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Carmine Gambardella

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Best practices in heritage
conservation and management
From the world to Pompeii

Le vie dei Mercanti _ XII Forum Internazionale di Studi

Carmine GAMBARDELLA

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Carmine Gambardella (a cura di)

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Manuela Piscitelli

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Via Monte di Dio, 54
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Telefono e Fax +39 081 7646814

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Best practices in heritage conservation and management From the world to Pompeii

Le vie dei Mercanti
XII Forum Internazionale di Studi

Aversa | Capri
June 12th- 14th, 2014

Conference topics:

Heritage

Tangible and intangible dimensions, History, Culture, Collective Identity, Memory, Documentation, Management, Communication for Cultural Heritage.

Architecture

Surveying, Representation, Modelling, Data Integration, Technology Platforms, Analysis, Diagnosis and Monitoring Techniques, Conservation, Restoration, Protection, Safety, Resilience, Transformation Projects, Technologies, Materials.

Landscape

Cultural landscapes, Territorial Surveying, Landscape Projects, Environmental Monitoring, Physical Parameters, Government of the Territory, Sustainable Development, Social Sustainability, Economic Sustainability.

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Peer review

Scholars has been invited to submit researches on theoretical and methodological aspects related to Architecture, Industrial Design and Landscape, and show real applications and experiences carried out on this themes.

Based on blind peer review, abstracts has been accepted, conditionally accepted, or rejected.

Authors of accepted and conditionally accepted papers has been invited to submit full papers. These has been again peer-reviewed and selected for the oral session and publication, or only for the publication in the conference proceedings.

Conference report

238 abstracts received from:

Australia,
Brazil,
China, Colombia, Cuba, Cyprus,
Denmark,
Egypt,
France,
Greece,
Indonesia, Italy,
Japan,
Madagascar, Malta, México,
Portugal,
Russia,
Saudi Arabia, Slovakia, Spain, Sweden,
Turkey,
United Kingdom, U.S.A,
Yemen.

About 400 authors involved.

196 papers published.

Preface

The XII International Forum Le Vie dei Mercanti has the aim of promoting a debate on local and international experiences relating to the themes of the conservation and management of cultural, architectural, archaeological, landscape and environmental heritages. This debate is particularly relevant in Italy, with it not only being responsible to the world for housing the largest number of UNESCO sites but also having a natural and landscape heritage of great variety and beauty in a region characterised by an intrinsic geological fragility. The management of this vast heritage requires both a serious planning of the interventions as well as adequate funding. The same goes for the protection of the landscape, which in the past was systematically devastated within a myopic perspective that did not take into account the enormous amount of damage caused by wild speculation and hydrogeological instability.

Furthermore natural disasters, such as earthquakes, have led to the transformation and loss of environments which reflect local identity no less than the cultural heritage, in addition to economic damage and in terms of human lives.

In order to conserve and manage the heritage, it is necessary to adopt an integrated and resilient approach in which different skills contribute to the development of improvement and restoration projects, carried out through knowledge, sharing of decisions and proactive sharing, taking into account the social and environmental sustainability of interventions that should characterise the design method in all its aspects.

The key issue is the exchange of ideas so as to give life to a *technological humanism*, understood as the union between the cultural vitality that has characterized humanism and the Renaissance, producing excellent results in all fields of knowledge, and the possibilities currently offered by technological innovation to create platforms in order to support this knowledge. Thus, Pompeii, the most famous archaeological site in the world, is taken as the prime example of the need to adopt a virtuous cycle of conservation and management, supported by the dialogue between the different skills that interact by sharing the same technological platform.

The international debate can be an opportunity to share prime examples of the conservation, management and development of the archaeological, architectural, landscape and environmental heritage through the integration of ideas and experiences of specialists working in different disciplines as well as geographical and cultural contexts.

The conference is open to multidisciplinary experiences on one or more of the proposed themes. Scholars are invited to present research on either the theoretical and methodological aspects or concrete applications carried out on these issues.

