
PREFACE



**Bent entrance
passageway
of a courtyard
house**
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The premise for this work has its roots in the well-established idea that the safeguarding of cultural (natural, tangible and intangible) heritage must be guaranteed for the future generations, not only because it is a source of the cultural identity of a local community, but also because it is a driving force behind the local economy and the sustainable development of territories. A sustainable development that is broadly interpreted, in other words integrating the environmental, cultural, economic and social spheres, and putting communities and human wellbeing at the center of the development process.

The medina of Chefchaouen represents an architectural heritage of great value: it is a living fabric of places, experiences, memory and identity. The architecture of the medina combines the local building traditions of the Jbalas region and the influences of the Andalusian civilization imported from the Moorish refugees coming from Spain after the fall of the Emirate of Granada. The medina is characterised by a network of roads with courtyard dwellings organized according to the patterns and rules of the Islamic city. The morphological conformation of the territory, very rugged, determines the shape of the city, which develops in steps, all exposed to the south, protected by the mountain peaks that have given the city its name. The most evident characteristic of the medina is the colour of the lime render of the walls, which lost their angles due to the many layers of whitewash that have been applied by the women of the city over the years. The art of limestone is combined with the art of colour: originally white, in the last century Nila or indigo, in a wide range of shades that have spread throughout the walls to cover almost the whole city, giving it a fabulous atmosphere and highlighting the wise will of the people to protect the stone walls, otherwise very vulnerable.

Nowadays such built heritage is threatened by an ongoing process of transformation, demolition, replacement of parts of buildings or renovations using modern materials, as well as non-compatible interventions. In particular, the use of modern and standardised materials such as reinforced concrete seems to meet the need for modernity and to provide greater durability and water resistance to the buildings, while in fact, the climatic and environmental conditions make the indiscriminate use of reinforced concrete technology completely inadequate



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Public fountain in the medina of Chefchaouen
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and not sustainable, in addition to being a major threat for the safety and stability of the building when rehabilitation and consolidation interventions are not appropriate.

The present research is based on several years of study and on visits to Morocco and Chefchaouen. It began in 2005, as a participation in an international cooperation project funded by the Tuscan region, which had as partners in Italy the SPEF Scuola Professionale Edile of Florence and the TaeD Department of Architecture and Design Technologies "Pierluigi Spadolini" of Florence and as partners in Morocco the Rif Al Andalous association based in Chefchaouen and the ENA École Nationale d'Architecture in Rabat. The idea of the project originated from the proposal to develop and implement a project for the construction of a vocational training center aimed at the qualification, improvement and innovation of traditional construction techniques, in support of the reconstruction and redevelopment processes undertaken after the seismic event of February 24, 2004, in the Al Hoceima area north of Chefchaouen. The research presented here began as part of the degree thesis discussed by the author in collaboration with the architect Vittoria Volpi, stands as a preliminary and preparatory phase for the creation of the documentation and professional training center on traditional construction cultures, which could constitute an element for promoting socio-economic development and the preservation of architectural heritage.

This volume collects, updates and extends the results of the investigation launched fifteen years ago and aims to systematise the intangible knowledge necessary to formulate sustainable strategies for the rehabilitation and conservation of Chefchaouen's heritage aimed to improve the quality of life within the medina. The concept of intangible knowledge related to the architectural heritage includes not only the techniques, materials, and building components, but the local building knowledge, transmitted from generation to generation, concerning the constructive process, the maintenance of the artifacts, a sustainable management of resources, and the choice of architectural and technical solutions, more appropriate and sustainable, which reflect the response of the community to the need for spaces, following a large process of adaptation to the environment and the socio-cultural and economic requirements.

The work is the result of a thorough investigation of the medina, several observations of buildings in a different state of conservation, as well as a number of surveys of courtyard houses and building elements, in order to understand how these structures were formed and transformed on both a technical and cultural level. The missions and direct visits undertaken throughout the entire medina, and in particular in some buildings and building complexes identified as case studies, documented with manual survey tools and analyzed from a morphological, distribution and functional point of view with regard to the modifications introduced in the ways of using the spaces. Visits were paid to residential and public buildings, construction sites where rehabilitation or restoration work was under way, to kilns for the production of lime and bricks, and to deposits of materials. During these visits material samples were taken and interviews were conducted to record information and data, particularly with regard to the production processes, which were clarified thanks to the interviews with the *maalem*, the two old master builders interviewed. The fieldwork produced a large set of data and qualitative and quantitative information, which was then used as the basis for an interdisciplinary interpretation. The results of the investigations and interviews confirmed that the technical skills of the artisans of the past are partially available today, but in the process of disappearing as there is no continuity in the provision of such highly specialized work. The investigation was supported by the study of the available documentation, largely made available by the cultural association Rif Al Andalous in Chefchaouen.

