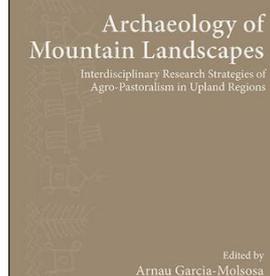


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### Mountain Landscapes: The Archaeological perspective

Arnau Garcia-Molsosa



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## IEMA VOLUME

### ARCHAEOLOGY OF MOUNTAIN LANDSCAPES: INTERDISCIPLINARY RESEARCH STRATEGIES OF AGRO-PASTORALISM IN UPLAND REGIONS

Mountain Landscapes: The Archaeological perspective.

Introduction to the volume

*Arnau Garcia-Molsosa*

**Abstract.** *This introductory paper explores mountain landscapes as a subject of study within the archaeological disciplines. Mountains are part of the geography of human societies: places to transit and to inhabit, and sources of sustaining, resources and symbolic meanings. In that perspective, present mountain landscapes contain the material traces of the long-term human-environment interactions.*

*The vision of archaeologists over mountain landscapes is in a radical process of change, due to the incorporation of archaeological fieldwork in multidisciplinary research programs carried out in mountain environments. Research assembled at the 10th IEMA Conference represent a significant sample of studies that are changing our perspective of mountain landscapes as archaeological documents, resulting in critical contributions for the understanding of the history of mountain environments, and creating new archaeological datasets to use in the interpretation of human societies.*

#### **Mountains: an archaeological subject**

This volume dedicated to the Archaeology of Mountain Landscapes is the result of the 10<sup>th</sup> edition of the International Conference organised by the Institute for European and Mediterranean Archaeology at the University at Buffalo. The main aim of IEMA Conferences is to offer to the participants a comprehensive perspective on how the

research on a subject is currently developing, including research questions, methodological approaches, and final results. The same objectives apply to this book, whose chapters have been elaborated from the presentations given by the authors, incorporating the results of the debates held during the two days of the meeting in April 2017.

With the word mountain we define primarily topographical features on Earth's surface. To choose an element of the physical geography as a central topic is not strange in archaeological practice, although it takes a different perspective than most common and traditional geographical and chronological compartmentalization of the archaeological research. In the ensemble of the archaeological discipline, the perspective adopted in this book can be grouped together with other archaeologies of environments (e.g., archaeology of islands, rainforests, deserts, rivers). The interest of archaeologists in this type of focus departs from the fact that the processes involved in the different stages of the formation of the archaeological record, including its documentation, occur in the context of a local and regional environment, and, in consequence, cannot be understood out of it. On the other hand, the different categories for environmental and topographical units are based on shared characteristics, which might comprise human interactions.

Those factors have established the framework for comparative approaches about how societies separated by time, space, and cultural background have related to their environment in broadly equivalent circumstances. And, at the same time, to test how different techniques and methodological approaches perform in similar conditions. It has also been a framework exploited by multidisciplinary teams to establish research questions and integrate data from different sources in a common subject of interest. Besides that, it directs the research to the analysis of the archaeological record as a part of the present, which is critical in the conception of archaeology as a live heritage and a tool to help to understand the present world, instead of a subject of interest only for antiquarianism.

The results of the intertwined human-environment relationships are often conceptualized in academic and non-academic practice through the term landscape. In the use of this concept, there is always implicit the idea of environment as it is modified by humans. It can include all sorts of actions, and, among them, how it is thought, represented, and perceived. From this point of view, landscapes can be understood within the archaeological disciplines as a cultural production, shaped through long-term socio-

environmental interactions. It is from that perspective that Mountain Landscapes are conceptualised as the topic of this volume.

The case made for the Scandinavian mountains by C. Prescott and L. Melheim (Prescott & Melheim; in this volume), illustrates how the study of mountain landscapes has contributed to the development of Scandinavian archaeology beyond the specific case of high altitude areas. New ideas on methods and theoretical approaches and on heritage conceptualization and management accompanied new data that transformed previous ideas about past societies and present landscapes. The long tradition of studies in Scandinavian uplands provide the authors of that chapter with the necessary historical perspective, but the same ideas can be extended to the other study cases analysed here.