Carmine Gambardella

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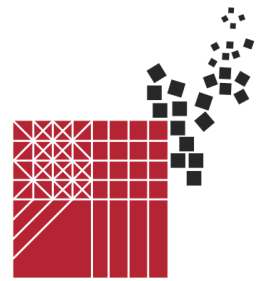
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The documentation for the knowledge of the disappeared centers between “memory and measurement”

Antonio BIXIO,¹ Giuseppe DAMONE,² Enza TOLLA,³

⁽¹⁾ Department of European Cultures and the Mediterranean (DiCEM), University of Basilicata, Matera, Italy

antonio.bixio@unibas.it

⁽²⁾ Department of Civil Engineering, University of Salerno, Fisciano (Salerno), Italy

gdamone@unisa.it

⁽³⁾ Engineering School, University of Basilicata, Potenza, Italy

enza.tolla@unibas.it

Abstract

The tools of representation, related to the way of knowledge of architectural survey, allow a series of analysis of the built, such that they can deal with complex themes and often not clearly tangible in the stratifications of historical events. The theme of "young archeology" is particularly fascinating because it regards architectural and urban landscapes which, in sudden and irreversible events, caused an abandonment of the places that were vital and productive until shortly before. In fact, even though these sites can be perceived as archaeological excavations, in reality they are coeval to the many towns of our sites. For this reason, although there is the possibility to hypothesize the old reuse, the study of these places is very important because it allows us to understand the building tradition in relation to the place and to the historical periods that characterize the temporal stratification. Within the research, we focused in particular on the definition of a system based on different methods and tools used in the survey, which are involved in different professions and skills, not only in purchasing and returning three-dimensional, but also in those of use and cataloging of cultural heritage.

Keywords: documentation, storage, survey, abandoned heritages

1. Introduction: the method [1]

Memory and measurement represent, by now, an inseparable union in the field of conservation and protection of the heritage inherited from the past. The path of knowledge is, and always will be, the starting point for any kind of "action" to be taken in the field of valuation, recovery and restoration, a huge responsibility that sees students and operators of the sector such as guarantors of the continuity between past and future. This responsibility requires a strong methodological rigor that brings together all of those elements of analysis that affect the future "project" of an architectural and/or monumental asset. Memory is therefore the key element for the understanding of an asset, the principle that enables the stratigraphic temporal reading of our heritage and that defines the history and the events that led to the current situation. There is no future design without memory, there is no continuity in the life of an asset without a conscious inheritance of the past. The historical and critical analysis is, therefore, a vital step in the definition of the "identity card" of an asset, is that part of the learning process that uses the "spent" not merely for the documentation and disclosure of the knowledge, but to put the groundwork to a project of revitalization and of temporal extension. Sometimes it is easy to trivialize this stage of "approach" to the asset as a "necessary act", as if you want to shape a foregone process. Instead, those who work for the historical and critical analysis of a heritage know that they

are faced with something that does not belong to them, because they have to do with a "bridge" that crosses the river of time and that connects also very far away generations and temporal contexts. The heritage of the built is, in fact, the only tactile reality that pierces the temporal space and which requires, on our part, a sense of duty which on one hand makes honesty to the past and, on the other hand, ensures continuity with the future. If the memory is that part of knowledge that ensures immortality to the heritage, the measure will take a snapshot, a detailed survey of the objective conditions (geometric-formals, materials, etc.) and of support for the critical evaluations related to memory. The surveying techniques, which support and complement the knowledge of an asset, allow a process of analysis and evaluation of the tangible evidences, that put the bases, together with the memory, to the strategies to be adopted to invigorate and to prolong the life of our built heritage .

On these simple but fundamental concepts is based the method of study and research adopted by the Working Group ICAR/17 of the University of Basilicata, which operates on different local realities which range from the study of the ancient [2] to the modern [3], from the architecture to the city [4], from the territory to the landscape. Minor fortifications, monasteries, religious architectures, historical sites, underground constructions, etc., are themes that have found, in the researching method adopted, exciting results that represent the experiences to pass on to the young researchers, to the students whom, with passion, continue the training in the PhD and/or in the personal studies.

