle in front of their work (Lambertucci, 2016) which could cause problems such as delaying the projects, cost planning but most importantly damaging the archaeological artefacts (Söğüt et al., 2010). If proper training is settled before the excavations, the conflicts on the site will be reduced. Also, during the excavations, information exchange must be done regularly and properly through the whole project to keep the unity of the teamwork. In the meantime, these are great opportunities are to engage and learn from other profes¬sions in the workplace which leads to a better under¬standing of each other with the right language in order to effectively negotiate a balanced method to archaeological research and conservation (Carver, 2013). Even if the multidisciplinary aspects of rescue excavations are demanding in multi-layered cities, they are necessary and beneficent for the city's heritage.

Another subject is public outreach in urban rescue excavations which is crucially important because of the disruption of the city life for long periods. Citizens must be informed regularly within the legitimate regulations by exhibitions, publications, press releases. Lately, social media interactions and virtual reality applications are also good options to attract public outreach. When the construction project finalizes, multiple design projects for museums, exhibitions, reconstructions or simply displays in stations must be re-organized periodically and form itself in an interdisciplinary environment. Some of these were applied in the Marmaray Project which was a not a determined public relation strategy even though it managed to create public attention (Çeziker, 2011:109). New studies such as the author's thesis hopefully will regenerate awareness of the unique experience of Marmaray once again for further researches.

After such large rescue excavations like Marmaray in other countries, urban archaeology is organized under the national institutions which should be the case with a united system in Turkey as well (Çölmekçi, 2014). While rescue

archaeology would eventually leave its place to preventive archaeology for wider and better heritage management, it would still be a necessary tool for urgent cases which would also be controlled hopefully by the new future institution.

Notes

1 - Abbreviation for Geographical Information Systems which helps to understand Earth as a visual reflection with coordinates by spatializing all kind of information.
2 - Metro C line excavations have been going on since 30 years with an enormous amount of information (Breinza, Fano and Panella, 2015).
3 - The excavations of Athens Underground in the historic city centre has covered an area of 65000 m2 with numerous archaeological artefacts from different periods and some mini museums in the metro station show the architectural remnants in situ (Garezou, 2007).
4 - Marmaray is a combined word with 'Marmara' the name of the sea on the south coast of Istanbul, and 'ray' is a Turkish word for rail.
5 - Prehistoric strata with idiosyncratic finds was discovered just after the mechanical excavation techniques were decided to use at Yenikapı Station Rescue Excavations (Çeziker, 2011:106).
6 - For detailed information of competition process, Erkan, 2012.
7 - Kocabaş, 2018 http://www.hurriyetdailynews.com/yenikapi-shipwrecks-in-need-of-museum-138520.
8 - The permission of this study is given to the author by IAM in 2018.
9 - This project has been financially supported by the Koç University – Stavros Niarchos Foundation Center for Late Antique and Byzantine Studies (GABAM).
10 - This first part of the database was prepared by Bedel Emre as her master thesis called "Çok Katmanlı Kent Sisteminde Mekansal Süreklilik ve Sürdürülebilir Planlama Yaklaşımları: Tarihi Yarımada".
11 - This work was published as an excel list which includes some information about the archaeological archive of IAM (Kızıltan and Saner, 2011).
12 - I. Urban Archaeology Workshop, Contribution of Archaeology to the City and the City Dweller was held for the first time in Istanbul on 30 November-02 December 2018 for interdisciplinary approach to urban archaeology. The author participated in the executive committee of the workshop: https://www.kentselarkeoloji.org/

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THE CONFLICT BETWEEN ARCHAEOLOGICAL INVENTORY AND NEW URBAN PATTERN

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Abstract: The urban pattern has been always changed under the effect of not only governance but also economy and technology since the requirements of the human have emerged the requirement of the changing on the physical environment. These requirements with a disrespectful planning approach to the traces of the past cause lack of spatial continuity. Multilayer cities carry out the most important signs of this kind of planning approach, in as much as the urban pattern has been changed with or without the awareness of the archaeological inventory. In the 21 st century, the transformation of the urban pattern accelerated, in the same way, the archaeological inventory started to be important with the notion of the urban cultural landscape. As a result of this, city's reconstruction process caused the damage of the archaeological inventory, whereas it caused the appearance of them. This paper was prepared as an example to demonstrate this conflict and is about one city that shows the positive and negative effects of the city's reconstruction process on archaeological inventory. Both contemporary urban pattern and archaeological inventory were overlapped as a spatial data with the utilization of the GIS in order the fact that archaeological inventory which has been determined for 40 years by İstanbul Archaeological Museum on the Historical Peninsula (İstanbul) was discussed with existing conditions of construction. As far as this paper is concerned with the lack of awareness causes much damage to archaeological inventory, for this reason not only for knowledge about the past period of the city but also for planning process of the future need to a great extent to researchers the archaeological potential of the city.

Keywords: Conflict, Conservation, Renewal, Archeological Inventory, CBS

Introduction

This paper is based on the master thesis which is titled "Spatial Continuity and Sustainable Planning Approaches in the Multilayer City: Historical Peninsula – Tahtakale Example, Istanbul" and with this thesis, a model of the planning process has been developed by considering archeology and geology relations for Multilayer Cities (Emre&Erbaş, 2020). Moreover, the aim of this paper is to reveal the cultural heritage and the modern city conflict that have been identified in both public institutions and field studies.

The world is in a time of constant change and transformation. The rapid increase of the world population and the expansion of the built environment cause the ecological thresholds to be exceeded. With the impact of globalization, the visibility of the changes in the physical, economic and social environment are increasing day by day. It is predicted that the world's population will double in the 2050s. For this reason, not only economic, social and cultural activities but also environmental and human activities are considered together in the city (Habitat III, 2016).

Together with the change of the world system, the concept of protection and renewal have changed and evolved constantly while affecting each other. Today, the importance of the concept of protection, the effects of globalization and the economic return of cultural assets to understand and periodically to meet the needs of urban areas in the renovation projects developed to meet the needs of the historical

environment has accelerated the process of recognizing the damage. Thus, states, institutions and organizations, non-governmental organizations, etc. are trying to develop new conservation approaches and tools. At this point, the meeting of many components in the life system on the urban form has been combined with the discussion of sustainability in planning and made it possible to evolve from conservation plans to conservation-oriented planning approaches. However, in terms of urbanization, it is still not possible to find adequate solutions to the current and urgent problems. The advantages of urbanization, sustainable solutions of engineering, inclusive economic policies, social and cultural development, protection of natural thresholds should be utilized and conservation-oriented urban approaches should be developed in the face of changes (Habitat III, 2016).

In the constitution of self-renewable cities, multilayered historical cities contain more components in terms of planning compared to the other cities. In addition to the need to use and develop the historical environment, this development has to be processed by protecting the components that have influenced each other from past to present. In this sense, this paper seeks to evaluate the existing planning system in terms of conservation planning. The city of Istanbul has a historical background that can be studied in the multi-layered city, while spatial continuity and sustainability can still be studied. Current planning approaches in our country perceive the physical space that is shaped by the impact of social, economic and political environment only in two dimensions and is limited in terms of moving beyond the unseen. Therefore, Istanbul Historic Peninsula was chosen as the study area. In addition to emphasizing the importance of the invisible cultural assets that existed during the Byzantine, Constantinople and Istanbul periods in the Historic Peninsula, it was emphasized how the inventory should be read and how to provide input to planning.

From the very beginning, the settlement has occupied the habitat of many species and has caused the economic, ecological, social and political changes of the world system. The studies show the constant change on many different life systems from hunting to agriculture, to industrial revolution and then to informatics, which raises the problem of conservation in which section of history preserves the accumulation.

For this reason, it is necessary to determine the methods that can be used in ensuring spatial and functional continuity and to introduce various suggestions for the current system. When the transition from hunter-gatherers to agricultural revolution has taken into consideration, it will be seen that it takes quite a long time from agriculture to industrial revolution. In this process of rapid change and transformation, the urban fabric, which we call the historical environment, will have to be reconstructed through the preservation, use, renewal and development of all the built environment in time.

Today, the Ottoman -Byzantine- Roman structures are registered and preserved, and the structures of the Republican Period will be preserved as works that describe historical monuments and buildings. Therefore, the relationship between the concepts of use, renewal and development in the protected areas determines the future of the cities. In this study, different methods were used to understand the mechanisms. The most important ones can be listed as follows.

- Firstly, a database based on Geographical Information Systems, containing many physical data was created.
- Participated in various tours to understand the reality of the Underground Culture Inventory on the Historical Peninsula.
- Structured interviews were conducted with 38 people, ranging from tradesmen and citizens who experienced the field to academics.
- Old films about Istanbul were observed.
- Current news about current planning decisions have been followed.
- Finally, a serious literature study was conducted for each topic that would feed the study.

In this paper, although the whole of these methods will be utilized, the basis of the study is the conflict of multilayered cities with the needs and planning tools of the modern city. In order to understand the reality of the underground culture inventory in the physical space, participated cultural inventory tours and the planning approaches that have damaged the historical urban texture were placed at the center of the study.

Protection ff Archaeological Fields and the Concept of Multiple Layers

Dinçer (2012) evaluates urban archeology in the 20th century especially in the post-World War II period as the use of physical, social and economic traces of cities and how it is developed in the prediction of future cities (2012: 3). All concepts discussed in the conceptual framework have been developed in relation to each other, and the relational integrity in the assessment section has been put forward how the study will provide its input to the next steps.

Urban archeology is an advanced concept with its historical background, strong settlements and the curiosity of the past. Tuna (2000) states that urban archeology is not only the data obtained from archaeological drilling reports and evaluation of excavation results, but also the process of reinterpreting all information about the city in physical, social and economic brief (Numan, T., 2000). Many definitions related to urban archeology have been developed and the process of developing discussions and definitions is still ongoing.

The development of the concept of protection triggered the development of the process of conservation of archaeological sites in urban areas. Two types of archaeological approaches developed with the impact of the demolitions experienced in World War II. These are the rescue excavations and archaeological sites, the recovery of the information they carry quickly, namely archeology of recovery, the other is the reconstruction of structures.

The process of understanding the values of archaeological cultural assets and integrating them into the concept of protection refers to a long process of development from the 18th century to present. Considering that the urban space is shaped around many components that affect each other continuously, it will be seen that the development of the concept of archeology cannot be attributed to a single cause.

In the 18th century, the increase in the interest in ancient artifacts and the development of the culture of collecting were the initiators of this process, but the other factor was the need for renovation in the urban area after the destruction of the cities due to war. In the 18th century, the change in the political structure began to weaken the feudalism and the bourgeoisie, the enlightenment movement, and the urban noble class gained mobility on the world. As Jokilehto points out, the journeys of the city noble

18th century	• *Change in Political Structure* • *The city has increased its interest in ancient artefacts.*
19th century	• *Formation of New State Borders with Wars* • *The importance given to the concept of identity has increased.*
1950's	• *Development of Regional Planning Approach* • *In situ conservation of cultural assets has developed.*
1960's	• *Urban Movements* • *The separate evaluation of the concept of archeology and planning has damaged cultural assets.*
1970's	• *Urban Renewal Movements* • *The concept of "sustainability" has begun to develop.*
1980's	• *Changing the Construction Techniques of Technology* • *Deep-basement, basement and multi-storey buildings have damaged the underground riches.*
1990's	• *Rapid population growth* • *The holistic protection approach developed.*
2000's	• *Increased interest in urban archaeological sites* • *The concept of Cultural Landscape is developed.*

Table 1: Developments in the Problem of Protection of Archaeological Sites (Source: UNESCO, ICOMOS, ICROM)

class, especially to Italy and Greece, started the collecting of works and evolved into the process of preserving the monuments in order to understand the importance of cultural works (Jokilehto, 1999).

In the 19th century, zoning studies in Europe have accelerated. For example, old settlements were found in London after the 1840s and in Oslo, the center of Norway after the 1870s. Sarfatij and Melli emphasize that these works can be considered as the beginning of modern urban archeology (Melli & Sarfatif, 1999). After these studies, urban archeology, which was started by archaeologists in the 1930s for the purpose of acquiring information under the ground, led to the concept of urban archeology (Melli & Sarfatif, 1999).

The destruction caused by World War II was one of the most important steps in the development of urban archeology. As a result of the renewal of cities in the post-war period, a new field of study that requires different solutions, methods and processes has emerged as a result of the studies of archaeologists in urban areas, and such studies carried out in urban areas have been called as field recovery archeology (Yıkıcı, A., 2010).

The most important steps in the development of the concept of urban archeology were taken in England. In the 1960s, the loss of industry and its effects on archaeological assets was understood (Ward, 1968; 155). The development of modern construction techniques has enabled the construction of deep-based, basement and high-rise buildings. This situation has been a major threat to the underground rich and has destroyed many. For these reason, the concept of urban archeology was formulated by W. F. Grimes, which was developed and visualized by Martin Biddle in the 1960-1970s and spread throughout Europe (Bilgin, G., 1996; 10). The developments in this definition are summarized in the form of archeology, institutionalized, state-owned and scientific rules (Arı, 2009). These developments have evolved to the holistic conservation approach to cover underground cultural assets by developing the concept of protection at the building level.

In the 1950s, the regional planning approach developed and large investments in cities have begun to be monitored.

The existence of various remains in the implementation process of the large scale projects has led to the development of the in-situ concept of the management of cultural resources in the National Historic Preservetion Act of 1966 (Arı, 2009).

In the 1960s, the urban movements caused destruction of archaeological cultural assets. This is due to the fact that the connection between urban planning and the preservation of archaeological inventory has not yet been established (Melli & Sarfatij). The conservation and planning process has evolved with improper practices. The European Convention for the Protection of the Archaeological Heritage, established in 1969, proposes the inclusion of substances for the protection of archaeological assets in the legal systems of countries. “With these arrangements, an inventory of the archaeological heritage should be carried out; creating archaeological reserve areas for future generations, even if there is no visible residue; it is a responsibility of states to inform the competent authorities of those who find the archaeological heritage” (Dinçer, İ., 2013: 28). In addition, the state has been responsible for the concept of protection in place. Interdisciplinary cooperation is one of the most important requirements for conservation of archaeological sites.

In the 1970s, the development of zoning plans focused on urban renewal led to the inclusion of rescue excavations. In 1972, Meadows et al. incorporated the concept of sustainability into the planning and protection process. In this period, the concept of urban archeology developed as a result of urban renewal movements. The European Convention on the Protection of the Archaeological Heritage, adopted by the Council of Europe in this period, is important because it is the most comprehensive contract for the organization of archaeological sites. In this contract, the duty to protect the archaeological assets has been given to the states, the archaeological inventory was created and the process to be followed by the people who found the archaeological works was defined.

In the 1980s, the population increased significantly in cities. Urban archeology studies gained momentum with the spread of population pressure to development movements. These developments in urban renewal accelerated the process of development of urban

archeology simultaneously. Until this period, Williems emphasizes that the concept of urban archeology only evolves from the knowledge of the existing cultural heritage, and the concept of the management of cultural areas has improved (Williems, 1998).

In the 1980s, the Archeology and Planning meeting, which took place on October 22-25, was an important point. The results of this meeting were published under the title of Results of Archeology and Planning Meeting and the most important topics of discussion were; the necessity of interdisciplinary cooperation in the protection of archaeological sites, lack of resources and failure to take international conventions into account.

The results of the meeting focus on the necessity of creating an archaeological inventory in cooperation with planners and archaeologists. Other data related to urban planning and the archaeological database should be aligned, and update, and the necessity of the state to undertake these tasks is emphasized. States were given the responsibility of the protection of archaeological sites that require a multi-disciplinary study, the first steps towards the development of the subject of managing archaeological sites have been taken.

With the 1990s, the results of rapid urbanization have begun to be seen. This situation led to the development of the concept of protection, and in 1992 the United Nations declared the 1992 Rio Declaration on Environment and Development. The concept of conservation of archaeological cultural heritage has developed in this way. The European Landscape Convention adopted in 2000 proves this situation and improves the holistic conservation approach. Dinçer (2013) emphasizes that the concept of integrated conservation is supported in order to make the decision that everyone is responsible for the protection, management and planning and the landscape is the basic element of increasing the welfare level of people (Dinçer, İ., 2013: 29).

The Council of Europe's revised European Convention for the Protection of Archaeological Heritage in 1992 including new assessments for archaeological sites. In this period, various works have been carried out by the Council of Europe. One of the projects developed within the scope of this study is "European Archeology Plan". It is envisaged that a comparative study on urban archeology in different European countries will be made within the scope of this project (Leech, 1999). This project will constitute the infrastructure of the European Good Practice Code / Principles: Archeology and City Project, which will be adopted in 2000 by the Council of Europe as well as many other projects in the following years (Dinçer, İ., 2013:32).

Historical Urban Landscape concept, which can be associated with historical and urban archeology, was developed simultaneously with these developments in the field of conservation.

The point where time has become the subject of new developments highlighting the historical city of UNESCO, the decisions taken in the 1970s revealed the development in accordance with the requirements of the existing system. UNESCO defines the concept of historical urban landscape with the Recommendation on the Historical Urban Landscape Concept adopted in 2011:

"[...] It refers to all building groups, structures and open spaces in natural and economic context, including ve archaeological and paleontological site, which form archaeological, architectural, prehistoric, historical, scientific, aesthetic, socio-cultural and they carry harmony and value from the archaeological point of view. This landscape shapes modern society and is of great value to understand that we live today [...]"

With this contract and with the help of the historical urban landscape approach, the ways of staying in front of the changes of the 21st century were searched. Following the rapid urbanization and impacts of the 1900s, the globalization threatened urban space, the commodification of cultural heritage, the development of the economy dependent on tourism-oriented external, the negative effects of resurgence or revival, the disappearance of the urban area which had difficulty in responding to the new needs of the changing systems. Against such effects as deletion of historical references, the concept of cultural landscape is defined as the importance of all data coming from the past in the multilayered urban system. The elements highlighted in this contract are; the stratification of old and new urban dynamics and understanding of the importance of historical urban landscape concept, gaining sensitivity in modern buildings in historical are-

as, understanding of the effects of the external transformation of the economic structure from the local economic values, increasing the importance of the criteria such as authenticity and integrity, understanding the importance of the concept of the region, understanding the intangible value of historical areas. Many criterions related to urban multi-layering and cultural landscape concepts have been highlighted by referral decisions. The combination of all these principles can only be realized through the interdisciplinary dialogue process. When all of the recommendations are examined, it is seen that three points have been pointed out in terms of protection from past to present and protection of multi-layered structures especially from archaeological point of view. These are the development of planning tools for stakeholder engagement and reconciliation, holism and originality, and the development of financial instruments configured from traditional foundations.

An Example of Urban Archeology Studies: Historical Peninsula

Ensuring spatial continuity in historical cities requires a combination of many components. Today, one of the main problems encountered in the historical environment is to lose its historical references. In this regard, UNESCO World Heritage Committee meeting held in New Zealand in 2007 highlighted 40% of the countries participated the meeting with urban infrastructure projects, contemporary architecture and high urban structures and the devastating impact of development (Dinçer, İ., 2013:23). Cultural heritage is under serious threat in the countries like Turkey, where extensive contemporary investments are made and the problems about revealing them, obtaining the information it contains, returning them to society and to science, passing on to future generations cannot be solved easily (Kızıltan, Z. & Uyar, T., 2011). This work emphasizes these sensitivities and provides a method with GIS on how to create a repository. Tuna (2000) defines urban archeology more extensively than rescue excavations and archaeological data and defines the city as a reinterpretation of all information by using the old street and mass texture (Tuan, N., 2000). In the multi-layered urban system, it is imperative to benefit from the past knowledge and to preserve its cultural values.

Istanbul is a city that has been the subject of poems and films. It is a large metropolis that has been demolished and rebuilt from past to present but has not lost its splendor. The heritage of Rome, Byzantine, and Ottoman Empires are the subjects of many researches and a frequent destination for domestic and foreign tourists. This city, with powerful historical references, has also caused the conflicts today to be the metropolis of today. On the one hand, meeting the needs of the modern city, on the other hand, preserving the history of the city and transferring it to the future generations, describes a challenging process with many actors. The construction of the Marmaray tube passage and the Yenikapı transfer stations brought about the processes discussed by archaeologists, art historians and architects as well as the planning discipline as the most important examples of this challenging planning process. These projects are breaking down Istanbul's underground culture inventory and putting them on one side to rewrite the history of the city. Although it is not possible to change the planning decisions taken in the past at the point reached today, we know that the historical importance of Istanbul is much larger than it is thought. This situation increases our responsibility for preserving the underground culture inventory.

With the question of how spatial continuity can be discussed in the multi-layered city, the Istanbul Archeology Museum and the Istanbul Metropolitan Municipality's protection units were contacted. As a result of the structured interview with Zeynep Kızıltan, the former director of the Istanbul Archeology Museum, the Archaeological Archeology Museums Archival Documents work was reached in Istanbul. 11 historical maps belonging to 1453 years were taken from the Cultural Heritage Presidency of Istanbul Metropolitan Municipality, Directorate of Cultural Heritage Preservation. In the prepared study, these two data were seen as the main source for the discussions on urban archeology and the database was developed with the data of natural environment, physical environment and social structure.

The determination of the archeological inventory between the years of 1970-2020 is found at "Archeology in Istanbul, Archives of Archeology Museums in Istanbul (1970-2010)".

Along with the coordinate information of each

determination; the period, the period of the remains, the type of the remains and the findings of the remains are included. The study was developed following the discovery of this resource:

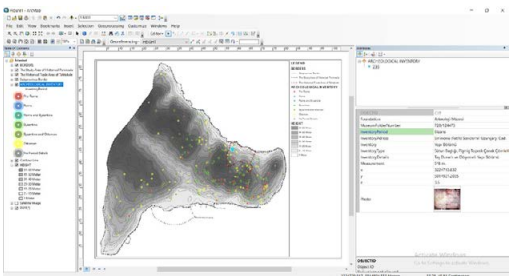


Fig. 1 - Formation of the Database for the Historical Peninsula - İstanbul (Emre & Erbaş, 2020).

- For each archeological inventory, the inventory information plug is created. All the information given in the appendix of the source is attached to these chips. Thus, in the 40-year period, detailed numerical data could be obtained about the locations in which the remains were concentrated, the periodical castings and the characteristics of the remains from these periods.

11 historical maps obtained from the Cultural Heritage Presidency of Istanbul Metropolitan Municipality, Directorate of Cultural Heritage Preservation were matched by using GIS. Using the georeferencing method in the coordinate maps, the study was developed as follows:

- Archeological inventory and historical maps are overlaid.
- Archeological inventory, historical maps and the current maps of the GIS, as well as the historical peninsula plan analyzes and plans (CDP, 1 / 5.000 Master Plan and 1 / 1.000 Implementation Development Plan) were added to the data systematic.

The study, which is known from the literature, provides a clearer understanding of the strong historical background and the formation of period-based space formations in the context of the Historic Peninsula.

In today's metropolitan area of Istanbul, although the traces of settlement are seen on both sides of the Bosphorus, from the end of BC 3,000 years and the beginning of 2000 years, Istanbul's history begins with Bizantion (Müller W., 2001:3). The 7th century is the period of Greek colonization. From this period on, the geographical and special position of the city had an impact on its development, and the settlement developed as an important port and freight transfer location (Müller W., 1998). "Knoting in Istanbul of important land and sea routes from east to west, from north to south, the Golden Horn, which is the natural harbor protected from the winds, has made the city one of the most important trade centers throughout history" (Ağır A., 2001).

The city of Byzantion, although being a city with a high level of prosperity with the effect of its ports, was under constant threat with its special position. The city tried to preserve its independence by participating in the operations against Athens in 364, which continued in the form of

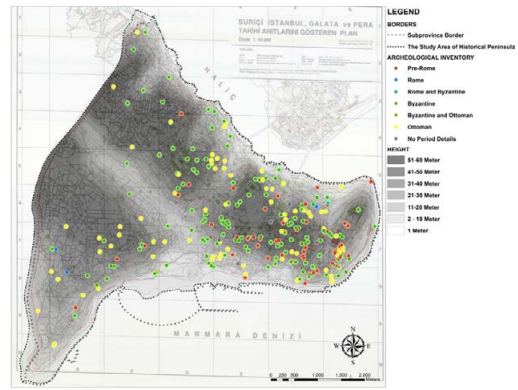


Fig. 2 - Unity of Topography, Historical Maps with Underground Cultural Inventory (Emre & Erbaş, 2020).

Persia, Athens, Isparta and Athens (Müller W., 2001:17). The city, which survived many sieges and battles in the process of independence, has been linked to Rome since 146 after the fortifications were repaired many times.

Between 258 and 269, the Goths and the Heracles who sought to achieve sovereignty in the Aegean, attacked Byzantion many times, but the city protected itself by the city walls. During the wars between Maximinus - Licinius (312) and Licinius - Constantinus (324) in the 4th century, the city also suffered a lot. Constantinus reconstructed the walls in 324 and changed the name of the city to Constantinople to recall his victories (Müller W., 2001:18).

In the 4th century, when Constantinople was newly established, the harbors continued to maintain their existence with their sheltered po-

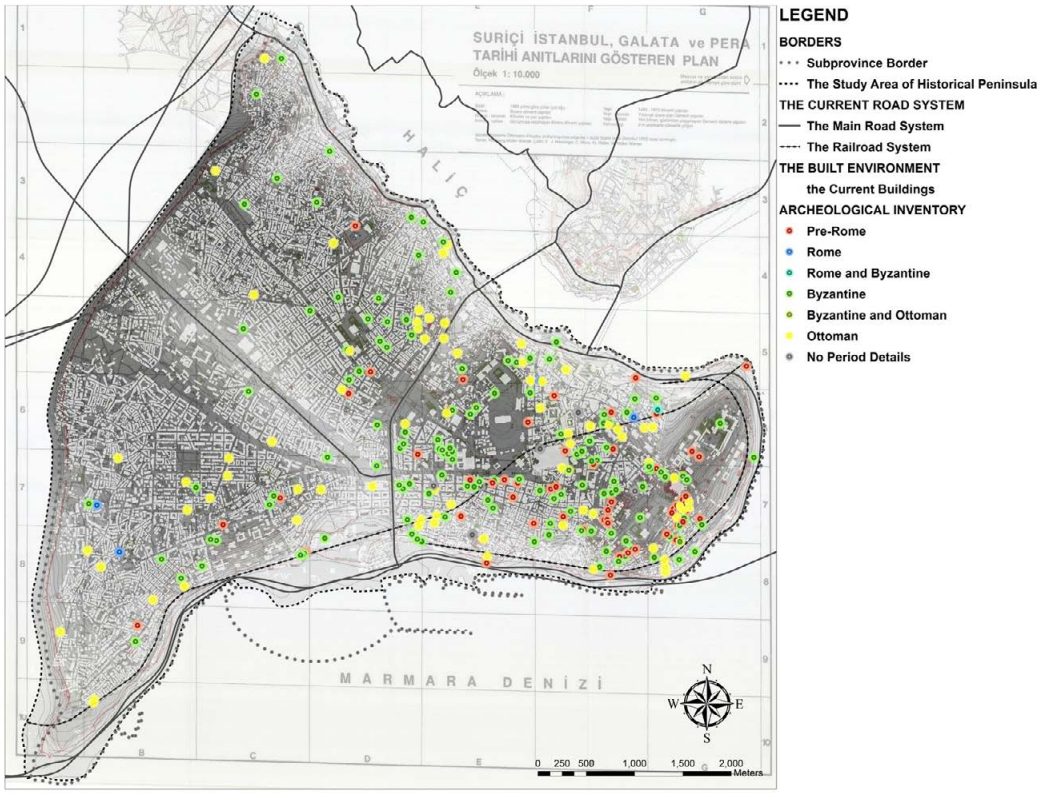


Fig. 3 - Unity of Modern Urban Pattern with Archaeological Data (Emre & Erbaş, 2020).

sitions. With regard to this period, Müller refers to the Natitian text that all uses in the city are shaped around ports (Müller W., 1998:6). In the 7th century, the old port area, which had lost its importance with the cessation of agricultural shipments coming from Egypt, became the place of rubble in the early days of the Ottoman Empire and joined the shore (Müller W., 1998:9). In this period, intensive construction activities were carried out. "Important structures such as Havariyyun Church and the Great Forums were built using the city's hilly structure" (Müller W., 2001:19). Also the choice of location of the buildings provides an understanding of another system. From this period onwards, it is seen that the political authority has chosen the city as a means of demonstrating its existence and power. This is precisely why the rapid reconstruction of the city was destroyed by war. Altough the legal processes have been created to support this transformation, the disasters experienced by the city (such as earthquakes and fire) have accelerated the zoning movements and severely damaged the historical background and memory. When we look at the city as a whole, the use of urban areas have been developed, and the land uses that enable people to meet their daily needs from the surroundings has been noteworthy. The space which is lived, worked and used became collective. We can also read this through the common use of the interconnected structures in the form of shipyards, warehouses and timbers around the port use of the economic structuring. If the zoning movements are evaluated in general, it is seen that too many works of this period have not survived. According to Müller, it is not easy to reconstruct the image of the city at that time, since there are only a few buildings remaining between the 7th and 10th centuries of Constantinople (Müller W., 2001:23).

The immigrant population started to be influential on the zoning movements in the city since the 10th century. People from different cultures had the right to settle and the centers they lived in were called "scalae". "Visitors who came to the city estimated that the foreign population of Constantinople in the mid-12th century as

60,000." (Müller W., 2001:24). This situation affected the economic structure of the city, but also provided an insight into the internal security. In the 12th century, this positive economic and political structure was in the process of decay (Müller W., 2001:25). Emperors' money shortage caused the destruction of many monumental and cultural works in this period. Bronze sculptures were melted, wood parts of structures were used as fuel. In addition to these, the loss of power of the political structure leaded to the abduction of many works outside the country. As the walls and gates were strengthened to carry out the defense activities, a strong navy was needed as well. For Constantinople, the process of this tripartite structure was identified as a defining element in the physical space. Müller states that the defense activities were built in the form of systems to complement the naval shipyards associated with the gates and walls, and that the most important naval shipyard in the period should be searched at the place of Tershane-i Amirane. (Müller W., 1998:14). This situation shows the effect of spatial continuity in location selection decisions. The city, which had entered the Latin domination as of the 10th century, was recovered in the 12th century. The change in this period was so abrasive that one of the notes about those time is that urban space was characterized by harbors, and the other settlements gave the impression of large and small village settlements around the churche (Müller W., 2001:27).

During this period, Haliç ports lost importance and Pera ports gained importance due to the changing economic structure. The basis of this was the economic transformation of the port. The ports that became transit ports triggered the change of the supporting functions behind the port. The port, which was developed especially in the triangle of large warehouses, gates and ports, has become less of a need for storage areas due to being a transit port and the time spent by the seafarers in the city has also decreased. In 1453, the city walls were destroyed by the cannonballs and many of them were destroyed until the fall of the city. The city walls, which were the identifier of the city, lost its significance after the destruction, because the walls remained insufficient against change in the techniques of warfare. The process of the reconstruction of the urban area, which was demolished by the Ottoman Empire, called as "Istanbul" from the 15th century until today. However, in this period, changing policies created differences especially in terms of the monumental structures, the conversion of religious structures into mosques is noteworthy (Müller

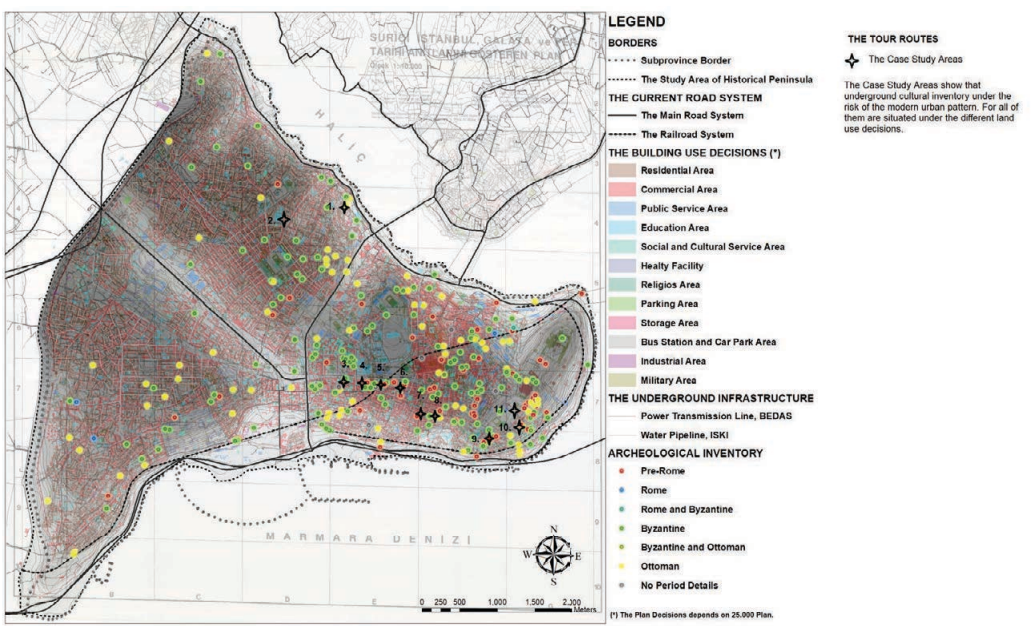


Fig. 4 - Unity of Planning Decisions with Archaeological Data (Tour Routes).

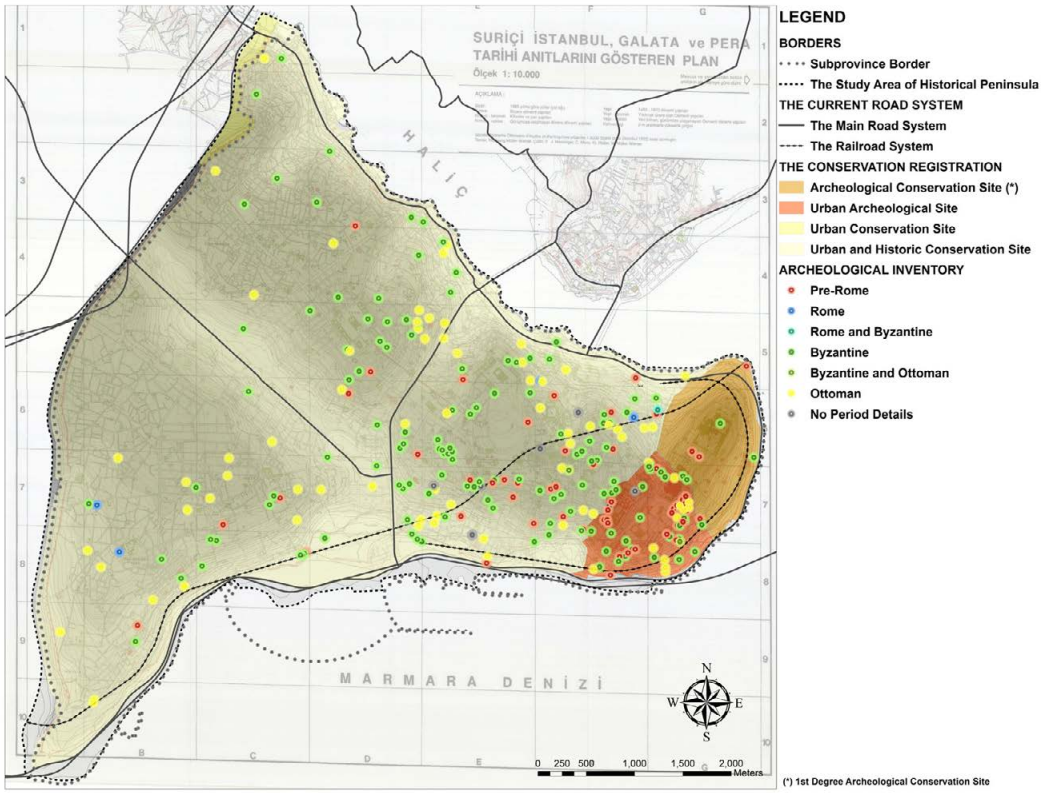


Fig. 5 - The Conservation Registration with Underground Cultural Inventory.

W., 2001:29). Making the Hagia Sophia chief mosque in the city, gives the first signs of the process of religious change in the geography, and therefore the physical space as well as the social and economic structure changed after capturing the city.

