

IN SICILIAN ANCIENT THEATRES THREE INTERVENTIONS OF RESTORATIONS IN SICILY

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ABSTRACT:

In the past, there were many restoration that have interested Sicilian theatres but their general valuation is rather critical: they can be catalogued as stylistic restoration and reconfiguration, which are different from intervention of "anastilosi". An example is the theatre of Solunto, whose reconstruction has occurred trough stylistic references of other theatres, without favouring the reading of the archaeological finds. Other interventions, like the reconfigurations of the sitting, have not always been respectful of technical correctness: in the theatre of Taormina, as an example, the stairs have been reconstructed in concrete that does not tie with the rest of the *koilon*.

In this lecture, I will describe three recent interventions of restorations which have created great interest: those ones for the theatres of Eraclea Minoa, Morgantina and Segesta. The interventions of these three monuments, which are different for morphology, building techniques and state of preservation, let us to know three different methods of approach to consider the restoration.

1. Introduction

Sicily, for its position in the center of the Mediterranean, since archaic age, has been point of reference and meeting of various cultures and traditions: Phoenicians, Siculians, Greeks and Sicans found in the Island fertile and privileged land for the fusion of several ethnical elements. For its natural and historical description, it has always benefited from great notoriety as a rich and opulent soil, especially above all, in agriculture and commerce, reputation that, according to Thucidide, justified the will of conquest by Athenians.

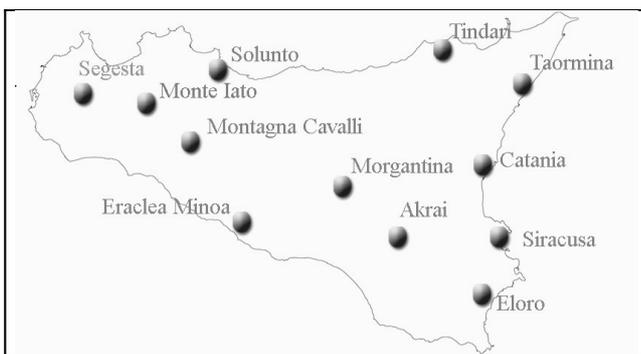


Figure 1. Theatres of Sicily

Thanks to its twelve classical theatral buildings, figure 1, survivors to passing of the time, Sicily has been considered, since the eighteenth century, an optimal field to study the ancient theatre as asserted by illustrious researchers, as the Duke of Serradifalco, the French painter Jean Houel and the Italian archaeologist Paolo Orsi. Nowadays the interest towards these architectonic complexes is exalted by staging classic operas, started in Syracuse in 1914. Since then many theatres

have been proposed as places for performance, capturing the interest of the Supervisors, which have programmed more and more campaigns of excavation and architectonic restorations.

In this lecture, I will describe three recent interventions of restorations which have created great interest: those ones for the theatres of Eraclea Minoa, Morgantina and Segesta. The interventions of these three monuments, which are different for morphology, building techniques and state of preservation, let us to know three different methods of approach to consider the restoration.

2. Eraclea Minoa

The Theatre is settled on the natural declivity of the hill, whose geology is not unitary: the inferior part is of marly nature, the superior one is composed from sandstone of astian type, that is sparsely cemented. The *koilon* (auditorium), with diameter m 33,25, is oriented to the South with the view on the sea. The semi-circumference of the cavea is extended through two parallel lines that form a very stressed horseshoe, figure 2. The *koilon* is divided radially in nine *kerkides* (wedge-shaped) from eight *klímakes* (stairways). Horizontally it was divided in ten orders of seats, of stone of marly tufa. It presents a *prohedria* (seat of honor around the orchestra) and a *diazóma* (horizontal walkway), for which the *koilon* is subdivided horizontally in three fields: the *ima-cavea* composed by ten seats and the *epithéatron* (seating in theatron above the diazoma), where spectators sit directly on the slope; at last, a *prohedria*, composed by nine benches in correspondance of the pertinent wedges, everyone of which is constituted by more blocks. The tiers of the *koilon* are constructed with blocks of limestone-plaster arenite, very tender and friable, that has lost nearly totally the compactness and the cohesion of the stone because of the progressive washing away. The frontal

analémmata (supporting walls) are constructed with tans of marly tufa and are very conserved.