In the following paragraphs, in fact, we go to document the study that Giuseppe Damone plays in his PhD [5], where the searching experience, that is an integral part of the "young archeology", becomes the reference model to be followed in his studies on the disappeared centers in Basilicata. The continuous and progressive abandonment of centers, of architectural assets, is now, in Basilicata such as in other national and European realities, a strong emergency that calls us, researchers and students, to a sense of "duty" with respect to our human existence.

In the procedural application of the method of research, the "measure" makes use of advanced technologies for the survey and the representation, trying to govern and to control the computer applications on the market in the best way suited to the importance of the issues discussed in the specific studies. In this critical logic with respect to the use of software for the survey and the representation, we can also catch the possibilities offered, on the open market, from the open source applications, to encourage a more widely spread of the potential offered today by technology, and to interact, in a "constructive" way, on the refinement of the software themselves.

Without getting into specifics of the instruments, not to deviate from the specific topic of this paper, we include now the applications where the technological experimentation is underway, with particular reference to the instruments for survey and for communication and disclosure.

The survey system with 3D Laser Scanner allows, for example, to operate in particularly complex conditions both in terms of geometric shapes, both with respect to the state of conservation of a monument. Even the modern photogrammetry facilitates a series of operations that postpone the analysis phase to the study of a model manageable in virtual. In fact, specific software, including the open source ones, digital cameras on the market today, make accessible to everyone the operations of an architectural photo-survey, which once were made possible with expensive and hardly manageable equipments. In a way, with the help of modern tools, we try to establish a cognitive apparatus that can serve as a valuable support to the whole technician process using different instrumentation, traditional or innovative. The choice of which technology-instrumentations use for data acquisition is related to several factors such as the size and the geometry of the survey, the material nature itself, the purpose of the survey, and the conditions in which one operates.

From survey Laser Scanner 3D to the Fotomodellation 3D, from virtual modeling to the implementation of the pano virtual tour, the traditional survey methods (direct and instrumental) integrate with the possibility of managing digital models that can be explored and manipulated for the creation of multimedia products useful to the analysis of the heritage and to the disclosure of knowledge.

The invention relates, therefore, the operational phases of the documentary production and of the graphic rendering of the data collected. In fact, to the survey's irreplaceable paper representations approach three-dimensional models that allow you to thematize, in a more intuitive way, the data coming from the process of knowledge. The ability to model reality to communicate it also allows you to create digital models representative of a reality in times forgotten, or never existed.

Citing the above said to the historical-critical survey, namely to that study conducted by comparing in field-acquired data with information obtained by an archival study, it is possible to clarify the concept of "historical-critical" thinking of two possible applications: the reconstruction of the three-dimensional models for the projects documented by original archival sources, or the reconstruction of the evolutionary phases of the object of the survey. The techniques and the innovative tools of survey and representation play a fundamental role in the study of architectural and cultural contexts to discover and recompose, namely in that realities of abandoned centers whose degradation is such that it requires a complex process of analysis of archaeological type . Furthermore, the study of these places is very important because it allows us to understand the building tradition tied to the place and to the historical periods that characterize the temporal stratification.



Fig. 1: Map of the town of Campomaggiore in Basilicata.

2. The ghost towns: problems of documentation and protection [6]

2.1 The value of the documentation for the protection of memory

Always the problem of the documentation for the knowledge and the valorization has assumed a pivotal role in the academic world and not only. In fact there are numerous architectural evidences, or human in the broadest sense of the term, that have come down to us from the past, and of which we want to give knowledge to the future generations.

The possibility of "snapping" the condition of the places at any given time in the history of an artifact offers the possibility to block a concrete image of the same in that place, and therefore is an excellent base for study and research.

To a more traditional survey, are now related multi-disciplinary knowledges in order to break down, and then analyze, individually and as a whole, the building blocks of an architectural artefact.