After Fatih Sultan Mehmet conquered the city, not only the construction activities accelerated, but also the policies carried out on the social structure and people from different ethnic groups were forced to migrate to Istanbul. A large number of people from Anatolia, Serbia, Macedonia, Peloponnese and the Aegean islands are settled as closed groups in Istanbul and form their own life forms (Müller W., 2001:29). This situation gives rise to the process of clustering development of social and cultural differences as a group of settlements developing around urban centers and religious centers. Towards 1480, the average urban population approaches 65,000 - 80,000, 58% of the population is Turkish and 42% is non-Muslim (Müller W., 2001:29).

In the 16th century, Sultan Süleyman the first uses the spoils of war in the urban space or in the reproduction of power (Müller W., 2001:30). The process of adornment of the city continues until the economic crisis period which occured at the end of the century. “Many large new domes and minarets have completely changed the city’s skyline. In spite of all this, as we can see from the 16th century travel monuments and city engravings, the cobblestone, narrow streets and the modest one, two-storey wooden houses on both sides are the elements that determine the city’s appearance” (Müller W., 2001:31).

Until the 18th century, altough the wooden houses and palaces, spatial structure which exists in the form of narrow roads, did not allow much reference from the past in terms of buildings, it has shown continuity up to a point as urban texture. However, with the increase of the population and new zoning decisions after this period, the pressures on the tissue began to increase and the city was on the verge of a period where it was exposed to many demolitions and fires. With the 1800s, the specialization of the society and the increase of the division of labor have led to the search for a field to realize these functions in the

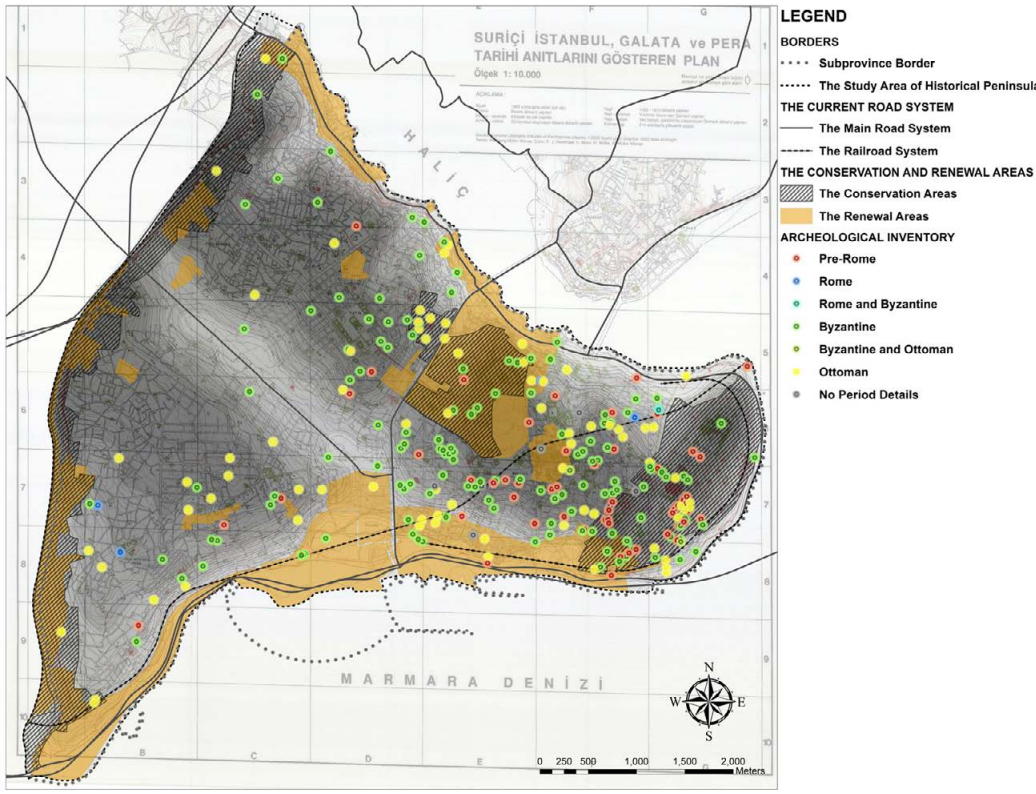


Fig. 6 - The Conservation and Renewal Areas with Underground Cultural Inventory.

physical space. Economic developments have changed the land use and the changing land use has affected the urban forms and elements. In the second half of the 18th century, some of the ports were divided into navy. With the Ottoman Russian wars, the economic downturn began to be felt prominently and the food, which is the most basic need during this period, is provided from the Balkans. The reflections of the previously learned famines on the urban space and the creation of large storage areas around the city coincide with this period (Müller W., 1998:90).

When the urban transformation processes are considered, the effects of many factors such as transportation, identity, discoveries and geography are understood. The beginning of the change in the Ottoman Empire and the world in the 19th century is the beginning of the construction of sea vehicles working with steam power. Although the countries approached these ships suspiciously until the Crimean War, the Crimean War has changed the perception. The first steam-powered armored destroyer in France was introduced in 1858, and a small ship operating in the same period (1845) with steam power was manufactured in the Ottoman Empire as well. This process did not continue in the Ottoman Empire and some of the other states in Europe and it was observed that the traditional method continued in the following years (Müller W., 1998:114). The results of these developments have come to a point at the beginning of the 19th century to put pressure on urban spaces. The load capacity of the ships increased day by day and the port areas in the urban space started to be inadequate. In this period, there were 3 separate projects by the state, which are built by foreigners or require consultation of foreigners. The first of these was the modernization of the port and the second, the company that built the Sirkeci railway and the Sirkeci Station, promised that the storage areas connected with the station would be built in this period. The studies were completed in 1875. The third project is an immature project that has caused many counter ideas. In this project, it has been proposed to make docks overhead between Sirkeci-Unkapanı, Azapkapı - Tophane (Müller W., 1998:137-138).

With the post-1980 globalization, the effect of

changing the economy on space has gained strength. In the process that expresses the withdrawal period of the industry from developed countries, the factory areas that are vacated in the urban area are observed. Production centers have moved out of the city before and have continued the industrialization process of underdeveloped countries or developing countries in relation to the level of development. However, in this period, especially in Europe, the economy has ceased to be the focal point of the economy and a financial and service based economic structure has emerged. This gave rise to the definition of world cities. In this process, Lefebvre conveys as follows: "On the other hand, the urban cores do not disappear, the invading tissue gnaws them or incorporates them into its own weave. These cores resist to transform. They stay as a center of intensive urban life. The aesthetics of these old cores play a major role in their survival. There are not only monuments and institution centers around here, but also suitable venues for festivals, parades, excursions and celebrations. Thus, the urban core, foreigners, tourists, people from the periphery, becomes a highly qualified consumer product for the inhabitants of the suburbs. Remaining standing thanks to its dual role in consumption location and consumption of location. Therefore, while the old centers enter into a more complete way into the value of exchange value, they also maintain their value in use due to the places offered for specific activities." (Lefebvre, 2010:27).

At the point of economics, it is not possible to be completely protected from the effects of globalization and to be abstracted from the world system. Analyzing this process well and strengthening the importance of cultural assets against these destructive effects is the most basic way to deal with a great necessity and order.

The Conflict Between Under Groud Cultural Enventory and New Urban Pattern

Today, Istanbul's underground culture inventory potential is clearly defined districts as follows:Fatih, Kadıköy, Beşiktaş, Avcılar, Pendik…

The location and importance of the Historical Peninsula from these districts are undeniable in terms of both underground and surface cultural inventory, while the zoning practices in the current peninsula for the Historic Peninsula, legalization of illegal structures by the law enacted in the context of zoning amnesty, being subject to urban transformation, the risk is increasing every day.

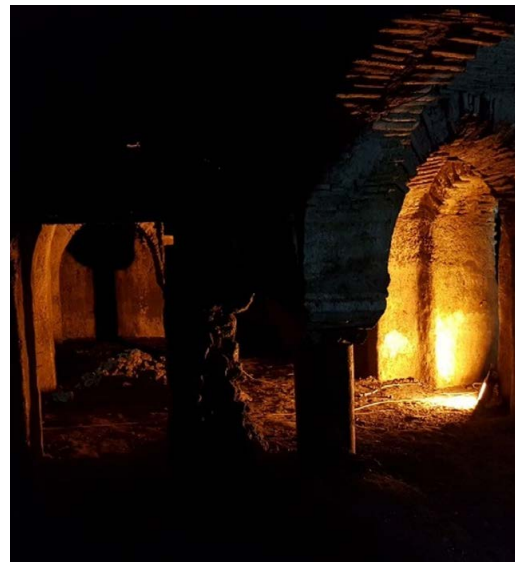
In order to understand the context of the underground culture inventory firstly, space based practices experienced in the underground culture tour routes that will be participated in the thesis study will be shared and later we will focus on how the space cannot be protected by a recent two projects with a news value.

1. Station

- Plan Decision: Reinforcement Area
- Current Use: University Area
- Authentic Use: Cistern Structure

Current Situation: One part of the cistern are clearly on display under the Kadir Has University Building.

Picture 1 - Station 1.



Picture 2 - Station 1.

2. Station

- Plan Decision: Reinforcement Area
- Current Use: Wedding-Ceremony Hall
- Authentic Use: Cistern Structure

Current Situation: It is used as an area where organizations like wedding etc. are made.

Picture 3 - Station 2.

Picture 4 - Station 2.

Picture 5 - Station 3.

3. Station

- Plan Decision: Commercial Area
- Current Use: Not Being Used
- Authentic Use: Unknown

Current Situation: Under the Commercial Inn, in the urban space (when crossing the road or inside the inn while shopping) in a way that will not be noticed in any way under the structure of steel construction continues.

Picture 6 - Station 3.

4. Station

- Plan Decision: Accommodation Area
- Current Use: Hotel
- Authentic Use: Cistern

Current Situation: It is used as an exhibition and cocktail area in the hotel, the entrance is open to those who have paid.

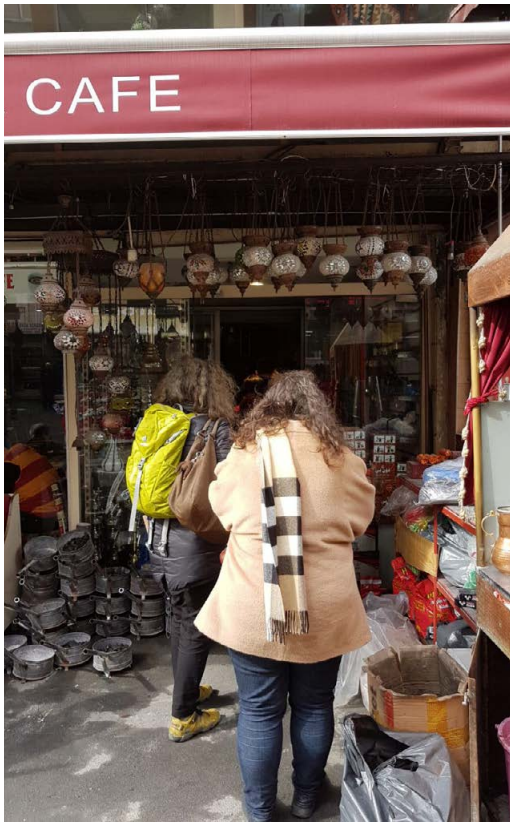
Picture 7 - Station 4.

Picture 8 - Station 4.

5. Station

- Plan Decision: Commercial Area
- Current Use: Not Being Used
- Authentic Use: Unknown

Current Situation: It is located in an idle area under the cafe.

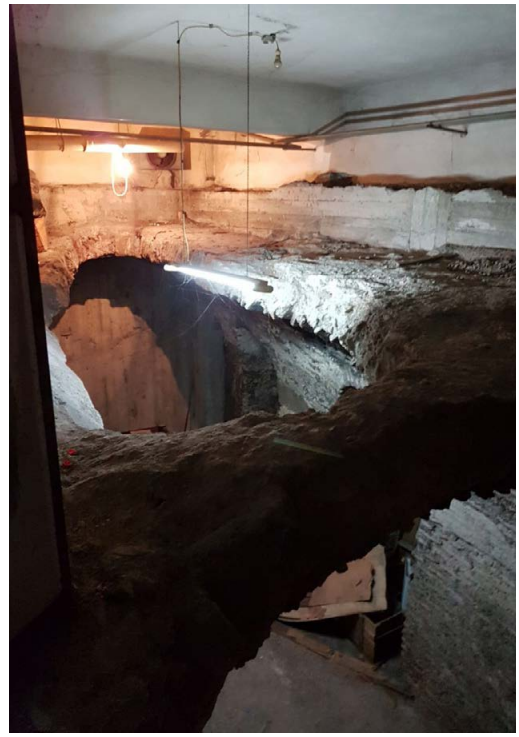


Picture 9 - Station 5.

6. Station

- Plan Decision: Commercial Area
- Current Use: Cafe
- Authentic Use: Cistern

Current Situation: Maintains as a restored part of a cafe.



Picture 10 - Station 5.

Picture 11 - Station 6.

Picture 12 - Station 6.

7. Station

- Plan Decision: Residential Area
- Current Use: Wall of Heating Unit
- Authentic Use: Unknown

Current Situation: The wall of the apartment's central heating unit is thought of as part of the modern building when the building was built.

8. Station

- Plan Decision: Commercial Area
- Current Use: Carpet Shop
- Authentic Use: Cistern

Current Situation: It is restored and used as an exhibition area where the public has free access.

Picture 13 - Station 7.

Picture 14 - Station 8.

Picture 15 - Station 8.

9. Station

- Plan Decision: Trade Area
- Current Use: Carpet Shop
- Authentic Use: Pillar

Current Situation: It is exhibited in a part of the shop which can be seen and watched from the street.

10. Station

- Plan Decision: Service Area
- Current Use: Tourism Office
- Authentic Use: Unknown

Current Situation: It continues to exist in the office as part of the building wall.

Picture 17 - Station 10.

Picture 16 - Station 9.

Picture 18 - Station 10.

11. Station

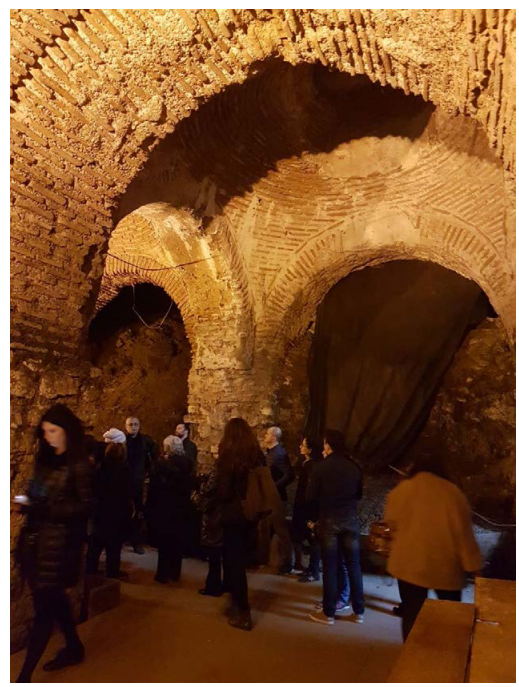
- - Plan Decision: Trade Area
- - Current Use: Not Being Used
- - Authentic Use: Unknown

Current Situation: Under and near the cafe, this area is idle to be visited by people who know the existence.

This cultural inventory tour organized by Antonina Tourism was made with Prof. Feridun Özgümüş. 11 underground culture inventories were visited within the scope of the tour and it was tried to clarify the reality expressed by the underground culture inventory. For the settled cultural inventory that was explored in the study, only previous archaeological researches were provided and all other inferences were related to current situation uses and plan decisions. It can be seen clearly that the planning systematic cannot be operated with the general approaches in terms of the different applications of the plan decisions and the conservation and use of the underground culture inventory.

The data of the points that were visited during the trip were taken by GPS and transferred to the database and archaeological cultural assets were experienced on site at 200 meters intervals. The data of the Archaeological Museum shows that the historical peninsula is very intense in the under-

Picture 19 - Station 11.



Picture 20 - Station 11.

ground culture inventory and is insufficient for the reconciliation of the continuity of the underground culture inventory. Thanks to this study, we have more closely acquainted with the archaeological cultural inventory, which is not noticed in public space but is considered a common product of society, with areas whose continuity can be traced on the side parcel. Now, with the current plan decisions, the conflict created in the Historic Peninsula will be drawn along with the newspaper news and the prepared database.

When we look at Istanbul with dates, we clearly understand that it is a city that was demolished and rebuilt and still carries traces of the past in the cultural fields. Unfortunately, there is no digital database for the archaeological cultural inventory of a city so powerful in its historical background. Registration based inventory studies in public institutions are devoid of understanding of the context of the underground culture inventory. An inventory of the findings that have been made so far has not been sufficient to protect this city, which has been developed as layers.

Before all these inventory works are carried out, in Istanbul and in the Historic Peninsula, in particular, to allow for amnesty, to prepare urban transformation projects, are far from preserving the cultural inventory.

Regarding urban renewal areas and urban design, the existence of the historical cultural landscape concept, which is one of the most important issues of protection today, depends only on the reading of the historical background of the archaeological cultural inventory of the urban space and reflecting the references from the past to the urban space.

The application projects, which have been announced today as a renewal area, are based on the imitation of the past with new techniques and methods, not only on the concept of urban cultural landscape but also on the completely eradicated tissue. Suleymaniye Region is the one of this kind of areas. After the reneawel Project of the Süleymaniye annouced and applyed, UCTEA TMMOB Chamber of City Planners İstanbul Branch made a negative statement about application process.

Suleymaniye region, which is subject to the explanations made:

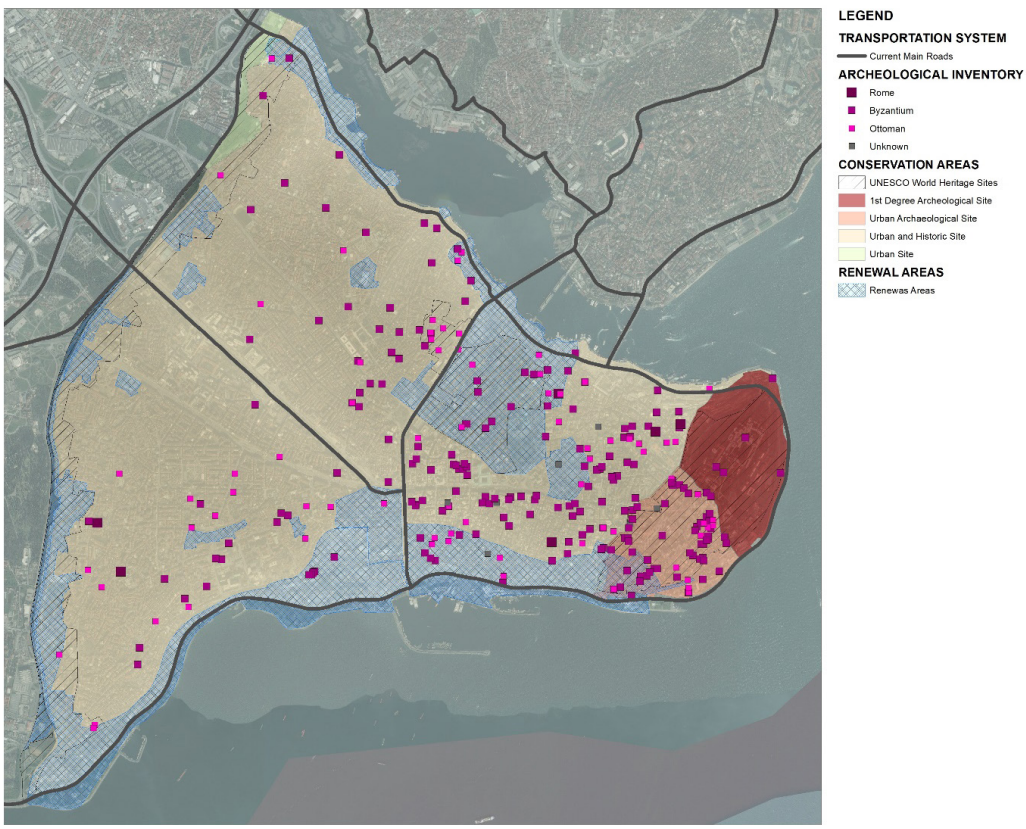


Fig. 5 - Conservation and Renewal Areas in Historical Peninsula.

- *Historical areas of Istanbul have been included in the UNESCO World Heritage list in 1985 due to its "outstanding universal values and qualities", "exceptional testimony to different cultures and civilizations".*
- *The region is protected by the Law No. 2863 on the Protection of Cultural and Natural Property.*
- *The Suleymaniye region, which was demolished and rebuilt together with Qatar capital, is located in the Historic Peninsula, which was declared a protected area in 1995. The second largest complex of the Ottoman cultural heritage and the largest foundation of the Süleymaniye kulliye and the Şehzade Mehmet kulliye are registered as World Heritage sites around Süleymaniye, Vefa and Vezneciler districts.*
- *In 2006, as the Historic Peninsula was a World Heritage Site, a Field Presidency was established and the management plan preparations were started. The Management Plan of the Historic Peninsula of Istanbul was approved on the 28th of October 2011 by the Resolution of the Coordination and Supervision Board No. 10, and was approved by the decision of the Istanbul Metropolitan Municipality on 16.01.2011 and numbered 2896. As a result of the updates and revisions made, the Istanbul historical peninsula Management Plan, approved by the coordination and Supervisory Board of the presidency of the field with the Resolution No.01 dated 08.05.2018, is the latest legal regulation.*

To sacrifice such a unique area of importance in Istanbul to its destruction policy cannot be explained and accepted by any scientific and universal protection principle. (26.02.2019 – UCTEA TMMOB Chamber of City Planners İstanbul Branch).

Conclusion

With the understanding of Istanbul's archaeological potential with modern projects, there has been an increase in academic studies in this area. The "Urban Archaeology workshop" organized between 30 November - 2 December with the gathering of professional chambers and provided the people who are interested in this field from various universities of the country. The most important and short-term action of the workshop was to create a database for archaeological inventory. In this database, it is not enough to specify the points where the archaeological inventory is only identified. It is a great necessity to integrate all the data contained in the detection files into this system. As one of the most important of these data, elevation information is prominent and integration of elevation data into the system is very important for the identification of cultural fill layers.

In the archaeological sounding studies carried out in the urban area, the continuity of the archaeological remains in the side parcel is known to the museum staff who carry out the drilling operation, but no action can be taken for the parcel and the knowledge of this remains in the museum staff. After years passed, it appears in line with the demands for new building on the side parcel. In order to prevent this, the archaeological inventory needs to be transformed into a holistic inventory. Thus, an important step will be taken to protect these works. Istanbul Archeology Museum should lead the way. (Ahmet Yaraş, 30 November, Urban Archeology Workshop, İstanbul).

The definition of archaeological heritage has recently changed.

There is no place in the earth where human beings leave no trace. When we try to protect the cultural assets of human beings everywhere, there are concerns about whether we can ever be built or not, and whether we can meet the needs of today. We need to prioritize the archaeological culture inventory for sustainable protection. The protected areas of us are a classification according to the intervention. For example, the first degree archaeological sites emphasize the archaeological cultural heritage that can be seen. However, new methods can be revealed in more detail without digging the site potential by geoarchaeological methods and should be classified according to their importance. (Numan Tuna, 30 November, Urban Archeology Workshop, İstanbul).

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SUBMERGED WORLDS
TARANTO: THE IMAGE OF A HIDDEN MEDITERRANEAN HISTORICAL CENTER

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Abstract: Another world is disappearing. The landscape of the city, as well as the whole Gulf of Taranto, seems to be almost inscrutable, always in search of a nostalgic connection, of an Odysseian *nostos*, desperately seeking an opportunity to forestall oblivion. In the same moment Argan speaks about cultural infamy, the IRI was filming a splendid documentary on the great landscape and geographic transformation and the new metallic topography that was about to replace the pages written by the ancient *masserie*. Walking down the streets, where the narrow alleys are coloured with the gold of the *carparo*, it is possible to understand how the vision of the building elements, recovered in the shapes of the endless shadows, emerge from the buildings themselves where, in the subsoil, hidden worlds are submerged. The Old City – or "Città vecchia" - in fact appears as a single block of stone which literally lies on the water, from whose bowels, only the necessary spaces for the lives of men were excavated from the rich and porous *carparo* as archeological frames. Just reconstructing the image of the ancient settlement, through the traces that are still legible, is truly complex. The current built configuration, fascinating for reasons both of sign and design, is the result of an uninterrupted and often haphazard superposing of urban interventions through which, in the continuous process of demolition and reconstruction, often using architectural remains of varied origin, many presences from the past were cancelled. The Byzantine rock substituted by the Aragonese Castle under the Temple of Poseidon, are some of the elements which oscillate between the absence and the presence of what once was there. An apparently exhausted city, in which the great architectural structures, which have been built in it, are suspended in time. Time that gazes, time that fixates. The constructive and architectural process has thus generated a fantastic landscape made of buildings within buildings, each one as a part of a preceding and forgotten ruin in which past layers are the foundations of the new. These words, at times poetic, however, have the will to return to investigate *forgotten* places in Southern Italy where environmental and social qualities are preserved in a timeless circle. It's clear that in Taranto the *archeological time* is twofold, or sometimes triple in which this measure repeats itself in a sort of urban rhapsody capable of generating new hidden *stanzas* to look into as an architectural composition lesson.

Keywords: Taranto, Mediterranean, Landscape, Factory City

Introduction:
Taranto and the architecture of the real

This research started in 2014 and even now, thanks to the support of the Italian Government, it is moving forward. This research, coordinated by Michelangelo Pivetta, is a sort of a 'call to weapons'. The city of Taranto, a Mediterranean city, really appears a place forgotten by the architectural treatment and the possibility that it grants over time. In the idea of the Catholic religion there is the concept that without devil it is impossible to read the Bible ... and actually I always think of this concept when I look at this city and its landscape. We believe in the theory of architecture as a possible constructive condition. In this sense Taranto and its Old City, enclosed between the two seas, turns out to be an extraordinary field of investigation in which the fragments of time continually emerge as a compositional principle.

> *From Bari to Alberobello, between Murge and the Adriatic sea, land is orange. A light orange carpet, embellished by walls of the*

same colour and by few olive trees of a deep green, almost blue, including, occasionally, a flock of coloured-like malvas sheep, with black legs, elegant and mild as dancers. Here and there is a reddish peach of solid gold. In the area of Salento and Gargano, Massafra and Monte Sant'Angelo contend to Alberobello the primacy of perfection.

These words by Pier Paolo Pasolini, traced, before a trip, in a journal article lost in the infinite of the digital library, took shape finally. Everything was fine, everything was perfectly in place and exactly there, waiting to be re-discovered.

To forget, this is the word to go back to looking at architecture. What happened to those words from Pasolini? The most acute form of forgetfulness originates at this point, the most vital amnesia, the most moving of lost memories in which the urban fabric and the city as a whole, beyond the navigable canal[1], no longer recognise themselves in this sea. There are three layers as fragments in this specific landscape: relationship between sea and earth defined by Monuments, the city with houses and finally the Factory (EX ILVA).

We should begin of understand where and especially when we have forgotten the value of the quality of human settlements. When and what made us barbarians to such an extent as to annihilate us in a downward game compared to the needs of beauty and quality. When Taras became Taranto.

It was decided to look in another direction, to welcome heavy industry which since the Sixties began to erase the traces of centuries old olive groves, tangible memory of travelers who arrived in Taranto, which once was the capital of Magna Grecia and had lived moments of *indescribable*[2] splendor. The long rows of trees drew a landscape that remained engraved in the maps of aristocrats from all over Europe, in unforgettable images capable of transmitting a timeless truth. Thus, when the new erases the ancient the dance of time

Fig. 1 - Città Vecchia, Old City between the seas Mar Grande (south) and Mar Piccolo (North) (2009)

becomes invisible, is interrupted. It was decided to erase the sea and its infinite blue horizons which connected parts of the paese to parts of the landscape: the Mediterranean.

Let's stop and look at this cover of the CCCP album. The photo is by Luigi Ghirri... But if we really observe this shot we realize how the time is suspended. We do not know if the concert should start or just finished. The time of this city is analogous, images that work in perfect analogy and help us to reconstruct a representation.

It would have been nice to begin this narrative with Carlo Belli's words, listening to them and making sure that they silenced any other superfluous thought. It would have been truly wonderful after all – as he wrote more than a few decades back - "narrowing the eyes, to be able to imagine the true Tarentum". There is a connection in this place which is based on an *eternal law*[3], between territory[4] and time. The concept of the passing of time is safeguarded in a sort of primer inherited from a stratification of childhood memories, from a digging into constant remembrances which architecture is full of. The presence of actual layers which have generated a connection between imagination and autobiographical memory in order to recognise the land as expression of the profound narrative on which to rebuild, in the lost landscape, the traces of architecture.

The landscape of the city, as well as that of the whole Gulf of Taranto, seems to me to be almost inscrutable, always in search of a nostalgic connection, of an Odysseian *nostos*[5], desperately seeking an opportunity to forestall oblivion.

At the same moment in which Argan speaks of *cultural infamy*[6], the Institute for Industrial Reconstruction (*Istituto per la Ricostruzione Industriale*, IRI) was filming a splendid documentary on the great landscape and geographic transformation, on the new metallic topography that was about to replace the pages written by the ancient masserie.

The dry voice of the narrator describes the arrival of the excavator:

> *Sheep, olive trees, burnt ground from from which white rock surfaces, and in the background the sea. A hot, intense sea. These are the protagonists of a millenary story whose rhythm is marked by the equal and monotonous arches of the Mediaeval aqueduct which ran toward the hills of Ionic Puglia and which today is witness to a lost age. […] And suddenly a new force: the machine. Centuries-old olive trees fall like wooden marionettes. The old white houses of peasants and shepherds tumble to the ground.*[7]

Fig. 2 - Shot by Shot from a documentary (Copyright: IRI)

The oxymoron oscillates between a sense of detachment and the will to keep intact the fragments of this land, the roots of an immense

Mediterranean *koiné*[8]. An alternation between visual and spatial narratives in which architecture takes on the role of hinge in the (wrongful) re-appropriation of the territory itself. A constructive act which is ready to erase all, to let everything sink into the saddest *amnesia*.

Action. The deep understanding of the canvas on which to design projects and urban knowledge derives precisely from the will to reconstruct an image of the landscape, through an operation which fixates the senses and feelings that are capable of triggering a new beginnig for inhabiting the land through architecture. The execution of projects, or rather the architectures themselves, have taken possession of the geographical landscape and have become the essence and synthesis of the territory. Almost as if through a moment of epiphany, the fragments have attempted to mend the space of the Old City, reinstating it and grasping in words and meanings a sense of respect for the values which exist between man and building.

The clear surface seems to have distanced and separated the worlds of that which was and that which seems no longer possible. It is in fact the slow movements of this "land" in perpetual motion which have indirectly distanced its inhabitants from their origins. Walking down the streets, where the narrow alleys are coloured with the gold of the *carparo*[9], one understands how the vision of the building elements, recovered in the shapes of the endless shadows, emerge from the buildings themselves. The Old City in fact appears as a single block of stone which literally lies on the water, from whose bowels only the necessary spaces for the lives of men were excavated from the rich and porous *carparo*.

These are environmental issues which have an effect on the poetic ruin[10], on the patina of salt carried by the soft winds that come from the Mar Piccolo and the Mar Grande and which meet in the Canal.

The history of the ancient centre, however, recalls Patrizia De Luca, "is tormented, made of continuous subversions of power, of changes of direction, of unceasing successions of peoples and cultures, to such an extent that today's contradictions seem to be the perpetuation of an eternal sequence of events, of a destiny of uncertainty which the city has been incapable of avoiding for centuries"[11].

Yet reconstructing the image of the ancient settlement through the traces that are still legible is truly complex. The current built configuration, fascinating for reasons both of sign and design, is the result of an uninterrupted and often haphazard superposing of urban interventions through which, in the continuous process of demolition and reconstruction, often using architectural remains of varied origin, many presences from the past were cancelled[12]. The Byzantine rock substituted by the Aragonese Castle under the Temple of Poseidon are some of the elements which alternate between the absence and the presence of what once was. An apparently exhausted city in which the great architectural structures which have been built in it are suspended in time. Time that gazes, time that fixates.

The constructive and architectural process has thus generated a fantastic landscape made of buildings within buildings, each a part of a preceding and forgotten ruin in which past layers are the foundations of the new. Slow Mediterranean movements which shift surfaces.

The presence of typological layers, which are often blind, has made it necessary – in the name of the first and natural childhood discoveries – to start anew from the rich surviving elements, slowly looking in another direction, listening to the silent voice of the collapsed walls and of the fragments which are re-emerging from the earth in order to narrate their own story[13]. This measure repeats itself in a sort of urban rhapsody capable of generating new stanzas to look into.

Disassembling existing architectural structures for unveiling their secrets and those of their inhabitants, for investigating the truth which at every level and every new house obtained have given meaning to the work to be undertaken, the "worksite" to be prepared.

Fig. 3 – The Aragonese Castle. The configuration through monuments and sea world (2014).

As in an atelier, every single piece has been analysed and reconstructed in order to understand in depth how to look with new eyes to the place of the new architecture, where the practice of good dwelling should have marked only the beginning of tomorrow.

Thus, only passing through the elements of which the city is composed – the true city, made of houses and people -, is it possible to understand in depth the reality of this land. There, encountering a group of children on the street kicking an improvised football, it is possible to stop and listen to their screams which are telling us that "Taranto is not only ILVA"; those children who have been waiting since birth for new accesses to reality. It was this apparition made of bodies and words on via di Mezzo, during the survey campaign, that helped us overcome forgetfulness and made us all understand how the dream of this part of the Mediterranean is that of inhabiting once again the bodies, the spaces, the objects and the images[14] of the landscape.

A small project

At the threshold of the 21st century Aesopos and Simeoforidis tell us in Landscapes of Modernisation[15] of a new geography, understood as an architectural and landscape

fact, embedded in memory. Examples which establish – and this is the basis of the project presented – a relationship between architecture and landscape with the intention of verifying and reviving a dialectic connection between the new and ancient urban fabrics.

In the interpretation of the city, and not only of its most ancient section, it was sought to recompose and search for the pieces, using Rilke's beautiful definition in his Florentine Diary (originally published in 1898)[16] in which he compares museums to pages ripped out of books and put back together more elegantly. Moving along the wharf of the Mar Piccolo where, according to Guido Piovene "the best of the life of Old Taranto"[17] is found, in other words between the wall of houses and the sea, there is the church of San Giuseppe, built in the 16th century, which for many centuries was the religious congregation for the fishermen of the city. The church was the only structure that survived the Piano di Risanamento of the Fascist era which began in the early Thirties and was interrupted – fortunately – as a result of World War II. Time, however, has excavated into the matter leaving only a void around the religious building.

The disorder and chaos, which are certainly part of the daily life of a Mediterranean city, characterise the road that separates the inhabited area from the sea; boats arrive constantly, carrying fish to be sold. The scene that appears before the eyes of passers-by is the same as it has been for years, precisely because the essence of the fisherman and of the sale of fish as a ritual – despite the arrival of "steel" - has not changed; among tunas, mussels and other molluscs, the market has always been a timeless necessity. This is the measure of the time from which to learn the lesson of reconstruction, placing the qualitative needs of dwelling before speculative interests.

Thus, the fish market is now located at the place where the old congregation gathered, next to the place where the last church stands that survived the disembowelment carried out during the Fascist era. At the intersection of the four pittaggi[18] the new collective nucleus becomes the fulcrum for the entire surrounding inhabited area. The foundation for the project of a new architecture begins with the study of the measures of the Doric temple from the Classical period. Only a few metres away from there the still impressive presence of the columns belonging to the Temple devoted to Poseidon (5th century B.C.), has a decisive influence –through measure and composition– on the project. The golden ratios, the heights and the design itself carry with them the strong heritage of the context,

interpreted through current needs.