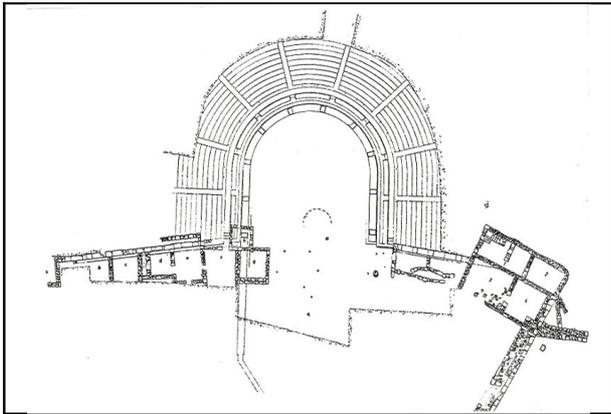


Figure 2. The plan of theatre Eraclea Minoa (De Miro, 1966)

Two various levels of the *orchestra* (dancing place), with horse iron shape which diameter measures m 14,20, has been recognized, that are correspondent to two various ages of realization: in the earlier stage it is composed from marly beaten, while subsequently the *orchestra* is covered with a turn of tans in the inferior limit of the *kóilon*. The *eúripós* appears like a channel, which allowed the passage of the spectators, interrupting itself in correspondence of the *kerkides* through ten rectangular openings for the flow of water. The access to the *kóilon* was directly from the *orchestra*, through *párodoi* (passageways). There are not traces of constructions of the scenic building. They have found holes for poles that let to suppose that they had to serve in order to support a mobile ligneous proscenium. In 1955, the Central Institute of Restoration of Palermo carried out some interventions of consolidation on the entire theatral building, because the stony material was strongly degraded and had lost its original solidity. The executed intervention consisted in consolidation, by means of the application of chemical products as a spray and of a plastic-protecting solution, which created a removable film. Unfortunately, such film, rather than protecting the building, has prevented the humidity, present in the stony material, to come out, accelerating the degradation process.

A new intervention of restoration was necessary in 1960: the assignment of planning a cover was given to the Arch. Franco Minissi, which began the works in 1963. The realized plan was based on precise indications, as the transparency that lets to show the monument, the possibility to shape and to model the several parts, allowing an easy reading and understanding of the monument. The created inner tube would have made possible, moreover, a thermal isolation with the task to defend stones from cold. For the execution of such cover, it was necessary to use a shape in Perspex, that would have guaranteed requirement of transparency, figure 3. Contrarily to the plan of Minissi, that previewed some vertical septa realized in perspex, anchored through implantations in aluminium, more than seventy T bars fixed on the tiers trough so many holes, of approximately millimetre 400, walled with grout. An irreversible damage to the entire monument has been created. Moreover some walls in reinforced concrete were executed side by side with the seven *klimakes*, and a system of water-drainage, realized up stream to *kóilon*, with the creation of a channel in concrete. The two lateral heads of the walls of

analémmata were reintegrated with walls of new brick built above them.



Figure 3. Theatre of Eraclea Minoa with the Minissi's cover

The purpose to protect theatral building was soon neglected, accelerating remarkably the degradation processes which are: erosion, pulverizations and disintegration, scaling, gaps, exfoliation, separation, biological patina, efflorescence. The entity and the causes of degradations are various: in the exposed part degradations were caused from chemical and physical effect of the eolian and meteoric action; in the covered part they were caused both by the oxidation and corrosion of the metallic structure, with the consequent fissure of the stone, and by the infesting vegetation that is favoured by the greenhouse effect. It is clear in which state the Theatre appeared when in 1995 the Superintendence of Cultural and Ambient Heritage of Agrigento started an extended campaign of studies finalized to the acquaintance of the causes of degradation and to the corrected execution of the restoration works: the cover had lost its transparency and had become yellow, figure 4; many elements were broken; the supports in iron, originally white painted, were oxidized, folded or broken; under the cover there was a spontaneous vegetation that reproduced the shape of the steps.



