

Athens Institute for Education and Research

ATINER



ATINER's Conference Paper Series

ARC2013-0867

**Rural Architecture in Sorrento-
Amalfitan Coast. Constructive
Tradition and Prospect for Preservation**

Maria Falcone
University of Naples "Federico II"
Italy

Arianna Spinosa
Professor
University of Naples "Federico II"
Italy

Luigi Veronese
Professor
University of Naples "Federico II"
Italy

Mariarosaria Villani
Architect
University of Naples "Federico II"
Italy

Athens Institute for Education and Research
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece
Tel: + 30 210 3634210 Fax: + 30 210 3634209
Email: info@atiner.gr URL: www.atiner.gr
URL Conference Papers Series: www.atiner.gr/papers.htm

Printed in Athens, Greece by the Athens Institute for Education and Research.
All rights reserved. Reproduction is allowed for non-commercial purposes if the
source is fully acknowledged.

ISSN 2241-2891

23/1/2014

An Introduction to ATINER's Conference Paper Series

ATINER started to publish this conference papers series in 2012. It includes only the papers submitted for publication after they were presented at one of the conferences organized by our Institute every year. The papers published in the series have not been refereed and are published as they were submitted by the author. The series serves two purposes. First, we want to disseminate the information as fast as possible. Second, by doing so, the authors can receive comments useful to revise their papers before they are considered for publication in one of ATINER's books, following our standard procedures of a blind review.

Dr. Gregory T. Papanikos
President
Athens Institute for Education and Research

This paper should be cited as follows:

Falcone, M., Spinosa, A., Veronese, L. and Villani, M. (2013)"Rural Architecture in Sorrento-Amalfitan Coast. Constructive Tradition and Prospect for Preservation" Athens: ATINER'S Conference Paper Series, No: ARC2013-0867.

**Rural Architecture in Sorrento-Amalfitan Coast.
Constructive Tradition and Prospect for Preservation**

Maria Falcone
University of Naples “Federico II”
Italy

Arianna Spinosa
Professor
University of Naples “Federico II”
Italy

Luigi Veronese
Professor
University of Naples “Federico II”
Italy

Mariarosaria Villani
Architect
University of Naples “Federico II”
Italy

Abstract

Throughout a journey in Spain during 1930, Le Corbusier was impressed by the local spontaneous architecture, whose volumetric and geometrical lines merged later in his design production. Since that time, the rural architecture has been object of several studies to inquire the inseparable relationship that links it to the landscape. Within the Parthenopean framework, particular importance has the knowledge and preservation of spontaneous architecture within an environment of great landscaping value as the Sorrento-Amalfi coast, which is also characterized by a rich heritage of rural buildings that retain recurring forms. The local type of construction, forged by centuries of experience in the manufacture of local materials, the geographical location and the climatic conditions have led to a progressive definition of recurring planimetric distributions and spaces linked to the relationship of form and function. Since 1936, during the Sixth Triennale of Milano a section was dedicated to the *Italian rural architecture* minded by Giuseppe Pagano. Roberto Pane - inspirer of the Venice Charter of Restoration of 1964 - presented a photographic exhibition on rural architecture in Campania. Subsequently, in the essay *Sorrento and the coast* (1955), he highlighted the issues involved in the conservation and protection of anthropical environment of Sorrento's peninsula, where architectural peculiarity characterize the Mediterranean environment merging with it. The paper intends to focalize the importance of knowledge of this popular heritage to recognize the principal peculiarity, the constructive technics and materials and the recurring problems in order to identify the best techniques for their transmission to the future.

Keywords:

The Sorrento-Amalfitan peninsula, located south of Naples, represents a unique object of study to understand how the rural architecture of the Mediterranean environment has known how to use, in a spontaneous and functional way, the geomorphological characteristics of the area and the natural landscape, adapting organically, without damaging them.

The two coastal slopes of the peninsula, which take their name from their main urban centers, one north 'Sorrentine', sloping gently towards the sea and the other one south, 'Amalfitan', rugged and steep on the Tyrrhenian Sea, offer a several environmental variations that, overall, produce different architectural solutions. These are characterized, however, by recurring elements that make the secular spontaneous architecture of these places a typological *unicum* that deserves to be studied and analyzed.