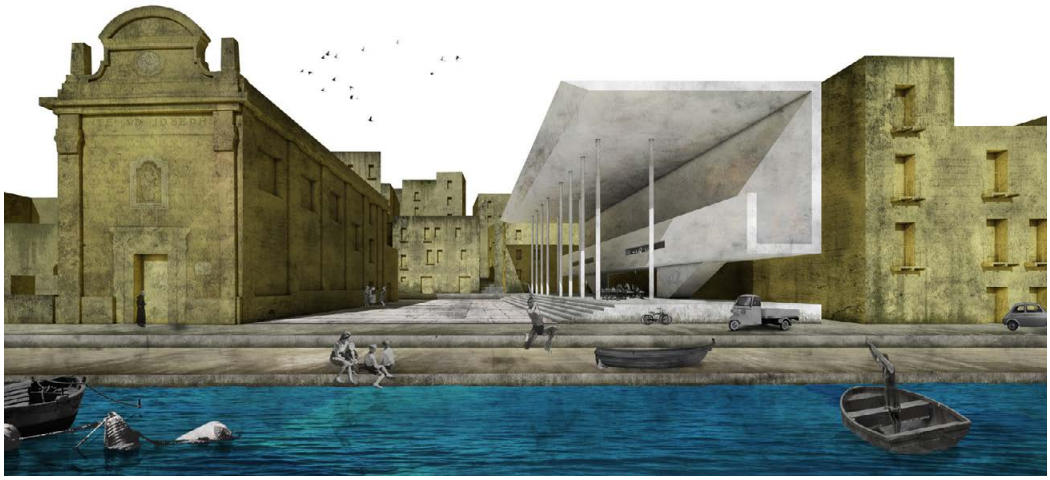
Built from the podium, in accordance with Greco-Roman canons, the new temple to the sea stands between the church and the row of houses that have resisted to the passage of time; here 12 pillars with a height of 8.47 metres –as in the temple to Poseidon– outline the market and construct a covered space between the square and the city. The base of the structure respects the separation between earth and sky as it did in the Greek era, where the need of a suspension between the new and the old city attempts to sacralise the commonplace activity of selling fish. The religious interpretation becomes here a sacralisation of the historical liveliness of the fisherman. The market is situated at a higher level than the ground floors of the houses nearby, thus overcoming – despite its classical measures – the "novelty" of its being located in this place.

The construction of the new market is thus actually established from the base of the structure, which transmits the sense of respect for the various historical layers of the city; the crepidoma and the stylobate interact with the square/toloneum which connects the "new" to the church and vice versa. The interpretation of the space between the buildings is organised precisely by the toloneum, a large and ample square that fosters the dialogue between the "scene" of the city which scrambles over the topography of the terrain and the fish market. The pavement, separated

from the street by way of a compositional detail, connects through its design to the chromatism of the new loggia of the fishermen.

The base, made of stone and with a small flight of steps on the side of the church, concludes with its stylobate, which houses the joints of the pillars of this contemporary naos.

The vertical elements design and organise the commercial spaces and establish a relationship with the pre-existing classical settlement. The rhythm of the pillars determines a new space: a raised square with a continuous and uninterrupted roof. The shadows, even more pronounced in a Mediterranean city, are sharp and extended. The roof turns on itself and creates a loggia, as in the southern tradition, a space that is not unlike the matroneum of



Christian origin, which houses a public space from which to look over and observe, almost as though from outside the narrative, the activities that go on in the area below. Ascending by way of the load-baring stairs the new level of the city is reached, a residential area that never enters in contact – except visually – with the market. Everything, including the upper level, remains detached from the structure because the only foundation element is the base. The space of the loggia becomes compressed, the shadows darker, the interpretation is axial.

Here in the fish market, architecture reinstates the missing link between the earth and the sea. Its placement at the centre of the island, at the intersection of the four pittaggi of the Old City, bears witness to the importance, or rather the need, to recreate a collective space that not only serves its function from sunrise to sunset, but which also becomes a place for social interaction, essential to the process of cultural rehabilitation of this section of the city.

In this context it is worth mentioning the reaction of the candle that lights up again by simply blowing on its fumes a few seconds after having put it out. Perhaps a change triggered by architecture could reconstruct the image of the city even through the design of a fish market, an intervention that serves as compensation for the population and which through its inherent form includes the essence of this place, the reason why – day after day – it continues to live despite the difficulties derived from a time that is no longer capable of making space for those things which mankind has periodically depended on in order to find itself.

Conclusions

Events have always taken place along the shores of the Mediterranean which have determined its essence. The construction of its landscape, through complex topographies, has generated settlement systems of great interest to architecture. Fortified cities, small villages, have created a highly interesting fabric that time seems to have forgotten in the name of a necessary contemporariness that is capable of erasing places and realities of unparalleled splendour.

It is evident how a world is disappearing. A world in transformation in which the fabric of historic cities seem to turn into abandoned archaeologies dominated by the weight of successive eras. “Urban archaeologies” are buried under their own landscapes, forming a canvas of apparently erased and unfathomable memories. This is the sense of the educational mission aimed at the valorisation of memory and the recovery of those aspects in which value becomes virtue, becomes a lesson in architecture.

In a certain sense the possibilities offered by these tools have produced a second useful map for carrying out interventions which re-propose a *catalogue of the real*. It was then possible to contrast the projects with their spatial qualities, recovering in the compositional aspects the architectural truth of every single part. Typologies, fragments and elements have come to light once again to become a part of those sunken worlds.

It could be said, paraphrasing a well-known excerpt from the *Epistle to the Hebrews* (XI, I)[19], how the determination was that of giving substance to things hoped for as evidence of things which are (apparently) invisible. The fragments of landscape of the cities of Taranto and Jerusalem are reflected in a sort of spiritual system of things through the Mediterranean mirror, in which the gaze makes us understand how necessities are not so different, despite the great geographical distance.

Notes

1 - The Navigable Canal has divided since the Aragonese period the “new” city, known as Borgo Umbertino, and the island of the Old City of Taranto. The Navigable Canal connects the Mar Grande with the first cove of the Mar Piccolo. Ferdinand I of Aragon made it deeper and enlarged it when the Turks, having laid siege to Otranto in 1480, threatened to attack Taranto. Philip II made it

navigable; Ferdinand I of Bourbon bettered it and had a bridge built on its north side which took the name of Ponte di Porta Lecce. The canal is currently 810 metres long, 59.40 metres wide and 12 metres deep.

2 - This summarises the aesthetic and spiritual experiences derived from architecture. Cf. R. Gargiani (2015). Genèse et représentation de l'espace indicible. In F. Migayrou, O. Cinqualbre (eds.). Le Corbusier, Mesures de l'homme. Paris: Centre Pompidou.

3 - The word "eternal" refers to Pagano's introduction: "The aim of this work is to find the eternal law that has created wonderful documents in the history of man" in G. Pagano, G. Daniel (1936). Architettura rurale italiana. Milano: U. Hoepli.

4 - By territory is understood the synthesis of land and sea, both solid places on which to build and contrast the language of architecture.

5 - A voyage in time which is rich in images, events and vicissitudes.

6 - G.C. Argan refers to the I*V Polo Siderurgico ex Italsider.*

7 - The institute devoted a beautiful documentary to the construction of the great industrial complex, considered at the time as both the future and the motor of the Mezzogiorno, a vision paradoxically opposed to the current general opinion on the matter.

8 - Common language, as linguistic usage accepted and followed by an entire national community on a relatively extended territory with uniform traits.

9 - *Carparo* is a *calcarenite* derived from the hardening of calcareous rock sediments, usually in marine environments.

10 - Cf. A. Martinez Riggen (2005). Luis Barragán. Opera Completa. Milano: Electa.

11 - Cf. P. De Luca (2001). Taranto. L'isola. Taranto: Scorpione Editrice.

12 - Ibidem.

13 - This surfacing is due mainly to cultural associations and to citizen volunteers who over the past few years have attempted to rehabilitate entire sections of the city. In this way a series of very ancient spaces have been recovered which carry a great narrative and educational force.

14 - Cf. M. Vitta (2008). Dell'Abitare. Corpi, spazi, oggetti, immagini. Torino: Einaudi.

15 - Cf. Y. Aesopos, Y. Simeoforidis (1999). Landscapes of modernisation: Greek architecture 1960s and 1990s. Athens: Metapolis Press.

16 - Cf. R. M. Rilke (1950). Diario Fiorentino. Milano: Cederna.

17 - "Yet the best of life in Old Taranto is outside, on the wharf, between the wall of the houses and the Mar Piccolo. […] Perhaps because the goods are offered and sold using old methods, there is here a true communion between the port, the people who shout, and the sea bottom. […] This small Oriental port, this population of fish and molluscs, is one of the best Italian memories". In G. Piovene (1966). Viaggio in Italia. Milan: Arnoldo Mondadori, pp. 607 - 608.

18 - This is how the (four) neighbourhoods of the Old City are called. The old city had four rioni, or quarters, which were called "Pittaggi" (from Pittacium), a word derived from the papyri on which births, deaths, marriages, as well as the name of the sick and the assisted were registered. The names of the rioni were: San Pietro, Baglio, Ponte and Turripenne. In the first two pittaggi (those situated in the upper part of the old city) lived the nobility and the bourgeoisie, in the other two, which faced the mar Piccolo, lived the common people. In the latter of these two, more or less where the discesa Vasto is located, was the Jewish ghetto. Each *pittaggio* was linked to a church: the Cathedral, Sant'Agostino, San Domenico and San Giuseppe, whose deputy parish priest was called *pittaggere*.

19 - "Est fides sperandarum substantia rerum, argumentum non apparentium." English translation: "Faith is the substance of things hoped for and the evidence of things not seen".

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STONES AND DIGITAL COLLISIONS: MUSEUM ARCHITECTURES STANDING BETWEEN PHYSICAL AND VIRTUAL LAYERS

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Abstract: Museums as the denominators of the modern city formation are being reevaluated to fit in the multifaceted experiential environments of the 21st century. The new museology approach contextualizes not only the form of communication between the exhibited material and the visitors, but also sheds light on the fluctuating forms of educational practices, the design of the museum experience, the position of the museum building in the urban fabric and its role in the overall social structure. The success in the valorization of an urban area with the revitalization/realization of a museum, is giving new interest in the planning strategies. Nonetheless, narration and storytelling are very much related to the core of both museums, archaeologies and architectures, which concomitantly needs to follow up with the novel interventions. Recently, it is mostly argued that in the era of advanced communication technologies, how can a museum enhance its own being with the new information and perception potentials of the digital media? How can the digital media and digital approaches expand the museums to a virtual level that goes from the real place to to the web and vice-versa? Then, what can be the relations among the different layers of design such as the architectural space, the new museum experience and the already existing urban fabric? The process of layering becomes even more complex and articulated when the museum is located in a historical building, even more when it includes an archaeological area, in this case, the complexity of perceptions and the need for a correct museum pedagogy is a real challenge for the designer. Along with these questions raised, this study will overview the current tendencies in museum design and discuss several examples with concurrent design approaches as they offer new strategies of interweaving old/new, real/virtual and static/dynamic elements.

Keywords: Museums, Digital Layer, Museology, Museum Pedagogy, Storytelling.

Introduction: Encounters of different layers in museum architecture

The aim of this study is to examine and understand the current tendencies in museum design in terms of architectural and exhibition design. While examining the vast number of sources on the topic, our approach will follow a path that reveals our critical yet ambivalent stance: we are seeking answers to the question of how does architecture reciprocate the encounter of the virtual and the material, since the spatial experience in the 21st century heavily includes both of these aspects. In order to expand on this question, we are looking at the museums focusing on the layers that create the whole spatial experience of a museum.

We begin with the interrogation of the meaning and relevance of the museums in regard to their visitors and mark the position of the visitor, which become as substantial as the collection of the museum. Here the role of the museum in society is under scrutiny. Secondly, we discuss the museum regarding its site and dwell on the museums in historic environments. Here the consideration is to define multiple layers that go harmonious with the *raison d'être* of the museum. Thirdly, the last layer introduced so far comes to the fore: the digital means in museum space. Various media were used in the exhibition since the formation

of the modern museum, and now, the contemporary technological advancements inevitably find their way into exhibition design, challenging the spatial formation of these specific interiors. As architects and interior architects, our concern is to reveal these collisions in museum architecture and come up with a mock-up proposal that exemplifies all these collisions.

A one-week workshop in a historic site where a museum renovation proposal was executed considering all the issues discussed above.

The collision of the content and the context: current tendencies in museum studies

The museum architecture and exhibition design are undergoing a significant challenge. The discussions on the new museology, the redefinition of the social and political roles of the museums through new modes of communication and perception, started in the last decades of the twentieth century and is still lingering in the minds of curators and the museum administrators as well as the architects and the exhibition designers. The first questions asked, then, were about the purpose of the museums, regarding their collections, their role in the society, and their economic maintenance. The museums were subject to change, mainly on the level of operations and information systems, which led to a rebalancing of museological tasks: educational and cultural empowerment of the museums became prominent. As the museums are re-evaluating what they have at hand and what they intend to accomplish, it became self-evident that "museums construct a view, present a story and produce resources for learning" (Hooper-Greenhill, 2007: 2).

The sources and the media for learning are changing fast in our contemporary technological era. The constructivist theory of learning that involves the participation of the projected others (here the visitors) first applied in the museums in the early 1990s. As Bautista (2014) clearly describes, "The constructivist approach suggests that museum visitors actively construct their own meanings rather than passively accept those imposed on them by museum curators and educators." (p.2), which acknowledges the introduction of digital media and tools in the museum space accelerating in the past decade.

The museums have been formed in the eighteenth century as a part of the construction of nation, identity, and culture, hence they implicated education from the beginning of the following century (Hein, 1998; Hooper-Greenhill, 1992; McLean, 1998). The issue is whether learning, which does not always occur deliberately, is considered as an extension of education or as a loose and non-intimidating way of socio-cultural formation. As for the latter case, museum and exhibition design made a progress in the last decade, using both architectural design and presentation techniques as vehicles of different modes of learning. The visitors are seeking to be an active denominator of the museum; they would not only observe what has been prescribed but would discover various modes of information/experience that the museum offers them. The word experience outshines in this equation: what can the museum offer intriguing to draw the attention of the visitor?

First and foremost, the collection and the audience of the museum are the primary subjects here. The curator and the designer of the museum should consider permanent and temporary exhibitions as a matter of content and context which definitely differ according to the individual museum's approach, collections and methods. Especially for the art museums, the main contemporary approach is to prompt the visitors to come back again; this challenge leads to a well study of the audience and promotion of a new experience for the next visit. Art museums have more challenges than cultural heritage or science museums because every new suggestion has the danger of interfering flux between the art object and the visitor. On the other hand, heritage museums have bigger opportunities - also wider demand - for these kinds of interferences in order to enhance the pedagogy of the exhibition. In the main cases, the visitor needs some kind of translation or connection to the in question artefact because they are generally from a different era, culture or location of the world which is foreign to the visitor. These translations become vital for the sustainability of the true recreation purpose, both reverential or educational (Falk & Dierking, 1992).

In the historical and archaeological museums, as well, the goal is also to make the visitor come repeatedly. Moreover, these museums have the opportunity to become a part of the educational curriculum while enjoying the support of the state. Kortbek & Grønbæk (2008) suggests

that multimedia additions open new dialogues for visitors allowing them to interact with each other and make bodies in the museum more involved, to make them gather more information, even become kinetic themselves. Through these interventions, individuals show more effort; they become stimulated and get curious or interested which will consequently make the knowledge creation more in a gamified, fun way.

Architecturally speaking, the museums situated in existing historic buildings have the opportunity (or challenge?) to exhibit the architectural elements as a part of their collection. In fact, this is for most of the cases, something desirable even for the newly built museum architectures where the architect considers and designs the building as a part of the story of the museum in advance. Thus, creating the museum context almost always involves the materialized architectural space. Then, what are the possible scenarios when architecture collides with heritage?

The collision of the existing and the inserted: Museums in historic environments

As Barranha et al. (2016) explore the two architectural strategies in Lisbon Castle, they highlight the decisions and declarations made by the City Council of Lisbon and the Council of Europe on architectural heritage, which consider the heritage site, nearby urban fabric, and its links to the society as an integral design issue to be solved. With reference to McLean's statement on how the meaning is obtained from the representation of the object rather than the object itself, they assert that "re-contextualizing heritage within museum spaces is ultimately a matter of interpretation and translation" (Barranha et al, 2016: 41).

Looking at several examples of contemporary museum design in the architectural preservation sites can give us an idea about how this issue was approached by architects and designers.

Tirpitz Museum is designed by the architectural firm BIG in Blavand, Denmark, in 2017 on a WW2 war site that already includes a bunker built by Germans during the war (Fig.1). The invisible museum, as it was named by its architects, is designed completely in the underground, while making a dramatic effect with the deep slits on the surface, offering the visitor a different spatial experience with the daylight penetrating through

Fig. 1 - Tirpitz Museum (©Laurian Ghinitoiu)

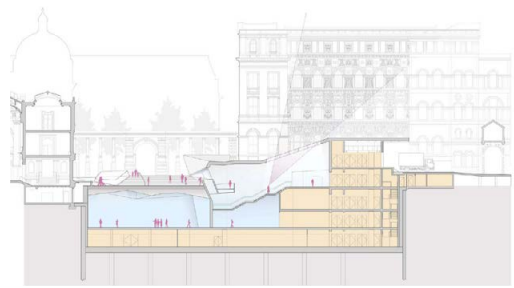

Fig. 2 - Section of the Exhibition Road Quarter (https://www.archdaily.com/874825/v-and-a-museum-al-a)

those slits to the embedded galleries. The exhibitions in the three museum galleries and the special exhibition gallery located in the complex were designed in collaboration with the Tinker Imagineers in order to achieve "permanent and temporary themed experiences that ground the tale of an impressive war machine" (BIG, 2017). Not only with the materials used in the museum design but the accession to the bunker and the experience offered to the visitor makes it unique in terms of maintaining a WW2 heritage as a part of memory and education.

Finished in 2017, Exhibition Road Quarter at the west side of the Victoria and Albert Museum is a remarkable attempt to redefine the courtyard space within a historic architectural site (Fig.2). The aim and the approach of the architect here exceed the limits of mere designing an additional exhibition space for the well-established existing museum: to create a three-dimensional experience with the down-under, the surface, and the emerging. The architect Amanda Levete explains her aim as "to bring the city into the

museum and take the museum out on to the street" (Wainwright, 2017).

The Rivesaltes Memorial Museum was designed by architect Rudy Ricciotti and completed in 2015 (Fig.3). This museum on the site of a former French military and internment camp near Perpignan, France. Emulating the slim rectangular barracks of the camp, burying it to the ground like a coffin with a clear reference to the how the camp and the war operate, Ricciotti challenges the cultural memory site while rewriting the story of the museum through architecture. The continuation of the slightly and dramatically illuminated blind walls inside creates a dark and whelming

Fig. 3 - Rivesaltes Memorial Museum (©M. Hédelin / Région Languedoc-Roussillon).

feeling that strengthens the feeling of abandonment and timelessness, which was the preliminary design approach of the architect from the beginning, declared as "marking erasure and absence, questioning the visitor memory or oblivion" (Ricciotti et al., 2017).

Santo António Museum in Lisbon presents the idea of a re-defined shrine for the continuation of the museum's theme (Fig.4). Site Specific Arquitectura and P-06 ATELIER designed the museum in 2014, created a setting with interwoven layers of the old and the new. The museum space becomes placidly distinguished yet visible from the square where the Santo Antonio Church and statue also stand at the insertion of illuminating glass cascades into the niches on the stone walls repeats the visual connection between the object and the space.

All four museums discussed here bring along a distinctive perspective to the perception of the exhibition space and the collection. The architectures of these museums are giving a way to

Fig. 4 - exhibition units of Santo António Museum (©Fernando Guerra).

new layers by creating slits and incisions. There is as well a reference to the storyline of the built fabric and to the museum's theme, leaving the borders of the new-built ambiguous, while on the other hand allowing the visitor to experience the permeability of those borders and get involved in the agenda of the museum.

The collision of the inserted and the overlapped: digital proposals as a new layer

The digital technologies that this study takes a look at was firstly entered to the museum in 1952 with the closed-circuit analogue headphones broadcasting pre-taped audio guide for foreign visitors which is considered as a preliminary attempt to redefine the visitor experience (Lee and Liew, 2015). Tallon (2008) underlines the importance of the visitor's experience and states that "...personal relevance and interpretations, interactivity, and easy access and control of content to shape the twenty-first-century museum visitor's experience. Today's museum visitors are less audience than they are author" (p.xiv). Following the pace of technological advancement, digital devices started to offer more personalized experiences where nowadays we have the benefit of smartphones and compatible technology platforms for more flexible and interactive visitor experience. In accordance with the portable devices, the exhibition space adjusts itself with the

interpretation of these novel digital tools for the sake of the spatial experience.

In order to re-establish the interactive learning ways and spatial experience for visitors, multi-channel video and data visualization (Wu et al., 2012), interactive touch screens (Vavoula & Mason, 2017), Augmented Reality (AR) (Ding, 2017), Virtual Reality (VR) (Choi & Kim, 2017), and Quick Response code (QR code) (Li & Liew, 2015) were introduced to the exhibition space through new information technologies and digital data that enhances the comprehension and preservation of the artefact (Galeazzi et al., 2015). Enhanced audio-virtual representation techniques create a more intricate relationship between the visitor and the museum collection, accordingly the material and the virtual collide and intermingle in the museum space.

How to cooperate with the advanced technological improvements in order to preserve the museum collection and to adjust the museum in contemporary social and spatial perceptions is a hot debate among researchers. A recent platform funded by European Union, namely Virtual Multimodal Museum (ViMM) brings together experts from seven different countries who work on digital technologies, documentation, museums, policy making, art, heritage, economy, culture, etc… The manifesto of the platform underlines the effort of promoting the role of digital initiatives as supporting rather than threatening 'physical heritage'. The overall objective of the platform reveals the collaborative and multilayered structure of the museums:

> *By focusing on interaction and conceptual design, virtual multimodal museums and other CHI (Cultural Heritage Institutions) will be able to offer diversified, collaborative, tailored experiences and novel exhibition design concepts that adapt to the different needs of audiences and stakeholders, including the public, students, curators and museum, researchers, technical specialists, partner organisations and other industries.* (ViMM, 2018)

The necessity to refrain from any undesirable interferences of the multimedia and the artifact itself should lead the designer to accomplish well-mixed and uninterrupted communication scenarios. In ARoS Aarhus Art Museum three different multimedia were introduced following a homogeneous

Fig. 5 - The Speaking Celt in the Museum of the Celts (https://heritageinmotion.eu).

learning environment; the first one is spatially bounded audio installations, peepholes, which visitor could lead their ears in order to hear further information on the exhibition and additionally sensor controlled directional loudspeakers which are active when visitors stand in the designated circles on the floor. The second multimedia is movement based interactive floors which are detecting visitors' selections via pressure sensors on the floor or their movements towards the reflected circles with camera tracking. Their different selection gives them different experiences supported by sound. Kortbek & Grønbæk (2008) explained that horizontality in this kind of spaces have more capacity to provide bodily experience since it is integrating with visitors' movements, thus it involves them with the exhibition while making them communicate with each other. Lastly, multimedia interior suggestion, combining traditional elements with multimedia contents, is consisted of a pressure sensor based staircase, providing bodily scrolling via stepping on different parts of the stairs. Visitors could change the visuals on the screen in front of the stairs via simple steps which stimulate visitors to playful behaviors and interactions.

Concurrently, there are other examples where the existing architectural remnants are a part of the museum's collection to be displayed. These are the contemporary museum examples that introduce a new layer on the existing historic architectural elements by using the digital means of display and sharing information. For instance, the Museum of the Celts in Hallein residing in an 18th century salt-works building offers its visitors a virtual companion, 'the speaking Celt', though a smartphone application with the aim of "transfer[ring] knowledge to a broader audience" (The Speaking Celt, n.d.). This free app uses Augment-

Fig. 6 - Visitor experience in DOMunder (©Oliver Schuh).

ed Reality in order to give information about the collection: two Celtic avatars welcome the visitors, narrates the story of the museum, and create a fun and entertaining way of learning (Fig.5). The experience establishes a third layer onto the historic walls and contemporary exhibition spaces. However, one of the most significant installations of different layers in terms of creating an exhibition space in a historic site by using technological means is DOMunder by JDdVarchitects and Tinker Imagineers in Utrecht, 2014. The underground space in Dom square reveals the past going twenty centuries back through archeological findings. The architects created a steel framed path that smoothly forms a separation between the visitors and the findings, while the designers applied sensory exhibition surfaces from perforated Cor-Ten sheeting that works via the torch in visitor's possession: when the visitor directs the light to a finding, it activates the narration of the story of that finding via an earphone (Fig.6).

The increasing number of museums and exhibition spaces engage in digital multimedia and recently an annual multimedia competition has been held for the endorsement of such attempts especially related to the cultural and historical heritage in Europe under the name of 'Heritage in Motion'. Collaborations among the museum administration, the design team and the visitors are aimed at all levels (Mason, 2015) in order to achieve successful results in terms of greater public access (Bautista, 2014) and enhanced museum experience (MacLeod et al., 2015).

Remarks: A Proposal

An international one-week workshop was held in Girne, Northern Cyprus in May 2018. The aim was to understand, document, evaluate, and design the medieval Kyrenia Castle and the museum inside, where the collection contained a precious shipwreck from the 3rd century BCE (Fig.7).

Fig. 7 - Kyrenia Castle, from courtyard. Right section houses the museum. (© Zeynep Ceylanlı).

Teams divided up to work on different parts of the castle with various means of documenting and designing. Among them, five design teams were composed of tutors and students and all were concentrated on various aspects of the Kyrenia castle museum. Our design team as well handled the design problem in two stages: the first stage was to evaluate and redesign the museum in the existing section of the castle, and the second stage was to propose a separate structure just for the shipwreck. The proposal presented here is the first stage that primarily evaluates the whole collection of the museum and focuses on the shipwreck and its story while making the castle as a part of both the story and the collection.

> *The architects' work is to discover new qualities of space and to continuously re-form the existing programs and types; but, between the elements of city as structure, art as cultural communication/exploration and social/economic life, it may be best for the architect to serve as a choreographer, as conductor than as "master", best possibly, that the architect remains "behind and invisible", as a whisper of strategy.* (Papoulias, 1999)

Christos Papoulias' comment on the architect's role "to remain behind and invisible" applies to some of the examples we looked above, and to some not. However, the atmosphere of the space is something that no architect can neglect while designing a museum. While Peter Zumthor (2006) defines and explores the components of the atmosphere of the space such as material compatibility, sound and temperature, surrounding objects, and tension between interior and exterior, he underlines the inclusion of movement in architecture. He mentions that "thinking about the way people move in a building" would lead him to treat the architectural space as a "temporal art (…) akin to designing a stage setting, directing a play" (Zumthor, 2006: 41-43). Thus, designing a museum space is an act of storytelling which needs to keep the visitor attention on a certain level without missing to give the information about the collection. In the Information Age, creating an atmosphere that dwells on learning, entertaining, appreciating, and sharing definitely necessitates challenging the occupant's senses in order to achieve a unified yet multilayered sensual space. Referring to Juhani Pallasmaa (2016), the atmospheric sense acts as the sixth sense that one perceives and reciprocates in a space, while "mood tunes us emotively with our environment" (p.133). The museum proposal for the Kyrenia shipwreck in the Kyrenia castle maintains this kind of an approach.

Situation

In the example of the Kyrenia Shipwreck museum suggestion, the design team started with the observation of the existing condition of the museum inside the castle. Located at the north-eastern side of the courtyard, the existing rooms present a rather limited and impotent circulation for the visitors. The visitors are starting their route entering one room, then exiting to courtyard again and repeating it while finding themselves in an unconnected exhibition from the previous one which results disturbed flow and narration. Secondly, the concerns of the museum director were carefully noted that there are plenty more artefacts waiting in the depots in an unhealthy condition and it would be better if adequate display units were provided. The collection of the Museum consists of findings from a nearby Late Neolithic settlement, Vrysi, and from the Kyrenia shipwreck - one of the oldest shipwreck in the world - that has been brought to the surface by a diving team in 1968. Lastly and most importantly the museum director mentioned the current delicate state of the ancient shipwreck which is its open exhibition; making it unprotected from air contact, stones and dust coming from museum's ceiling and unwanted human interferences.

Flow

Our design team primarily aimed at bringing these two collections together in order to provide a continuous circulation flow throughout the museum, but mostly they concentrated on the shipwreck section which considered the most crucial and in need of help area. In order to provide controlled areas for the display of the original artefacts, we created partial elevated glass floors so that an additional surface becomes available to the visitor's experience. The continuous circulation flow is provided through the existing openings on the mezzanine level while providing an additional entrance in the third room from the courtyard that can directly take the visitors to the beginning of the shipwreck storyline. This entrance also provides access to the temporary exhibition area on

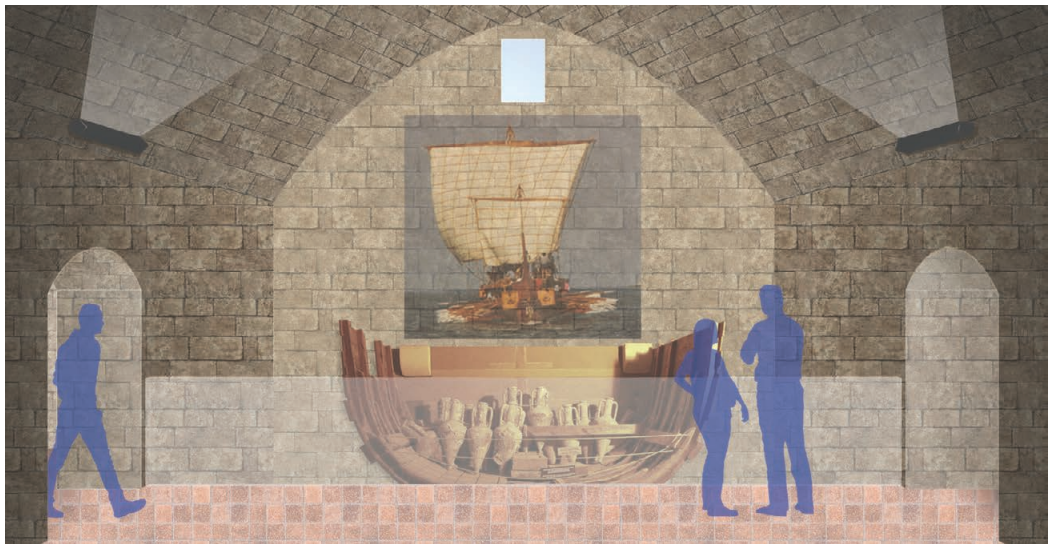

Fig. 8 - The fourth room mezzanine, facing the ship section and animated video display. (design and graphic rendering by the authors).

the ground floor of the fourth room. The design team gathered the stories of the people; the main actors of these collections to introduce them to the visitors of the museum. Firstly, the newly settled inhabitants of Vrysi welcomes the visitors in the first two rooms in the north. Their lifestyle is presented with the already existing mock-up on the ground floor which later on can be enhanced by the AR tools. Going up to the mezzanine floor, the newly designed airtight display units covers the obsidian tools, the pottery, and the pieces of jewelry with information attached to the main board located above them. Then, from the mezzanine of the third room, the visitors enter the space exhibiting the story of the people who dived and uncovered the Kyrenia shipwreck. The videos on the screens arouse the visitors' curiosity about the ship by seeing all the hard work conducted by the researchers and the locals. The multimedia presented will prepare the visitors for what to come next and it will smooth the story to move from the Vrysi exhibition to Kyrenia Shipwreck exhibition.

The fourth room mezzanine includes the findings of the shipwreck such as grain mills, iron rings, spearheads, bowls, vases, a bronze coin from the era of Alexander the Great as well as a curse tablet, four spoons, piles of almonds, olive pits, fig seeds and nuts that were displayed in glass airtight casings that prevent deterioration.

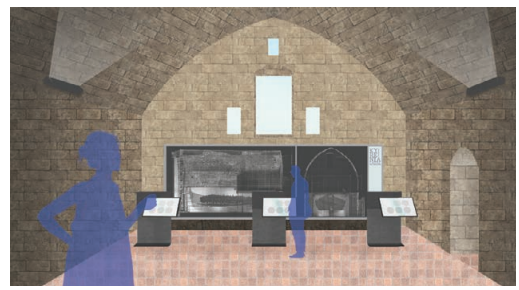

Fig. 9 - The fourth room mezzanine, smart screens for audiovisual info (design and graphic by the authors).

We propose smartphone apps to give audio and additional visual information about all the exhibited objects in order to enhance the story telling. This exact room also includes a balcony towards the east wall, where the replica of the partial section of the Kyrenia ship is hanged and displayed on above an elevated grid base floor with amphoras placed inside (Fig.8). Simultaneously, an animated video is projected above the ship section, visible from upstairs, showing the sailing Hellenistic trade ship. With this way of display, the visitors will see the precious cargo of the ship with a certain proximity, while imagining the route it was sailing in the Mediterranean Sea. This was a specific requirement by the museum director in order to protect the cargo from any damages caused by physical contact. This section also provides smart screens with remote touchpads allowing visitors hands-on experience while giving information about the segments as well as the story of the shipwreck (Fig.9).

Fig. 10 - The fifth room with the original shipwreck display. (design and graphic rendering by the authors).

Still walking on the mezzanine level, the visitors enter the fifth room, the hall of the original shipwreck preserved in a glass box (Fig.10).

The design team suggested this room an extension towards the courtyard of the castle, in order to intrigue the visitors' attention even from outside. This approach also helped the space to enlarge and provide enough space for the catwalk starting from the starboard of the ship, continuing along the bow, and landing on the portside. The chosen covering material of the proposed extension is copper-colored perforated sheet panel, which due to its humble look goes along with castle's porous stone walls. In favor of supporting the reinforced visual experience, visitors can use an AR application which induce another layer of the ship that projects the previous life of it.

The journey of the visitors ends with the additional sixth room resurrected from the demolished part, where remains the museum shop vital for museum's economic maintenance, and a storage/exhibition unit for more amphoras.

Conclusions

The main aim of the suggested interventions was enhancing the pedagogy of the museum while making people leave the museum with better understanding and knowledge that they had before they enter the museum. It also opened a way to make visitors not only the audience but the participants to create meaning in the museum.

This leads the design team to develop a whole spatial experience design while improving the ill conditions of this exceedingly important museum which is located in the historic tissue of Kyrenia. This also became the biggest anchor of the initial design choices; historicity of the location.

Because of this fact, the team tended to keep the interference level lowest while integrating the additions to the existing pattern of this historic site. In the museum, the pedagogy is supported by the various kind of technologic solutions on preservation of existing artefacts and enhanced exhibition because the museum in question was in need of better information transfer with better storytelling.

However, the use of digital technologies at documenting, restoring, redesigning, and storytelling of the museum improved the accuracy of the end-product as the architectural space and provided various dimensions and flexibility in the communication between the collection and the visitor. These interventions created multilayered museum space and provided educational, entertainment channels.

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AN INTER-DISCIPLINARY STUDENT WORKSHOP TO DISCUSS MULTI-LAYERED STRUCTURE OF TARSUS

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Abstract: In Turkey, one of the main issues in urban archaeological heritage management is the lack of communication among disciplines of urban planning, archaeology and architecture, which should work together in inter-disciplinary field of urban archaeology. Therefore, urban archaeological properties could not be handled into planning process and multi-layered context of historic city centres would not be conserved. The research project in Tarsus Historic City Centre aimed to develop a method to handle archaeological heritage into conservation planning process of multi-layered settlements in Turkey. In the scope of research project, an interdisciplinary workshop was organized with equal participation and 15 students from the Department of City and Regional Planning, the Department of Architecture and the Department of Archaeology of Mersin University. The workshop let different disciplines to work together for integrating not only known archaeological remains but also sub-soil archaeological potential into daily life.
Five student groups including students from each aforementioned disciplines studied archaeologically high potential sub-zones in settled area of Tarsus. First zone is the Mound of Gözlükule and its near surroundings. The second one is the remains of a magnificent Roman Temple that is known as Donuktaş. Colonnaded Road dated Roman Period and remains were selected as the third zone. The remains of Roman Bath and its near infrastructures were discovered in 2012 was determined as the fourth zone and historic city centre including remains of another Roman Bath, a bridge and structures was defined as the fifth zone. Each group tried to develop spatial strategies to increase visibility and accessibility of sites and enhance its relation with near environment and other cultural heritage. The groups prepared conceptual diagrams and sketches for site management including measures for information, orientation and in-situ presentation or archaeological remains. The discussions and results were published as a book in Turkish at the end of 2016. The paper is going to present discussions, proposed strategies and the results of workshop by evaluating and comparing recent findings and implemented projects in historic city centre since 2016.

Keywords: Tarsus, urban archaeology, multi-layered settlements, inter-disciplinary, student workshop.

Introduction: Urban Archaeology in Turkey

In Turkey, archaeological heritage, not only subsoil resources, even monumental sites, could not be seen, observed and understood by the most of citizens in multi-layered settlements. The most of archaeological traces could not be followed in daily life and archaeological operations are usually closed to public eyes. Although documentation and management of urban archaeological resources are interdisciplinary research interests. The lack of communication and synergy between experts is one of the main issue in Turkey (Belge, 2016).