The assemblage of works on mountain archaeology collected in the present volume has the intention of providing the broader archaeological community with an introduction to new sets of archaeological data. Those are significant for the geographic areas presented here, but also for the understanding of historical processes in the near lowlands and, in a larger perspective, as an example of the potential information that mountain areas around the world can provide for the study of past societies and present landscapes and heritage. Connected to that, a second specific objective of this volume is to present how these new data sets have been created in each case, through sources and methods that have been adapted to the constraints of mountain environments. In that sense, the collected study cases can be used as a guide to undertake new research in mountain areas but, at the same time, the theoretical and methodological approaches of the different projects have elements of interest for the study of other environments.

### **Mountains nowadays: physical and cultural landscapes**

Mountains are a consequence of the long-term geological forces that shape earth surface. In figure 1 it is possible to observe that most of the study cases addressed in this book are situated in one area of convergence of tectonic plates: in a series of ranges aligned E-W in southern Eurasia. However, in a global perspective, irregularities on earth surface defined as mountains can be found in almost every part of the planet. The idea of 'mountain' then evokes a general recognisable object, although is more difficult to

summarize it in a universal definition. Mountain in the singular can refer to an individuality, represented through the iconic image of the lonely peak appearing isolated from its surroundings. But when we speak of mountain landscapes, the focus is in the diverse composition of both biogeographical and cultural features.

**(Figure 1)**

Both as individuals or as a landscape, mountains are defined by a combination of characteristics based on local relief, slope, steepness, geology, and vegetation; but -since the relationship between this elements depends on local combinations- there is not a universal criteria to differentiate mountains from other elevated landforms (Price 1986:1–5). The defintory elements of a mountain depends on the context (height from the surrounding area), the perception (conspicuousness), and comparison (larger than a hill, sloppier than a plateau).<sup>1</sup> Geographers also point to the importance of cultural and social values in the definition of mountains. As it is illustrated in the plot of “The Englishman who Went up a Hill but Came down a Mountain”, the definition of a singular feature as mountain can be relative.

Distinctive parts of the mountain are the foot, slope, and summit. Environmental conditions define alpine, subalpine, and montane zones as characteristic mountain ecosystems, but not all mountain landscapes are defined by them. It is very common to distinguish between High, Middle, and Low mountains, depending on the character of the topography and environment analysed, although the limits between them are not clearly

<sup>1</sup>That is reflected in the dictionaries: “A high area of land that rises steeply above its surroundings, usually has a sharply pointed top, and is larger than a hill.” (Park, C., & Allaby, M.(2013). mountain. In A Dictionary of Environment and Conservation: Oxford University Press. Retrieved 22 Mar. 2018, from <http://www.oxfordreference.com/view/10.1093/acref/9780199641666.001.0001/acref-9780199641666-e-5165>.); “a landmass that projects conspicuously above its surroundings and is higher than a hill. b : an elongated ridge” (“Mountain.” Merriam-Webster.com. Merriam-Webster, n.d. Web. 22 Mar. 2018.); “A raised part of the earth's surface, much larger than a hill, the top of which might be covered in snow” (cambridge dictionary online, <https://dictionary.cambridge.org/dictionary/english/mountain>).

delimitated. Finally, the concept of mountain landscapes embraces a much larger set of landforms than the singular mountain: ranges and massifs are formed by groups of mountains. Uplands or highlands are often used as a synonym for mountainous areas although they have a less precise meaning and they could contain any mountain in a *strictu sensu*. Plateaus and valleys are in a literal sense antonyms of mountains, but they are essential parts of mountain landscapes.

Figure 2 provides an example of the main characteristic of mountain landscapes: its vertical specialization that results in the formation of niches or zones that are cultural and biologic at the same time. Being shaped by complex interactions between climate, geology, biology and human uses and ideas, the resulting landscapes can vary a lot between different mountain ranges and, also, between neighbouring valleys.