Attention towards the rural landscape heritage and, therefore, to the architectural presence tied to it, has become the subject of systematic studies since the 30s of the twentieth century, when, as a result of specific researches, the issue has taken on a multidisciplinary approach. In the same period, important members of the coeval architectural culture have begun to show interest in the simplicity of this type of architecture and specially in the immediate link between shape and function, typical of rural architecture, highlighting this 'honesty of building' (Pagano, 1935, 1936) as inspiring model of the new rationalistic architecture.

Throughout a journey in Spain during 1930, Le Corbusier was impressed by the local spontaneous architecture, whose volumetric and geometrical lines merged later in his design production by the study of the Catalan vault.

In 1936, during the Sixth *Triennale* of Milan a section, minded by the famous architectural historian Giuseppe Pagano, was dedicated to the *Italian rural architecture*, during which Roberto Pane, a parthenopean architect, presented a photographic exhibition on rural architecture in Campania.

Since then, the heritage of rural architecture has been subject of several studies, aimed to investigate the inseparable relationship of causality that links it to the landscape, of which it's an essential part.

In 1955, Roberto Pane, in the well-known volume *Sorrento and the coast*, highlighted the issues inherent in protection and conservation of anthropic environment of the Sorrento peninsula, where the architectural element merges with the Mediterranean context and characterizes it. The same author was the inspirer, in 1964, of the Venice Charter of Restoration, a fundamental document of guidelines for the culture of modern restoration, in which was extended the definition of monument also to the anthropic environment with its 'choral' values. One of the results obtained by the Charter, in fact, was the recognition of the close link that elapses between the individual instances of architecture, at that time considered 'minor', and the surrounding environment. At the former is given a value of 'choral' for which it establishes the inseparability of individual monuments from the context in which they are integrated.

In the contribution given to the drafting of landscape plan of Sorrento, in 1980, Roberto Pane emphasized the importance of the environmental values of

the area examined and he proposed to affix of the 'agricultural bond' for the protection of unbuilt environment to guarantee the respect of the agricultural vocation of the area, the shape of batch and fields, crops and plantations (Picone, 1987: 146).

The interest in this spontaneous architecture as bearer of values and vernacular traditions, is due, therefore, to the wider matter about the evolution of culture of environment and landscape which in Italy, during the last years, was animated by a lively debate.

The image of the rural landscape and the values related to it, are now a fact thanks to the overcoming of the traditional concept of landscape, still present in the Italian law n. 1497 of 1939, laying down rules on the 'Protection of natural beauty', merged recently in the Decree Law 42/2004 'Code of Cultural Heritage and Landscape'. The need for increasing legislative activity was determined by a several erroneous interpretations of the concepts of environment, landscape and territory. The view conception contained in the previous protection law of 1939, in fact, has led over time to a dangerous identification of pictorial values in specific panoramic views rather than others, with the risk of making a selective retention of the landscape, so subjective and arbitrary (La Regina, 1980).

Just the concept of 'landscape' has been for a long time the subject of different definitions and interpretations that have created often ambiguous and dangerous consequences for the protection of the Italian territory. Several authors have emphasized the subjective meaning in the notion of landscape describing it in a completely different way from 'land' and 'environment'. Be enough to think that at the end of the nineteenth century, when concept of landscape protection was born, related to the rapid changes imposed by industrialization, the vision was still strictly aesthetic and identification between landscape and 'panorama' was still used, also testified in the first laws protection in 1922 and 1939. This highlighted the subjective nature of mentioned notion.

In the second half of the twentieth century, with progressive impairment of the natural environment as a result of speculation following the economic boom, has prevailed the ecological and biological approach to landscape and has seen the replacement of the term with that of 'environment', also testified in the name of the Ministry of Cultural and Environmental Heritage, established in 1975.

During these years, it has become evident the clear separation of the issues related to the landscape, for which philosophers and aesthetes remain bound to the subjective aspects, while ecologists took very radical positions, coming to exclude from the concept any reference tied to landscape defined as anthropic environment.

Today the notion of landscape is back again, as evidenced by the European Convention ratified by Italy in 2006 and the new Code of Cultural Heritage and Landscape (art. 131, 'for landscape is defined as a homogeneous part of the territory in which characters derived from nature, human history or the mutual interrelations'). The definition of the term contained in the Convention of 2006,

art. 1, that is, '*Landscape* means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors', seems to completely reclaim subjective component and anthropic landscape, recalling the collective perception and the presence of human factors and their interrelationships.