In defined context, an inter-disciplinary research project, which primarily aims to develop a method to handle urban archaeological resources into urban conservation planning process, was recently completed in Tarsus historic city centre. In addition to methodological studies, an inter disciplinary student workshop was organized to allow them familiar with similar issues and aims to enhance student's capabilities and interdisciplinary understanding. Not only monumental and known structures, but also sub-soil archaeological potential was studied. 5 case areas were determined as; Gözlükule Mound, Donuktaş (Roman Temple), Roman Road (Cumhuriyet

/Republic Square), Zeytinpazarı (Olive Bazaar) – Bath Complex and Historic City Centre including various archaeological remains (Fig.1). Fifteen students from the departments of City and Regional Planning, Architecture and Archaeology were attended to the Workshop and five case areas were studied by groups including one student from each department. Moreover, experts from each department supported group studies.

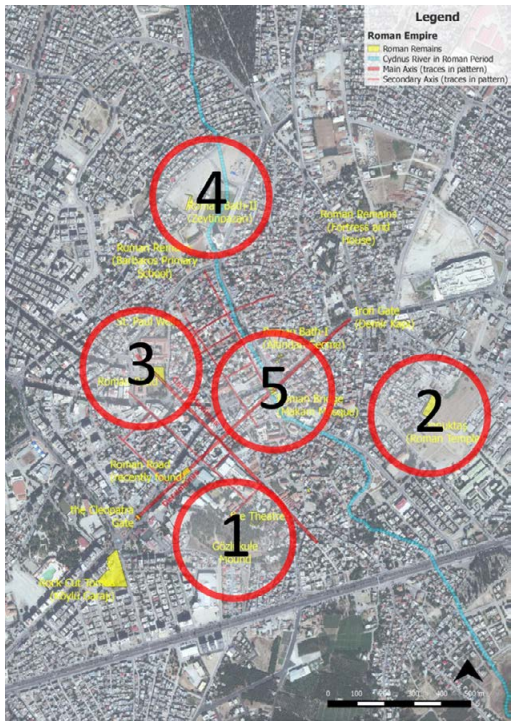

Fig. 1 - Five case study areas in Tarsus Historic City Centre.

Gözlükule Mound and near surrounding

The mound, which is known as the first settlement of Tarsus, composed of layers deposited as a result of thousands of years of settlement, rises from the plain, but the layers continue to be at least 10 m in the alluvium fill (Özyar 2008). The eastern and southern boundaries of the mound are so steep and the height of mound reaches 41m at the eastern hill (Zoroğlu 2004). There has been an ongoing archaeological research occupied by Boğaziçi University (Tarsus-Gözlükule Excavations, 2019).

Despite the lack of archaeological researches on the mound, the first settlement of Tarsus, Gözlükule Mound, is of great importance for the history of Tarsus. Preserving the city and presenting it in the city life is of great importance. In this context, for the integrations of Gözlükule Mound in urban life, local citizens should assign value to the Mounds. Physical integration can be achieved by perception, legibility and accessibility of the mound from different points of the city. In order to gain a prominent identity within the city of Tarsus, it is suggested that it may be the starting point and/or the end point in guided tours in a relation within other archaeological sites in the city. Today, the entrance of the mound in the north, in addition to the entrance by the south would be appropriate. Therefore, the connection of the mound with the D-400 highway (Mersin-Adana) becomes even more important. Within the scope of the project, a direct connection was suggested with the D-400 highway, thus aiming to strengthen vehicle transport and visual impact. In order to emphasize the identity of the mound and to introduce it to the public, it is planned to apply a section to the southern facade facing the D-400 highway side with the highest point of the mound (Fig.2).

Fig. 2 - Routes oriented to the Mound and probable location for the section.

With this section, which will be in the form of cake slices (Fig.3), it is also aimed to show all layers of the mound in a vertical manner.

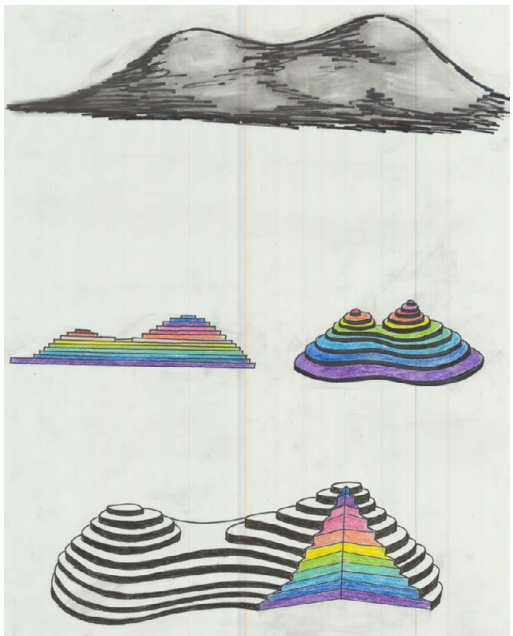

Fig. 3 - 3D sketches for section could present archaeological stratification.

Donuktaş (Roman Temple)

Donuktaş Temple, which is located in Tekke neighbourhood to the east of Tarsus. It is remarkable in that it is one of the largest temples of the Ancient Period and therefore functions as a landmark (Fig.4). The temple belongs to the Roman Emperor Hadrian period. Today, due to the destruction of the temple and some inadequacies, there are internal and external environmental problems (Held, 2015). Visual and physical pollution near around, low level of maintenance inside and lack of physical and social security are internal problems. In addition to internal issues, the temple lost its visibility by high-rise structures and inadequate fuctions around the Temples such as small-scale industries.

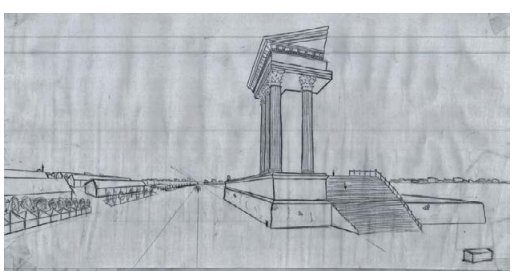

Fig. 4 - A 3D reconstruction of Temple indicating its scale compared with human scale.

The group, first of all, suggested a route for conserved archaeological remains (Fig.5). While drawing this route, existing axes, traces of ancient remains and modern street pattern were evaluated to create a cultural spine by varying street pavements, information and guiding boards.

Fig. 5 - Schematic map showing the Cultural Spine for the Archaeological Remains.

Then, in the field, the structures around the area would be demolished step by step (Fig.6) to enhance the perception of the Temple. Moreover, compatible uses would be suggested for some parts of smale-scale industries and parking areas will be arranged. In addition to site management issues. Also, some reconstructions along old city wall will be helpful for legible environment (Fig.7).

Roman Road at Cumhuriyet (Republic Square)

This group determined Roman Road and its near surroundings as a study area and aims to integrate remains into daily life.

The Road, which was revealed in 1993 by a foundation excavation at the centre of modern Tarsus, has 6.5 m wide with basalt stones and 60 m excavated part. The remains of ancient infrastructure for waste water and drainage are visible, too. There is also a columned platform just west of the street, and a house from the street next to the east side. The house with a mosaic pavement is date to 4-5 AD indicating uses of the road in later periods (Zoroğlu, 1999 – 2004).

There are several physical and social problems cause challenges for the integration of archaeological remains into daily life. However, in any way, the street pattern indicating its continuity

Fig. 6 - Steps for demolishing house structures.

Fig. 7 - Suggested open spaces from the case study.

and other similar paths, registered and listed historical entities and its well-conserved pavement seems to be potentials for site management.

In addition, the Old Court House of Tarsus next to Roman Road, has been restorated as Archaeological Museum. Therefore, the group suggested a circulation road to integrate in-situ remains into guided tours of Archaeological Museum by ramps, platforms and boards (Fig.8). Moreover, streets with in-situ or re-used archaeological remains would enrich experiences not only for visitors, but also for the local citizens.

Fig. 8 - Roman Road and Conceptual Diagram for the nearby surroundings.

Zeytinpazarı - Roman Bath

When the historical remains of Zeytinpazarı (the Olive Bazaar) are considered, it is understood that it was used as a public space in the Roman period. The ancient baths in the area and the vaulted structure in the garden of the Barbaros High School are in the form of a continuation of a complex structure. Todays, the lack of accessibility and legibility of site is a crucial problem. Therefore, a path starting from D-400 in the city centre would support the accessibility of area by the existence of four basic elements as trade, accommodation, education and sport in the site. Considering the site was formerly public space, a regeneration would be meaningful by such basic features. Revitalization of Olive Bazaar and restoration of archaeological remains enrich social, economic and physical qualities of public space (Fig.9). The cistern and vaulted structures have to be conserved and presented in-situ to create an awareness. It is aimed to use the square as a gathering, exhibition and activity area (Fig.10).

Fig. 9 - A Section presenting levels of different periods in the settlement.

Fig. 10 - 3D sketch for in-situ presentation.

Historic City Centre

There are two main arteries leading to the east-west axis. These; Adana Boulevard in the middle and D-400 highway in the south. The artery connecting the area to the north is Şahmeran Street. In the northern part of the area there are Roman Baths, Ottoman Mansion and Old Mosque (Church). In the central part, there is the Makam Mosque and the Kubat Pasha Madrasah. There are some traditional houses in the eastern side. In the west, there is the Historic Market, a street that connects to the Cleopatra Gate. In the south, the Grand Mosque, the Kırkkaşık Bedesten and the Bilal-i Habeşi are attractive elements of site (Fig.11).

Problem and potential of the areas would be evaluated according to three sub-zone as (1) Roman Bath and the Old Mosque, (2) The Makam Mosque and (3) Madrasah and the Grand Mosque. Car parking along main paths, inadequate presentation of archaeological remains and traffic flow on Adana Boulevard are main problems of the site. On the other hand, open spaces between structures, visible archaeological remains and monumental registered building are the potentials of the site.

In defined context, revisions for Makam Mosque and Roman Bridge, small-scale square arrangement, Roman Bath site management strategies and traffic management rules were developed. In any way, underground path let to pedestrian's circulation with in-situ archaeological remains was fascinating strategy of this groups (Fig.12).

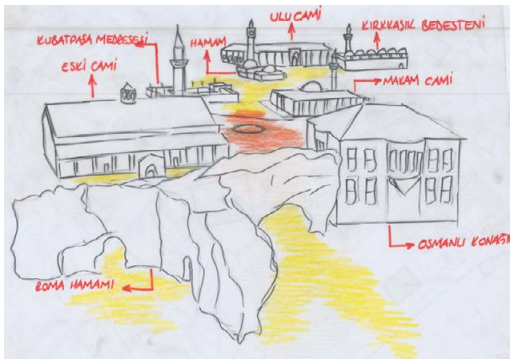

Fig. 11 - 3D sketch for in-situ presentation.

Fig. 12 - 3D sketch for in-situ presentation.

In Conclusion

Expected outputs of student workshop was developing strategies for accessibility and visibility of case areas and integrating (physical, social or economic) known and probable archaeological resources into daily life.

Therefore, they prepared conceptual diagrams and urban design projects including spatial solutions for site presentation and conservation, guiding and information boards and routes for pedestrian movement.

At the end of interdisciplinary studies, the workshop succeeds to create conservation consciousness and awareness for students from different disciplines and to enhance awareness that urban archaeological heritage management is an interdisciplinary expertise. Moreover, they understand changing and crucial roles of different disciplines. Involvement of different actors, transparency of results and dynamic structure of planning process let students to build technical capacity and social capabilities, to understand needs and priorities of other disciplines and to develop social skills for coping with group studies.

Acknowledgements

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EVALUATION OF RELATIONSHIP BETWEEN SOCIO-CULTURAL CHANGE AND SPATIAL CHANGE IN GOKCEADA (IMBROS) AFTER 1950S IN THE CONTEXT OF MULTI-LAYEREDNESS

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Abstract: One of the two islands of Turkey, Gokceada has hosted many civilizations in different periods due to its geopolitical position. The population of Gokceada was mainly composed of Greeks, during the Ottoman Era from the 15th century until the establishment of Turkish Republic. It was exempted from the population exchange program according to the Lausanne Treaty (1923) that was signed between Greece and Turkey. Thanking to this exemption, the Greek population continued to live in the island during the first years of the Turkish Republic. However, as a result of political problems between Turkish and Greek governments since the 1950s, the policies applied by Turkish government have led to dramatic changes in the ethnic composition of the population and sociocultural structure of the island. Especially after the 1970s, Turkish population has started to increase because of the resettlement policies while the population of Greeks has decreased in large scale. Sociocultural change has also reshaped the spatial structure of the island. The socio-cultural and spatial changes that have taken place in the island since the 1950s have led to the emergence of different patterns at different periods. Until the 1970s, the traditional Greek settlements and the countryside created a pattern together whereas the original pattern has been changed after the new settlements were started to be built for the resettlement of the Turkish population. In other words, a new physical and cultural environment has begun to emerge while the traditional settlements and the rural environment were being fallen into ruin. Although both the socio-cultural structure and the spatial structure have changed during this process, it can be said that it still carries the traces of the pre-1950 structure which constitutes the first layer of the multilayer structure. In this study, multi-layeredness process in the island of Gokceada, which has taken place in different periods, is explained. In addition, the relationship between socio-cultural and spatial change is mentioned and preservation strategies are discussed.

Keywords: Socio-Cultural Multi-layeredness, Spatial Change, Gokceada (Imbros).

Introduction

Since the day they were built, many factors such as geographical structure, climate, natural environment, diseases, wars and etc. were effective in the formation of built environments. In addition to the mentioned external factors, development levels of societies, population density and related variables, social movements, historical events, religion, ethnicity can be added to the list as internal factors.

However, even if all settlement has gone through the same processes physically and historically; results will be different from each other due to the different experiences of life. Consequently, the built environment is not only a process of physical change and transformation; it should also be considered as a whole with the user shaping it.

While the user experiences the built environment, he/she also shapes the physical environment by reflecting his/her experiences to the place (Sakar, 2016).

The built environment is shaped by the interaction between human and environment and the settlements are the whole of this interaction process (Kropf, 1996).

It is possible to say that the built environment

has taken its present form as a result of a spatial accumulation of experiences which are formed by the influence of different societies and ways of life. In order to put it simply, the historical, social, spatial experiences have an important role in shaping the multi-layered features of the physical environment.

In Gokceada, as a result of the interaction between human and environment, a spatial form has been shaped not only in the built environment but also in the rural environment.

However, as a result of the policies implemented by the Turkish government in 1950's, the socio-cultural and the spatial structure of the island have considerably changed. In this study, the effects of multilayered structure on the built environment in Gokceada example are investigated and the proposed guidelines are discussed for the protection of the bi-cultural socio-spatial character of the island.

Fig. 1 - Location of Gokceada (Imbros).

Fig. 2 - New Settlement Sirinkoy (www.gokceada.bel.tr)

Fig. 3 - Traditional Settlement Tepekoy

Gokceada (Imbros)

Turkey's largest island of Gokceada, about 32 miles away from the mainland, is located on the Northwestern Aegean cost of Çanakkale Province in Turkey. There are nine village settlements on the island and also a center showing urban char-

acter. Five of these villages on the island which has traditional pattern (Fig. 3) were established in the 18th century and before (Yurtseven & Yurtseven, 2002), while the other four planned settlements (Fig. 2) were built in the last quarter of the 20th century.

Gokceada has been home to different cultures throughout the ages because of its strategic position, rich natural resources, sea trade and fertile lands (Hüryılmaz, Gökçeada Arkeolojisi, 2002). The information on the history of Gokceada is based on archaeological surveys, excavations and data obtained from ancient sources (Özbek, 2008).

The oldest source of the history of the island was recorded after the struggle against the Persians in 500 BC, when the island entered the administration of Athens (Özbek, 2008). The island, which was under the domination of Rome between 215-168 BC (Aziz, 1973), remained under Roman and Byzantine rule until the conquest of Istanbul.

The island was conquered by the Ottoman Empire in 1455 after the Byzantium period. The ethnic, religious and cultural structures of the island remained unchanged under the tolerant rule of the Ottomans. The settlements founded by the Greeks (Fig. 7) which date back to the 18th century and before, are the places where the traditional settlements that still exist today (Ağıryılmaz & Polat, 2002).According to the archaeological surveys carried out at the end of the 20th century (Hüryılmaz, 2002), traces of settlements belonging to different historical periods (Fig. 7) were found especially in the west and south of the island.

Archeological surveys show that, the history of Gokceada goes back to the Paleolithic ages (Harmankaya & Erdoğu, 2000). Also, there are two mounds called Ugurlu-Zeytinlik Mound and Yeni Bademli Mound in the island where archaeological excavations were carried out (Fig. 4).

The Ugurlu-Zeytinlik settlement in Gokceada is the oldest Neolithic settlement of the Eastern Aegean Islands and the first archaeological findings date back to 6500 BC. The Ugurlu-Zeytinlik (Figure 5) settlement is located 1 km north of the southwestern coast of Gokceada. The results of the excavations in 2009-2012 indicate the presence of 5 main cultural phases in 9 settlements within the wider Ugurlu-Zeytinlik settlement. According to the surveys, the first settlers to the island are the first

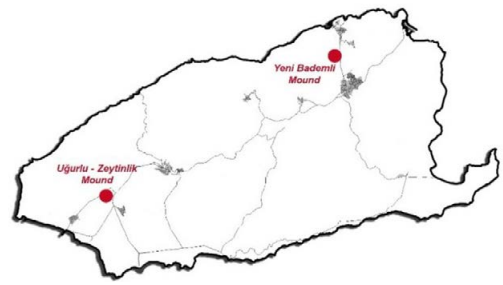

Fig. 4 - Location of Gokceada (Imbros).

Fig. 5 - Archaeological Site of Ugurlu-Zeytinlik Settlement, (https://ugurlu-zeytinlik-kazisi.trakya.edu.tr/pages/mimari)

Fig. 6 - Archaeological Site of Yeni Bademli Settlement (http://www.gokceada.bel.tr/altsayfa.php?sayfam=hoyuk)

agricultural communities from north-western Anatolia (Erdoğu, 2012).

The most important Early Bronze Age Settlement in Gokceada is the Yeni Bademli Mound (Fig. 6) which has been excavated since 1996 (Hüryılmaz, 2012). The settlement is surrounded by a defense wall and the entrance is provided by a ramp in the

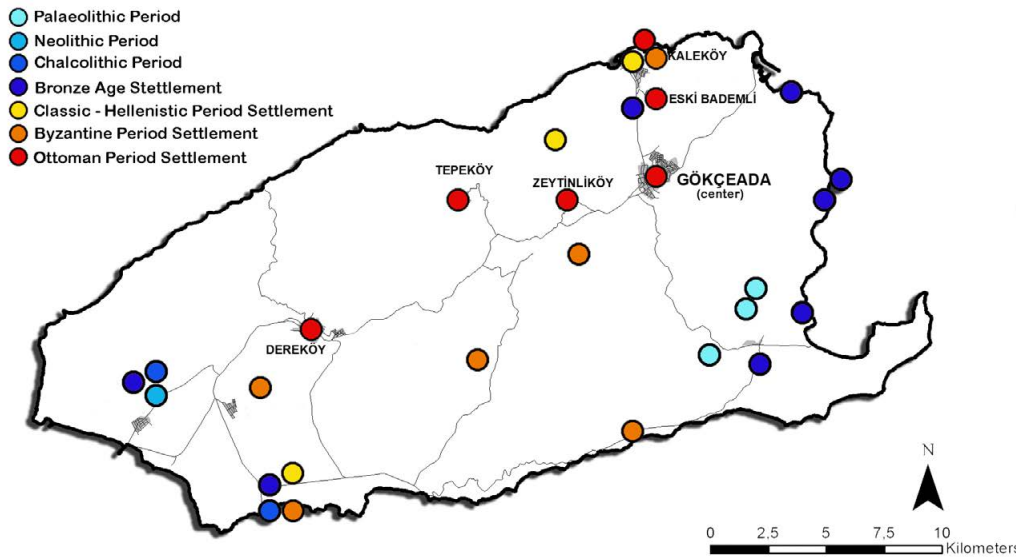

Fig. 7 - Gokceada Settlements in Historical Process at the End of the Ottoman Period.

southwest direction. The settlement has legible street pattern and the buildings are rectangular in shape (Hüryılmaz, 2012).

Multi-layered Structure of Gokceada

Gokceada hosted many civilizations including Ottomans for a long time before it became part of Turkey by the Lausanne Treaty in 1923. At the beginning of the Republican Period, Gokceada mainly composed of Greek people. Later, a tension prevailed between the Turkish administration and the Greek islanders until 1930's due to the conflictions between the Turkish and Greek governments (Alexandris, 2013).

After 1930s, three major periods (Alexandris, 2013) have played an important role in the formation of the social and spatial structure of the island.

1930 – 1963: First Period

As a result of the Turkish Greek rapprochement in the 1930s, considered to be an important turning point in the positive relations between the two countries, Gokceada gained some benefits (Alexandris, 2013).

- As a result of the increase in trade with the mainland, the islanders reached a certain degree of prosperity.
- Some of the islanders who had emigrated to America were allowed to return to Gokceada in 1933.
- Gokceada mayor, seven village headmen and some local employees elected among Greek people in the elections.
- Gokceada was once again promoted to district status in 1950 to facilitate the administrative procedures.
- In the academic year of 1952-1953, Greek lessons were added to the curricula in schools, and the level of education in Gokceada was increased in the following 10 years.
- A number of schools and community buildings were built in that period.
- In addition to education facilities, there were some developments in agricultural and fishery, health and tourism activities.

In 1950s, two different types of settlements shaped the formation of settlement layout on the island. The first one was the traditional Greek villages (Fig. 3 and Fig. 9), described as the main settlements (Fig. 8, dark brown marks). The other one was called as «dam» settlements (Fig.10) located in the periphery of the villages (Fig. 8, light brown marks). Dams were used for agriculture and livestock activities periodically especially in summer times.

There were six main settlements on the island at that period. While Gokceada and Derekoy were classified as main settlements in terms of settlement size and population, Tepekoy, Zeytinli, Kalekoy and Bademli villages were shaped as second-degree settlements (Kılıç & Aydoğan, 2014).

Village settlements generally included one or two

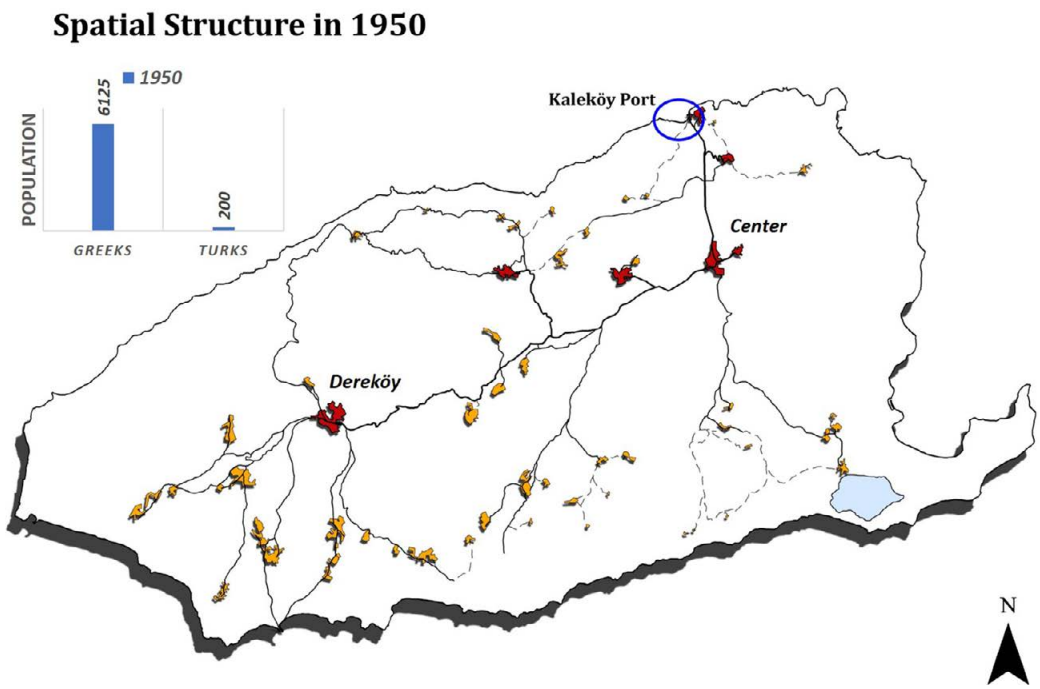

Fig. 8 - Spatial Structure of Gokceada in 1950s.

stories dwelling units, especially one-story commercial buildings (grocery store, bakery, barber shop, tailor shop, coffee houses), local production buildings (olive oil workshops, blacksmiths, carpenter's shop) and public buildings (churches, schools, chapels, laundries) (Fig. 11).

While churches are generally located in the village centers, chapels are located both in village centers and in rural areas. The unique stone-paved village streets are shaped in an organic form in accordance with the topography (Fig. 12).

The connection between the island and the main land was provided by the Kalekoy port in the north side of the island.

The main transportation axis connected Kalekoy to Gokceada and Gokceada to Derekoy. And the other village settlements: Bademli, Tepekoy and Zeytinli were connected to main transportation axis with second degree roads. Also "dam" settlements located in rural areas connected to transportation system with secondary or tertiary roads.

The population living in Gokceada in 1950 was mainly composed of Greeks. In this first period, the Turkish population on the island was 200 peo-

Fig. 9 - Tepekoy Traditional Greek Village.

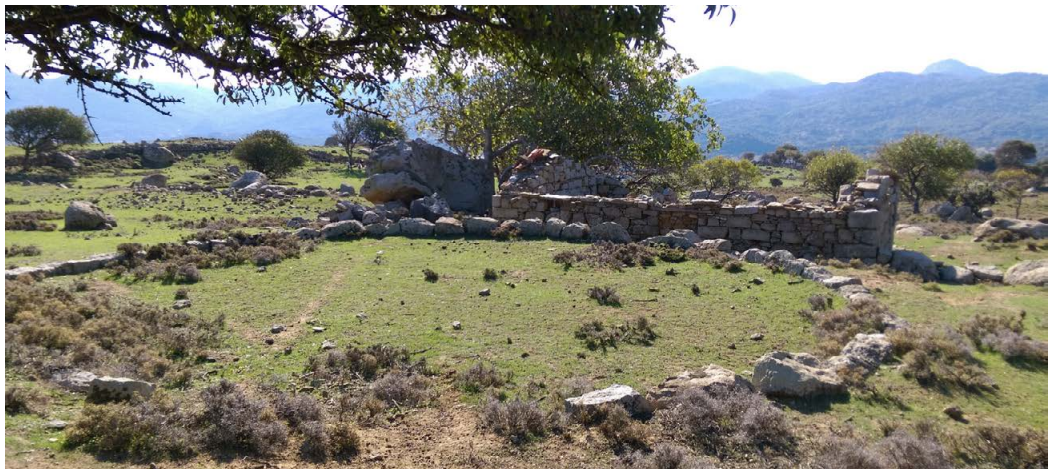

Fig. 10 - "Dam" buildings.

Fig. 11 - Tepekoy Greek School and Church.

Fig. 12 - Tepekoy Street Pattern.

ple and the Greek population was standing at 6125 people (Çalışkan, 2010).

1963 – 1990s: Second Period

These favorable developments in the first period ended with the emergence of Cyprus crisis that led to conflict between Turkey and Greece in 1963 (Alexandris, 2013). However, as a result of political problems between Turkish and Greek governments after the crisis, the Turkish government implemented policies on the island that affect the islanders adversely.

- After the Cyprus crisis, the Turkish government prohibited the acquisition of property by the Greek islanders in Turkey in 1964 (Kılıç & Aydoğan, 2014).
- In 1964, the education system implemented since 1952 was abolished and the Greek schools providing Greek education were closed down (Gross, 2008; Kılıç & Aydoğan, 2014).
- In 1960s Turkish Government nationalized 2250 ha of land which belongs to Greek population of the island within the fertile plain of Derekoy to provide land for open agricultural prison and its agricultural and livestock activity area (Gross, 2008; Kılıç & Aydoğan, 2014; Alexandris, 2013).
- In 1964, 170 ha of land were expropriated for the foundation of the Military Quarters between Bademli village and Gokceada center (Kılıç & Aydoğan, 2014).
- In 1966, 814 ha of land in the northeastern and 530 ha of land in the southeastern parts of the island were nationalized for the formation of Gokceada State-Owned Production Farm (Devlet Üretme Çiftliği) (Alexandris, 2013; Kılıç & Aydoğan, 2014).
- In 1965, the government founded boarding School named Gokceada Teachers' Training School accepted some 1,000 students, and one of its declared aims was to "spread the Turkish culture" in the island (Alexandris, 2013).
- "In 1970, Imbros (Imroz in Turkish) was renamed Gokceada and Greek place names were replaced by Turkish ones" (Gross, 2008).
- In 1973, the new settlement Sahinkaya was founded as a neighborhood of Derekoy for 61 families from a village of the Black Sea Region. In 1984, also two new settlements Yeni Bademli and Ugurlu were founded as new villages on the island.

These policies implemented by Turkish government led to dramatic changes in the ethnic composition of the population and sociocultural structure of the island. The changes in social structure also transformed the physical character of the island.

In that period, while the traditional Rum settlements continued to exist, they were largely abandoned due to the emigration of the Greeks and the

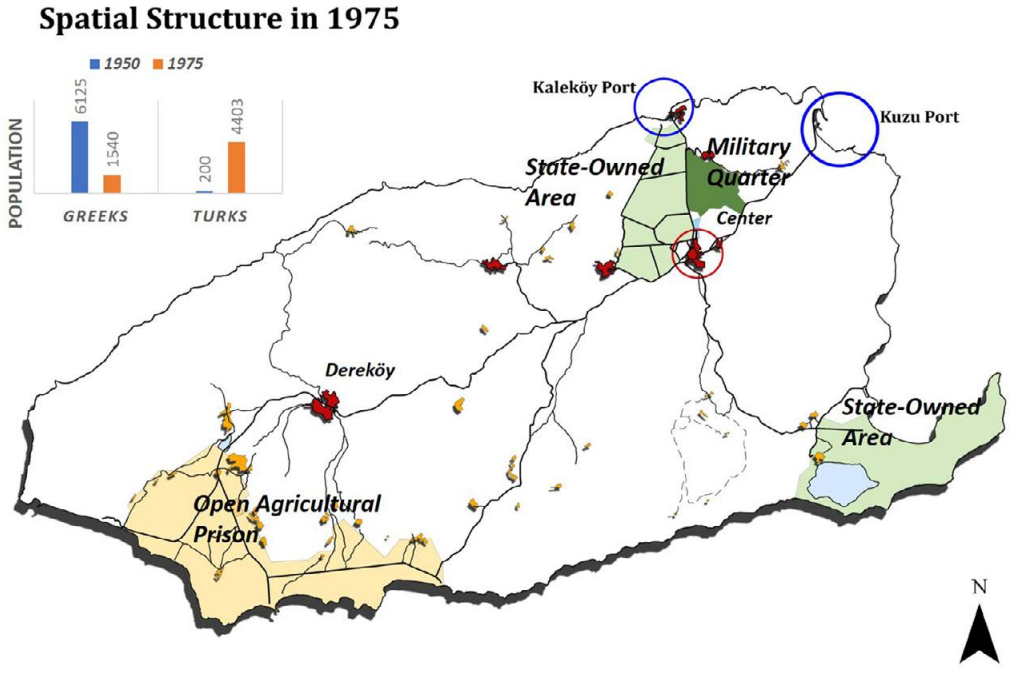

Fig. 13 - Spatial Structure of Gokceada in 1975s.

built environment was partially destroyed because of the lack of maintenance.

The dam structures in the rural environment tended to be largely extinct due to changes in agricultural activities. In addition to existing Greek settlements, Sahinkaya, Yeni Bademli and Ugurlu village settlements were established for the Turkish people brought from parts of Turkey.

Those new village settlements were built in the form of a grid-iron plan which was not suitable for the organic pattern of the traditional village settlements (Fig. 13).

In that period also, Kuzu Port and new roads were added to the transportation system of the island. Kuzu Port started to be used as a new transportation node that connects the island with the mainland. The new prison and its agricultural area in the southwest of the island and the agricultural production farm in the southeast of the island are connected by the main roads.

Especially after the 1970s, Turkish population started to increase because of the resettlement policies while the population of Greeks decreased in large scale. 75 % of the total population in the island was composed of Turkish people in 1975s.

1990s – to now: Third Period

In the 1990s, there was a change in the policies implemented by the Turkish government on the island (Alexandris, 2013).

- In 1988, the Greek islanders won the right to demand their property again.
- In 1992, the open agricultural prison was closed.
- The military security zone of Gokceada was abolished and foreigners were allowed to enter and leave the island without special permission in 1993.
- In that period, the Greeks returned to the island partially and they settled on the island after repairing their homes.
- Greek schools in Tepekoy and Zeytinli were restored and started educational activities.

Two new villages were built for the imported Turkish population named Eselek and Sirinkoy. These two new settlements were also built in the form of grid-iron plan like the previous settlements built in the previous period. While streets are compatible with topography in traditional Greek settlements (Fig. 15), rigid and straight pattern was dominant in new Turkish settlements (Fig. 16).

Spatial organization of the settlements was also different from each other. While the square, church, public laundry and school was the center of traditional Greek settlement, mosque, markets and public uses were the center of new Turkish settlements. In this period, dam structures started to disappear largely due to the abandoning triggered by the Greeks leaving the island and changing conditions in socio-economical life.

Military Quarter still existed in this period. But other expropriated areas lost their functionality.

Fig. 14 - Traditional Greek Settlements.

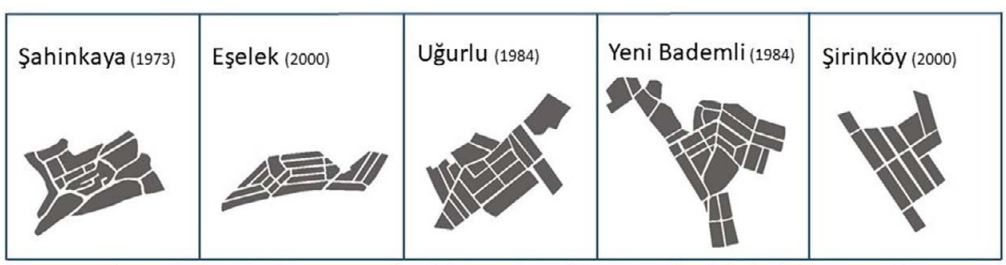

Fig. 15 - New Turkish Settlements.

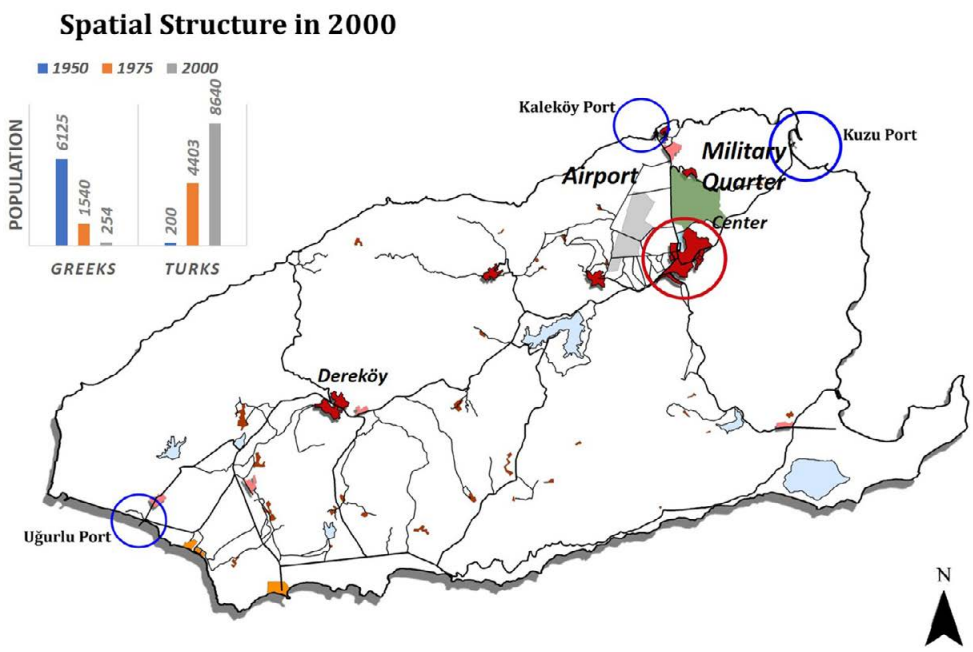

Fig. 16 - Spatial Structure of Gokceada in 2000s.