Figure 4. The cover become yellow and under it there was a spontaneous vegetation

First of all the operations of instrumental survey were executed, allowing a detailed preventive documentation to inquire on the constituent materials of the Theatre and to execute the champion interventions for the successive

restoration¹. The successive operation has previewed the disassembly of the old protecting structure, the removal of vegetation and accumulation of ground on the stone, and to the application to spray of ethyl silicate, as general preconsolidating. The operations have interested the removal of iron bars, the removal of the stuccature and cement integrations. The fragments which were, fragile and pulverulent fragments have been dusted and glued with mortar; those ones of greater dimensions have been fixed always with mortar and with some micro-hinges in glass-reinforced plastic, figure 5. Today the Theatre is protected temporarily by a cover that is not incident on the monument and thought in the respect of ambient figure 6.



Figure 5. The Koilon of theatre of Eraclea Minoa after the restoration



Figure 6. Today the Theatre is protected temporarily by a cover

3. Morgantina

The city of Morgantina is in the central Sicily, in the province of Enna. The Theatre, situated at the extreme South of the city, is in tightened connection with a similar structure with one flight of steps that has been interpreted like *ekklesiastérion*, dated between the IV-III century b.C., which appears on the inferior agorà to connect the two *agorà*, the inferior one and the superior one, used for the city assemblies. The Theatre presents two constructive phases: one first phase going back to the 324-

310 b.C., the Agatocle period, and a second one between the IV century and the beginning of the III century b.C. The *kóilon* that is built with local limestone blocks, with horse shoe shape, has a frontal diameter that measure m 57,70, and is subdivided horizontally in two sections: the *ima-cavea*, composed from sixteen orders of seats, and the *epithéatron*, in struck earth, had no places to seat. Seven *klímakes* subdivided radially the *ima-cavea* in six *kérkides*, of which two constructed under the *analémmata*, figure 7. Such subdivision that is with equal number of *klímakes* is no diffused in theatres of Greek origin, since in the center of the *kóilon* there is one *klímax* in axis to the Theatre, rather than one *kérkis*^{*}.

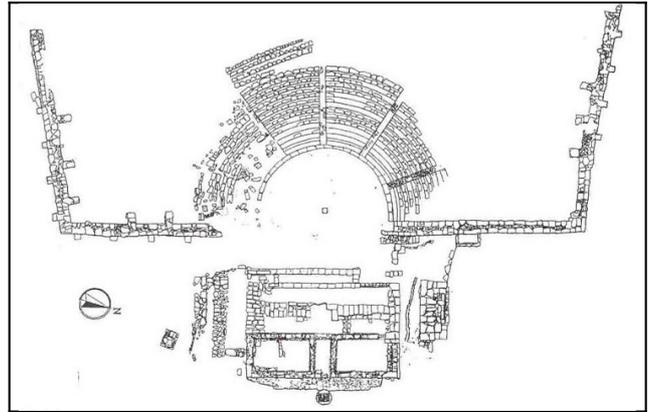


Figure 7. The plan of theatre of Morgantina (Sposito, 2003)

The *kóilon* is settled, for a quarter, on a open space in light slope of the rocky ridge, on which, in order to emphasize the inclination, filling material composed by rubble granulate, sand and ground, was put with beating and previous wetting. On such foundation a floor of variable thickness, was probably spread with the aim to settle the slope, at last on it stairs were mounted which, for their little compact nature, had to be joined with filling mortar. Thick walls, supported by inner counterforts, the *analémmata*, contained this material. The *analémmata*, constituted by a part which is perfectly orthogonal to the axis of the Theatre and from an other inclined one, like a upside down trapeze, is composed by building double curtain surfaces: the external one has pseudoisodoma waving, while the inner one is irregular, filled up by “box wall” and broken material. A row of limestone blocks marked the shape of the orchestra, an extended semicircle, which has the plan constituted by impermeable sand and clay, figure 8.