In view of these brief remarks, the territory of the Sorrento-Amalfitan peninsula is a representative study case of how, over the centuries, the hand of man has managed with great skill to transform the natural environment in anthropized environment, placing itself in balance with it, and in which individual architectural examples themselves inextricably linked to it are carriers of positive values to the context (Zevi 1996), since 'the territory becomes, in this sense, appropriate scale programming the protection, which make sense within the individual restoration' (Picone, 2005: 153).

The discipline of restoration, moreover, shooting for a knowledge towards a recognition of the characteristic elements in order to study their contents and genesis. This approach represent a fundamental prerequisite for the proper protection of these places and transmission to future generations.

The urbanization of the Sorrentine peninsula has origins dating back to the period around the first century BC, during which took place the transformation of Rome from Republic to Empire and the entire Gulf of Naples, from Capo Miseno to Capri, was littered with important patrician houses, fate for the *otium* of the emperors and of the senatorial class.

Later, during the IX century, the intense trade carried out by the powerful Maritime Republic of Amalfi allowed to import customs and construction practices from all over the Mediterranean world, so that the traditional elements of Latin ancestry merged with architectural types and shapes of Arab and Byzantine decorative art. Even today, many centers of Sorrento Peninsula, as already reported in the copious literature seven-nineteenth century, have an architectural heritage of extraordinary interest, characterized by outstandingly unique features not found elsewhere.

Within a framework developed mainly in the Middle Ages, there are currently detectable signs of the many adaptations and stratifications fate over time, made to compensate static problems, changing in needs and in taste, they often have altered the primitive characters, making it difficult to identify.

A practice which constitutes itself an important environmental value because it proves the continuity in the use of these ancient structures that, in most cases, in the course of time, have preserved original agricultural function. Furthermore the architectural elements, construction techniques and materials used are provided by local building traditions, remained virtually unchanged over the centuries, as a result of repeated dynamics in agricultural production and the typological and morphological choices laid down by the geographical location, the climate, the type of culture and the presence of raw materials in close proximity.

Indeed these are the elements that over time have allowed the formation of an architectural typology as well defined and recognizable, consisting of

recurring solutions throughout the Mediterranean area, where the climatic characteristics and anthropological needs allow to recognize clear similarities.

This just shows how the essential characteristics of the architecture of the Amalfitan coast depend not only on the period and historical events that generated them, but on man's ability to adapt to the natural environment and to shaping it according to himself functional requirements.

By following rules laid down by the nature of the area, strongly characterized by natural environment, the typical rural architecture has adapted to the lack of flat spaces, to the scorching sun and to the needs of a population composed by farmers and sailors who despite the difficult access conditions, especially on the Amalfi side, were able in modeling the hill slopes into gently sloping to the sea terraces, whose image has become thereby a characteristic feature of the landscape (Fiengo, Abbate, 2001).

By these premises, the study proposed here has analyzed the architectural, morphological, structural and material elements recurring in this geographical area and the issues related to their presence in relation to geomorphological and climatic characteristics of the landscape.

The origin of the rural coastal architecture is based primarily on the need to adapt them to the winding natural roughness of the landscape. A relationship that strengthens the link between structure and local resource as well as the identification of those typological and technological choices that contribute to the hydrothermal wellness of architectures themselves.

Without going into the wide debate that in the last century has seen numerous researchers discuss about the historical origins of these architectures, it's possible to say that has been recognized into the medieval traditional architecture of these places a 'taste' of derivation Arab-Byzantine, stratified and modified, which exceeds both the simplistic definition of 'Tyrrhenian style' than to 'Norman architecture' (Venditti, 1962: 10). The merger of the two main components of the deep-rooted historical constructive techniques, the late Roman-Byzantine and the Arab one, joined in a syncretism enriched by the creativity of local workers, has led to a plethora of extradados vaults, domes, tri-apsis planimetric system, raised arches, pointed arches, geometric decoration, polychrome garnish. All this made of local materials such as gray lava, sandstone, ebolitan limestone and spongy travertine of Paestum. Moreover, it is often possible to recognize the Roman origins of these buildings, whose foundations are sometimes arise on the ruins of villas, nymphaeums, thermal classrooms and Roman port settlements, which constitute an important component of the rural architecture that over the centuries has used these well-structured remains in order to make cellars for storing wine and land products.