The open prison was closed in 1991 after most of the Greek people left the island and northeastern part of Gokceada State-Owned Production Farm was transformed into the airport (Fig. 13).

In this period, Ugurlu port was added to transportation system as a new node. The new port though didn't become the main hub, increased the transportation capacity of the island. Kuzu port, which was always the primary transportation hub, continued to be the main hub of the island. 98 % of the population is Turkish in 2000s (Fig. 16).

Conclusion

As a result of the circumstances that developed within the historical process from 1930s to now, mainly experienced as three different periods, it can be said that not only the spatial layers but also the sociocultural layers were formed in Gokceada. In these periods spatial structure of Gokceada has undergone a rapid transformation.

In the first period from 1930s to 1960s traditional organic Greek settlements and the rural countryside were created a pattern together in the island. However, in the second period between the years 1960s and 1990s the original pattern of the island has started to change after the construction of new settlements. In addition to the construction of new settlements, the spatial policies implemented by the Turkish government have contributed to the change of the traditional organic pattern of the island. Finally, two new settlements built in the 2000s played an important role in shaping the current form of the island.

These new Turkish settlements are different from the old Greek settlements in terms of features such as building types, settlement types, forms and layouts, street pattern etc.

From the beginning of the first period to now, not only the spatial structure, but also the socio-cultural structure of the island changed dramatically. After the end of the post-war tension between the years 1923 and 1930, Gokceada maintained its ethnic composition of the population structure during the welfare period until 1963. However, between the years 1963–1992, Turkish-Greek tension experienced, the policies imposed by the Turkish Government caused transformation of the Greek-weighted population structure into a Turkish-weighted population structure.

The socio-cultural elements (cultural and ethnic structures, traditions, local forms of production, traditional life, economic conditions, religion etc.) which belong to Greeks have disappeared significantly with the change in the population structure in these multi-layeredness periods.

The fact that the Greeks have not completely abandoned the island and that they have returned to the

island recently made it possible for Gokceada to preserve its bi-cultural social and spatial structure which are in harmony with each other.

In order to preserve this multi-layered social and spatial structure instead of nationalist attitudes, a human-centered approach should be adopted and;

- Taking measures to prevent the ethnic Greek population from leaving the island and to promote the return of the Greek population to the island as in recent times,
- As a result of restitution of legal rights, the island's former and current ethnic Greek islanders are allowed to preserve their cultural structure.
- Social and spatial rights should be distributed equally, without any privileges between Turkish and Greek citizens in the island.
- Necessary measures should be taken to protect archaeological, architectural, natural and cultural heritage.
- Agriculture, livestock and fisheries activities which are the main livelihood of the population living on the island should be supported and encouraged.
- Tourism should be supported by taking into consideration the balance of protection and carrying capacity.
- Cultural rituals, ceremonies, characteristic production techniques and crafts, which are the components of socio-cultural structure, should be passed on to future generations.

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THE DOUBLE-CHAIRED VOUSSOIR BARREL VAULT OF THE GYMNASIUM CALIDARIUM: SALAMIS, CYPRUS

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Abstract: In the archaeological area of Salamis in Cyprus, the colonnade of the *Gymnasium* was first excavated in 1890 (Arthur, Munro & Tubbs, 1891) and interpreted as part of Temple of Zeus. The area was recognized as a thermal complex following new excavations in 1925 (Jeffery, 1926), which therein uncovered partially three vaulted *aulae*. Even though the dating of the complex is still today an open issue, the architect designed this barrel vault, "une voûte faite de larges dalles assemblées" (Karagheorghis 1959) with joggled, or to better say double-chaired voussoirs, an anti-seismic device (Camiz, 2015), on top of a thick wall of limestone ashlars. The *debris* of the vault is still visible on the floor, as the structure collapsed maintaining in great part its form. The single voussoirs have chaired edges matching the corresponding form of the adjoining ones. This singular configuration resembles that of the vaulting ribs with armchair voussoirs (Lancaster, 2015) with the main difference that the edge here continues on the four sides of the voussoir. The paper illustrates the complex of the *Gymnasium* using a terrestrial and UAV close range digital photogrammetric survey, processed with a structure from motion software to obtain drawings and details, and attempts the graphical reconstruction of the vault so to understand its structural behaviour. Using the comparative method it was possible to analyse the results of the survey with reference to other coeval examples of chaired and joggled voussoir vaults in the eastern Mediterranean area. The aim of this research is to give a date and an author to this singular structure that lies in fragments on the ground, for the further understanding of ancient seismic structures in the eastern Mediterranean.

Keywords: Architecture, Archaeology, Seismic Design, Stratigraphy, Digital Photogrammetry.

"A stratigraphic sequence is created by the interpretation of the stratification of a site according to the Laws of Superposition, Original Horizontality and Original Continuity."

(Harris, 1989: 34)

Introductive methodological annotations: stratigraphy Vs. topography

For most people what is most important digging an archaeological site is what you find into it, for modern stratigraphy the most important thing is instead the soil that you dig out of the site. The data provided by the stratigraphic units of the soil helps to construct a stratigraphic sequence, which is essential to date the artefacts found in the excavation. The use of epigraphic data to date and establish the function of ancient buildings belongs to an old school of archaeology. It lays its foundations on one principle; if we find an epigraphic inscription close to a building, it surely belongs to that building and it is therefore possible to assign it to the building interpreting the contents to date the architecture and establishing the name and function of the building. In the evidence of a new stratigraphic approach, the finding of an epigraphic inscription is still meaningful, but to be correctly interpreted is has to be associated with the stratigraphic unit where it was found. If the comparison is possible here, in the analogy with the use of toponymy for history, we should interpret place-names within the diachronic sequence they belong to, rather than as standalone chronological markers (Camiz, 2016). In the case of the Salamis *gym-*

nasium, the mistakes given by the application of the pure topographic method for the interpretation of buildings is even more evident, since it was initially attributed as a temple dedicated to Zeus, hence the finding of an inscription with that name. In Salamis, and in many other cases, there was a long post-antique phase in which marbles belonging to the ancient buildings were taken away, and either reused as building materials elsewhere or burnt to prepare lime. Therefore, an epigraphic inscription, usually in marble, may be found in one site not only because it originally belonged there, but also because it was brought there for some reason later. Only if the stratigraphic sequence is described, and the stratigraphic unit to which the epigraphic finding is known, it is possible to use its data with historical precision.

History of archaeological excavations

The history of archaeological excavations at Salamis begins in 1890, after the administrative transition of Cyprus to the British Empire (Karagheorghis, Vermeule 1966). Members of the British expedition, which included Munro and Tubbs, concentrated their research by partially excavating an artificial hill in the northern sector of the city, revealing a stretch of the colonnade, then interpreted as τεμενος of the temple of Zeus (Arthur, Munro & Tubbs, 1891: 106, seq.).

The building is a densely stratified palimpsest reconstructed several times on the ruins of earthquakes that damaged the city. First built during the rule of August, according to epigraphic evidences, archaeologists have dated one phase of the complex to the principate of Trajan 98-117 A.D. (Pouilloux, Roesch, Marcillet-Jaubert, 1987: 21). Others agree on dating the masonry walls to the II century (JEFFERY, 1926). On the base of the statues and coins found during the excavations, Karagheorgis (1964) pushed the last phase of use to the V century. Stewart (2012) also agrees on dating the last phase of the complex to the period following the 342 AD earthquake that destroyed the city of Salamis. According to Megaw (1957: 47), the collapse of the vault is to be dated after the VII century for the coins found below the structure.

It was only in 1952 that systematic excavations took place entrusted to V. Karagheorghis as the principal researcher (Karagheorghis, 1999), which led to the discovery of an imposing complex of Roman structures identified as a "*Gymnasium*". From the analysis of the structures, the scholar identified four constructive macro-phases, the oldest of which dates back to the 2nd century. B.C. (Hellenistic *gymnasium*), rebuilt during the Augustan age, extended during the 2nd century A.D., with further renovations and restorations that took place in the late antique and Byzantine age.

In the first construction phase, the Hellenistic *Gymnasium* postulated by Karagheorgis and Megaw[1] rests on the discovery of some masonry structures in limestone blocks, partially preserved below the west wall of the quadrangle. The hypothesis of a Hellenistic phase of the "*Gymnasium*" is supported by some epigraphic evidence[2], an epigraph belonging to the reign of Ptolemy V mentioning a *Gymnasium*, and from the discovery during the excavations of several fragments of Hellenistic pottery.

The second construction phase according to Karagheorgis (Karagheorgis, 1968: 200) was characterized by the re-construction of a "*Gymnasium*" in the Augustan period, following an earthquake that shook the city in 15 B.C. A primitive thermal plan could be dated to this phase, but it is doubtful to ascribe the construction to the Augustan times in absence of incontrovertible historical and epigraphic elements (Mitford and Nicolau, 1974: 5-6). Furthermore, in Asia Minor the renewal of *Gymnasium* structures with the addition of baths usually dates to the post-Augustan period (Yegül, 1986: 151; Yegül, 1992: 256). Below the eastern portico of the *Gymnasium*, incorporated in the subsequent reconstructions, fragments of block wall structures of the façade with stucco-coated stone columns were found[3].

During the third phase, in 77 A.D. another violent earthquake damaged the city[4], and the *Gymnasium* with the connected thermal baths were damaged. The epigraphic[5], numismatic and sculptural sources indicate that it was especially during the Flavian period that the assignment of imperial aid was recorded for the restoration of the damage of the Salamis earthquake[6]. Most of the structures visible today would belong to the time between the end of I cent. and the beginning of the II century. A.D., being part of, according to Karagheorghis, the Roman phase of the "*Gymnasium*" (Sabri, 2018, 7-10). During Trajan's and Hadrian's principate the plan was enlarged and underwent important transformations, both in the arrangement of the *Gymnasium* and in that of the thermal com-

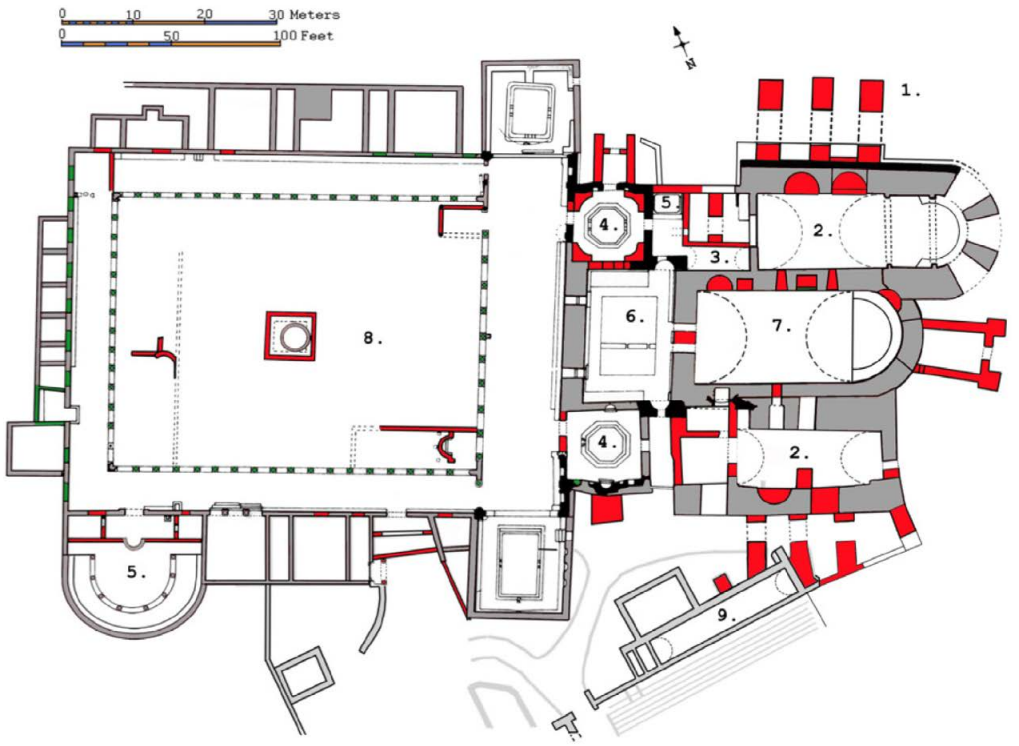

Fig. 1 - Plan of the baths at Salamis-Constantia. Black, III AD or earlier; grey, IV AD; red, up to VII AD (Stewart, 2012).

plex. We know that in 116-117 A.D. Trajan, in the aftermath of the Jewish uprising led by Artemion, which caused considerable damage to the city, reconstructed the roof of a *Gymnasium* pool (Pouilloux, Roesch, Marcillet-Jaubert 1987: n. 38, 21).

Αὐτοκράτωρ Νέρουας Τραιαν[ὸς]
Ἄριστος Καῖσαρ Σεβαστὸς Γε[ρ]-
μανικὸς Δακικὸς Παρθικὸ[ς]
ὀροφὴν κολυμβήθρας τῆς [ἐν]
τῷ γυμνασίῳ συμπεσο[ῦσαν]
ἀποκατέστησε[ν διὰ — — —]
. . . . γιου Πατε[ρ— — — ἀνθυ]-
[πάτου(?) — — — — — — — —]

An example of intercession for imperial munificence is that of Pliny the Younger who, during his proconsulate in Bithynia, wrote to Trajan to ask for an expert architect for the reconstruction of the Nicea *Gymnasium* complex, "... cogor petere a te non solum ob theatrum, uerum etiam ob haec balinea mittas architectum ..." (Plin. Ep. X, 39, 4-6). No epigraph, however, throws light on the alleged building activity of Hadrian in Salamis. Thanks to Yegül, we now assume that the impressive wall

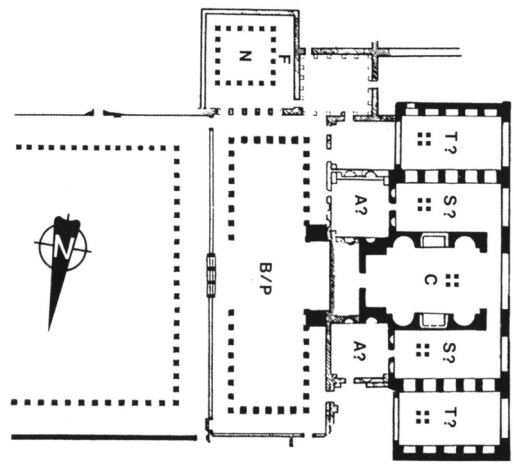

Fig. 2 – Plan of Hadrian's baths in Aphrodisia (Nielsen, 1990).

structures of Salamis belong to the well-known type of the *Gymnasium*-baths, a monumental "multi-purpose" architectural form (Yegül, 1986: 5 ss, 147 ss, 150-151; Yegül, 1992: 250 ss, 309, 488). This type was widespread in Asia Minor in the middle imperial age and its processual evolution is connected to the exponential growth of

cities in this period, and which combines the type of the columned *Gymnasium* with the vaulted bath facilities. Its distinctive features, despite the regional differences, are constituted by the presence of the quadrangular area for the *Gymnasium*, by the symmetrical arrangement of the rooms along the main axis of the building, usually East-West, with an architectural rather than functional path, which ends in the rooms of the heated area.

The complex *Gymnasium*-baths of Salamis is considered a hybrid specimen built in compartments and in an additive way (Yegül, 1986:150), with a *Gymnasium* and the block of thermal baths as two juxtaposed units rather than really integrated ones (Yegül, 1992: 251). The cases of this type, which is indeed well attested in Asia Minor, are collected by Inge Nielsen (Nielsen, 1990, II, C), who incudes to this category some 13 complexes, including that of Salamis. From the planimetric point of view, within this architectural typology, the *Gymnasium*-baths of Salamis presents characteristics similar to those of the thermal complex of Aphrodisias[7] (fig. 2). The latter, was built around the middle of the 2nd century. A.D., has a double *frigidarium* of quadrangular shape on the sides of the *tepidarium* (with North-South axis); the arrangement of the warm zone comprises a *calidarium* flanked on its long axis by pairs of heated rooms.

Also the view on the large court with porticos recalls that of the eastern portico of the Salamis *Gymnasium*, a feature also present in the C baths of Antioch (Yegül, 2000,149-150, Figs. 3-4), where the thermal rooms were preceded by a porch with vestibule function, and a field for athletic exercises took the place of the *Gymnasium*. We should also mention the decoration that covered the deep niches carved in the thickness of the masonry of the thermal rooms, which originally housed polychrome wall mosaics[8].

In particular, for the purpose of this contribution, in the *calidarium* there are the following mosaics: in the North wall sub-arch, an acanthus festoon with branches and female figure with a head surmounted by a *kalathos*; in the centre a medallion surrounded by a *velarium* motif with part of the bust of a figure inside it. (Fig. 16); in the open niche along the North wall, the mosaic fragment of the apsidal calotte, with the presence of a plant sprouting from the ground, probably part of a figurative scene. The other rooms also have a rich mosaic decoration; for stylistic framing and the new iconographic reading we refer to the contribution

Fig. 3 – Aerial photograph of the eastern portico of the baths at Salamis-Constantia (Copyright: Camiz, Tedeschi, Griffo, 2018).

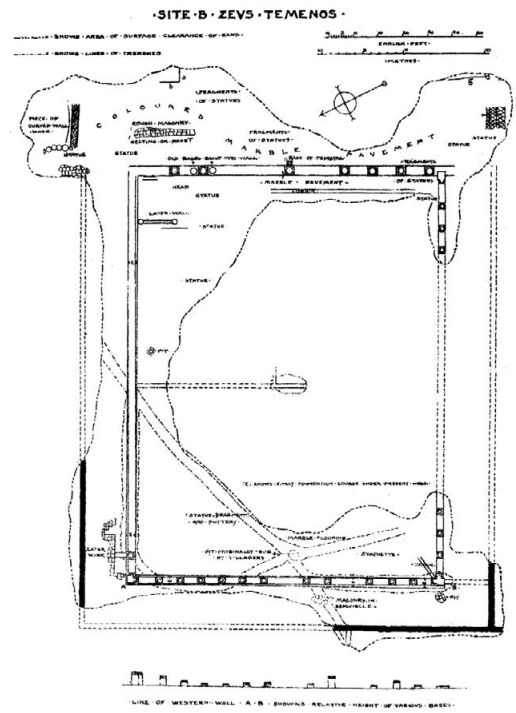

Fig. 4 – Plan and section of the baths as excavated in 1890, recognized as Temple of Zeus (Munro et al. 1891).

of Musso (Musso, 2004: 310 ss.). For what interests us here, we should emphasize that the mosaic decoration of the niches and the intrados of the arches are unanimously considered homogeneous[9]. The proposals for dating the wall mosaics can be summarized from the middle of the III century A.D.[10] to the end of the III century A.D.[11]. In the fourth constructive phase, the literary sources set the date of the earthquake that destroyed, among others, the city of Salamis at 332 or 342 A.D.[12]. The literary and epigraphic sources[13] testify the intense activity of reconstruction of the city started

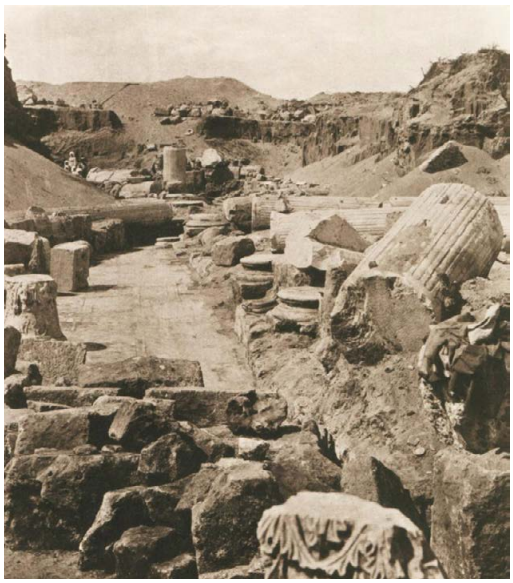

Fig. 5 – Photo of the baths as excavated in 1890, from the North (Munro et al. 1891).

Fig. 6 – Photo of the baths as excavated in 1890, from the South (Munro et al. 1891).

by Constantius II (337-361 A.D.) when the city was renamed Constantia. According to the excavators' interpretation, the complex was affected by restorations aimed at the functionalization of the baths and the eastern portico, with the loss of function of the *Gymnasium*, transformed into a place for meetings, and the de-functionalisation of the environments that faced it. In this phase the marble and floors coming from the theatre were re-used in the *Gymnasium*-baths; columns with Corinthian capitals replaced the original elements in stucco and limestone of the portico of the *Gymnasium*[14]; in the eastern portico the *sectilia* floor, partly from the theatre orchestra, replaced the previous mosaic floor (Karagheorgis, 1970: 14). The passages and the openings of the apses were closed, as well as the niches and arches along the walls of the main thermal rooms[15], for reasons likely related to problems of structural statics (Musso, 2004: 309), rather than for religious reasons[16].

Fig. 7 – The Salamis central calidarium interior space after the last excavations with the fallen vault voussoirs still in situ (Karageorghis 1963).

Fig. 8 – The hypocaust of the semi-circular pool in Salamis central calidarium before the restorations (Karageorghis 1968).

Similar static necessities led to the construction of the buttresses resting on the external walls of the baths (Karagheorgis, 1967: 353, fig. 161, 364). The chronology of the restorations oscillates in the archaeological literature between the V and the VI

century. A.D.[17], mid-V century A.D. (Karagheorgis, 1963: 585-586), and post-earthquake 332 and/or 342 A.D.[18]. The discovery of some epigraphs reused in the floor of the eastern portico of the complex could provide chronological indications on its reconstruction: in particular to the V century. A.D. the epigram dedicated to the *evergetes* Olimpius (son of Antiochus) should be reported, describing the restoration of the structures in the thermal complex, and the arrangement of gardens[19]. This epigraph could constitute a *terminus post quem* for the restoration of the aforementioned pavement, if it were not that, reused in the same floor, there is a further epigraph referring to restoration works carried out by the father of the *evergetes* Olimpius, Valerius (Fl. Antiocus Ammianus Valerius) and active after the earthquake of 342 A.D.[20]. The presence of the two epigraphs has raised doubts about the paternity and the chronology of the restoration of the portico. Nevertheless it is in this last fourth phase, roughly post 342 A.D.-VI century that we have hypothesized the construction of the barrel vaults with double chaired voussoirs, with some-how of a preference for the last stretch of time around the first half of the VI century, even though there is no certain indicator in this sense.

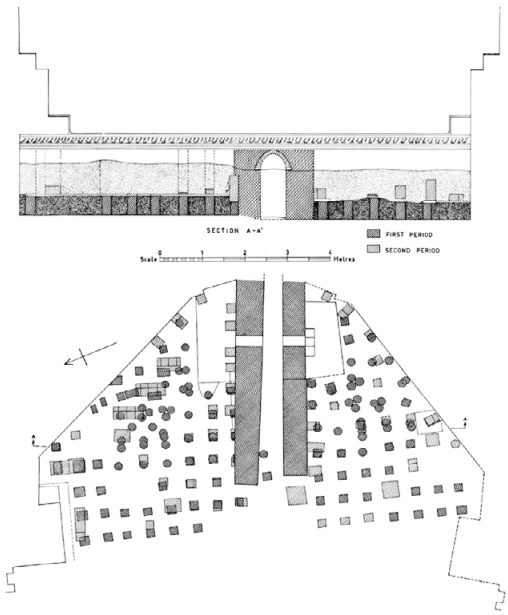

Fig. 9 – Hypocaust of the semi-circular pool in Salamis central calidarium, plan and section (Karageorghis 1968).

Digital photogrammetric survey

We conducted surveying operations between July and August 2018, the data capture aimed at the *calidarium* and its surroundings. The very first goal was to provide a survey of the area using massive data capture techniques, which allowed to create a digital surrogate of the real object that proved to be a solid base for further studies and interpretation. In addition to documentation purposes, the survey played a key role providing information about stratigraphy of different parts of the complex and giving the chance to analyse them combining 2D

Fig. 10 – Salamis central calidarium, Terrestrial Digital Photogrammetric survey plan (Copyright: Camiz, Tedeschi, Griffo 2018).

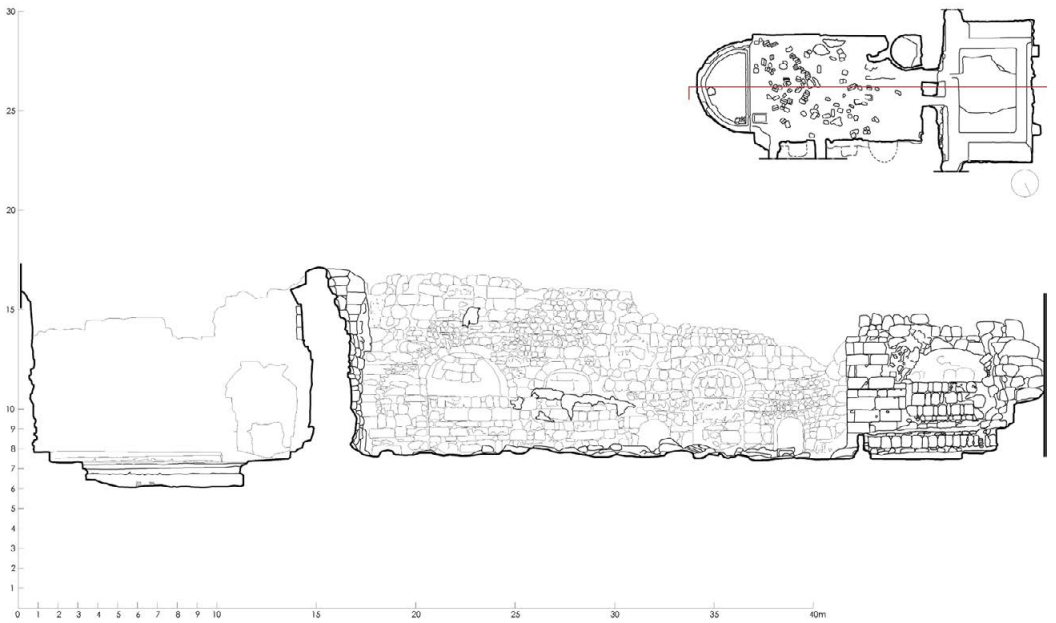

Fig. 11 – Salamis central calidarium, Terrestrial Digital Photogrammetric survey section (Copyright: Camiz, Tedeschi, Griffo 2018).

Fig. 12 – The central calidarium, Terrestrial Digital Photogrammetric point-cloud (above); aerial Photogrammetric Survey, textured model (Copyright: Camiz, Tedeschi, Griffo 2018).

Fig. 13 – The central calidarium, Aerial Photogrammetric Survey, point cloud plan (above); UAV aerial Photogrammetric Survey, orthophoto (Copyright: Camiz, Tedeschi, Griffo 2018).

and 3D models. Considering the great extension of the archaeological park of Salamis, an area of around 70 metres per side containing the *calidarium* and the Southeast side of the *Gymnasium* was

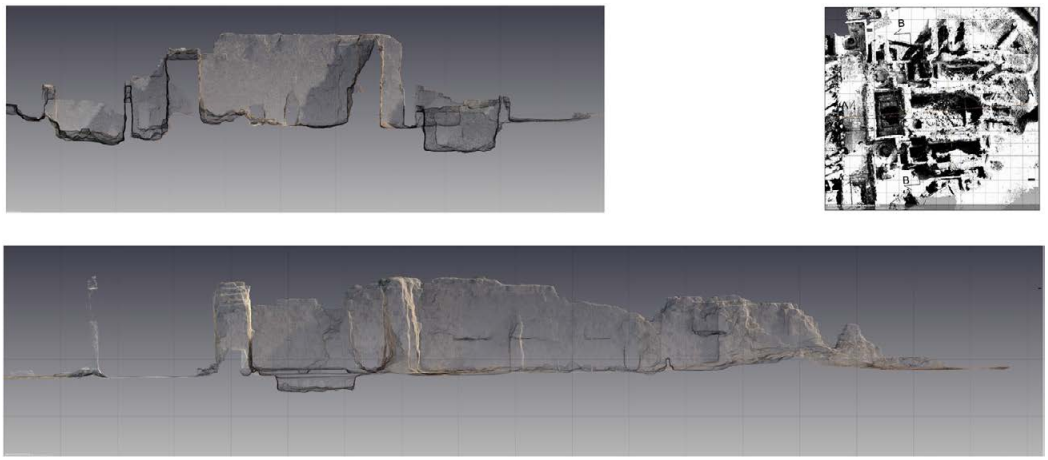

Fig. 14 – The Gymnasium Baths, Aerial Photogrammetric Survey, sections AA and BB, keyplan (Copyright: Camiz, Tedeschi, Griffo 2018).

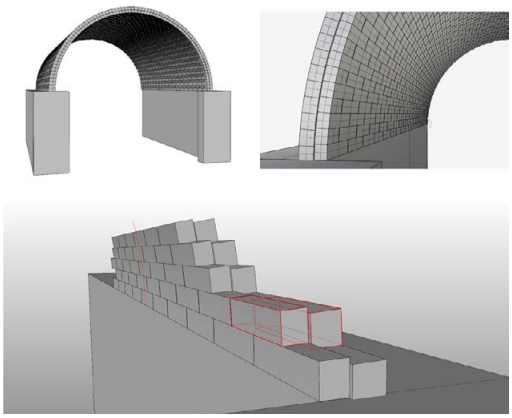

Fig. 15 – The central calidarium barrel vault, reconstructed model (Copyright: Camiz, Tedeschi, Griffo 2018).

Fig. 16 – One of the niches in the central calidarium showing a mosaic (Musso 2004).

circumscribed and selected to accomplish the survey. Structure from motion photogrammetry, combined with direct measurements, proved to be a valid methodology for data capture of the area.

We executed field data capture with both terrestrial and UAV cameras[21]. Terrestrial image acquisition aimed to collect information about the *calidarium* itself and the voussoirs of the vault collapsed on the ground, we used the set of pictures coming from the drone instead to produce a larger scale model of the area including spaces attached to the *calidarium* and one side of the *Gymnasium*'s colonnade. The main issue encountered during the image acquisition phase was related to the weather conditions, a permanent cloudless sunny sky generated strong shadow/light contrasts on the objects, in the images and, consequently, in the point cloud. Considering the main expectation of the survey, this was not a crucial issue since RGB fidelity was just a secondary goal compared to an accurate geometric reconstruction. We acquired e relatively high number of pictures the handheld camera, and then selected 350 images for the Structure from Motion/Image Matching software[22]. We used targets to improve feature detection during the alignment stage, and eventually as an aid for the connection of different data sets. The camera data was integrated with GPS data to speed up the estimation of the camera position, but it proved to be not sufficiently accurate, for this reason GPS data was discarded from pictures during the pre-processing phase. The dense point cloud and the ortho-images derived from the SfM/IM procedure were then used as a metric and geometric base for the description of architectural features by the mean of 1:50 drawings (Fig. 10, 11). An additional output of the point cloud was a digital elevation model (DEM) (Fig. 17). With a

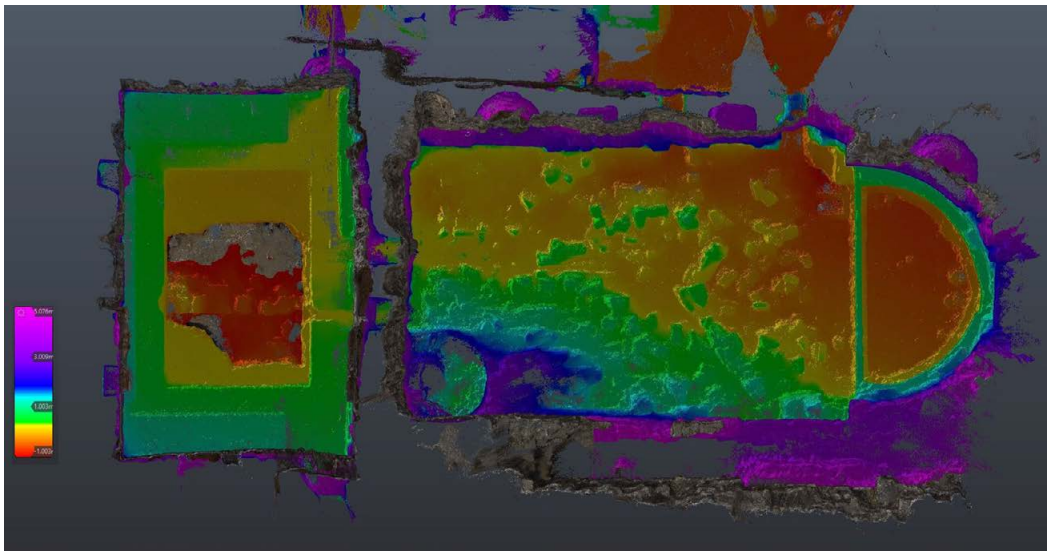

Fig. 17 – The Gymnasium Baths, Terrestrial Photogrammetric Survey, Digital Elevation Model (Copyright: Camiz, Tedeschi, Griffo 2018).

proper selection of colour ranges, it allowed to distinguish different phases inside the *calidarium*: the original floor, the vault that collapsed on it and, finally, the circular oven constructed later on the top of the two previous layers. We accomplished a second 3D SfM/IM reconstruction using close range aerial photogrammetry with a slightly lower resolution camera integrated in the drone. We designed a specific flight plan in order to have a clear idea of the path to follow and the timing required to cover the whole area. More than this, the flight plan was necessary to define accurately the extent of the area to survey and the consistency of the neglected parts. During the survey, we captured almost one thousand pictures, and established several Ground Control Points to support the software alignment and provide a more solid and homogeneous key points for the reconstruction. Three flights were performed and the data was processed in chunks for each flight, they were then connected together during the processing phase. Following data collection, pictures were processed to obtain a 3D model of the 70x70 m. area, this was then connected to the point cloud coming from ground acquisition by a point-based alignment algorithm. By combining together the two point clouds, it was possible to work with a multi-resolution model that offered the chance to analyse the stratigraphy of the area on different scales. From the 3D model 2D ortho-images were generated, they revealed some information that was not readable just studying the existing published sources.

Fig. 18 – Single-chaired voussoirs from Qasr Al-Hallabat (Jordan), Ummayad architecture, VII AD ca. (Giuliani, 2011).

The vault of the Calidarium: comparative cases

Using the data provided by the survey, we could analyse in detail the single voussoirs of the vault, ending up with the understanding of its form and structure. We could recognise two different voussoirs, one with a double chair type A (Fig.) as the main constructive element of the vault, a second one with a single chair, most probably belonging to the triumphal arch that connected the vault with the apse' semi-dome. There might have been more of these type B single chaired voussoirs but to this day, they only belong to the collapsed arch, which lays on the floor retaining most

of its form and connection between the pieces. The form of the collapsed arch gives us the clear picture of the event that ruined the construction as a dynamic shake with a prevalent direction of acceleration parallel to the main axis of the *aula*. Photos published in 1891 (Fig. 5, 6) show clearly that the great majority of the columns fell towards the inside of the quadrangle: it is not certain but we assume that the seismic event that caused the collapse of the columns in the same that caused the collapse of the vaults.

The singularity of this structure is the double chaired-voussoir, a feature that we could not find in any other example within Roman and Byzantine architecture. Roman architecture used extensively single chaired voussoirs in the construction of monumental buildings, both in vaults (Lancaster, 2015) and in arches, where instead they are usually referred as joggled voussoirs (Camiz, 2015). All the examples described by Lancaster are somehow different, as the chaired edge is connecting the parallel arches, rather than connecting the stones one to the other as in Salamis. There are very few examples of single-chaired voussoirs connected one to the other used in vaults, such as the single-chaired voussoirs from Qasr Al-Hallabat (Jordan), which Giuliani (2011) attributed to Ummayad architects, and dated to the VII century A.D. (Fig. 18). These ruined fragments belong to a collapsed structure that was not clearly described, and might as well be ascribed to the earlier Roman phases of the fortification, therefore they could not provide a certain time indicator. Another similar case is that of the vault "à crossettes" with single-chaired voussoirs from the baths of Taposiris Magna (Egypt) (fig. 19), that was instead dated to the II century BC ca. (Fournet, 2011). This example belongs to a timeline too distant to be compared effectively with the reconstruction of the baths at Salamis after the earthquake. Even though these examples were not helpful chronologically, they do provide some regional indications, they all belong to areas of strong seismic activity, suggesting that the incredible amount of labour necessary to cut the voussoirs was intended to enhance the stability of the vault in case of decompression of its parts following a horizontal acceleration provided by an earthquake. Nevertheless, the Salamis example differs from these comparative cases as the voussoirs have chairs in two orthogonal directions (Fig. 20). This consideration is suggesting that not only this feature was intended for statical reasons

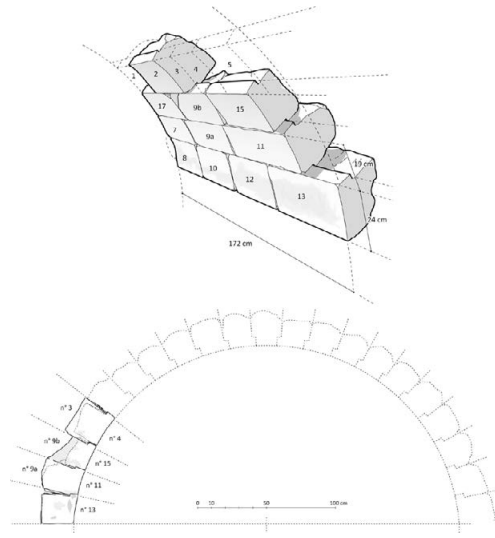

Fig. 19 – Reconstructed view and section of the vault "à crossettes" with single-chaired voussoirs from the baths of Taposiris Magna (Egypt), II BC ca. (Fournet 2011).

but also to facilitate the construction of the vault without using centring, by overlapping the layers of voussoirs shifted of half a module as shown in the reconstruction drawing (Fig. 15).