Through the development of informations obtained from the examination of archival documents and of data acquired from campaigns of directed, instrumental and photographic survey it is possible to conduct historical-critical studies that also allow you to fill any eventual archival gaps.

The man-made material has a limited duration in time, and therefore is destined to disappear. It is for this reason that comes the need to document, analyze, and then, store the data related to architectures, or, more generally, in structures built by man.

Of course, the analysis of an artifact cannot be separated from the operation of the survey itself. It is indeed only by the survey that a building is described in its simplicity or complexity.

Investigate the building lexicon allows then to determine the value of an architecture, a key element in the study especially of the minor construction where it must be recognize the formal value of structures in which the form is not born as a product of the designer's artistic intentionality, as it happens in monumental buildings, but is the consequence of the specific needs of everyday life for those who live there, as well as being subject to continuous changes during its lifetime in response to the changing human needs [7].

The union of "memory" and "measure" in this context is linked inseparably, where the first term is intended to indicate the importance of documentation for future generations, while the second

summarizes all transactions involving the acquisition, analysis and interpretation of data related to a constructed object. We do not want to intend therefore a mere exercise of data collection.



Fig. 2: Drawings of survey of the Palace Cutinelli - Rendina in Campomaggiore.

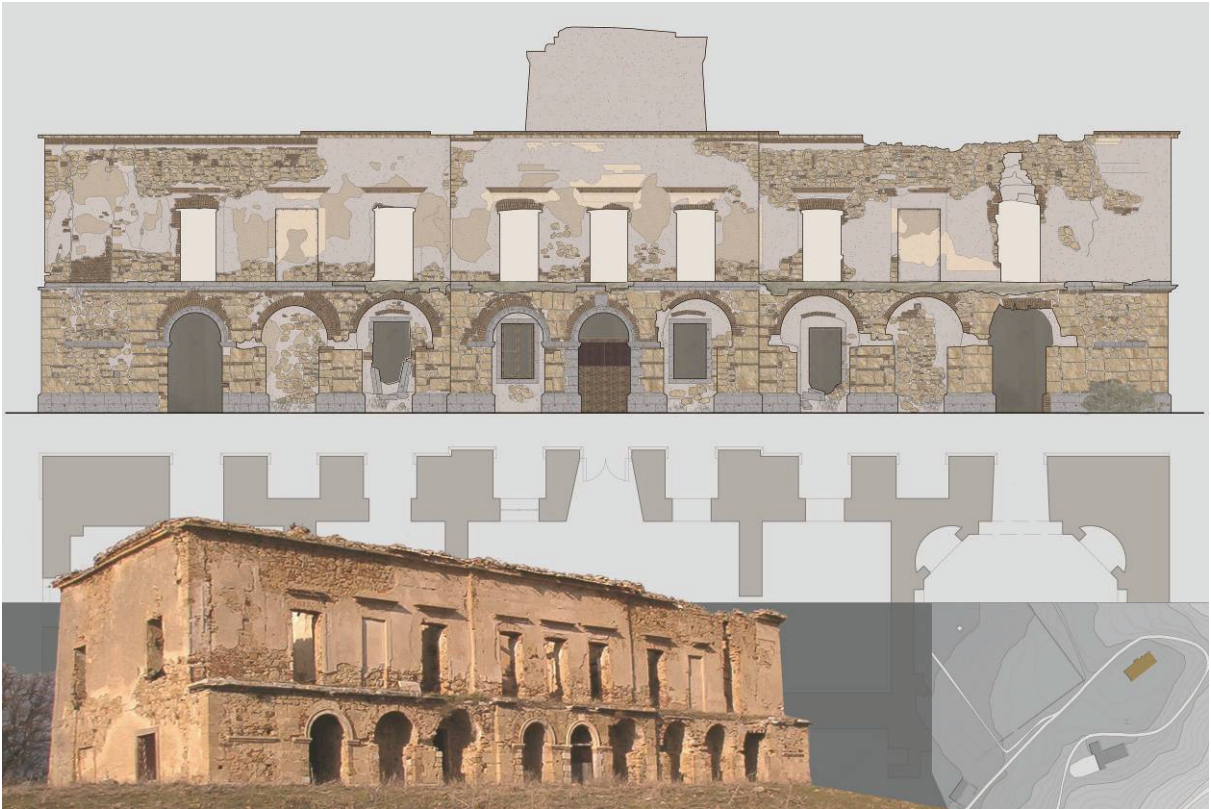


Fig. 3: Drawings of survey of the Casino of the Countess in Campomaggiore.

2.2 Abandoned centers: from the causes of the abandonment to the problems for their protection

Today, more and more often, we hear about abandoned village, better known as a 'ghost town', wanting to use an English expression. They are crystallized realities, no more inhabited due to an instantaneous and no longer reversible event, or simply as a result of a slow depopulation.

There are hundreds of abandoned centers in our region today left to the slow decay. But Italy is not the only nation to host ghost town; it is in fact a widespread phenomenon that is having exponential development in other countries. We can think, for example, to Spain where many internal realities are empty because of a migration to the cities due to social and economic changes.

Visiting one of these centers is to take a trip back in time and immerse yourself in urban contexts stopped at the time of the abandonment. Some examples are, to name a few, the countries abandoned after the Irpinia earthquake in 1980 where, along ancient roads, among collapsed buildings, it seems to relive the moment of the earthquake, as well as to bump into objects of everyday life of the time. But the most important characteristic is given by the possibility of being able to analyze the construction techniques of the past, since these buildings have not undergone alterations related to partial or total reconstruction with the use of different materials from those of the constructive tradition of the place, or even technological adjustments that usually have affected the structures of our city centers.