Crossing the Sorrento-Amalfitan peninsula, both in the sea off the ground, with its historical towns and with the landscape that in many places still retains his wildness with its rock-cut architecture, means bump into a series of constructive invariants typical of this area, which make it an *unicum*. Below we analyze the most recurrent elements, such as the presence of terraces, the use of

extrados vaults, finishing elements and wall cladding with coarse-grained lime plaster, described as '*scialbo*'¹.

Today the terraces of the Amalfitan Coast constitute a real 'monumental property', both for the structure they give to the landscape, than for the intrinsic characteristics of the used materials and their setting up in accordance with practices handed down from centuries of experience. Used to modelling the hills for agricultural use of the land, the terraces are mostly planted with lemon groves and orchards and allow to take advantage of sun exposure and to preserve the crops themselves by local winds at the same time.

Therefore, the miracle of Amalfitan agriculture has happened thanks to the local populations that have gradually turned the rugged cliffs of the coastal in sloping terraces, tilling the land and using the remaining stone for the construction of the typical *macere*, stone dry walls whose empty backwaters were then filled with soil (Del Treppo, Leo, 1977).

These dry walls, locally called *macere*, therefore, are required to contain the terraces and in general, are achieved through the combined use of the local materials, especially limestone and wood.

According to the classical type of settlement terraced on a promontory with a constant slope, generally the settlements develop parallel to the contour lines and the agricultural lots subdivision follows the same trend with small enclosed fields, mainly planted with orchards and gardens, while rural housing will have on the whole terraced area with random arrangement and in some cases cellular aggregates.

The construction typology of rural architecture on the Sorrento-Amalfitan coast is derived from the aggregation, on a planimetric and spatial way, of a mono-cellular cubical element, which generally juxtaposed in a serial and repetitive way, constitutes the parallelepiped elongated on base, generally separated into two levels. The spatial model of reference is the *domus* of the ducal age (Fiengo, Abbate 2001), but there are also many similarities with the type of agricultural warehouse of the imperial age, variously distributed on the territory of Vesuvius and the Phlegraean area.

The structure of the basic unit, set on square plant, usually provides foundations resting directly on the rock, thanks to the lithic natural configuration of the land, from which rise not complex masonry walls with a double row of stones cemented together with a mixture of sand, lime and limestone, which depending on the size are named *pulci*, *zavorra* or *ammazzacani* (Amos, Gambardella, 1975: 11). Frequently is also the presence of the finest masonry, a sign of the oldest existing structures, as repeatedly pointed out in this paper.

The planimetric assets of the structure generally follows the development on east-west axis along which stands the four basic elements, usually repeated at the top level. According to the functional distribution of this basic model the upper level is occupied by what is defined by the archival records as *casa*

¹*Scialbo* literally means weak / thin, because this kind of lime plaster is laid out in a smaller and coarser thickness.

fabrita solarata, i.e. the rooms intended for resident, while at the lower level, functional spaces to agricultural activities follow one another; external stairs gooseneck, sometimes surmounted by arches, often follow the tortuous course of the rock wall, connect the two basic levels among themselves and with all the rooms and volumes resulting from successive aggregations. More complex systems are enriched with arcaded lodges, useful for internal cooling of the domestic settings and a pleasant stopover on the outside.

The spaces used for agricultural purposes clearly show the 'integrity of building' celebrated by Pagano in the '30s. Notwithstanding this the direct derivation from the Roman agricultural tradition is evident in the names found in the archive documents that denote these domestic settings: the tank with the wash (*balneum*), the cellar (*buctaria*) with the tanks for the crushing and fermentation (*palmentum*) and the collection of wine (*labellum*), a kitchen with an oven, a barn (*mandra*). These spaces, which currently have changed destination of use or have been tragically transformed, are a constant in rural architecture of the coast, as indeed they are in rural architecture found throughout the Neapolitan territory, while there are different conditions of space intended for habitation that could also not cover the entire upper portion of the base parallelepiped.