The last intervention of restoration of the Theatre was executed between the November of 2003 and September of 2005. The works, financed by the Regional Province of Enna and supervised by the Superintendence of Enna, assigned to Archh. Alberto Sposito and Francesco Franchina, have assumed the purpose: to re-establish physical and structural integrity of the manufacture; to restore the works executed in Sixty years; to give back to the theatre its original shape, in respect of historical evidence; to take part with suitable works aimed to the conservation of the monument and to reduce the costs of

^{1*}The carried out tests have been: of water absorption for immersion total; water absorption for capillarity; porosimetric characterization; valuation of the penetration of consolidating products; resistance to the crystallization of soluble salts.

The presence of the central *kérkis* in the Theatre of Morgantina does not have precedent in other sicilian theatres and few other Greek theatres, which belong to late classics and Hellenistic period, have this peculiarity, like the Theatre of Epidauro, built in 350 b.C., and other theatres of roman age.

extraordinary maintenance; to get material and constructive procedures that are reversible; to assure the benefit of the monument in its physical functional and historical globality, to value the monument and its context, figure 9.



Figure 8. The Koilon of Morgantina's theatre before the last restoration



Figure 9. Morgantina's theatre after restoration

Some trials on filling material executed behind the right frontal *analémma*, that had serious structural failure, and they have recorded an argillaceous ground water saturated, which provoked an excessive thrust on the structures of the *analémmata*. The intervention constituted in dismounting partially the wall, replacing with barren material in the lower surface; a tube for the water-drainage has been placed at the base of the digging, and the walls have been waterproofed with reinforced geomembrane, coupled to geocomposite in order to facilitate the water-drainage of infiltration waters. The blocks of the wall of frontal *analémma*, which are been already collapsed, have been catalogued and reused. The blocks of the superior rows, that had excessive failure, have been dismount, catalogued, and replaced. The stony surfaces of the vestments have been cleaned up and dealt to the aim to conserve, to consolidate the present state of stone, and to avoid a successive degradation. At last, some new *klimakes* in grey local stone have been realized between the fields of the *koilon* in order to avoid the improper use of the sitting and in order to concur a sure reutilization of the Theatre.

4. Segesta

On the eastern extremity of the tableland, the theatre placed inside of what were the city walls. The theatre dominates immense rich lowland of vegetation of agaves and brooms. The cavea is orientated to North shows oneself on goes them below and on the sea. The state off conservation of the theatre, which is rather good, let us to observe the several arts that compose it: the *koilon*, *orchestra* and *scenic building*.

The *koilon*, that surrounds the *orchestra*, with horse iron shape, has a diameter of m 64. Contrarily to the other theatres of the Sicily, excluding Syracuse whose *koilon* has been dug in the rock, the Theatre of Segesta is not found above the mount but it has been built with an ingenious system. The *koilon* is subdivided by two *diazóma* in three fields, the *ima-cavea*, the average cavea and the *summa-cavea*, of which the inferior it turns out subdivided by six *klimakes* in seven *kérkides*, composed by twenty sitting orders. Under the western zone, a cove is found, whose the functions are not still completely know*. The access to the *koilon* for public was through the *parodoi*, which are situated along the frontal *análemmata*, through two entrances in *summa-cavea* opened in the perimetral wall, figure 10.