Of course the state of conservation of the centers is closely related to the period of the abandonment and the materials used in the buildings. We can speak of archaeological evidences with regard to abandoned centers in the times of which we have been forgotten, and of "young archeology" for all those realities fairly recently abandoned, and that now you have to study in ruins of Ruskin memory. In this latter case, they are centers that have a history of construction comparable to that of the many historic centers still inhabited.

The abundance of stone quarries has made possible the construction of our Italian realities, and therefore also of those which were subsequently abandoned, done in masonry with building panels of ashlar more or less worked. This constructive peculiarity has meant that came to us the ruins also of all the towns that were abandoned in the course of centuries and that now is possible to investigate. An exception is the lesser buildings made especially in the Middle Ages that was, instead, made of wood and of other degradable materials. Of this, having been abandoned before it was replaced by masonry structures in the later centuries of the structuring of the territory, it is often impossible to trace even simple archaeological traces, and the only feedback on their actual existence can be inferred from the old tax records, or from the ecclesiastical ones, or from the names of the areas that allude to towns with churches or monasteries. What has been described is still happening to many abandoned centers in Spain and made of adobe. In the media and bottom valley, the lack of stone quarries, resulted the construction of the same in raw land, an extremely friable material and intended to degrade in just a few years, as soon as fails the constant maintenance required. Only the main architectural emergences were made by stones. Therefore, a few decades from the abandonment, of the all of the inhabited realities there are only the ruins of churches and military architectures to testify the existence of a settlement in that site.

Another problem related to the conservation of the ghost towns is the phenomenon of looting, first for the recovery of material, in the aftermath of natural disasters, to use for the delocalized re-reconstructions, and then to the recovery of structural elements of the tradition to address to the market. For what just described the survey for the documentation is a key to ensure the memory of these centers with their history sedimented in the built. The impossibility, in fact, to be able to retrieve all the sites will result in the destruction of many of these.

2.3 The case study of Campomaggiore in Basilicata: the definition of a methodology for the reading

The method of analysis has been applied to various lucan abandoned centers and not in order to capture all the peculiarities of each individual situation analyzed. Being smaller towns, it is difficult to find traces of their urban and architectural history in documents or in literature sources.