Notes

1 - Karagheorghis, 1959: 352; Karagheorghis, 1969: 167; Megaw, 1953a: 16; for a critical overview of the periodization proposed by Karagheorghis see last Sabri 2018: 6.

2 - Pouilloux, 1966; Pouilloux, Roesch, Marcillet-Jaubert, 1987: n. 62, the base of an honorary statue of Ptolemy II Philadelphos mentioning a *Gymnasium*; Pouilloux, Roesch, Marcillet-Jaubert, 1987. n. 85.3

3 - Karagheorgis, 1963: 581-5; Karagheorgis and Vermeule, 1964: 3; Karagheorgis, 1969: 227-229; finally see Sabri, 2018: 7.

4 - Girolamo and Orosio inform us that "three cities of Cyprus were destroyed by an earthquake"; Guidoboni, 1989: 666, n. 103, with reference to the sources; now also Guidoboni, 2018.

5 - Inscription of the later Servius Sulpicius Pankles Veranianus, perpetual gymnasiarc of the *Gymnasium*, priest of the imperial cult, who had assumed, among other things, the restoration of the *Gymnasium* "with the golden statues of the Augusti".

6 - Karagheorgis, 1966a; Karagheorgis and Vermeule, 1964; Mitford & Nicolau, 1974.

7 - Nielsen, 1990: II, C 293, fig. 220; Yegül. 1992: 273, 276, fig. 278, 343).

8 - Karagheorghis, 1967: 349, fig. 146; Sear, 1977: 141-142, n. 164 , tables 60.3, 61.1; Michaelides, 1987:

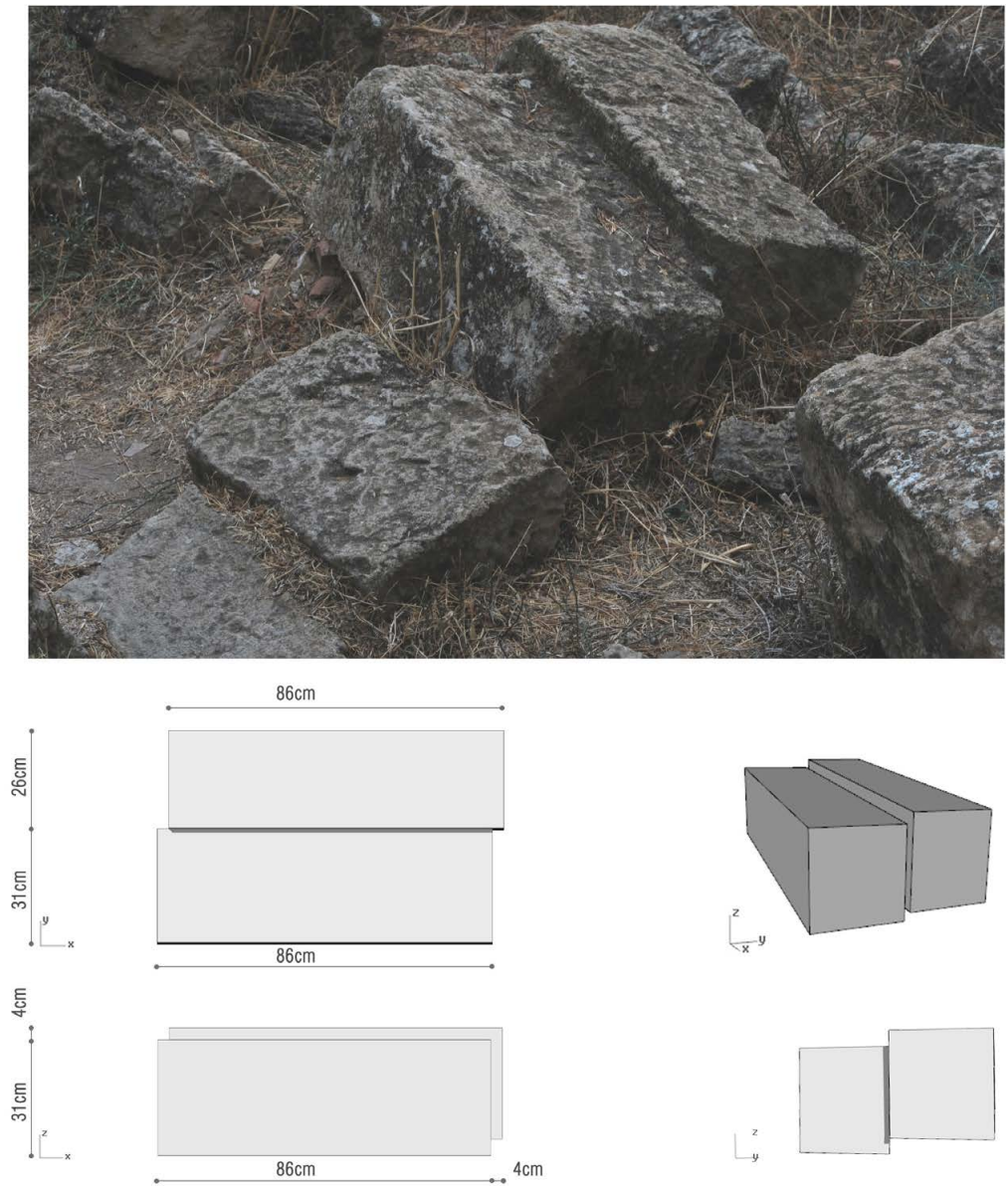

Fig. 20 – The double-chaired voussoir from the Salamis calidarium barrel vault, photo, plan, section and elevation (Copyright: Camiz, Tedeschi, Griffo 2018).

25-28; Balty, 1988: table 61, 1-4, Musso, 2004: 308, fig. 10-14, 16

9 - Karagheorghis, 1966a: 215; Karagheorghis, 1967: 351; Balty, 1988: 217.

10 - Balty, 1988: 205, 217; Dunbabin, 1999: 247, note 40; for the same dating, Musso, 2004, where 317 AD appears.

11 - Karagheorghis, 1966a: 215; Karagheorghis, 1969: 235; Michaelides, 1987: 247-248.

12 - Soren, Lane, 1981: 183; Guidoboni, 1989: 674, n. 127, ad annum 342, where the two events are restored to a single earthquake, that of 342, when a series of earthquakes affected the eastern Mediterranean.

13 - Malalas, 313; for the inscriptions see Pouilloux, Roesch, Marcillet-Jaubert, 1987: n. 202, between 342 and 361 A.D., contra Busch, 1999: 193, n. 249.

14 - Chronology of the Augustan age in Megaw, 1958: 46-47, fig. I.

15 - Karagheorgis, 1966b: table 6, 1; Balty, 1988: table 61, 4.

16 - Karagheorgis, 1966a: 213; Karagheorgis, 1969: 233-235.

17 - Megaw, 1953b: 137; MEGAW, 1954: 175; Megaw, 1958: 47.

18 - Karagheorgis, 1968; also Mitford, 1980; Balty, 1988.

19 - Pouilloux, Roesch, Marcillet-Jaubert, 1987: n. 202; Busch, 1999: 192-194.
20 - Pouilloux, Roesch, Marcillet-Jaubert, 1987: n. 202; Busch, 1999: 190-191; Musso, 2004: 310, n. 104.
21 - Handheld camera was a compact camera, Sony DSC-w730, 16.1 MP; the drone was a DJI Spark with a 12 MP integrated camera and remote control unit.
22 - Agisoft Photoscan, release 1.4.1.5925.

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NATURAL/HUMAN EVENTS AND URBAN TRANSFORMATION: WHEN THE ARCHITECTURAL AND NATURAL LAYERS CHEAT THE INTERPRETATION

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Abstract: When reading and interpreting an archaeological area, or an urban asset developed over an archaeological trace, all the remains, elements and evidence are seen according to the creation of the main idea developed in the mind of the archaeologist, the architect, the cultural heritage expert. But what appears in present time for the reading is the result of a long series of events, of changes happened in time, each of them creating a layer or behaviour in the way people used that place. The results of all these stratifications may produce difficulties in reading the real history of a place or may even cause misinterpretations from the people living in the nearby area (old and new, they are the so-called urban legends) or "sensational" interpretations supported by the will of building a news or promote personal theories. In the following paper, a series of archaeological, architectural and urban case studies will be analyzed. In between of them: the Ventotene Otium Villa from the Roman Age, the Rupestrian Settlements in Kapadokya, certain remains from the Roman ships of Pisa archaeological site, the façade of Palazzo Uguccioni in Firenze, the "legend" connected to certain military defensive tunnels taken for extremely long underground passages in various Towns. For each of these studies, some reflections will be done on the base of specific surveys and/or studies, in the try to define what creates the "artificial" story, and to show how specific investigations, like digital survey, thermal and geomagnetic investigations, or even simple reasonings may contribute to a correct interpretation and how, in a certain case, the popular "belief" cannot be beaten or changed by proper studies, no matter how weird it is.

Keywords: Urban Legends, Intangible Heritage, Misinterpretation, Archaeology, Popular Beliefs.

Introduction

The human environment is made of layers, even when we see a new settlement, when it is very recent, we know it is based on a soil with a specific evolution and with connection and surrounding areas with their own story. The fake idea of "empty territory: equal to nothing" is just in the mind of young newbies or lazy students, the world is now, more than ever, a system of complex, overlaying levels. And it is possible to say "more than ever" because of our increased capability in reading and interpreting it. When it comes the need to apply these processes of understanding and deductions to a historical building, to an archaeological area, or to an urban asset developed in a long time, or even over an archaeological trace, all the remains, elements and evidence are seen according to the creation of the main idea developed in the mind of the archaeologists, the architects, the cultural heritage experts, or by teams with a mix of such professionals. What appears in front of this minds going on speculating about the past reality of things, is not always clear and easy to catch, while the reading is done on the results of long series of events, of changes happened in time, each of them creating a single layer connected to the behaviors in the way people used that place. And these behaviors influenced the evolution of the place, but they were behaviors from a specific time, defined and logical for a past context and sometimes not easily movable into the present interpretation. The results of all these stratifications may produce difficulties in reading the real history of a place or may even cause fake interpretations. In this, one misleading element may come from the natural

mutations of the territory and of the landscape, like the transformation of the vegetation, the changes in the natural water systems, or the erosion of the stones. What appears in our time is consumed, altered, or changed in such a significant way to lose the original relationship with the context. The reasons for pushing people to use and prefer certain areas or place are gone and finding them back can be a difficult exercise. In a different and sometimes even stronger way, the convictions from the people living nowadays in the nearby area may act like a tricky factor: old and new so-called "legends" or more modern "urban legends", or even "sensational" interpretations supported by the will of building news or promote personal theories, all of them, may act in making difficult to start a correct interpretation of the events. The local beliefs may be quite hard to beat and may create curious alterations in the interpretations, it is very hard to overcome a popular illusion or a fascinating legend, and in certain cases, the popular "belief" cannot be beaten or changed by proper studies, no matter how weird it is. In the following paragraphs, a series of archaeological, architectural and urban case studies will be presented and analyzed, putting in evidence the difficulties that a layered environment may cause to understanding and resolving the information about a place, and how specific investigations, like digital survey, or even simple reasoning may contribute to reach a correct interpretation in between the stratification of events, previous readings and real transformations.

The Ventotene Otium Villa

The Mediterranean is rich in the beautiful and fascinating island, some of them, small and isolated, have a volcanic origin, robust masses of stone in between the vastness of the sea. Ventotene is a clear sample from this group, it is part of the Pontine archipelagos, it is located at about 55 kilometres from the coast between Rome and Naples. The preeminent material of the island is the Tuff, also named Volcanic Tuff, a rock made of volcanic ash. It characterizes a large geographic area. Because of its large availability and high workability (Nappi Ottaviani, 1986), in time it turned out as one of the essential construction materials for the settlements in the whole archipelagos. Ventotene increased in number and quality of its urban area during the Augustan age (44 B.C.-14 A.D.), in fact in this same period it took place the Imperial Villa Giulia realization.

The emperor Augusto made peace possible and regained its control over the Mediterranean Sea: as a consequence, many luxurious villas began to appear along the Tyrrhenian coast from Rome to Naples (Marzano 2010). The main attractions of this context were the otium villae, luxurious homes aimed at the rest of the body and soul. Villa Giulia was an important stop for the imperial journeys: it was set in a spot where the climate was pleasant, capturing the common feature of all the other types of maritime villas, which is a deep symbiosis with the nature of the Tyrrhenian coast, sought and obtained through the edification of panoramic terraces and pavilion deployed on multiple levels according to natural terrain conformation.

The organization of the imperial villae, especially the insular ones like Villa Giulia, was articulated in a series of pavilions and other architectural elements located in various points to exploit the scenic potential of the island's unique scenic views and portray its natural and evocative beauty (Lafon 2001).

The residential part of the villa, mostly dedicated to the otia, was designed on aesthetic criteria rather than functional issues while the Domus, another deployed pavilion, was dedicated to life-sustaining functions and the personnel living quarters (Romizzi 2001).

Other important features of these ancient constructions were the maritime quarters based both on aesthetic criteria and on economic self-sufficiency principles: ports, fish ponds and nurseries for fish farming were built in the effort of exploiting the resources of the sea (Marzano 2010). This structure was dedicated to leisure and culture. The villa also had a political function: it served as a place of confinement for the exiles of the Giulio-Claudia family, the first one was Giulia, Augusto's daughter, to whom the name of the villa is dedicated (Braccesi 2014).

The urban complex was aimed exclusively to residential purposes and included the imperial villa, the port, the fishery and a water tank to provide water reserves to the island inhabitants. Villa Giulia rises on a tuff plateau stretched out in the direction of the sea up to the extreme point of the island (300m by 100m). The original surface extension is now reduced by the erosive action of both wind and sea and due to the extraction of tufa rocks over the centuries. At the same time the

Fig. 1– Julia's Villa, Ventotene, Digital Survey of the archaeological site (Copyright: Barzacchini, 2018).

poor water resources and the extremely reduced presence of plants over the island show clearly two conditions that may alter the interpretation: 1) the amount of the ruins, testifying the original Villa are dramatically reduced by the falling of large parts of the tuff cliffs, this afflict most of all the area of the baths, making it of "not simple" interpretation. 2) the impression of a hard place to live is probably intensified by the absence of real green areas, creating a large surface beaten by the wing and arid. But this is a condition from the present days, it is possible to imagine a better overall condition in the two centuries around the year zero, with more rains and with the cistern system on the island functioning. The Villa, behind its abandon and alteration of the natural stone, is afflicted by climate change (Sabbioni, 2010).

A digital survey of the Villa remains, taking care of the main natural stone fronts, allow to read well the fragmentation of the remaining basements. The well visible trace of large blocks, detached and fallen from the cliffs witness the previous larger extension of the platform on which the Villa was developed. At the same time, this altered condition accentuates the "panoramic" aspect of the remaining spaces, the baths appear as facing the cliffs immediately with many rooms and corridors opening directly towards the sea. This condition needs a complete re-reading and this can be done starting from an accurate digital survey (Fig. 1) of the remains and going back to virtually reconstruct the original natural elements and architectures. In this way, it will be possible to bring back to a certain consistency the use of well-consolidated knowledge about Roman Architecture, like it is, for example for the baths (Blanco Pucci, 2010) and arrive at a more certain definition of the possible aspect of the Villa (Barzacchini, 2018).

The Rupestrian Settlements in Kapadokya

When people visit Kappadokya they are in the centre of Turkey, a geographical centre, distant from the seas, on a territory of volcanic origin that over time has been excavated and eroded by natural and human actions to become an incredible and amazing landscape to any visitor's eye. The appearance of a natural environment with a "built" appearance has certainly stimulated the first inhabitants of these areas and the long line of their successors, intervening on the rock masses by digging shelters, deposits, houses, churches and entire cities (Jolivet-Lévy, 1991 and 2002). The rock has thus crumbled and weakened and the whole of the excavations, while richly defining the territory, has accentuated the degradation and natural wear of the material, collapsing and transforming interiors into facades, showing beautiful details about to dissolve: a rich sample of fleeting wonders. The patrimony of Kapadokya appears today destined to a vast loss (Andaloro, Pignatale, Verdiani, 2013), incapable of supporting the admirable tourist load, which can only be partially preserved and for this reason even more exceptional in its last phase. The long-time of rupestrian architecture is passed, the monumental

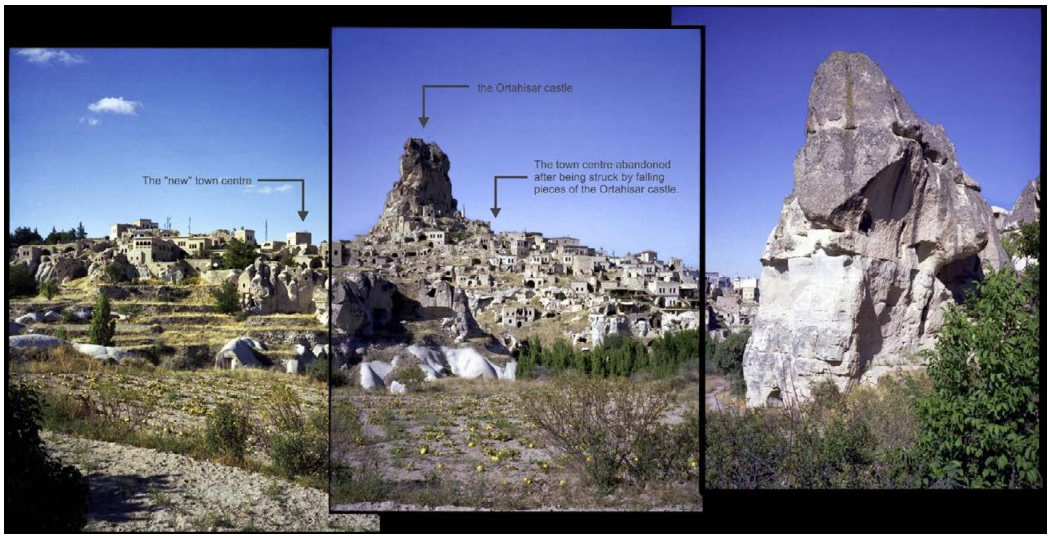

Fig. 2– Ortahisar, Kapadokya, Turkey, a useful parallel between old and contemporary urban development in rupestrian environments. (Copyright: Giorgio Verdiani, 2014).

phase remains, the exceptional resonance and vision, the intersection of incredible nature and incredible choices, which in their time have certainly appeared logical and decisive.
The large archaeological sites, the vast areas rich in ruins of various types, do not necessarily indicate a single phase in which the whole area was vital and active; on the contrary, the image of the ruins can convey the impression of a system that despite having developed in a multiplicity of years has been completely used in the same period (Crescenzi, Scalzo, Verdiani, 2016).
The incredible number of rupestrian churches and settlements may induce to believe about a very extended population, but at the same time, it does not demonstrate the real coexistence of such large populations, nor the simultaneous use of entire settlements.
It is credible to imagine that the progressive extension of the settlements, the part subject to degradation was simply abandoned, or "downgraded" to accessory uses, in favour of new architectures of more recent realization (Verdiani, 2013).
But the image that the place transmits, however, it is the one of a vast settlement, the long story of its development is received in a single spot, during a tourist visit, with an effect tending to leave the visitors amazed, more than guiding them to reasoning (Fig. 2).
Those who work in the reconstruction process must read and listen but must keep their logic and interpretative capacity in alert: the most widespread belief can often contain both real elements and potentially misleading aspects.

The Roman ships of Pisa

In Pisa, in 1998, the courtyard works for the basement of a new building along the railway line brought to the discovery of an ancient harbour with the finding of numerous ships, boats (Fig. 3) and all the remains of structures and lost items/goods from an "interchange" port who probably was functional between the V century BC and the V century AD (Camilli, Setari, 2005).
The original port was a sort of exchange place between the canals, the rivers and the routes to the sea (Sedge, 2002), a part of the ancient water infrastructure characterizing the place in the ancient times, a solution common in the human/natural water landscape of the past (Gawronski et al. 2017). Such an important archaeological site took years to be properly excavated and explored, in facts it is a still-active project for the archaeological teams at work there (Beltrame, 2016).
Thus, at the very beginning of its archaeological site, the rhythm of the excavation and the discovering was extremely fast, with one finding following immediately the other, almost in a sort of race with a high level of attention from the local, national (and sometimes even international) media

about the ongoing and unusual archaeological courtyard. In the middle of this rapid and continuous process of excavation, at a certain point, there was a long-waited moment came to its climax: a human skeleton, complete, in a pose leaving no doubts about violent death, was found. The man, fallen in the water or the mud along a very distant time, was crushed by several wood beams and to complete the dramatic scene, the skeleton of a small dog was found at a minimal distance from the human remains.

Now it is worth to say that, before analysing the details, materials, and studying with proper accuracy the whole scene, it is not possible to be sure about anything from such a scenario.

The man should be died at first, maybe falling near a dog arrived by the water in a previous moment and the beams fell on them later, completing the asset. But from the local newspaper, the day after, there was no need to investigate and analyse:

The man, "for sure" a sailor or a worker in the Roman harbour, died while trying to save his small friend (the dog) from the falling beams (Fig. 4). A whole story, quite emotive and capable of some effects ready to be told in the space of seeing what was just excavated (Amorevoli, 2000).

Thus, it should be worth of some reflections the fact that the findings in this harbour cover a time range of about one thousand years, so it is easy to imagine that all the characters of the imaginative

Fig. 3– The excavation site and one of the fisrt ships completely excavated, about 1999. (Copyright: www.comune.pisa.it, 1999).

scene are not so easy to be found in the same instant. The dead man, the pole crushing him and the dog should be arrived in different moments creating the scene found very later by the archaeologists.

But the impressive appearance is worth to construct a story and give emphasis to hypothetical events. In the end, the site is not new to "exaggerate" with words and stories, from the desire about having some warships sunk in a commercial harbour to be named "the Pompei of the sea" trying to evoke some terrible but even fascinating disaster.

But it is not the clamour that should drive

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Resuscita dopo il naufragio marinaio di duemila anni fa

FIRENZE - Il volto dell' ignoto marinaio ha preso forma dopo mesi di lavoro certosino. Strati di plastilina sulla fronte e sulle tempie, spessori ricomposti, muscolature inserite nelle ossa del cranio. Finché i tratti sono apparsi nel calco di gesso, con la magia di una scultura dalla creta. Una faccia mediterranea, virile, di aspetto familiare, che emerge dalla storia del relitto di una nave romana, affondata nell' antico porto di Pisa nel 7 a.C., dopo oltre duemila anni. Il suo scheletro è comparso l' estate scorsa insieme a quello di un cagnolino: entrambi schiacciati sotto il carico di anfore di una nave, seppelliti nella sabbia di San Rossore, chissà dopo quale tempesta. "Resti intatti - spiega Stefano Bruni archeologo e direttore degli scavi, per ora in corso solo su 8 delle 16 imbarcazioni rinvenute - Tant' è che la perfetta conservazione dello scheletro ha permesso il calco, la ricostruzione della testa del marinaio e tutta una serie di ricerche e studi eccezionali". Il lavoro per dare le sembianze al teschio è stato fatto dall' équipe di Francesco Mallegni, professore di paleontologia del Dipartimento di scienze archeologiche dell' Ateneo pisano. "Utilizzando la tecnica americana di medicina legale, abbiamo giocato con gli spessori, adattati a modelli di fisonomie europee" spiega Mallegni, elencando altri volti resuscitati nel suo istituto, l' "etrusca di Colle Val D' Elsa", o l' "atleta di Taranto del V sec. a. C., oltre ad alcune mummie senesi". L' effigie dell' ignoto marinaio sarà

Fig. 4– The news of the human and dog skeletons during the excavations in Pisa, the title indicates "A two thousand years old sailorman resurects after the shipwreck". (Copyright: La Repubblica, 2000).

archaeological investigations and in the end, there should be only hypotheses based on correct and verified facts to drive the pen in writing the final stories about the places.
Even when is nice to daydream about stories of friendship and courage in the ancient harbour.

Santa Croce, Firenze

The historical monument, especially when it arrives in our time in a complete shape, well restored, well managed and with all its parts "apparently" in the right place, even when it appears in a well coherent aspect, it is probably defined by a long and articulated sequence of interventions, with a continuous series of reconstructions, repairs and reorganizations that brought the building in our time with significant differences from its original ideation. The complex of the Santa Croce (Holy Cross) Basilica in Florence may be one of the most complete samples in demonstrating this possibility of "imperceptible" (to the most of the people) change in the built heritage.
The principal question will remain: how the transformations applied to the building are not that easy to be recognized? The gradual and progressive changes in an extended time help the effect, the materials, and their decay and consumption, the "patina" due to centuries, uniforming the surfaces made possible to misinterpreter the phases, but the whole building has a long series of changes.
From its settlement to the present time, the Church and the convent were altered, expanded, edited and received new elements (Bucci, 1965), thus composing an overall coherent ensemble of elements, all balanced by a common language, made of proportions and rules, some of them linked to the use of traditional materials, some other linked to practical and technical choices, but most of all defined by a sort of "respect" for the previous presences and then capable to harmonize the new parts with the elders.
The complex developed its asset starting from first settlements in the XIII and to define the main configuration of the Church with three naves and the convent in the following century (Moisé, 1845). The numerous interventions brought on continuous changes, but two parts remained unfinished until the XIXth century: the tower bell and the main façade on the square (Fig. 5). Both these meaningful elements passed through various tentative in time but never get a completion. Between 1853 and 1863 Antonio Matas designed and realized the façade; while with a very quick courtyard the tower bell designed by Gaetano Baccani was realized from 1842 to the 1845 (Ruschi, 1986). Both these "recent" architectures are defined by a neo-gothic eclectic style. The tower bell, especially, with its height of about 78 metres appears like a strong landmark in the Florentine skyline, thus the large dimensions of the Church and the good balance between the materials and details of the side of the building and the towers, create a well-composed system,

Fig. 5– The main front of Santa Croce Basilica as it appears today, with the façade by Antonio Matas and the Tower Bell by Gaetano Baccani, both from the XVIII century (Copyright: F. Tioli, G. Verdiani, 1998).

Fig. 6– The main front of Santa Croce Basilica as it may appear in the XVI century in case of completion of the Tower Bell by Francesco da Sangallo. (Copyright: F. Tioli, G. Verdiani, 1998).

making not immediate to recognize the tower as a later integration of this architecture. Thus, even if the present tower bell looks a coherent completion of the Church, it is far from the original asset, in time the story of the "tower bells" in Santa Croce was extremely various and unlucky (Verdiani, 2005). The original tower bell, felt on the Church during a storm in 1521, causing heavy damages and leaving poor traces, in form of replacement a simple wall with openings for the bells, a bell gable, was realized upon the apses. Probably it was considered as a provisional solution, but it was destined to be the only tower bell for about the following four centuries. In facts all the tentatives to give to Santa Croce a proper tower were somehow interrupted, one was just planned over one of the chapels, but soon abandoned after some initial works. The new large one was then designed and started by Francesco Da Sangallo, but it was left at the condition of the first base, positioned at the left side of the unfinished façade (Fig. 6). The Florentines used to name this remain "the Santa Croce Stone" and it remained in place until the new façade works in the XIX century, the realization of the Matas architecture leaves no chance for "the stone" it was completely demolished (Detti, 1997).

Even a first proposal for a new tower bell advanced in the XIX century by Ulisse Faldi was a failure, at that time Gaetano Baccani was called to give an opinion about the project and he disapproved it, even with good reason, while it was probably a too low tower to be perceived from the large square. And so, in the end, Santa Croce had the Architect for the final tower bell, Gaetano Baccani himself designed and brought on the courtyard of this significant building.

Even if the story of the tower bell was brought to completion in this way, it is clear that the long story behind it is a sort of puzzle of possibilities, each one interfering with the others and with other parts of the Church and convent. A problematic placed in between the "what if" and the possibility to better understand the dynamic and the approach to architecture in the past centuries.

Palazzo Uguccioni in Firenze

This residential urban palace (Fig. 7) was built in Florence in 1550-1559, in time it had discording various attributions: to Mariotto di Zanobi Folfi, Michelangelo Buonarroti, Andrea Palladio,

Fig. 7– The front of Palazzo Uguccioni on Piazza della Signoria square, Firenze.

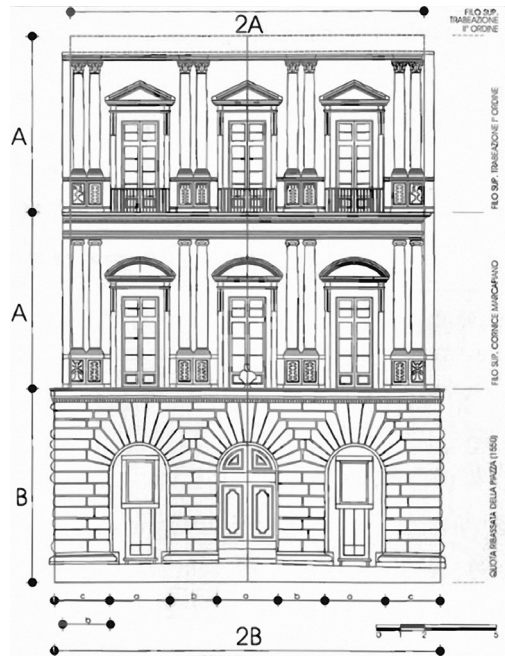

Fig. 8– Proportions and original grond level for the façade of Palazzo Uguccioni (Copyright Bianchini, Moschillo, Cambi, Verdiani, 2001).

Bartolomeo Ammannati, Raffaello da Montelupo and to Raffaello Sanzio (Fredianelli, 2007). In the uncertainty of the architectural attribution, most of the readings agree in recognizing the design of the façade about "Roman" models, defined by proportions and decoration solutions closer to the style adopted in Rome in the same period than to the Florentine approach to the subject of the urban façade (Calvani, 1984). In addition to the particular design story, the materials themselves, do not help: the use of poor quality sandstone, easy to suffer by weather effects of rain, icing,

wind, The graphical study (Fig. 8) of the front should be helpful in a better investigation of the original project, but even using a good quality survey as a base, this operation may turn out quite tricky, with some difficulties in getting correct alignment of a composition grid to the ground line of the façade. The problem is easily solved aligning the grid to the top moulding, just beneath the roof elements. The alignment of all the lines guiding the composition comes out correctly to all the other partitioning of the front, but will "sink" in the soil, for more than half a meter. This is caused by the gradual rising of the ground in the downtown, in the centre of Florence, since the XVI century, the increment in the level of the soil is estimated of about 60/70 centimetres. This rising, combined with the restorations happened in time defined a slightly reduced height of the façade, then exiting from the original composition and causing a possible misinterpretation in the reading of the original design. Such a variation is difficult to understand at first sight and needs specific research and understanding to be recognized. The rising of the soil in the most ancient parts of the town is extremely common but often is well visible because of the creation of "steps" and variation in levels between the ancient building and the contemporary floors of streets and squares. This condition is not specific for Florence only is a quite common event in all the town and cities with a long historical past, checking the variation of the urban soil is then a fundamental step before starting any analysis about the original design of a façafe or the general building asset.

Certain underground mysterious tunnels…

After his imperial proclamation, Hadrian, in 118 b.C., began the building up of his extra-urban Villa. This large architecture is one of the many examples of marvellous imperial residences that started to flourish during the rule of Tiberius (27 b.C.). Construction of this size moves the issue-solving processes from the proper conditions of a building right to the urban scale, with specific problems of people and goods movement all around such a huge settlement. The choice made for the Hadrian's Villa was to try creating an articulated network of connections completely independent and almost invisible from all the area of the Villa, which was characterized by richness and luxury, this was done for two main purposes: to avoid having a direct view on the activities of the servants and to create special spaces for walking and relaxing in the summer season for the Emperor and his court. In the Villa there are many types of connections partially or completely realized underground, some have been completely built, with the realization of a dig and then of vaults and other masonry works to integrate it to other constructions or back to the landscape, others were made simply digging tunnels into the tuff (De Angelis D'Ossat, 1973). The name used to indicate these structures is Cryptoporticus. The state of the knowledge about the cryptoporticus network in the Hadrian's Villa documents a system articulated along almost five kilometres.

The need for galleries was strictly linked to the mobility inside the Villa's area. A need which was similar to the current needs of urban mobility of people and goods. In the complex of the Hadrian's Villa, Cryptoporticus have very different characteristics, especially under the functional aspects. Often the function of a cryptoporticus changed over the years, adapting to specific needs (Verdiani, Corsaro, 2011). Generally (and often wrongly) some underground tunnels are defined cryptoporticus; cryptoporticus, in its standard definition, means a series of corridors partially buried, barrel-vaulted and lighted by small windows open on one side of the vault. Often the corridors are linked together according to a rectangular shape and are frequently placed under a peristyle. The cryptoporticus was generally used as a substructure, or to stabilize a steep terrain, or like a podium for other architectures. The network of underground paths of Hadrian's Villa (Fig. 9) can be classified according to some macro-categories: Classic cryptoporticus, for the imperial court, usually decorated.

Link ambulacrum: are galleries connecting the different buildings, they were usually used by the crew of the villa.

Underground carriageable roads: There is an extensive network of roads for the transport of supply and building materials.

Hypogean elements of service: Like maintenance galleries, aqueducts, depots, and so on.

Inside the Hadrian's Villa, almost every building is composed and serviced by one or more covered path, just near or even combined in the structures. Such a complex system asked a complex project, with very specific solutions, thus, with the decay of the area, the reason for

all these structures was forgotten. Now it is well known that easily stories and legend about fantastic "underground" construction took place among people. "The tunnel going from here to there", "The conduct from the castle to the monastery", "the secret passage", are mere samples of a reality barely perceived in holes opening in the ground and badly read from ruins and parts of old architectures. But the people from the Medieval age were probably able to enter and visit large parts of the Cryptoporticus system, the trace was so clear that no legend about a fantastic system of tunnels was created, the tunnels were there in front of them, ready for a tour. So, during the long centuries of abandon the Villa and Hadrian were not completely forgotten, during the middle age a legend about a local Saint, "Santa Sinforosa", took place with a strong link to explain the "underground" characteristics of the Villa in connection to Saint Sinforosa's martyrdom. According to the main legend Hadrian sent Sinforosa, a Christian Roman woman, to death, the reason for this was the refuse of the woman to renounce to her religion. As the following punishment for his bad act, after the death of the Saint, Hadrian was persecuted by her spirit and by strong remorse. So, he decided to go living underground to hide from the sunlight and to expiate. It is possible to imagine this legend as a direct explanation of the strange and huge underground network the people from the middle age found in the Hadrian's Villa, probably the idea of living far from light was suggestive enough to need some strong and complex legend like this one. Visiting this huge "invisible" town, it comes immediately clear where the legend found its origin.

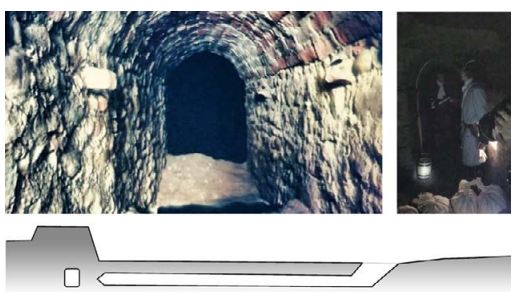

Fig. 10 – A typical anti-mine gallery, easy to be confused with a "secret passage", view and scheme about how it works and a scene from a historical reconstruction (Copyright Verdiani, Rodriguez-Navarro 2018).