Figure 10. Theatre of Segesta

Recent studies have assumed that the shape of the *koilon* was not symmetrical, modifying the image attributed for all these century. The trails, which were carried out in 1993 on the *summa cavea*, point out the presence of the blocks used for the construction of the *koilon*, previously destroyed by one trench dug during the restorations made by the Duke of Serradifalco in 1822. The presence of these walls let us explain that the *koilon*, wide in correspondance of the entrance of the *diazóma*, settled on subtractions of large blocks and slabs of medium and small dimensions, with stones embedded in the intermediate spaces*. Another research, made in the areas without seats in stone, has allowed defining with certainty the complex constructive system of the *koilon*. It is settled, in fact, on a strong artificial ground filling, contained from single self-bearing concatenations, while the seats were settled on rows of blind corridors, which are formed two lateral walls on radial

Probably it was well used for the refuelling of water for actors and spectators and was accessible from door in the wall of western *analémma*, still visible today.

As a result of such hypothesis the *koilon* could contain approximately 4000 places to seat, whose 1500 ones are conserved nowadays.

disposition covered by a big stone slab. It constituted a crawl space in which the cavity served to lighten the push of the ground of filling against the wall of *análemma* that covered all structure, figure 12. Unlike the other Greek theatres, that they are usual to lean itself on the hill, the entire building seem rested on the empty one, thanks to this ingenious sac technique, that let it to be leaned on an artificial ground filling. This constructive technique seems to precede the systems of vaulted substruction that, instead, are peculiar of the roman theatres. The *orchéstra*, with horse-shoe shape, of m 13,8 of diameter, is composed by ground earth striking marked by a row of calcareous rock blocks. Like the greater part of the theatres in Sicily, it does not present the *euripos* (channel of drain of waters), but a square basin on the western side. Like for the greater part of the classical theatres, of the scenic building remain only the traces on the ground that allow us to identify it like a building to *paraskénia*. The scenic building, built with calcareous rock blocks, is with closed proscenium, flanked by two lateral bodies, *paraskénia*, whose facades degrade towards the inside of the scene, creating perspective effect.

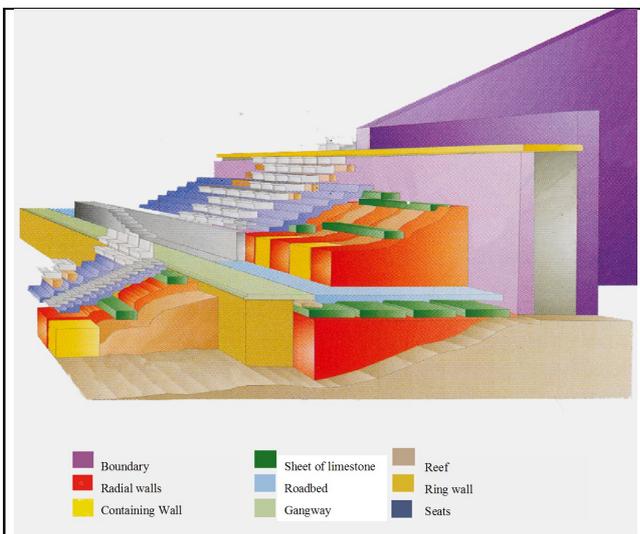


Figure 11. The constructive technique (Camerata Scovazzo, 1996)

Recently it has been undertaken a new plan of surveying and restoration, terminated in 2001, realized from the Supervising of the BB.CC of Trapani. The plan has not been limited to the surveying of the Theatre, but, on the base of the acquired data, it has allowed to reshape the media-cavea with works of consolidation and completion of the radial septa. The *ima-cavea* has been integrated, in structural gaps, with walls of substruction of the seats, making necessary also the completion of the rectilinear features of the wall of *análemma*. In addition, the superior entrances have been interested by the intervention of restoration, that has restored the paving to the original altitude, figure 12.

It has been arranged for the settlement of the scenic, moreover, it has been arranged to the settlement of the scenic building, whose plan resulted almost illegible because of the state of degradation, and of the modern construction of a northern wall of the building. The integration and consolidation works have interested the altitude of foundation of the perimetral walls and those of inner partition of the ambient, that have been filled up until the altitude under foundation, by

paving slabs still present *in situ*. All the interventions have been carried out with hydraulic local stone and mortar.