A very interesting result is achieved by analyzing the abandoned center of Campomaggiore, in Basilicata. It is a reality of foundation built between the eighteenth and nineteenth centuries, and whose life ends in 1885 following a landslide that destroyed part of the town. Passed the state of emergency, in fact, was made the decision to make a delocalized reconstruction [8].

Since the beginning of the study conducted for the documentation of the center we realized the oneness of the same for its history and its urban layout so different from the other Lucan countries.

Today, of the whole center built according to a rational scheme with a public central area, and houses located checkerboard all of the same size, as required by the act of foundation of 30 December 1741, remains only a small amount of ruins because of the collapses, and especially the stripping of which has been the subject, at first for the recovery of materials for the re-reconstruction, and subsequently for the removal of architectural elements. At the same time of the analysis *in situ* was carried out the

study of archival and bibliographic sources, in order to capture all the changes of the center and place them in a precise space-time context.

Particular attention has been given to the analysis of the smaller building, of which was not find any trace in the examination of archival sources. It was clear, indeed, that although it is a center of foundation, its growth and expansion was not immediate, but is distributed over a period of one or two centuries. To a first group arose immediately after the purchase of the feud by Rendina in 1673, it will be gradually added portions of the urban fabric. Through the survey, the cataloging and analysis of the masonry pannels has been possible to define this trend, also catching in what stage of the urban development is part the intervention of the architect Giovanni Patturelli, a Collecini's student, which probably draws the diagram of the center as it is perceived today by visiting the ruins, as well as some important buildings such as the Palace Cutinelli - Rendina. As already said, the city is divided according to a rational scheme gravitating around 'Piazza dei Voti' and 'Piazza Rendina' on which face the main important buildings such as the Palace said, the parish church, the town hall, the barracks of the royal Carabinieri, and a series of buildings housing services for the community. Just outside the village find their place, instead, The Casino of the Countess, the summer residence of the Counts, the farm, the Laboratory of Wine and a public source. Also all of the major architectural emergences, also in ruin, were recorded and broken down into their components for a reading of the individual parts. It was possible to reconstruct the entire urban and architectural project wanted by Rendina Counts, and of which there are some documentary evidences. The traditional surveying techniques, was accompanied by an analysis of multidisciplinary data, in addition to the return of the three-dimensional objects of the survey.

The returned documents, in addition to being a valuable documentation of the main buildings, and of the whole center, also allow you to read the state of preservation, and thus provide a basis for the study of failures and pathologies of the same. Virtual reconstructions of the individual buildings and of the entire center also allow you to admire the entire complex as it must appeared before the landslide of the nineteenth century and the subsequent abandonment.



Fig. 4: Analysis of masonry panels of the Casino of the Countess in Campomaggiore.

3. Ghost town and landscape: ideas of searching [9]

An important element in the study of the documentation for the abandoned centers is definitely the reading of the ghost towns within the natural context in which they are located. Since these are actually blocked at the time of abandonment, nature slowly reclaims its space because there is no longer a regular input of man who, with his human activities, changes the natural environment. The landscape, in fact, is

the tangible manifestation of the relationship between man and environment, it is not only an expression of nature, but is an economic and social operative space in which we find objectified signs and works that man realizes. The landscape exists because man builds it, sees it and turns out it, is a matter of the senses but also a matter of culture that, to be understood, must be viewed as a concrete set of forms and phenomena related to each other and in constantly evolution. The concept itself of landscape is related to the ways of human perception and the moment of perception can, by design, result in interpretation. In the survey of the landscape is not too much important the collection of geometric data but rather the ability to observe and understand the geographical, natural, historical and cultural factors that define it. In this sense, the design is a real process of knowledge, because as the painting and photography it represents the landscape and allows the reproduction and the dissemination of his image but also because it allows the interpretation.