Fig. 9– View of the Cryptoporticus under the "Fish Pool" in the Hadrian's Villa, Tivoli, Italy. (Copyright Corsano, Verdiani, 2010).

This creates a very specific "parallel" and makes a significant difference with the most common situation of other "mysterious" underground passages… All around the world, in association with large and ancient architectures, there is the frequent presence of stories and legends about tunnels, galleries, hidden spaces, hidden treasures (Pignatale, Leonardi, 2014). The myth is sometimes linked to misinterpretations of the buildings of other structural works. Is it the case of the "anti-mines" galleries (Fig. 10), often left beneath the walls of a town or fortress to intercept the possible tentatives from an enemy about excavating a tunnel to enter the defences or damage them. The presence of these long passages may often inspire the idea of a path going somewhere, no matter how weird or unpractical is the result, the fascination over the people is often too strong. So strong that the concept of the "hidden passage" is "invincible", no matter the accuracy, level of details, technology or competences entering and investigating the mystery, if nothing comes out, this will never be evidence of unexisting, there is only to search again and better, the passage or treasure is simply yet to be found.

Conclusions

Rereading a historical architecture in the present time requires two meaningful abstractions and a correct and extended culture mixed with a good elastic mind. The first abstraction requires to interpret the needs and the cultural environment according to the specific time in which it is under investigation, understanding, for what it is possible

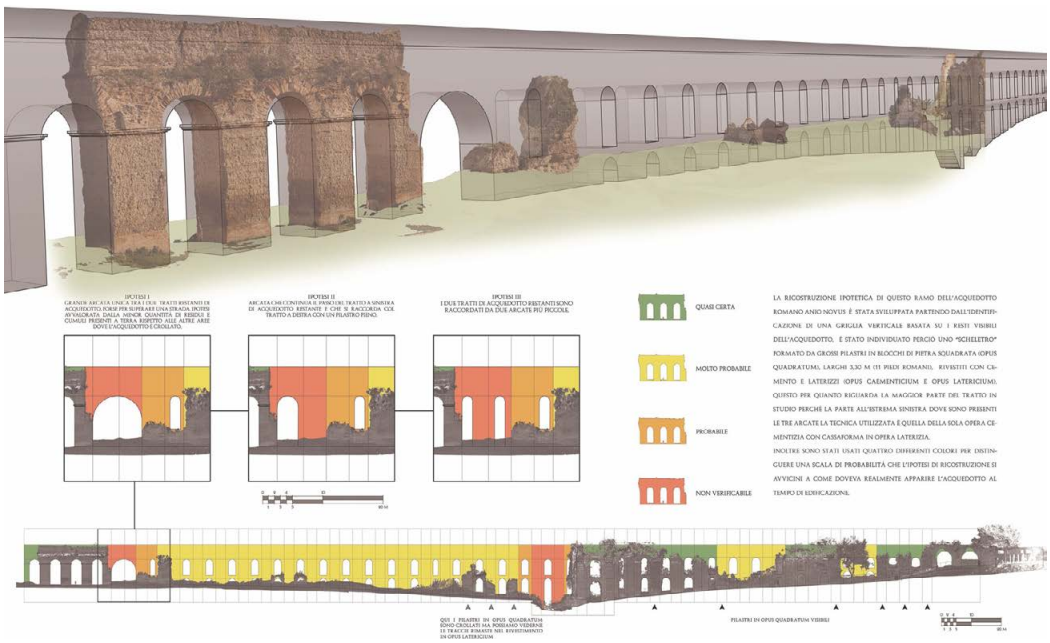

Fig. 10 – Virtual reconstruction of a part from the Anion Novus Roman Acqueduct Castelmadama, Italy, the different colours indicate the level accuracy for each reconstructed part. (Copyright Bellini, Camiz, Verdiani, 2017).

the conditions of the past conditions at the level of architectural and artistic as well as technological and practical characteristics. Having access to some information about the ancient climate and natural environment may be of extreme help. Having clear ideas about the system of questions/answers in which one architecture or an urban asset was involved is extremely important, in the example: for a fortress: "From which kind of weapons it was going to protect its soldiers?" and "Which kind of weapons were hosted in the fortress?". The second abstraction will require to remove the veil created by the local believes, the values of this condition can be a real intangible heritage, something precious and worth to keep and understand, but often the consolidation of certain ideas may play against the real correct interpretation. If one real new interpretation is needed sometimes there is the need for a sort of restart. Picking up all the evidence and removing the acquired certainties.

It may take time and it may come out difficult to communicate the result. But it may be the right step forward from a previous blocked condition. And about "getting blocked" the scholar investigating on these interpretations should never be scared to throw away the longly mumbled ideas and restart. Remaining stuck on certain dead ends sometimes is the worst condition, there is the need to find new paths and new approaches, while probably the previous solutions are not working at all.

Last but not least, most of the time, finding the right questions will be more important than making efforts supporting ideas that appear correct.

In this sense, when one architecture or urban sector is partially or almost totally disappeared it may of no use searching for the missing parts, one of the most intelligent strategies will be finding possible answers to the question "why the parts still in place are remained?".

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COASTAL FORTIFICATIONS' SYSTEM, AS A FRAGMENT, A LIMIT, AN EMERGENCY WITH A GREAT POTENTIALITY IN THE ITALIAN MEDITERRANEAN AREA

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In the theme of fortification systems, each of these architectures is characterized, depending on the periods, construction and localization system, by elements of sighting, attack, defence, limitation, camouflage at maritime and land borders. These systems, consisting of towers, walls, castles, fortresses, which, although different in structure, technique and purpose, create a link with the territory in which they were inserted. Sometimes only one part survive, like Santa Maria Chjapella Genovese Tower in Corsica, other times they maintain their dominant appearance on the coastal territory, such as Rocca of Talamone and Fortress Portercolesi in Tuscany, 'Castel dell' Ovo' in Naples, the 'Fortezza Vecchia' in Livorno or Bonifacio's fortress in Corsica, France.
In more recent cases the fortresses, characterizing by different type of attack, maintain the same historical value, as in the case of the fortification system of Northern Sardinia, the Battery of Punta Rossa, Punta Tegge, Fort Cappellini and Fort Arbuticci. The present research aims to be a reflection and analysis on the role that these structures have on the territory, as limit and emergency, trying to exalt their intrinsic values and identity. The objective is to develop an analytical method of study, starting by historical research and documentation of the built heritage, moving to digital survey, data managing, using a BIM software. The knowledges should allow to understand single elements and their interconnections, supported by technologies and virtual reality, reconstructing and exploring the past to understand how enhance its single and network potential.

Keywords: Fortification, H-BIM, Emergency, Limit, Meaning.

Introduction

Some isolated monuments, in the middle of the sea, on top of a mountain, in a dominant position of a valley, impossible to ignore, remember the domination strategy, that the military used to affirm their control system on the territory, based by a multi-layer map stratified over the centuries.
The map is a scheme, which still leaves the signs in the territories, given by a physical system and the amount of various cultural and socio-political factors, which led to a real transformation of the landscape, in which the shape is result of process.
We report the case of my specialization thesis on the subject of the recovery of Punta Rossa, a pharaonic work decided by the young Italian State, built in the end of XIX, in the middle of an epochal revolution, marked by the passage from maritime and land attacks to air-planes attacks, which completely revolutionized the rules of the fighting, until it became obsolete. All the modernization attempts were useless to make it equal to the new ones, that were built in northeast coast, like Candeo, and Punta Rossa served only as a deposit for the Italian naval fleet at his service.
Based on the historical period and the military technique they faced and the style of the kingdoms and power, the types of fortresses differ with various constructive characters. Some fortresses dominate the landscape, while others hide and camouflage themselves, the practical reason is that they should not be seen from above, following the function of invisible shelter, with the possibility of sudden attack, that is the meaning of fortresses

last period of the Maddalena Archipelago.
In mimesis lies the power and strength of the outposts, built with the same granite rock excavated on site.
We should analyse all the remaining historical documents, discover those drawings made by hand, to understand their development and their construction technique, which remains testified in the papers and in the memories of some people who worked in those quarries.
These places little exploited by man or abandoned, keep the signs of history, that transformed them, indelible as wounds.
Asking what their future is now, under the responsibility of local administrations, was the subject of my thesis in which I analysed the case of Punta Rossa, followed by a workshop held in Sardinia in September 2018, organized by a group of young architects named ' Eterotopia'.

How is possible to enhance these fortresses and change their function, without compromising their identity?

Like for intervene on a work of art, it is important to be careful and calibrate the intervention, in a meticulous way, in the same way must be able to intervene in a complex and articulated scheme, in a unique and uncontaminated natural context.
The new systems of survey, control and data management, would allow the cataloging and processing of data within a shared network allowing users to access 'private' data towards a disclosure of data-sharing material, a pity that the local administrations or those who decide sometimes are not aware of the tools we possess.

Different value of fortifications' system

These isolated monuments, in the middle of the sea, to defence the harbour or the valley, are impossible not notice, because the military strategy was based in a urban and landscape map with strategic sighting points.
They encase a different value in the coastal fortifications' system: as a fragment, as a limit, as an emergency with a great potentiality.
In different case of study, we can observe the different value of coastal fortification system.

Liguria

In the case, Scola Tower, built in 1606 by Republica of Genoa, in the middle of the sea, to control the Poeti's harbour, we can recognize an incredible memory of the fortification system of Porto Venere and an emergency in the sea, with an identitary value. The pentagonal shape is an emblem of the period and of the construction technique, but also of the era to which it belongs.
The value of which does not lie in ruin, but in the

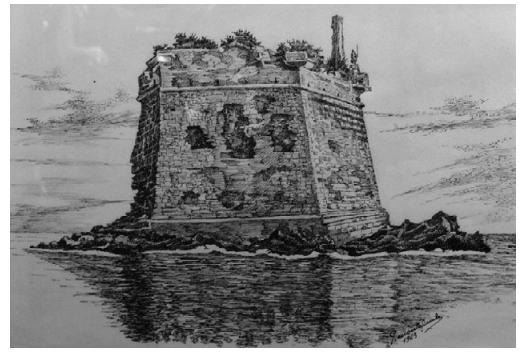


Fig. 1 – Scola tower, Porto Venere, 1606, Liguria, Italy.

map of fortifications of the Kingdom of Sardinia (1297-1861).
The Tower of Santa Maria Chjapella is a ruined of Genoese tower located in the commune of Rogliano (Corse-du-Sud) on the east coast of the Corsica.
Only part of the tower survives. A façade fragment, a ruine, so fragile that looks like a frame, a limit, between earth and sea. Theatrical fifth of that landscape that previously it dominated.
Devastated by its defensive function, it come back to nature after centuries, indeed nature takes possession of its matter. Metaphor of the sand castle, handmade by kids on the seashore and destroyed by the waves, so the stone come back to its origin, leaving a single fragment symbol of our human fragility.

Fig. 2 – Santa Maria Chjapella Genovese Tower, 1549, Corsica, France.

its imposing structure.
In the North-West part of Sardinia another different case is Aragonese's tower, a lighthouse, a visual link between Sardinia and Corsica.
It is possible to consider this structure like a historical monument in the coast, with a strong identity value.
The landscape path that surrounds it evokes that of the sentinels and allows us to understand

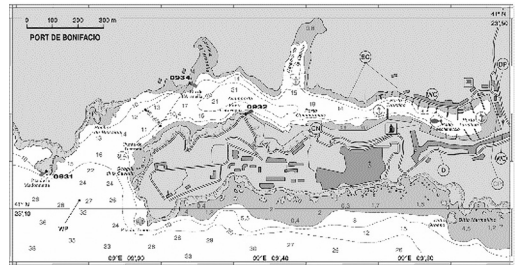


Fig. 3 – Aragonese's tower, 1570-1599, Santa Teresa di Gallura, Sardinia, Italy.

Fig. 4 – Bonifacio fortress, 1550-1570, plan view, seen from the air and from the sea, Corsica, France.

In the northwest part of Sardinia another different case is Aragonese's tower, a lighthouse, a visual link between Sardinia and Corsica.
We can watching this structure like an historical monument in the coast, with a strong identity value. The landscape path that surrounds it evokes that of the sentinels and allows us to understand its imposing structure. The French fortress of Bonifacio, a few hours away from the Sardinian coast, is a natural emergency.
The intervention of man is skillfully blending all the work of nature, overlooking a "fjord" on the sea between cliffs, coves and high cliffs, giving a wonderful scenario and a fantastic ideal.

Sardinia

During the reconstruction phase the fundamentals could be mantain, potential or changing.
The restoration of th Arbuticci Fort, built during the Savoy age in the nineteenth century, is about the narration of a heroic, extraordinary and generous life - Garibaldi's life - and the dialogue between contemporary architectural language and a sobriety of expression (and of means), between the heroism of military feats and the frugality and quiet acceptance of the rules of agriculture and life, between the lack of grandness in the fort and the exceptionality of the Hero's life in the colors, battles, thoughts and the people who were part of it.

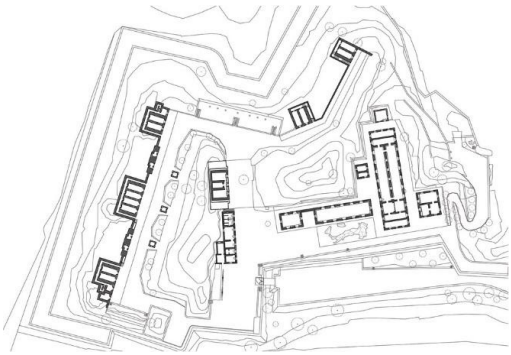
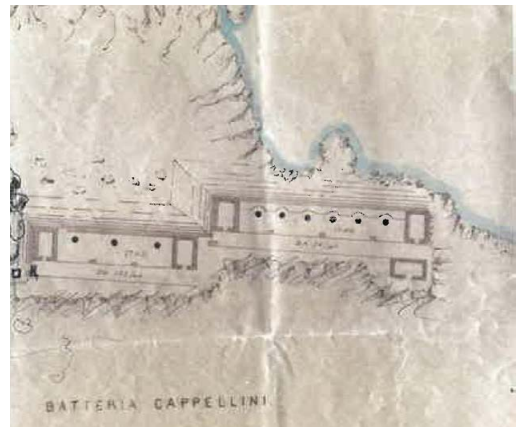


Fig. 5 – Forte Arbuticci, Caprera, Sardinia, Italy.

The choice made by Architecture is in this host of dialogues, in this challenge: expressing and representing the possibility, by the Public, the State, to convey its will, tell its History, through contemporary architecture, within a work of restoration, interpretive rehabilitation, in a place of absolute natural beauty.
In the 2003, a reconstruction project of structure was brought on changing the activities. Now it is a hotel with restaurant offering also an open space to be used during the summer.



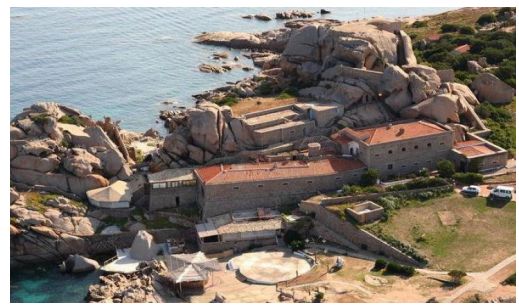


Fig. 6 – Forte Cappellini, 1870-1900, Baja Sardinia, Sardinia, Italy.

The fortifications system in the North Sardinia

The coastal fortification, as an instrument aimed at defending the territory, is also attested in northern Sardinia since the Spanish era, but it knows its most significant phase during the Kingdom of Italy. Since the constitution of the new state the arduous problem of safeguarding the coasts had been posed but since it is not possible to fortify them in a continuous way it was necessary a strategic choice, consisting in a powerful fleet with the necessary bases of support. And it is precisely in this perspective that at the end of the nineteenth century the only Sardinian stronghold of the contemporary age was born, which, given its position, was fundamental for the defense of the western maritime border. In fact it had to give assistance to the fleet that had its base of operations in the Bocche di Bonifacio in order to intervene quickly and counter possible French attacks on the Tyrrhenian coast of the Peninsula. Beginning

in 1886, the archipelago became a large construction site and over the course of eight years took shape from nothing a well-equipped and conveniently defended naval base. The stronghold could be considered fully efficient in 1893, when King Umberto I decreed the establishment of the Autonomous

Fig. 7 – Schematic Map of the La Maddalena's Archipelago, with annotations about the main fortifications, Sardinia, Italy.

Maritime Military Command.
The defensive structures of La Maddalena are not ascribable to the category of forts, but more to the fortified batteries, as they were designed and built according to the rules for the construction of artillery posts to be protected against coups. Based on the characteristics, they can be divided into Low Works, to defend the access points to the anchors and High Works destined for distant interdiction and to contrast landing attempts. Punta Rossa belongs to the low works that together with Capo Tre Monti, control the Levante Pass, while Nido d'Aquila and Punta Tegge were built to protect the Passo di Ponente. The characterizing element is that of being well concealed in the ground to avoid its location by the sea: the armament constituted by the 'disappearance' guns responded to the same logic. Thus, having to harmonize with the nature of the places, the two fortifications of Levante develop longitudinally with connections in the tunnel like Punta Rossa, while those of the west like Punta Tegge form a coastal rock mass. (Belli E. Art. Taken from 'In Labore Ingenium' page 183-190).
In the Archipelago of La Maddalena there are over 30 military fortifications, a testimony to the strategic interest that the islands have undergone in different historical periods due to their geographical position.

- First period from 1767 to 1806;
- Second period after il 1887;
- Third period between I and II World War.

First period from 1767 to 1806

In the I period, the first fortifications were built at the end of 1700 with the clear intent of defending the Island from the French attacks: La Torre, S. Vittorio, S. Andrea, Balbiano, S.

Fig. 8 – The Napoleonic Tower at Santo Stefano, built between 1771 and 1773 Sardinia, Italy.

Agostino, S. Elmo or S.Teresa.
They are characterized by well visible from the sea as they have also function to manifest the dominion of the Piedmonts kingdom and discourage pirate attacks. During the early 1800s the defense system was completed with the construction of the fort Carlo Felice in La Maddalena and San Giorgio in Santo Stefano.

Second period, after 1887

At the end of the 1800s, in a political context characterized by the tripartite alliance with Austria and Germany, the interest of the young state for Maddalena was achieved by the construction of a modern square of the Archipelago. The fortresses that date back to this second period were designed to be invisible from the sea and to surprise the outposts:
Nido d'Aquila, Punta Tegge, Peticchia, Guardia Vecchia, Punta Villa, Trinita, Arbuticci, Stagnali, Poggio Rasu, Punta Rossa, Colmi, Guardia del Turco, Puntiglione and other fortresses on the Sardinian coast (Monte Altura, Capo d'Orso,

Baraggi).These fortifications were never used until 1943, when they were now overcome as architectural logic and obsolete from the point

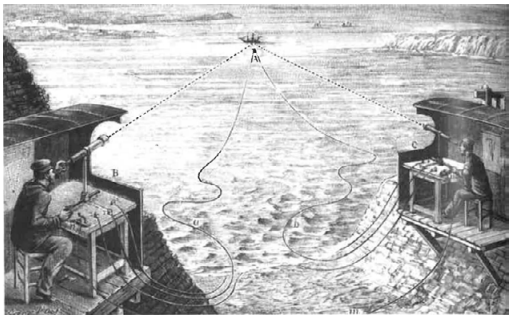


Fig. 9 – Mine field barrier, stations for the control over torpedos, 1882.

of view of armaments.

Third period, between I and II World War

The third group of batteries was built to replace or reinforce the previous works that have become, for the evolution of war technologies, vulnerable despite their power. The evolution of aeronautics from reconnaissance purposes to bombing requires a new "philosophy" of building fortifications based on the most rigorous mimicry. So the most peripheral batteries were born between the I and II World War.
They are exemplary anti-aerial constructions fully camouflaged among the rocks: Spalmatore, Carlotto, Zavagli, Zanotto, Pietrajaccio, Candeo, Messa del Cervo, Poggio Baccà, Porco Island, Teialone, Punta dello Zucchero and three on the Sardinian coast (Punta Falcone, Monte Talmone, Cappellini).
Inside the fortifications system of northern Sardinia, in the La Maddalena Archipelago, in southernmost promontory of the Caprera island, around last decades of the XIV century, together with other foundations, Punta Rossa was built, following the will expressed by the Kingdom of Italy in need to define a new defensive network for the maritime borders.
With two principles 'to observe without being observed' and 'camouflage', this military architecture masterpiece was erected in the local features: granitic rocks for the walls and frames, Vicat concrete for the shooting platform, except some posthumous remakes.

After a military use, currently it is in a worrying state of neglect and degradation. The work of Punta Rossa, built in 1886, consists of a main battery, 7.10 meters high and presenting a rock parapet built with the exceptional thickness of about eight meters, with an internal wall covering and masonry bays which were armed with cannons from 57 mm. On the left side of the battery there are three ammunition reserves. On the well of this cavity two other wells were obtained for 149 mm retractable guns. Their circular parapet has a thickness of about three meters, completely made of in concrete (VICAT cement).
These are connected by a covered tunnel, which in turn communicates with other galleries of ammunition and rooms for loading

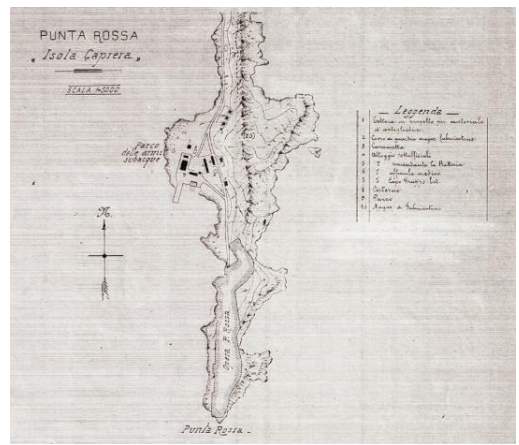


Fig. 10 – Punta Rossa, plan view from the 1922 (AS Genio Militare di La Maddalena).

and loading bullets through other tunnels.

Architecture elements

Three main elements shape the architecture of the Punta Rossa battery: the access portals, the shooting areas and the seafront wall, which rests on a lower level that deceives and detaches the observer from the context, denying him the view of the batteries. The spaces are connected by a series of external / internal paths, to observe without being observed. It is also interesting to note the use of an advanced construction technique and used to highlight the orderly and essential design of the elements, a principle of unification and modulation that reveals a clarity of formulation

and method that also achieves significant figurative results: adequate relations of full and empty; juxtaposition and integration of materials underlined by finely worked granite elements; continuous modulation of materials with moldings and ashlars to highlight the structure of the wall surface. The solutions of the construction elements are always exact and valuable from a technical point of view, such as the "VICAT" concrete floors with a thickness of seven centimeters, smoothed and worked with a geometric design before hardening. Careful attention placed in the construction is underlined by the granite block curtain, in the luminaire intrados, built "with lime mortar and pozzolan or with hydraulic lime" and in the grafting of the stone elements, meticulously studied, as well as the design of the moldings, architraves, jambs, thresholds, corner sections, etc. which always remains impeccably clear and orderly. Noteworthy are the tricks to solve the ventilation problems of the numerous rooms buried through cavities ending with vents, first in sheet metal and subsequently replaced by masonry ones. The metal elements of the railings, parapets and staircases were modeled to obtain the most suitable shapes for the purpose, by highlighting the joint and attachment points, while gutters and drips molded in granite are also studied expressively with the grafts sincerely reported. They are arranged in constant intervals, to scan a fast rhythm on the uniform curtain of the retaining walls and on the walls of the buildings, and constitute the figurative reference elements, in contrast with the uniform plane of the curtain.

Working Phases

The research deals a new method about knowledge and project strategies: the first, starting from photographic survey and historical documents, is based on 3d laserscan methodology, that has allowed, through various operations, to obtain a single point-cloud, set of all points surveyed, converted into a mesh to generate terrain model and other possibility. The second one started from BIM finalization, which was useful not only to understand the model and manage countless data and materials, but accelerating the representation

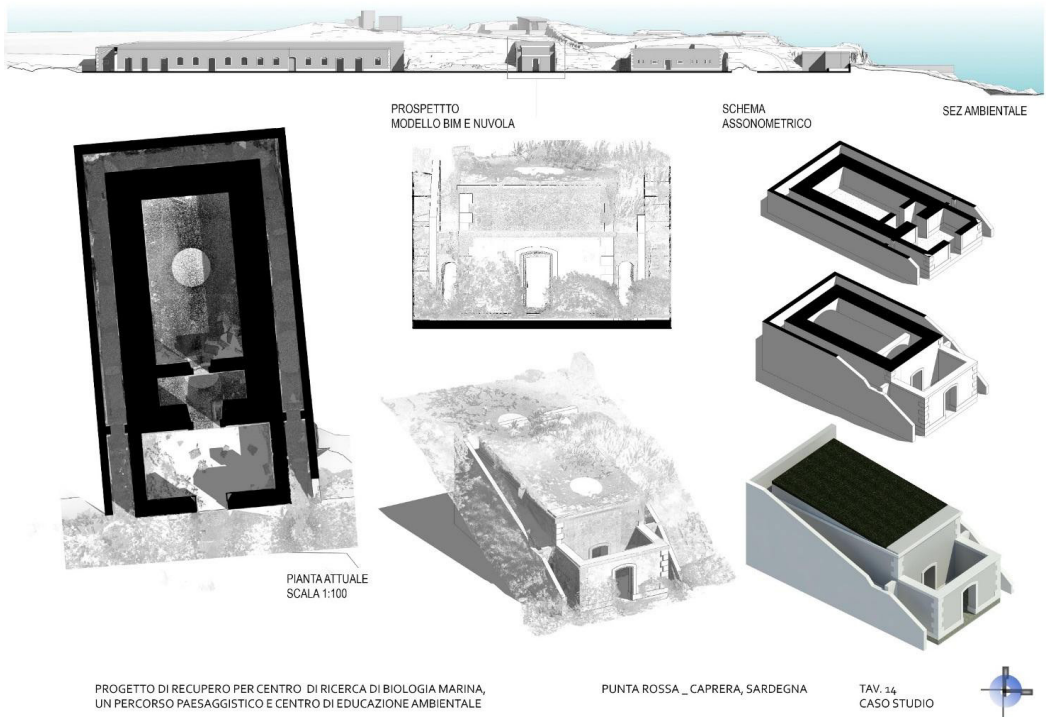


Fig. 11 – BIM modeling of the Punta Rossa settlement (Copyright, the author, 2018).

and future analyzes.

1. Digital Survey done with 342 scans, Hardware: Cam/2 Faro 3D Focus X330
2. Alignment of 342 Scans in Autodesk Recap Pro from 342 scans to a single model (90 Gb)
3. Optimization of the point cloud, Software: With Bentley Point Tools and Autodesk Recap Pro (28 Gb).
4. Terrain Modeling, Software: 3D Reshaper (Mesh Creation To Generate Level Curves).
5. Finalization in Autodesk Revit for creating the BIM Structure, Software: Autodesk Revit (Point Cloud managment inside the BIM Model with two phases of project).
6. Texturing.

The materials

The materials used are essentially local rocks outcropping in the Punta Rossa area, belonging to the granitic pluton of Gallura and to the relative procession of Philonean rocks, referable all to the Paleozoic (supreme-Permian Carboniferous, in a time interval between about 320 and 270 millions of years ago). These magmatic bodies are essentially linked to the Hercynian orogeny which has generated various magmatic processes, prevalently intrusive, and metamorphic with the elevation of the Sardinian-Paleozoic palaeozoic basement.
Generally, to make the cornices and openings the lighter grayish "granite" rocks were used, while for the masonry segments (usually of irregular shape) the rocks belonging to the Philonean parade in the area were also used.

Conclusions

Immediately after the Unification of Italy and after the Second World War, once the defensive function was exhausted, the two systems of fortifications of our archipelago and of the overlooking Sardinian coast, abundant and stripped of everything that could be used, lost their connotation of "together" a well identifiable time, reducing their presence to isolated and ruined architectural structures of which only the name is known, no longer the meaning. The Project proposes a conservative restoration intervention of the buildings, in which the basic characterization of the materials from the mineralogical-petrographic and physical-mechanical point of view becomes indispensable to face the chemical-physical compatibility between the consolidating and protective products and the lithoid materials (stone and mortars). The final intent is to create an open-air museum itinerary, through the knowledge of the places and materials used, in which the functions and services go to reuse part of the existing structures. All with the aim of "observing without being observed" which animates the site's defensive strategy and which remains a value - albeit surpassed by war techniques - of interest and a key to understanding the reasons settlement. The route will start from these founding principles to guide the visitor inside the batteries and ammunition depots, up to the shooting pitches from which it will be possible to observe the entire landscape, dominating a part of the sea. The last guideline of development, important as the others, will be the reconstitution of a link with Poggio Rasu, Capo Tre Monti and Forte Cappellini, a strong local alliance in the past, a possible occasion to start an appropriate mending of the fortification system of northern Sardinia, able to restore a predominantly fragmented perception today. From these examples we try to raise awareness of restoration interventions aimed at enhancing and preserving fortifications, trying to keep their identifying, mimetic and shelter characteristics evident.

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LAYERED HORIZONS OF THE CITY: THE CASE OF SOLI POMPEIOPOLIS

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Mersin University Department of Architecture, Turkey

Soli Pompeiopolis was an ancient Mediterranean port city situated on the southeast coast of Asia Minor. Impressive remains that are visible at its site today include a port protected with two moles, an elaborate colonnaded street, a theater, a bath, and the tomb of Aratos, the renowned astronomer. Archeological excavations that have been undertaken since 1999 have unearthed multiple layers of continuous settlement at Soli, dating back to the second millennium BC. When the city was re-founded by General Pompeius in 67 BC on the remains of earlier settlements, it was laid out in the fashion of all other Roman cities. Fortifications, gates, baths and a theater were built around two intersecting main streets. The north-south street, cardo, connected the port with the northern city gate. Today known as the Colonnaded Street, the splendid cardo was a unique example among Roman cities where the main street was connected directly to the port.
The decumanus, yet to be excavated, ran from the western gate to the theater located at the eastern edge. The two main streets constituted the commercial, the civic, and the administrative arteries of the city. Yet they accomplished more than that. As in other Roman cities and in earlier Hittite settlements, they also situated the city within the order of the natural world.
This paper argues that the main streets of the city of Soli Pompeiopolis established connections between the solar path, the northern and the western mountains, the Liparis river, and the Mediterranean Sea, and thereby they aligned the civic activities of the citizens with the workings of the surrounding elements of the site, both near and far.

Keywords: Soli Pompeiopolis, orientation, alignment, solstices, topography.

Soli Pompeiopolis: A Multi-layered Port City of the Ancient Mediterranean

Soli Pompeiopolis, situated on the South-East coast of Asia Minor (Fig. 1), was an ancient Mediterranean port city that was founded on the remains of several earlier settlements that date back to the second millennium BC. The impressive remains of the city, a port protected with two moles, an elaborate colonnaded street, a theater, and several ruined structures dispersed around a 30-hectare protected area are located in the Mezitli district of modern Mersin (Fig. 2). Drawings of the site made by explorers show that there were more to be seen on the site two centuries ago, including a fortification wall with towers and gates, a grand gate that connected the port to the main street, a pedestal that was located within the port, and several other structures that have not survived (Fig. 3).

Archeological excavations that have been led by Prof. Dr. Remzi Yağcı since 1999 have revealed that the place was a Hittite settlement with a strong defense system and social organization from the 13th to the 15th century BC (Yağcı, 2008a, 2008b) and that it was continuously settled during the Iron Age, the Archaic and the Classical periods. Historical accounts inform us that Alexander the Great held honorary games and celebrations in Soli, while coinage and other findings point to the prosperity of the city during the Hellenistic era. Aratos, the renowned poet and the author of the ancient astronomy textbook *Phaenomena*, and Chrysippos, the prominent Stoic philosopher, were among the famous natives of the Hellenistic Soli.
When the city was re-founded by the Roman general Pompeius Magnus in 67 BC, it was transformed into a Roman port city. During the Roman rule, the port was expanded with the use of pozzolana imported from Naples,

Fig. 1 – Location of Soli Pompeiopolis in the Mediterranen Basin (base map: https://d-maps.com/carte.php?num_car=3122&lang=en).

established connections between the solar path, the northern and the western mountains, the Liparis river, and the Mediterranean Sea, and thereby they aligned the civic activities of the citizens with the workings of the surrounding elements of the site, both near and far. Drawing upon recent research that have highlighted the solar orientation of Roman settlements, and yet evaluating the solar alignments in conjunction with the topographical situation of the specific locality, this study aims to understand the situation of the principal public components of the ancient city of Soli Pompeiopolis with respect

Fig. 2 – Site of Soli Pompeiopolis in modern Mersin.(Google Earth, 2018).

and fortifications, baths and a theater were built. As in all other Roman cities, the city was laid out around two main streets intersecting at the center. The main north-south street, cardo, intersected with a decumanus that ran in the east-west direction. Today known as the Colonnaded Street (Fig. 4), the elaborate cardo connected the port with the northern city gate, while the decumanus, yet to be excavated, ran between the western gate and the theater (the Mound). In accordance with Roman urban planning principles, the main streets constituted the commercial, the civic, and the administrative arteries of the city. Yet they accomplished more than that. As in other Roman cities and in earlier Hittite settlements, they situated the city within the order of the cosmos. This paper argues that the main streets of the city of Soli Pompeiopolis to both the celestial and terrestrial references that lied above, below, and around.

Streets in Roman Architecture

Roman cities were characterized by a well-organized urban system which functionally, visually, and symbolically strengthened the cohesion and the imagery of the Roman Empire. All the cities owned the unmistakable principal institutions of a Roman city: temple, bath, theater, gymnasium, administrative and municipal buildings, all joined in a continuous, flowing system. The most important means of establishing the connections were the streets and the squares. Streets not only ensured the coherence of the system by providing physical continuity in the city and but also provided the framework for public

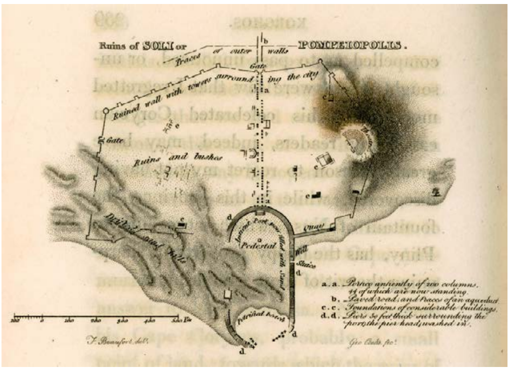

Fig. 3 – "Ruins of Soli Pompeiopolis" as drawn by Admiral Francis Beaufort and published in 1817 in *Karamania, or a brief description of the South Coast of Asia-Minor and of the Remains of Antiquity.*

Fig. 4 – Restored southern end of the Colonnaded Street of Soli Pompeiopolis, in the area where the street was connected to the port. Image courtesy of Mezitli Municipality.

activities. They created a background for the daily rituals of urban life as spaces for communication, interaction, sharing, and shopping. At the same time, owing to their common design principles and architectural language, they ensured a visual and symbolic connection between Roman cities. The streets, defined by row columns, arches and monumental gates, enlarged by squares, adorned with fountains and monuments, provided a setting for the city life to unfold and made its prosperity tangible and visible.

Layout of the main streets in Roman cities displayed certain common principles. New Roman colonies were always established according to these principles, and in existing places that were transformed into a Roman city, the layout was rearranged according to the Roman standards. Inspired by the order of the military camps, the settlements were surrounded by walls within which a grid-planned street network was established. The center of this network was formed by two main streets intersecting each other. Of these, the north-south orientation was called cardo and the east-west orientation was called decumanus. Their intersection was generally the administrative, commercial, religious and social center of the city. Important public buildings were located either on these main streets or close to the intersections.