This type of building is stated in ducal age, a time when the coastal territory is transformed by natural landscape in cultural landscape, thanks to the work of a social class of sailors-farmers who, through medium-term contracts for the cultivation and use of agricultural funds, such as the '*pastinato*'¹, give to the Sorrento-Amalfi coast the extraordinary daring terraces which has become, over the centuries, the distinctive feature of the landscape of the peninsula. Moreover, from age to age, land use planning and the planimetric configuration of the rural architecture and space have changed, slightly, to adapting to the actual needs of agricultural production that changed, passing by the characteristics crops characterized by vines and chestnut production to more profitable such as olive groves, orchards, citrus groves and rose gardens. In the forms of rural architecture we find typical elements that are repeated in the constructed landscapes of the Mediterranean basin, however the use of local materials makes architecture of the Sorrento-Amalfitan peninsula a unique architecture and has consequently affected the distribution of types and construction building as morphology of architectural space and landscape.

The walls built with magisteria masonry described above, are mostly made up by slabs of limestone, varied in stereometry, and uncertain work, the vaults are made of limestone and quicklime and coated with beaten lapillus and whitewashed quicklime. The reduced thicknesses of these elements, in contrast to the great resistance of these, are due to local mortars, constituted by a mixture of lime and pumice, characterized by high quality and compactness. The plaster above defined '*scialbo*', used as finishing element to protect masonry walls, is an invariant of the rural architecture of the Amalfitan

¹The '*pastinato*' was a medium-term agricultural contract for the cultivation of an agricultural land. It spread between the tenth and the fourteenth century in southern Italy.

peninsula, and it owes its good physical and chemical characteristics to the same ingredients mentioned above.

The umpteenth example of the great attention to the elements that characterize the minor architecture is constituted by the issue of the plaster 'scialbo'. In dealing with individual technical problems in the interventions on buildings in the historical center, in which the restorer comes across, the issue of conservation of surfaces characterized by layers of 'scialbo' given to quicklime, typical of Mediterranean architecture, becomes of primary importance for the success of the restoration (Apollonj Ghetti, 1979).

Among the elements of finishing we also found the majolicas and terracotta, which are typically used for the most important architecture or residential examples in the historical centers. There are, however, some cases of insertions of these material even in contexts related to the rural sphere.

Particular attention deserves, instead, the persevering use of the arch and vault in their many variations.

The difference in this rural architecture, in fact, with the types present in other contexts of Campania, Capri, Procida and Phlegraean Fields, lies in the prevalence of vaults on flat roof made of traditional chestnut beams and *panconcelle*¹ and, generally, in the low use of wood, except for the necessary finishing works. In general it was found that at all levels, the spaces of rural dwellings of the coast are generally vaulted, owing to the scarcity of wood or commercial use of the precious wood of chestnut here produced.

over the centuries, the vaulted roof, also called *lamia*, in stone, beaten lapillus and lime milk, has been repeated by local workers in different forms: from the barrel vault and cross vaults of ducal age, at a vault *a schifo* or *gaveta*² predominantly by the '500/600 onwards, until the pavilion vault that has gradually replaced, in '800, the traditional *gaveta*.

The unifying element within this morphological plurality consists of the low arch, choice conditioned both by the need for spatial proportion than by economy of design, motivations corroborated by the frequent use of the *gaveta* vault.

About the historical origin of this type of architecture, in the controversy on the Islamic or Byzantine derivation, Roberto Pane challenges the first hypothesis, noting that in the Arab constructive culture this type of coverage was reserved exclusively for the most aulic buildings such as mosques and tombs, while the homes of Arab Mediterranean countries was spatially defined through a flat roof supported by palm trunks, according to a constructive trilithic type system dating back to the most ancient Egyptian tradition (Pane, 1960: 279).

¹The *panconcelle* are small trunks split in two parts and arranged at right angles to the main beams.

²The *gaveta* vault is a variant of the pavilion vault.

The analogy with the Mediterranean tradition of building is quite be found in other recurring characters, such as the small size of the openings, as well as choices influenced by climatic factors, such as the white painting for wall finishes.

The use of vault is certainly derived from the Campania's 'cultured' architectural tradition whose roots lie directly in the engineering practice of the Roman imperial period. Indeed many vaults was found in the excavations of roman thermal baths of Baia in the District of Naples, built with similar technique.