## **(Figure 2)**

The diversity of environments that mountain areas play host to are recognized by the UN in Agenda 21 (Agenda 21, Chapter 13). The inclusion of a chapter entitled “Managing Fragile Ecosystems: Sustainable Mountain Development” recognized mountains as a global subject of political attention (Messerli and Ives 1997; Debarbieux and Price 2008). Sustainability of mountain environments is considered in that document as essential for preserving the planet’s biodiversity and improving human welfare. Biological diversity and key resources (with water and energy in the forefront) are mentioned as the main contributions of mountain ecosystems in a global perspective. The document also states the value of indigenous knowledge and traditional practices in the maintenance of mountain ecosystems and identifies poverty as one of the main problems of mountain communities. A key aspect of the document is the admission that there is “*a lack of knowledge of mountain ecosystems*”, encouraging the development of regional studies. One example is the report elaborated at the request of the European Commission to first delimitate and then obtain specific data of European Mountains (Schuler et al. 2004). This document, largely based on Agenda 21 principles, points out four main aspects for why mountains are of vital importance to the European continent: “1) as ‘*water towers*’ supplying much of the continent’s water, especially in summer, and as sources of hydroelectric power; 2) as centres of diversity, both biological and cultural; 3) for

*providing opportunities for recreation and tourism, based on natural attributes and cultural heritage; and 4) because of their sensitivity to environmental change, as manifest in the melting of glaciers”* (Schuler et al. 2004:2). Another significant statement in the same document refers that *“In the context of European cohesion and enlargement, mountain regions are considered as having permanent natural handicaps, due to topographic and climatic restrictions on economic activity and/or peripherality”* (Schuler et al. 2004:2). At the same time, the results of this report point to the diversity of European Mountain regions, with no common trends regarding demography, economic activities, or access to services.

The conceptualization of mountain landscapes outlined in these documents, and particularly in Agenda 21 for its worldwide scope, have an important impact on fixing the ideas of how we understand mountains. Since it is just a guide for designing policies have a strong influence in funding calls for research projects or regional and local economic development initiatives, and in political and environmental activism seeking the attention and protection of global actors over local conflicts. At the same time, the writing of these documents is a product of a particular historical moment (Debarbieux and Price 2008). For instance, the apparent contradiction between high biodiversity and key resources in one side and “natural handicaps” in the other has to be understood in the context of the debates of late twentieth century society trying to address how environmental and cultural diversity should be integrated into a global economic system, which the available data shows as particularly destructive towards both of them.

In that sense, in the analysis of mountain landscapes it is important to consider how the subject is influenced by the perspective of modern western societies. In 1936, in the introduction of his book dedicated to mountain geography, Roderick Peattie (Peattie 1936:5–7) distinguished between two contemporary approaches to the mountains: the climber and the scientist (identified basically as a naturalist). This vision is very representative of how mountain landscapes have been perceived by 19<sup>th</sup> and 20<sup>th</sup> century urban societies. Even nowadays, mountains are largely imagined and promoted as unlimited, free and wild spaces where people participate in sports and activities in contact with a pristine nature. It is important to note that this modern “nature tourism” is practiced in social contexts and needs a well-established and controlled network of infrastructures: from roads and parking lots to apartments, hotels, restaurants, stores or ski lifts. This economic activity can be very intensive in some areas and requires a re-shaping of the

environment, creating new landscapes associated to that type of tourism. The impact on the inherited landscape is important, sometimes really disruptive, but perceived as a necessary toll for the economic sustainment of mountain communities.

On another side, people working in the primary sector tend to see the landscape as a mosaic of limited spaces where nature is manipulated through agropastoral activities to obtain resources. Mountains are not different in that sense. From the perspective of the agropastoral and industrial activities, mountains are territories delimited by social, political and economic interactions, which regulate the access to the resources and define the identity of the inhabitants. The contrast between the visions from the service sector on one side and the primary sector on the other is in conflict within contemporary mountain region societies. This is especially true because services are increasingly dominant in mountain economies. Responses to this background conflict vary from the direct confrontation to different degree of coexistence and compatibility, since in many mountain areas, the inhabitants usually combine the two activities.

The idea of “natural handicaps” that caused “poverty” to populations is commonly applied to mountain areas and it has a long history since Antiquity (Price 1986; Walsh 2005). This idea is based in less productivity of cereals and that main communication nodes tend to concentrate in coasts and alluvial plains. However, it can be misleading, since mountains can provide high-value products, precisely thanks to their “natural handicaps”. The poverty among mountain communities, historically and today, must be understood from the perspective of the inequality in the access to the resources and its role within socioeconomic structures.

In fact, mountain economies are integrated into superregional contexts through differentiation and specialization. It takes advantage of the environmental diversity, directing mountain economy to the exploitation of resources not available in lowlands and cities: selected agropastoral productions, forestry, extraction of minerals, industrial processes related to those products and tourism are examples of both traditional and modern fields of specialization for mountain communities in local products. In this book H. Orengo analyses the role of those products in the development of past economies, which have gone unnoticed in many models about past economies (Orengo; in this volume).