Founding of a Roman city was a ceremonial event. Determining the main arteries of the city, placing it on the land and preparing the cadastral plans were carried out with foundation ceremonies that dated back to ancient times. The founding ceremonies depicted by ancient writers included observations of natural phenomena and marking the city's border line by plowing the land. An important part of the ceremonies was the reproduction of the image of the heavens on the ground by a soothsayer and the orientation of the main streets accordingly. Ancient writers described this process as the ritual division of the land into four halves by a north-south and an east-west axis (Rykwert, 1976). In Roman cities, the formal order of the universe was expressed by these two coordinates intersecting in one plane. A Roman walking on cardo knew that the sun revolved around the direction in which he was walking, and on the decumanus he traced the movement of the sun. Although the orientation of the two main arteries and the grid plan was roughly north-south and east-west, the exact angle of the settlement was determined by various factors. An important landscape element or an existing major road could determine the main streets and the grid plan direction. Recent research has shown that placement of the Roman cities on the topography and orientation of the main streets were related to the direction of the sun during key astronomical events and important festival dates (Magli, 2008; González-García et al. 2014). Among these, summer and winter solstices appear to have informed the orientation of the main streets in most of the case studies cited. Discovery of such alignments adds another layer to the connective purpose of the main streets. Alongside assuring physical, visual, and symbolic connections, streets established and sustained a relationship with the cycles of the natural world. Their alignments to celestial events reveal not only a recognition of the workings of the natural world in urban planning and but also the commitment

of urban life to participate in its seasonal and the yearly cycles.

From the perspective of the key roles that the main streets played in Roman cities, the Colonnaded Street of Soli Pompeiopolis offers an instructive example. As in other Roman cities, cardo maximus in Soli served as a backbone connecting the spaces in a certain order, framing the daily life, and establishing visual, functional, and symbolic ties with the rest of the Roman world. When their ships docked at Soli's sumptuous port, travelers passed through a monumental gate and stepped directly into the bustling world of the Colonnaded Street, a long, paved road adorned by porticoes, lined with shops and the public facilities of a Roman city. But the street also provided references to the geography that extended beyond its fortifications. Together with the decumanus, the main streets in Soli established physical, visual, and conceptual connections with the components of the surrounding landscape as well. The orientation of the main streets acknowledged the surrounding mountains, rivers, and the fields, the effects and the products of which this multi-layered, multi-millennial port city owed its existence to. Moreover, the layout of the main components of the city was related to the directions of the sun during important astronomical events. In consideration of all of these surrounding elements by which the city sustained itself, this study undertakes an investigation into the orientation of Soli Pompeiopolis and its urban practices with respect to both the celestial events and the terrestrial landmarks in its vicinity and in its horizons.

Fig. 5 – Dashed red line shows the location and the orientation of the Colonnaded Street (base map: Google Earth 2019).

Solstices and the Daily Life

Roughly corresponding to June 21, summer solstice is the longest day and the shortest night of the year in the entire northern hemisphere. The sun reaches its highest point in the sky and reaches its most northern point at sunrise and sunset. The word solstice is rooted in Latin "solstitium," meaning "the sun stopped," because the point where the sun rises and sets "stops" at this time, and the sun begins to "turn back," that is, days begin to shorten. June 21 is the day when shadows are shortest in the northern hemisphere. It is also the middle of the summer and the glad tiding of the upcoming crop harvest. Perceived as the day that the sun merges with the earth, it has been celebrated with festivals throughout the history as a period of fertility and productivity. The winter solstice, celebrated usually on December 21, on the other hand, is the shortest day and the longest night of the year. The sun reaches its lowest point in the sky and reaches its southernmost point at sunrise and sunset. Shadows are the longest in the northern hemisphere. It is the moment when the gradual diminishing of the sun in the sky comes to an end. Days begin to grow longer after this date. Hence the winter solstice has been celebrated as the symbol of rebirth across many cultures. More than just calendar dates or astronomical oddities, solstices have been regarded as signs

Fig. 6 – Colonnaded street and the port (Brandon, C. et al., "Geology, Materials, and the Design of the Roman Harbour of Soli-Pompeiopolis," page 393).

and turning points for important agricultural, productive, social, and religious activities. By aligning the main streets of the city with these important dates in space and in time, the life of the citizens could acknowledge and participate in the cycles of the seasons.

Situating Soli Pompeiopolis on A Multi-layered Topography with Multi-layered Horizons

Cardo maximus of Soli Pompeiopolis, today known as the Colonnaded Street, traverses the city from north to south in accordance with the general principles of Roman urban layout. Yet it does not align with true north, but makes an angle of roughly 30 degrees from the north (Fig. 5, precise measurement pending). Thus the direction of the street is close to the southeast, a widely observed direction in Roman cities in Italy (Magli, 2008). Nevertheless, the reason for the 30-degree angle can be investigated in consideration of the circumstances of the specific locality.

An important detail to note is that the Colonnaded Street does not sit on the same axis as the port. Although it was drawn so in the Beaufort plan of 1817 (Fig. 3), the axis of the Colonnaded Street is 20 meters east of the port axis (Fig. 6). Considering the symmetry of the harbor bed, the shift is a curious phenomenon, yet it is clear that it was a conscious decision. Research carried out in the Roman Maritime Concrete Study (ROMACONS) project detected riverbed alluvium near the western mole of the port. In light of this information, researchers suggested that the Mezitli creek, known as Liparis in ancient times, may have poured into the sea near or under the Colonnaded Street in Roman times, and that the port mouth was also the mouth of the creek (Brandon et al., 2010). This is a credible assumption considering the dynamic nature of Mersin's geography and landscape. Rivers rushing into the sea in Mersin have changed their beds throughout the history and the ports established in the deltas where the creeks flowed into the sea have faced the problem of alluvial accumulation. For example, the bed and the mouth of the largest river in the city center, the Müftü River, changed with a flood in 1960s. In a similar situation, it is plausible to argue that the Mezitli (Liparis) creek, which feeds from the Taurus Mountains and descends by making meanders towards the south, was poured into the sea from Soli at that time, and that the ancient port was also the mouth of the stream, but that its bed changed with a flood and curled towards its current location.

In line with this assumption, it can be assumed that the Mezitli/Liparis Creek was the dominant landscape element that determined the location of the Colonnaded Street during the foundation of the city. So the cardo was positioned alongside the Liparis river, which might have been used for transporting the goods from the highlands to the port. Although this assumption might explain the choice of location for the cardo of Soli Pompeiopolis, it does not explain the direction of the street and the reason for the 30-degree angle. For this purpose, the orientation of Soli's main arteries was examined in consideration of key astronomical events (Şahin Burat, 2013). It was found that in the parallel and meridian where Soli is located, the sunrise and sunset directions during the equinoxes (on March 21 and September 23) did not seem to have a direct relationship with the orientation of the Colonnaded Street. However, considering the summer and winter solstices, it is possible to establish a relationship with the orientation of the cardo. Figure 7 shows the sunrise and the sunset directions during the solstices. The orientation of the Colonnaded Street is perpendicular to the angle of the sunrise during the summer solstice. During the winter solstice, the main street is positioned perpendicular to

Fig. 7 – Relationship of the Colonnaded Street (red dashed line) with the summer solstice sunrise and the winter solstice sunset (base map: Google Earth 2019).

the direction of the setting sun.

These two findings considered together, a straight line that connects the directions of the summer solstice sunrise and the winter solstice sunset in perpendicular to the Colonnaded Street can be drawn (Fig. 7). This line establishes the other major axis of the Roman urban layout, namely the east-west-oriented decumanus. In Soli Pompeiopolis, there are textual and topographical indications for the location of the east-west street that cuts the cardo at a right angle. The Beaufort plan, for example, shows a gate on the western fortification wall. Assuming that this gate is the western end of the decumanus, a street that extends to the theater in the east can be traced (Fig. 8). In the context of the archaeological work carried out in Soli, possible locations for the intersection of the cardo with the decumanus have been suggested, yet the exact location of the decumanus has not been confirmed so far. The excavations that have continued along the cardo are yet to be expanded eastward and westward, pending on the permissions to be obtained from the private property owners. Regardless, the exact location of the decumanus does not have a bearing on its orientation, which would be in perpendicular direction to the cardo and thus associated with the summer and winter solstices. This means that a person pacing the decumanus at sunrise on June 21 and at sunset on December 21 would be moving along with the sun. His long shadow would fall on and spread through the length of the street. The street, the citizen, and the sun would line up, marking the turning points of the yearly work and announcing the upcoming harvest in the summer or the imminent re-birth of life in the winter.

Further examination of the orientation of Soli's layout reveals that the relationship of the main streets with the elements of the immediate and the surrounding landscape completes and reinforces these astronomical alignments. In other words, the way the main streets are situated on the topography establishes not only celestial but also terrestrial connections, which in fact complete one another. The north-south axis, i.e. the Colonnaded Street, establishes a connection between the sea

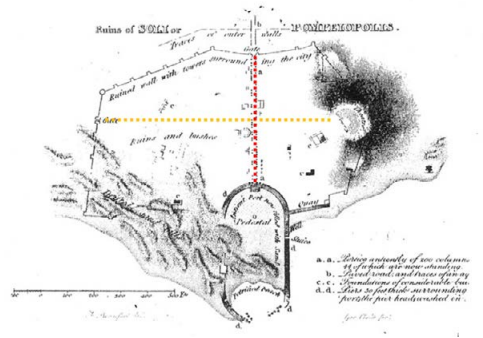

Fig. 8 – Possible location and the orientation of the decumanus (yellow dashed line) on Beaufort's plan of Soli Pompeiopolis.

(the port) and the mountains (Fig. 9), while the east-west axis establishes a connection between the Mound (the theater) and the western mountains (Fig. 10). The former connection is not only visual and symbolic, but also a functional one. The precious produce of the highlands such as olive oil and wine, remains of whose workshops are still dispersed along the higher elevations of Mersin, and other valuable exports such as metal and timber were transported to the port through the cardo and the accompanying Liparis creek. Soli Pompeiopolis is the only known Roman city where the main street was directly connected to the port. Hence the Colonnaded Street served as both the physical and the symbolic expression of the link between the fertile highlands and the port that introduced their products to the rest of the Mediterranean. A steel engraving drawn by William Henry Bartlett in 1836 nicely illustrates how the Colonnaded Street connects the port to the Taurus Mountains in the distance (Fig. 9). The second connection, i.e. the one between east and west, is as aptly expressed by an engraving by Pierre Tremaux drawn in the 1860s (Fig. 10). Taking the eastern end of the decumanus as its departure point and aligning the angle of view with the direction of decumanus, the engraving depicts the view from the Theater to the Colonnaded Street and the mountains beyond. The standing columns of the cardo run along the image, dividing

it into upper (western) and lower (eastern) halves. Thus the east-west axis begins and ends at two high grounds, the Theater Mound and the mountains, an immediate and a distant boundary respectively. During the solstices, the rising and the setting sun meets, or "stops," as it were, at these two elevated grounds. On June 21, the sun rises from the Theater Mound, whereas on Dec. 21, it sets onto the mountains in the distance towards the west. These two meeting points of the earth and the sun marked the turn of the seasons and of the yearly agricultural work. The decumanus connected these two points in time and space, reminded of them annually, and anchored them to the urban practices. Hence the main axes of Soli Pompeiopolis served not only as streets, but also as the city's yearly calendar and register.

The Mound itself is a remarkable element in the coastal topography of Mezitli (Fig. 9). This hill, rising from the ground in a flat coastline extending for kilometers, was apparently attributed significance throughout the history of the settlement, as the archaeological excavations have revealed a stratified use through several ages. Numerous finds have provided clues about the nature of these uses from the Neolithic to the Roman times. Especially the finds from the Hittite period indicate the importance attributed to this location (Yağcı, 2008a, 2008b). Archeological evidence coincides with the historical information that mountains and hills were considered sacred elements of landscape in the Hittite culture. Rising earth was seen as the embodiment of the might of the earthly forces. The corresponding element of the Hittite belief was the sun, the embodiment of the celestial forces.

The emergence, prosperity, and the sustenance of humans, animals, and plants were seen as the result of the unification of the earthly and the celestial forces. The alignment and the meeting of the sun and the mountain was the concrete expression of the unification of the earth and the heavens. Recent research has shown that Hittite settlements were planned to make this unification visible and that the orientation of the main structures in the Hittite settlements was not accidental in this respect.

Fig. 9 – View from the port and the Mediterranean Sea towards the Colonnaded Street and the Taurus Mountains in the north. Engraving by William Henry Bartlett, published in Syria, the Holy Land, Asia Minor &c, London, 1836.

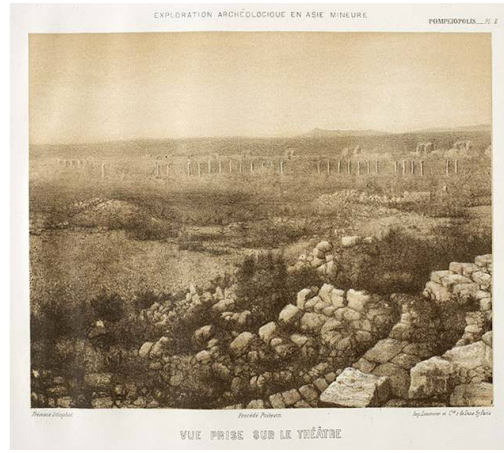

Fig. 10 – View from the theater towards the mountains in the west, with the Colonnaded Street in the middle ground. Engraving by Pierre Tremaux published in Exploration archéologique en Asie Mineure (1862-68).

It has been observed that there were distinctive series of orientations within the framework of Hittite beliefs and traditions, and especially the summer and the winter solstices constituted important references. Hittites established connections between the celestial movements and the topography, more precisely, they linked the orientations of the prominent elements of the settlements not only with the sun but also with the near and the distant elements of the landscape. In Yazılıkaya, for instance, northeast of Hattuşa, the monumental gate of

the sanctuary was directed towards the sunset during the summer solstice (González-García and Belmonte, 2011). Also the axis of the main temple of Hattuşa was oriented towards the acropolis. During the sunrise on December 21, viewers from the inside of the temple would see the sun rising from over the rock projection at the end of the acropolis. When the ancient city of Soli Pompeiopolis was re-founded in the Roman fashion, the principal components of the city followed the traces of the earlier settlements.

The theater was built upon the Mound, which itself was composed of the sedimented remains of the Hittite, Iron Age, Archaic, Classical and Hellenistic buildings. The main street (cardo) followed the trail of the river, the mouth of which had continually served as a port that reached out to the Mediterranean basin. The northern mountains, which sustained the fertile alluvial plain on which the city was located, provided a constant reference and an imposing horizon. Thus the Roman urban layout superimposed on the topography did not open a blank page, nor established an isolated grid system, but on the contrary, followed the vestiges of the earlier structures and restituted the ancient alignments. The placement and the orientation of the main components of the city re-established the relationships with the perpetual elements of the landscape, both near and far. The cardo tied the northern Taurus Mountains and the Mezitli/Liparis Creek flowing down from them to the Mediterranean. The architecture of the two "arms" of the port expressed this embrace in a concrete manner. Decumanus, on the other hand, united the high grounds at its both ends (the theater Mound in the east and the mountains in the west) with the sun at two specific times of the year, namely when the sun "stopped" on its course for making a turn. The main streets of the new city thereby gathered the age-old terrestrial and celestial elements together and re-instituted their balance.

An attitude that goes beyond "environmental awareness," this was the means to guarantee the prosperity of the city and its citizens by making them active participants of the order of the universe. Soli Pompeiopolis was a port and a border city where the mountain and plain (Strabo, XIV, 5,1,8), the sea and the land, the river and the sea, and the mountain and the sun could intersect and interact in an orderly manner. Through the alignment and the orientation of the main thoroughfares, life practices of the citizens could follow and re-enact these terrestrial and the celestial alignments, assuring the sustenance of cosmic balance in urban affairs.

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AFTERWORD: ON THE IMPORTANCE OF THE AACCP

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Most certainly the words Architecture and History have a lot of connotations. Most of us would come to think about some kind of relation, negative, positive, or both. Still, our capacity to work this relation, and the available concepts and "theories" seems far from sufficient – and even, at times, utterly mistaken and wrong. There is a lot do in this field, and the AACCP is one way to start doing that. We need general considerations, as well as case-specific thinking.

I am actually still an admirer of Otto Neurath, the famous logical empiricist from Vienna, who died in London in 1945. Not that he was always correct, or that he solved all our problems. But he suggested, on one hand, the need for logical clarity in our arguments, and on the other the need for certain openness in our approach to the world. Thus, he insisted that a scientific approach always builds on what has been done previously, but also on the need for new tools and ways of thinking. Thus, while we start at the point we are, we do not accept things or ideas only because they are there, but only in the cases we find them correct and productive.

When thinking about the new, this is not easy. New things or ideas seldom appear. In most cases, what we term new is simply a new way of combining old things, a certain variation on a theme. But we need the new, and I salute those who try to elaborate the new, when they are really trying to take it seriously. Further, the new is not necessarily good. As what concerns the new, we should not accept it merely for being new. The same evaluation must be done for the new as for the acceptance or rejection of the old.

There is also another point here; we are not always allowed to think in certain ways, or at least not to express this openly. There are limitations, which may be fairly difficult to cope with. This is not merely the case in the extreme situation of open violence. It actually occurs in any society (also in Sweden, where I live), but in different ways and may be more or less difficult to cope with. In certain special cases, the limitation may turn out interesting, and may stimulate interesting solutions, given the limitations. But strict limitations in general constructs more problems than they solve.

When addressing built environment (and I think this concept in a broad sense), Neuraths general observations apply. We start were we are, and work from there. There is, I would say, always a need for the new. But there is also, always, a need to let parts, and even large parts of earlier built environments remain. This is not a minor issue, but an important one. As I have insisted previously, in the AACCP meetings and in our proceedings, there are several reasons for preserving past environments. One is straightforward enough; they are often well built, functional and have evident aesthetic values. But there is also the point that they were created within the framework of different societies, and thus present certain bits and pieces of different kind of thinking, and different ideologies. Allowing the old to remain creates a very human environment, in which there is no absolute rule for what a society is or what it should be. I am not much in favour of the

term cosmology, but for those who like that term, I would say that the most human environment should exhibit elements from varied cosmologies.

I can already envision various critical voices. If read carefully, what I have stated could be construed as highly polemical. And, of course, it is. Thus, I will go back on two points, which may have irritated some readers.

First, the question of cosmologies. I would not state that there has never been any cosmology. That would not be correct. But they are not frequent. Such "complete" scenarios require a lot of time and dedicated people to develop, if they are to cover some kind of "cosmos", and not being merely partial elements of faith. There is never any full completeness, not even in Christianity or Islam, but there has been an elaborated effort at a broad explanation in these cases. Further, even if there are cosmologies, people do not necessarily act according to them or follow them directly. Heidegger, the philosopher of Being (and, in general, a philosophy I do not find productive) made the relevant observation that people do not act according to strictly logical conscious cosmologies. On this point I agree with Heidegger, though I would not follow his elaborations on the topic.

This said on cosmologies does not imply that that there may not be intelligent and important ideas inherent in local and regional ancient traditions. Rather the contrary, there are often certain highly relevant and even applicable pieces of knowledge, which should not be discarded apriori.

Second, the question of function. It is fairly evident in terms of empirical observation that certain old buildings have shown to be able to fit into a large series of different functions, which seems less easy to see with certain kinds of modern buildings. This second small detour brought us into an important field. When it comes to this idea that built space (architecture) always corresponds to a given social form (as discussed e.g. by Durkheim and Mauss in their early sociology from 1900, and frequently repeated), this assertion needs some elaboration. While I do think it is possible to demonstrate a social, economic, political and cultural "content" in built space, this is not straightforward or direct. If we limit our discussion to the "skeleton" of buildings, the major walls, they may in most cases actually be transformed or even changed as to allow different kinds of uses, which also may imply social, economic, political and cultural change. This can be easily demonstrated. The "Old Town" of Stockhom (Gamla Stan), for example, was considered a slum in the 1920's, while it is today largely a upper class and middle class district (a case of gentrification, that is); the skeleton of the walls, the outline of the streets etc remain the same. But in Gamla Stan there have been important changes and modifications in the interior, and when looking at these we can easily see the social change. There is thus a need for detailed study, a need for "microstudies", if we are looking for social, economic, political and cultural implications in Built Environment.

But despite this observation on the lack of immediate correspondence between built environment and the social, this idea of an immediate link has not only been an academic question. To take only one example, more than half of the old city centre of Marseille was destroyed by order from the German troops, arguing that it was a built environment which corresponded to the resistance movement. Similar arguments emerge frequently in less dramatic contexts, when the architecture of a certain neighbourhood is taken as the expression of a certain cultural behaviour or a certain social group.

These fairly general observations are important as a background for future discussion. One of my present projects, in a sense modest but complicated, is to look a bit closer at architecture in Sweden and Italy c 1880-1960, basing myself largely on published material and some visits to locations and some limited work in archives. The focus is on how history has and has not been related to architecture, and in what way, and which parts of history has been included, and to what extent older architecture has been respected or not. I can already say that in both countries during the period in question, history is a recurrent theme in architecture. But the way history is operated on varies considerably between the two countries, over time, and among different groups of actors.

Now, the analysis will not only be about whether there is a relation to history or not, but rather on how and what history is incorporated. The relation to socio-economic development, social questions, politics and culture will also be briefly addressed.

I could end these scattered remarks mentioning the current situation in Gothenburg, Sweden, my home town. First, there is an enormous amount of change in the built environment, and a large number of new buildings, new streets, new

railroad lines etc are under construction. Several old and not so old buildings are demolished at a remarkable speed. The official idea is that a new building should be built to survive 30 years (even less than the 50 year long time span of a town discussed by Le Corbusier). The buildings are mainly constructed using elements constructed in factories, and the architects are thus restricted to a limited set of bits and pieces – there is actually a wider variability among Lego pieces than the basic elements for the Swedish architect. Strangely enough, there is a lot of talking about sustainability. A recent Norwegian study has demonstrated how new buildings and the demolition of old buildings are operations consuming enormous amounts of energy, are heavy polluters, and also increase the CO2 level. The details can and should be discussed, but the way these new projects in Gothenburg have been created, with little democratic involvement of the citizens in a general sense, with little involvement of a wider array of specialists, and with little aesthetic discussion is indeed somewhat odd. Certain parts of the new Gothenburg are built, according to the politicians, to be markers of Gothenburg, "landmarks" and the like. But in the end, they look like other recent buildings in so many towns in Europe, and end up being merely repetitive. There is a high amount of very high houses, and whether this is wise or not is debatable. In the end, this gigantic project seems poorly conceived. Not all is bad, there are certain interesting individual projects, and there are interesting discussions at present, e.g on the uses of the ground floor of new apartment buildings. In this latter case, some individuals from the "Cultural Heritage" section of the municipality has succeeded in raising important questions and are organising relevant workshops, of importance also for the AACCP.

PICTURES FROM THE WORKSHOP

Giorgio Verdiani
DiDA (Dipartimento di Architettura) – School of Architecture – University of Florence, Italy

Abstract: Abstract: Behind a conference, behind the proceedings and the book left to testify the complexity and the bunch of ideas flowed in few days, there is always the group of people who debated all the subjects and their lives around the event. So, documenting with pictures is a nice way to add something more to the acts, and it is something that can be done with group pictures, with reportage pictures, with casual shots, but most of all it is something that must be done with an effort, the one trying to capture the real essence of visiting and of the people around. In this closing contribution, it is possible to see a selected series of images from the workshop, the visited city, but no people posing or common postcards, only a few shots to put in order what was done, trying to capture the involvement of the participants in the workshop. All the pictures here are taken and post processed by the author.

Keywords: Photography, Mersin, Tarsus, Akkale, Kanlidivane.

Days of the workshop

Obviously, the presentations/lectures from all the participants, questions, answers, the rich debate on the many subjects. With a certain presence of “online/remote” presentations, but also with the great and personal presence of the participants, with the interest and the intention to bring on this experience. In the images presented here a detailed report about the people taking part to the event.


MİMARLIK


2. Aim and Scope of Workshop
MİMARLIK


MİMARLIK


MARMARAY RESCUE EXCAVATIONS- USKUDAR
URBAN RESCUE EXCAVATIONS FROM AN ARCHITECT'S VIEW
MİMARLIK


MİMARLIK


THE JOGGLED VOISSOIR BARREL VAULT OF THE GYMNASIUM CAUDABUM: SALAMIS, CYPRUS


Fortification System


MİMARLIK


MİMARLIK


When the trench in
the monumental Ro


Cross-Cultural Uses of
Space in Multi-Layered
Historic Urban Core of
Antalya


THE CONFLICT BETWEEN URBAN ARCHAEOLOGY
AND NEW URBAN PATTERN


STRATIFICATION


Houston, USA


Houston,

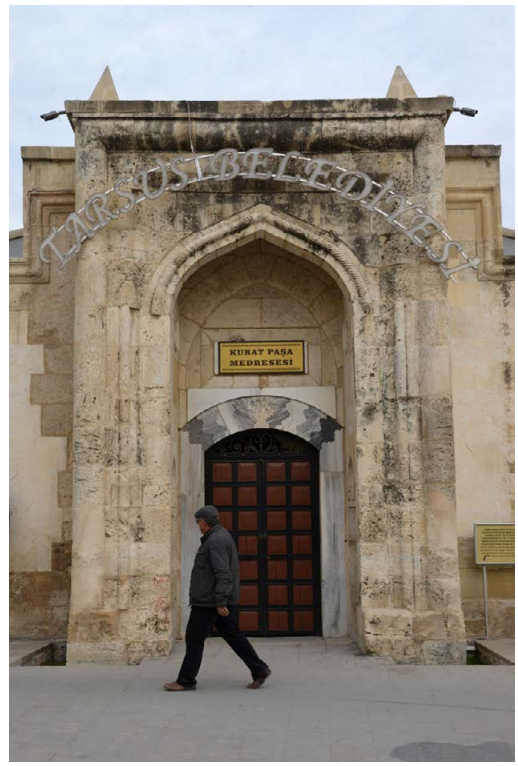

NİMARLIK

The workshop visiting the Mersin province

One of the main tasks of the AACCP was always the exchange of experiences between scholars, in Mersin with an extremely rich urban stratigraphy with layers coming from the very ancient ages to the present time, with a lot yet to be discovered and to the integrated and connected to a complete cultural network, the visits were numerous and extremely interesting. Well guided by the local scholars, the group explored the town of Tarsus (IX Century b.C.), the Archaeological area of Soli Pompeiopolis (VIII Century b.C.), the ruins of Kanlidivane (IV Century A.D.) and the remains of Akkale, the White Castle, with settlements from the IV Century A.D., and obviously, there was time to visit the areas in the nearby, seeing the complex balance between new and old layers, having time for visiting some other and very interesting site and buildings, like the St. Paul Well in Tarsus, the Mersin Archaeological Museum, the Mersin Waterfront, and appreciate some “intangible heritage” aspects in the local markets and stores.


SAHMERAN


CAFE
MAGA


TARSUS BELEDİYESİ
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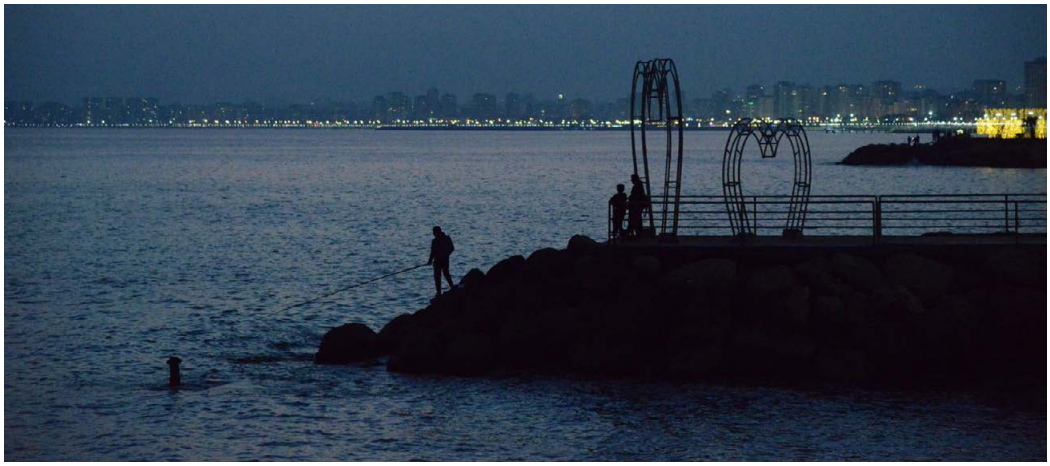

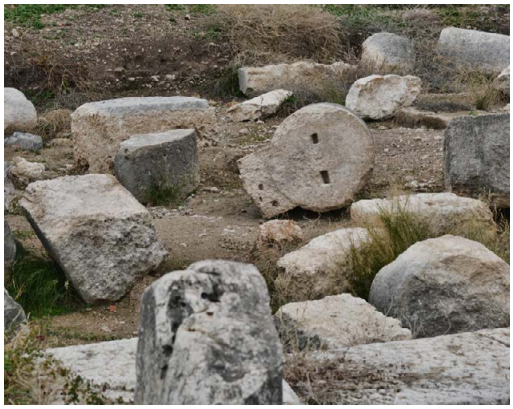


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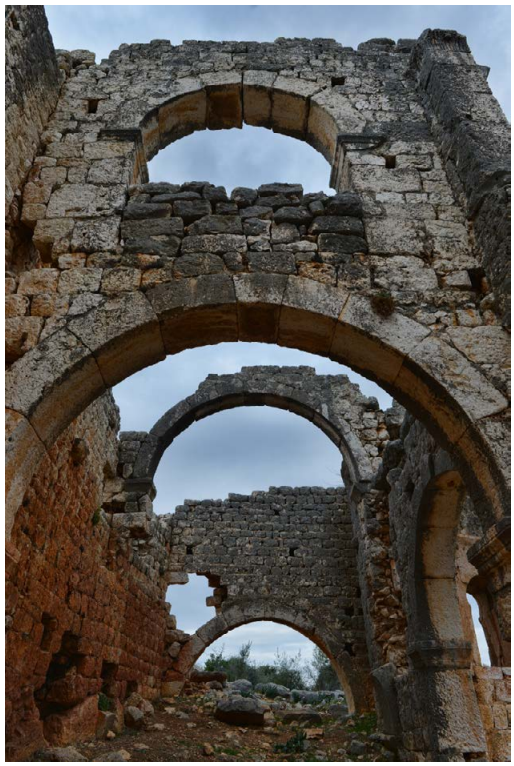
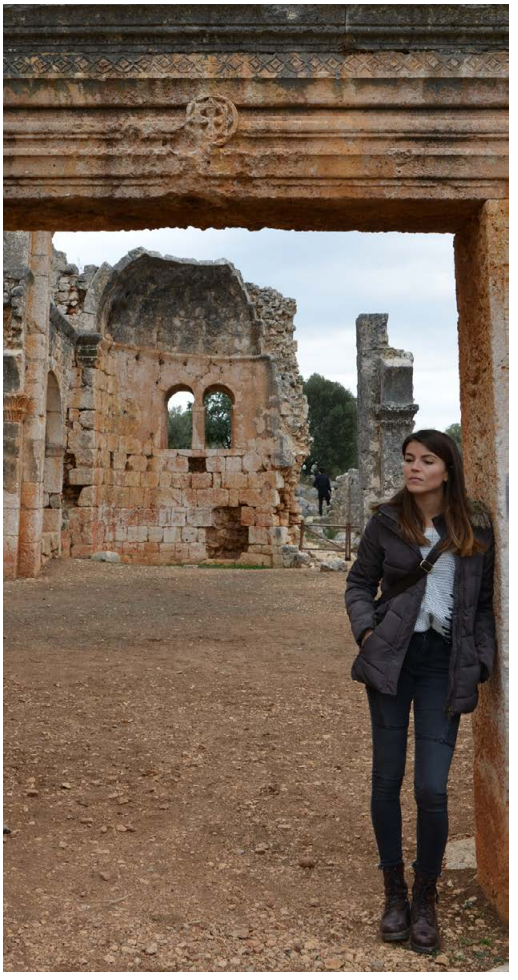
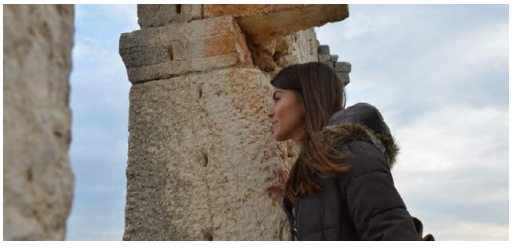
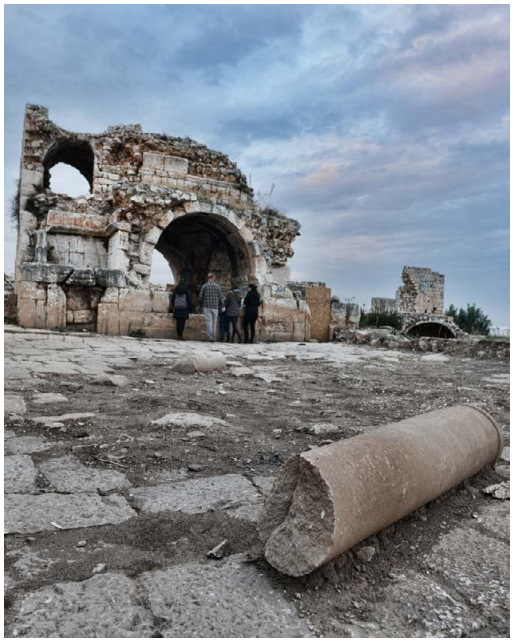







MERSİN ÜNİVERSİTESİ



In these pages some pictures from the visits to the Mersin Province during the AACCP2018 Workshop.

Page 127 - Visit to Tarsus, the Ulu Mosquee (XVI Century, built over older remains) and the St. Paul Well with its surrounding archeological remains.

Pages 128-130 - Visit to Tarsus, musealized ancient structures, remains and buildings from the downtown.

Pages 130-131 - Visit to the Mersin Archaeological Museum, items and sculptures from the province.

Pages 132-134 - Visit to Soli Pompeiopolis, with the area of the ancient harbour and the site of the colonnade street.

Pages 135-136 - Visit to Soli Pompeiopolis, inside the local market, during the visit the scholars from the workshop met a group of citizens demonstrating to put in evidence the problem of the violence against women. At page 136, the sequence shows the preparation of the *sıkma* a typical local food.

Pages 137-142 - Visit to the abandoned town of Kanlidivane, IV Century A.D.

Page 143 - Visit to the Rupestrian settlement nearby Kanlidivane and view of the ruin of the Roman Acqueduct.

Pages 144-145 - Visit to the remains of Akkale, the White Castle, with settlements from the IV Century A.D.

Pages 146-147 - Mersin, preparation of the Tantuni, a “sandwich” typical of the Mersin province, here prepared with meat, vegetables and flax oil.

Pictures by Giorgio Verdiani
Nikon D800E, 36.3 Mp
Nikkor Zoom 24-120mm F4
or Nikkor 24mm F1.8

Mersin, Turkey
21-24th November 2018

Scholar workshop:
ARCHITECTURE, ARCHAEOLOGY AND CONTEMPORARY CITY PLANNING
Multi-Layered Settlements

The workshop took place at the Mersin University, Faculty of Architecture, Me.Ü. Mimarlık Fakültesi Çiftlikköy Merkez Kampusu 33343, Yenişehir/ Mersin, Turkey.

Workshop organizing committee:
Sinan Burat, Esra Şahin Burat, Seda Sakar, Giorgio Verdiani, Per Cornell, Züleyha Sara Belge, Burak Beige

The workshop has been realized in collaboration between University of Mersin, Turkey, the Architecture Department of the Florence University, Italy, the Department of Historical Studies, University of Gothenburg, Sweden.

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Chairmen/Chairwomen and Speakers participating at the workshop:
Sinan Burat, Per Cornell, Giorgio Verdiani, Alessandro Camiz, Seda Sakar, Sofia Pieri, Esra Şahin Burat, H. Kübra Gür Düzgün, Züleyha Sara Belge, Burak Beige, Ümit Aydinoğlu, Mert Nezih Rifaioğlu, Zeynep Ceylanlı, Leyla Etyemez Ciplak, Bedel Emre, Remzi Yağcı, Güliz Bilgin Altmöz.

The present volume has been reviewed by the Workshop Committe before the publication

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In discussions on urbanism, the need to involve new actors has been a major theme of recent debate. In this field, throughout Europe, various ways of allowing citizens to take a more direct part in planning is stressed. It is also important to look at the role or lack of the role played by particular research fields. Architecture plays a major role in city planning. While Archaeology has become increasingly involved in field projects in urban environments, the discipline seldom plays an important role in City Planning. In several countries and particular cities this situation has been questioned during the last decades. In November 2018, a group of scholars from different countries met in Mersin, Turkey, to discuss about the relationship between Architecture, Archaeology and contemporary City Planning. This book collects the final papers from that meeting.

The workshop has been realized in collaboration between the **University of Mersin** the **Architecture Department** of the Florence University, Italy, the **Department of Historical Studies**, University of Gothenburg, Sweden

Workshop organizing committee:
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