Surely the prevalence of this type of construction is related to contingent factors. The low presence of lumber that has made unseemly the realization of sloping roofs, where the presence of tiles and beams would represent an addition to the wall structure; on the contrary, the circular base of the vault binds geometrically well to masonry 'opposing to the wind a surface most dynamically resistant and providing water a easier sliding and runoff into the tank surface; and the vacuum of the tank provides the stone necessary to the construction' (Marini, 1978: 96).

This last concept expresses well the great ability of local workers, which, via ductworks plastically excavated in the extrados vaults, were merged meteoric water necessary for agriculture into the tanks, often of Roman origin.

At the extrados, the construction of the vault was completed with the creation of *lastrici-a cielo*¹ through the beating of volcanic *lapillo* mixed with pumice, watered with lime milk, that after the shutdown phase was modeled by the repeated blows of the *mazzoccola*, a large wooden spatula, with flat bottom and sides of the face at an acute angle (Cerio 1922; Pane 1965: 32-33).

With volcanic beaten *lapillo*, consisting of *lapillo* conglomerate, lime, pumice and water, were also finished the *lastrici intersuolo*, the floors that separated a plan from the other, generally left rustic or decorated, sometimes with colorful ceramic tiles.

The vaulted ceilings of the coast are an invariant feature of the Peninsular landscape, now rarely seen in their original configuration, except for a few specimens, due to tampering and superstructures of recent times.

Some examples of extrados vaults are still visible mainly in those areas that have preserved the intended use of the port for fishermen, as Crapolla and in Furore on the Amalfi side.

These characteristic structures, functional to collect rainwater in tanks for farming purposes, lost its original function, have been covered, and sometimes replaced by a flat roof or pitched roofs.

Over the last decades the damage to landscape and environment due to tourist purposes has led to a paradox. The cuts in the rock and the building of unauthorized villas and oversized hotels have gradually altered the environmental values of the landscape and deleted the typical terracing.

Therefore, the features that attract tourists in Sorrento-amalfitan coast are disappearing.

¹These were the floors of coverage, often consisting of extrados vaults.

From 1987, as noted, in the examined area applies the Territorial Urban Plan (*Piano Urbanistico Territoriale*) of Sorrento-amalfitan coast. This urban plan has established the national interest of religious secular and domestic architecture and has prescribed only conservative restoration actions for buildings and complexes of particular historical, artistic and environmental importance, part of centralized ancient settlements or scattered.

This requirement is also extended to buildings up to the deadline of 1955. For the latter, however, are only allowed ordinary and extraordinary maintenance. This possibility has enabled, over time, the perpetration of numerous tampering and the replacement of typical items of the spontaneous architecture of the coast.

The planning instrument, however, is limited to 'environmental' protection, due to the failure to affix the art-historical bond to the single building.

On these grounds this architecture has suffered uncontrolled modifications, transformations and replacements which led to an alteration of art-historical and environmental values of the landscape.

The survey, the cataloging and, then, the affixing of art-historical bond on such buildings would enable the control required for compatibility check of the interventions planned on them.

Despite tampering, destructions, huge restorations, replacements and reconstructions, today it is still possible to find some rare examples of rural architecture that has preserved unchanged over time all the typical elements of this engineering practice.

Since the early twentieth century many strides have been made in the field of culture, giving rise to studies and debates in order to activate protection instruments to preserve the uncontrolled transformations of this cultural ensemble. Too often, however, these studies were relegated with fewer relapses in the academic institutions that operate directly on the ground.

Even more disastrous for the region were also examined all those transformations that although monitored on a territorial scale the planning instruments, once dropped in the territorial specificities of the places do not have adequate support to address standards, guided by their specificities, identified the architectural level of detail. This is so important, as even just a routine maintenance of the plaster cannot delete weighted irreversibly material evidence of ancient knowledge and techniques, as well as seriously affecting the aesthetic point of view with color changes, altering the perception of the surrounding landscape.

Only through a process of direct knowledge of the area, is possible to activate the process of recognition in the case of rural architecture and its values, and then before environmental and architectural aesthetic, such as developing a culture of conservation that would ensure their survival.