The archaeological levels have been protected with green net and a small layer of rubble. The ancient fillings have been integrated with a combining of quarry. These interventions have limited the static-structural risks, although we cannot exclude in future that the can present again because of geologic



Figure 12. The Koilon of the Segesta's theatre after the restoration

movements, because of the strong slope of the land and the height of the walls of *análemma*. For the nature of the stone material, with which the Theatre is built, the greater risk is that ambient-atmosphere, than cause diffused erosion, superficial disintegration and chromatic alterations, especially in the wall of *análemma*. The structures which are exposed to East are subject to the winds that provoke disintegration and pulverization of materials, while those exposed to North, less sunned, present mosses and layers of lichens of whitish colour, responsible, of the chromatic alteration, and decohesion for chemical dissolution of the superficial layers.

5. Conclusion

In the past, there were many restoration that have interested Sicilian theatres but their general valuation is rather critical: they can be catalogued as stylistic restoration and reconfiguration, which are different from intervention of "anastilosi". An example is the theatre of Solunto, whose reconstruction has occurred trough stylistic references of other theatres, without favouring the reading of the archaeological finds. Other interventions, like the reconfigurations of the sitting, have not always been respectful of technical correctness: in the theatre of Taormina, as an example, the stairs have been reconstructed in concrete that does not tie with the rest of the *koilon*.

The three lecture have been an approach to restoration that is quite different from these last examples. Before any intervention, a series of preliminary surveying as well as evaluations have been carried out, conveying to a project strictly related to the decay causes and forms, which were cause by the building technology of the theatre. The decision, rather unpropitious, to cover the *koilon* of the theatre with a cover in Perspex, is considered the worse intervention of restoration in Sicily, that the successive interventions couldn't cancel, limiting to contain as much as possible damages caused by such cover. The restoration of the theatre of Morgantina proposes a total and complete image inside of a rich and articulated city

system (dipped in its turn, in the extraordinary landscape of the Sicily hinterland). In other words it has been given back the theatre to its original shape, in the respect of historical and architectonic evidence. The restoration of the Theatre of Segesta has been completed in the absolute respect of the constructive techniques for the construction of the *koilon*, therefore to allow an immediate reading.

In conclusion, knowledge of constructive technique and of materials must be at the base of programming of conservation activities and of management of ancient theatres. That knowledge must consider of dynamics of degrade processes relating to the natural, ambient, anthropical attack and of past operations to evaluate mistakes but even effective intervention which have allowed correct preservation of the manufacture.

6. References and/or Selected Bibliography

Alaimo, R., 1995. Indagini sui materiali lapidei del Teatro di Eraclea Minoa. In: *The Archives of Superintendence of Cultural and Ambient Heritage of Agrigento*, Palermo.

Camerata Scorazzo, R., 1996. *La carta archeologica. Segesta I*, Sellerio, Palermo.

Ciancio Rosetto, P., Pisani Sartorio, G., 1996. *Teatri greci e Romani, alle origini del linguaggio rappresentato*, SEAT, Roma.

De Miro, E., 1966. Il Teatro di Heraclea Minoa. *Rend. Licei*, 21, pp.52-75.

Ruggirello, V.L., 2005. The Project of Sicilian Theatres. In: *II International Workshop on: Science, Technology and Cultural Heritage*, Catania, pp. 40-49.

Ruggirello, V.L., 2006. Regole progettuali di alcuni edifici teatrali in Sicilia. *Dioniso, Annale della Fondazione INDA*, 5, pp.286-297.

Sposito, A., 2001. *Morgantina e Solunto: analisi e problemi conservativi*, Dipartimento DPCE, Palermo.

Sposito, A., 2003. Il Teatro ellenistico di Morgantina. *Dioniso, Annale della Fondazione INDA*, 2, pp. 318-349.