In a different perspective, this differentiation also has an impact on the social and political identity of mountain communities. More than isolation, is the combination of the involvement in specific and differentiate economic activities together with historical processes and geopolitical circumstances the factors that influenced the development of different sorts of alternative identities in mountain regions, embodied through language, distinctive cultural features and particular institutions or political positioning.

In that aspect, mountain communities are often represented and/or self-represented either as a sort of uncontaminated version of lowland and urban populations or as alien, often a menace, to the main national identities. One way or the other, it has shaped an image of rebellious populations and areas of difficult control from the perspective of central states. These ideas have been analysed through anthropological narratives (Scott 2009), fuelled romanticised visions of mountain communities (Fermor 1966) and it has also been present in archaeological literature (Prescott & Melheim., in this volume; Orengo, in this volume).

### **Archaeologists and mountains**

Mountains have provided some iconic archaeological finds: the mummy of Ötzi, the necropolis of Hallstatt, or the city of Machu Pichu are three examples of high impact discoveries in mountain environments. Although the discovery of sites has triggered questions regarding its local and regional contexts; the general perception among archaeologists remained that mountains are areas of secondary interest, less occupied and without an interesting archaeological record to address big questions such as the adoption of agriculture or the development of complex societies. In that sense, archaeology is influenced by the more general ideas about mountains commented in the previous section. Another factor to consider is that the important contribution of rescue excavations in some countries have been concentrated in urban centres and around big infrastructures going through lower valleys. Thus, a general overview results in the strong correlation between blank areas in archaeological maps and mountain areas.

Before the 1990s there were few archaeological programs directed to understand how elevated areas were settled by past human populations. We previously mentioned

the case of the Scandinavian mountains that have been object of surveys since 1950s (Prescott & Melheim in this volume). In North America there is a long tradition of studies in the Rocky Mountains (Bender and Wright 1988; Benedict 1992; Brunswig 2004).

Regional surveys have been one of the traditional gateways to the study of mountains since late 1980s. Initially, those surveys were concentrated in the plains. In the case of classical studies, the central role of the City in Antiquity literature pushed the initial questions toward the immediate hinterland of well-known ancient settlements. Also, for prehistoric and, in fewer cases, Medieval archaeology, the departing point was the immediate context of well-known lowland settlement systems. On the other hand, that research focused on the documentation of surface pottery made visible by the ploughing of agricultural fields, concentrating the surveys on this type of land-cover. In a second stage, archaeologists observed the high integration of urban, lowland and highland rural economies, considering that mountain areas should be integrated in the regional economic models and proposing the implementation of regional survey approach in upland areas. The interest in pastoral practices was a key aspect of this approach. Some significant examples that had a large impact on further research were the works directed by Graham Barker in the Italian Apennines in the late 1980s (Barker et al. 1991) or the research that has been developed since early 1990s by researchers based in the “Maison Méditerranéenne des Sciences de l’Homme (Aix-en-Provence)” in the lower and high Provençal mountains (Leveau and Segard 2004; Mocchi et al. 2005; Leveau 2014). Ethnoarchaeology was another field explored in this context (Halstead 1998).

In some cases external factors have had a definitive influence in the initiation of mountain archaeological surveys. This is the case in the hydroelectrical reservoirs flooding Norwegian valleys. Forest fires in Southern Europe have been, in singular occasions, the starting point of intensive research programs (Anna et al. 1992; Passarrius et al. 2009).

A second main contribution in the interest in the mountainous archaeological record comes from palaeobotanical studies. In the context of the studies about mountain vegetation niches the role of human activities has been acknowledged as a factor crucial to understanding the ecological dynamics. Moreover, some mountain areas host a rich paleoenvironmental record. That’s particularly true for high mountain subalpine zones, where the existence of glacial lakes and peat bogs can provide good sequences to address questions such the evolution of the timberland, the creation and evolution of pastures and

the impact of fire, grazing and climate change. Pollinic diagrams of mountain sites have been produced during the 20<sup>th</sup> century, and integrated in early regional approaches (Moe et al. 1988; Beaulieu et al. 1990; Biagi and Nandris 1994; Richard 1997; Galop 1998). Initial works in this field focused mainly on the natural history, and progressively integrated human activity both as a research interest and a proxy to study vegetation changes. The confluence with archaeological teams working on regional surveys have been very productive since the 1990s and early 2000s. The incorporation of archaeological data has been accompanied by the development of multi-proxy approaches and the increase of spatial and chronological resolution (Oeggli et al; Palet et al; Gauthier; Miras et al; in this volume). It defines an “archaeology of pasturelands”, which have been often used as a synonym of “mountain archaeology”, and in which the research focus is the environmental and cultural history of subalpine pastures.