There is no landscape if there is no a man who observes it and lives it, to detect the landscape means to process a refund that is able to summarize the constituent and connoting elements. Naturalistic area, architecture, weather, seasons, colors, are all elements that need to find their place in the survey intended as a method of study of a system of relations. In particular, in the relationship between architecture and landscape, the color theme can be central in the search for the common thread that binds the system of relations in the unit of the landscape studied. The color of the architectural elements: houses, factories, historical, infrastructure, small towns, contributes significantly to the impact of the perception of a landscaped area. Deepening the relationship between natural environment and color artifacts helps to understand the building dynamics of a center. You can, in fact, identify the nature of stone materials with which the individual buildings have been made and, therefore, identify the quarries where individual segments were cut. Coming less the constant maintenance of the housing units, as well as of the historical architectures, vestments lose any layers of plaster and, by the action of atmospheric agents resume their natural color. What above said makes the abandoned centers of mountain almost invisible from great distances. Being the slots made in the same bedrock on which the center stands, from large distances the mountain seems almost imperceptibly shaped.

In the methodology of reading of the area, experienced in recent years in the researches, the description of the landscape, it was not only based on planimetric references. The term landscape, in fact, also implies a volume, a thickness in which the man himself lives and is immersed, and this space needs to be explored and represented through systems that enable the analysis of perceptual parameters or spatial relationship between the parties. For this reason, the boundaries of the section of the landscape to be analyzed are identified starting from the possibility that the landscape has to be looked at, resulting in the same geographical area more sections or scopes of investigation. For each section of landscape the margins are defined and identified, on the basis of direct observation, the benchmarks or baselines of the survey.

Using all the bases, the landscape is analyzed from several points of view. In every area, defined according to the visibility and no with geographic criteria, naturalistic or geomorphological, are then identified homogeneous areas that may be subject to specific analysis or to zooms to focus the details and connotative data. These areas may be more or less extensive, in a first phase of the observation one can proceed, for example, beginning to separate the natural scope from the settlement one, and then below, proceeding in the survey, it is possible to make insights that help us to identify the shapes that arise in the various areas the spatial pattern of the landscape and define its structure. Then we will get a series of graphs that will propose a reading of the place and of the elements that characterize, from perceptual and morphological data until the realization of a graphical depiction of the landscape observed. The proposed graphical analysis can not, however, be apart from more general considerations on the landscape, considered not as stable and defined perceptive datum, but as an expression of the environment in which man acts, a concrete witness of the relationship between culture and nature. In this sense it is important to extend the analysis to the system of relations that takes place between the different fields that characterize the landscape analyzed, starting from considerations relating to the nature and use of soil: the topography, vegetation, crops, the road system and the hydrografic one must be considered and analyzed in the general context that inevitably will include the works of man in the area (houses, industrial settlements, castles, monasteries, fortresses, etc.) and infrastructures (bridges, dams, viaducts, installations for the production of energy etc.) views always in relation to the landscape in which they are inserted .

In the schematic chart the coexistence of different elements and partly conflicting may suggest the type of ongoing dynamic and the evolution of the spatial order, since in the landscape there are no elements of stability and permanence and therefore it is important to be able to capture also the ongoing transformative processes. In the survey of the landscape, then, everything is incorporated and elaborated from the vision, the ability to look is at the basis of a method that leads to work establishing a direct relationship between the observer and the observed objects. The eye detects and the design revises and summarizes the elements of nature: mountains, trees, hedges, rivers, lakes, and those of architecture: towers, castles, monasteries and towns, but also dams, bridges, viaducts and, in many cases reduced to a state of ruin. The final product will allow us to create a pattern of

perception of the landscape: setting margins, nodes or references, will allow us to read the mutual relations between the parties and to highlight the figural and recognizable qualities, depending on the presence of signs useful to the guidance - architectural artifact, natural emergencies - or widespread signs that give identity to places, whether they are deemed to be positive or negative. In this sense we examined different elements that are evaluated not for their intrinsic value but for their readability.



Fig. 5: Study of the landscape of the abandoned center of Craco in Basilicata.

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