This store of knowledge, based primarily on the identification of these presences, however, is far from reach out to operations of mere mimicry, rather aims to resume traditional building techniques and the use of natural materials placed in continuity with the pre-existing and formation of a new generation of skilled workers in these techniques.

References

- Pagano G. (1935). 'Case rurali', in *Casabella* n°86.
- Pagano G. (1936). 'Architettura rurale italiana', in *Casabella* n° 96.
- Pane R. (1948). *Case e paesaggi della Costiera amalfitana*, in *Il compagno di viaggio*. Napoli.
- Imperato G. (1953). *Amalfi, Ravello e Scala, nella natura e nella storia dell'arte*. Amalfi: Arti Grafiche De Luca.
- Pane R. (1955). *Sorrento e la costa*. Napoli: Edizioni Scientifiche Italiane.
- Sereni E. (1961). *Storia del paesaggio agrario italiano*. Bari: Laterza.
- Pane R. (1960). *Case e paesaggi della costiera amalfitana*, in «Il compagno di viaggio- itinerari napoletani», Napoli.
- Venditti A. (1962/63). 'Scala e i suoi borghi', *Napoli Nobilissima* IV.
- Laureano P. (2004). *Il sistema dei terrazzamenti nel paesaggio euromediterraneo*, in *La cultura dei terrazzamenti per la salvaguardia del paesaggio*, Atti del Convegno Internazionale di Studi, 14-15 maggio. Raito di Vietri sul Mare.
- Amos P., Gambardella A. (1975). *L'arte muraria della costa amalfitana*. Salerno: Magazzino cooperative Editrice.
- Maiuri A. (1978). *Capri. Storia e monumenti*. Roma: Istituto poligrafico di Stato.
- Apollonj Ghetti B. M. (1979). *Requiem per i centri antichi*. Bari: Laterza.
- La Regina, F. (1980). *Architettura rurale: problemi di storia e conservazione della civiltà edilizia contadina in Italia*. Bologna: Calderini.
- A. Sangermano (1981). *Caratteri e momenti di Amalfi medievale e del suo territorio*. Roma: Gentile.
- R.Picone, (1987). 'Il contributo di Roberto Pane alla moderna tutela ambientale', *Napoli Nobilissima*, vol. XXVI, fasc. I-VI, genn.-dic. 1987, pp. 144-148.
- Zevi B. (1998). *Controstoria dell'architettura in Italia. Dialetti architettonici*. Roma: Tascabili economici Newton.
- Fiengo G., Abbate G. (2001), *Case a volta della costa di Amalfi: censimento del patrimonio edilizio storico di Lone, Pastena, Pogerola, Vettica Minore e Tovere*. Amalfi: Centro di cultura e storia amalfitana.
- Picone R. (2005), *La conservazione degli edifici storici: il riferimento all'ambiente e al territorio*, in Aveta A., Casiello S., La Regina F., Picone R. (a cura di), *Restauro e Consolidamento. Atti del convegno: Restauro e consolidamento dei beni architettonici e ambientali*. Problematiche attuali, Napoli, 31 marzo-1 aprile 2003. Roma: Mancosu.
- Fiengo G. (2005). *Conservazione e valorizzazione delle case a volte della costa di Amalfi*, in *Memoria e restauro dell'architettura. Saggi in onore di Salvatore Boscarino*. Milano: Franco Angeli.
- Casiello S., Russo V. (2012). 'Il fiordo di Crapolla. Conservazione e valorizzazione del paesaggio culturale della penisola sorrentina'. *Arkos*. Numero speciale.

Figure 1. *Sorrento Coast, Massa Lubrense. Marina di Fontanelle. (picture from Pane, R. (1955))*



Figure 2. *Atrani. General view of urban contest inserted into the fjord*



Figure 3. *Amalfitan coast, Conca dei Marini. Medieval house near the former convent of Santa Rosa: view of the cross vaults extrados (picture from Fiengo, G., Abbate G. (2001)).*



Figure 3 and Figure 4. *Crapolla fjord. Settlement of rural houses with extradados vaults, ingrained into the rocks of the fjord landing and used as shelter for fishermen*



Figure 4. *Atrani, rural house. A typical gooseneck stairs linking ground with first floor*



Figure 5. *Fjord of Crapolla, Detail of rural houses' masonry. It's possible to see the simple constitution of wall made by local material*