The book addresses the theme of the architectural heritage of the medina with an interdisciplinary approach, that includes the architecture as part of a system that has to be studied along with, and not detached from, its environment, a deep knowledge of the natural, social and cultural context and all the factors that brought about the architecture. It is structured in such a way that each part addresses a scale of analysis. The first part focuses on

the environmental and socio-economic context, and carries out an in depth analysis of the characteristics of the urban and architectural morphology. Through the analysis of the settlement development of the city of Chefchaouen from its origins to the present times, the rules that give structure to the urban fabric and the basic module of the city – the courtyard house – are made more understandable. The analysis of the building types, through the comparison between the different variants of the courtyard model, is aimed at understanding the rules that give life to the shape and distribution of spaces. An analysis of construction techniques cannot be separated from a study of the urban types through which these techniques have developed and evolved over time. Therefore the analysis of the architectural types allows us to design with awareness models for the homes of tomorrow, which may be able to absorb the identity and sustainable characteristics of the traditional house.

The central part of the work, which illustrates the building culture of the medina, takes up the Italian tradition of the “Manuali di recupero¹”, born as tools linked to specific contexts and aimed at identifying an approach operational for the recovery of the built heritage of the historic center. The study of the building techniques allows us to understand their potentials and weaknesses, so that they can be respected, improved, or innovated in intervention phases. It is not always possible or appropriate to use traditional techniques for conservation actions, but it is important that the materials and techniques that are used are compatible on a material and structural level with the building, and are sustainable on an environmental and social level, without compromising the authenticity of the built heritage.

Thanks to the involvement of the CNR-ICVBC laboratory in Sesto Fiorentino, the chemical-physical characteristics of the traditional materials taken on site and those used in the current construction practices aimed at the consolidation or restoration of ancient artefacts have been compared. The support of the colleagues from the "Materials and structures" section and the Official Material and Structural Testing Laboratory of DI-DA, University of Florence, made it possible to evaluate the structural behavior of some constructive elements: the mechanical resistance of the masonry in their various variants, and the structural behaviour of the main types of roofing. The structural behaviour of the components of a building is a piece of information of fundamental importance for

¹ Among others: Giovannetti F., Marconi P. (eds.) 1997, *Manuale del recupero del centro storico di Palermo*, Flaccovio, Palermo; Giovannetti F. (ed.) 1998, *Manuale del recupero del Comune di Città di Castello*, DEL, Roma; Giuffrè A. (ed.) 1993, *Sicurezza e conservazione dei centri storici: il caso Ortigia: codice di pratica per gli interventi antisismici nel centro storico*, Laterza, Roma; Ranellucci, S. (ed.) 2011, *Manuale del recupero della regione Abruzzo*, DEL, Roma

designing improvement interventions, especially in those cases where there are changes in the extent of the loads applied in traditional structures.

The last part of the book deals with the main challenges for the future of the medina: the sustainability principles embedded in Chefchaouen's traditional architecture, that can provide support for the innovation, rehabilitation and design of new housing models; an analysis of the risks faced by the medina, including natural, social and anthropic threats caused by the dynamics of transformation to which the architectural heritage, both tangible and intangible, is subjected today. The objective is to be able to establish conservation, intervention and rehabilitation strategies that allow the prevention and mitigation of possible damages through sustainable and compatible actions aimed at increasing the resilience of the medina. The book is not just a collection of information concerning the architectural heritage of Chefchaouen, but is also a means of transmitting important skills and knowledge from the past to the present. It can be a useful and handy reference manual for architects and other experts, but it can also be a stimulating book for students, and all those interested in Moroccan culture, architecture and society. It is hoped that this contribution will also highlight the richness and variety of heritage resources, their value to society, the importance of community participation in heritage management, and the shared responsibility in the preservation of cultural heritage and its mobilisation in development. It should be noted that the value of Chefchaouen does not depend on the ability to keep everything changed over time, since man and his needs, the landscape and the environment that surround him, as well as the economy and society, are constantly evolving: change cannot be stopped, nor should the medina take on the appearance of an amusement park for nostalgic tourists.

The value of Chefchaouen is given by its cultural landscape, made up of the interaction of man and the surrounding environment, of the human ability to harmonise with it through the different expressions of a tangible and intangible culture which, for millennia, has been able to shape the territory without ever compromising the delicate balance and its ability to regenerate. A different path towards modernity can be traced starting from local resources and the tangible and intangible culture of these places; a road that does not give up its own identity and history, that does not invest in a future in which all territories are equal to each other. The effort is therefore to define a path linked to tradition, which builds a future in which to innovate processes and forms of adaptation to the territory without distorting its behavior.