The works from the 1990s have been consolidated and extended during the decades of the 21<sup>st</sup> century. The multiplication of the published research can be observed through the bibliographical references included in the different chapters. This scientific activity has also been the ground for continues academic exchanges. Sessions about mountain areas have been organised in many major international conferences, and specific meetings gathered research groups in international and regional basis. That resulted in the edition of several collective works and monographies that can be used as the first gateway to the subject (Della Casa 1999; Rendu 2003; Della Casa and Walsh 2004; Leveau and Rémy 2008; Tzortzis and Delestre 2010; Lozny 2013; Walsh 2013; Stirn 2014; Collis et al. 2016; Gerling et al. 2018; Pelisiak et al. 2018).

### **Mountain archaeologies: overview on volume chapters**

#### *The symbolic and sacred character of mountains*

The first chapters of this book address the integration of mountainous topographies in human cultural systems through its ideological dimension. The concept of “sacred mountain” is the centre of the discussion here. Mountains are prominent landmarks and the sacred character of individual mountains is documented in different cultural contexts

around the world. In that perspective, sacred mountains are an excellent study case for the symbolic, ideological and spiritual uses of landscapes.

The conference's keynote lecture delivered by F. Criado-Boado (Criado-Boado in this volume) introduces these central concepts and offers specific examples to approach this ideological dimension of mountains within prehistoric cultural landscapes. P. Stevens (Stevens in this volume) presents in his chapter a comprehensive overview of the key concepts used by Cultural Anthropology to define and study the sacred character of mountains and to conceptualize it in the framework of the religious beliefs.

The other two papers in this first section of the volume are dedicated to study cases in which material culture is used to address the sacred dimension of singular mountain landscapes. Long-term cultural uses in Ikh Bogd Uul, in Eastern Altai Mountains (Mongolia) is the study case addressed by C. dal Zovo (Dal Zovo, in this volume). The study case presented by M. Georgiadis (Georgiadis, in this volume) focuses on Mount Leska, in the Aegean island of Kythera (Greece), interpreted as a Bronze Age Peak Sanctuary, with parallels within the Minoan world.

#### *Global warming and archaeology of mountain snow line*

The snow line has only recently attracted the attention of archaeologists. The retreatment of mountain glaciers and the melting of ice patches, a phenomenon in expansion due to the actual climate change, is revealing material culture trapped for long in the ice. In those conditions, organic materials are well preserved, sometimes for thousands of years. It offers extraordinary insight on past material culture, but it is also a fragile record that disappears soon after it is revealed on the surface. The challenges associated with this unexpected snow line archaeology are addressed through the case of World War I battlefields in the high Alps (Nicolis, in this volume) and the newly defined "ice patch archaeology" in Scandinavian Mountains (Prescott & Melheim; in this volume).

#### *Sub-alpine pastures as high-altitude archaeological sites*

Sub-alpine pastures are one of the most characteristic eco-cultural landscapes of mountain areas. The research developed has taken advantage of the characteristics of the

environment to develop specific methodological approaches, adapted to those environments. That includes the analysis of a multi-temporal dry-stone architecture, often visible through high-resolution aerial images. Although surface material assemblages are scarce, the incorporation of test excavations and C14 dating allows for a chronostratigraphic approach to those elements. The incorporation of high-resolution multi-proxy palaeoenvironmental studies of lake sediments and peat bogs is a common practice in those projects that tend to have a strong multidisciplinary character.

Early human presence in higher altitudes are documented since the Palaeolithic (Efstratiou et al. 2006). It is interpreted as part of the seasonal movements of hunter-gatherer groups first and, beginning in the Neolithic, incorporated domestic animals. The prehistoric seasonal movement in the high Tatras (Western Carpathians, Poland), since the Late Paleolithic to the Bronze Age is analysed by Robert Brunswig and Pawel Valde-Nowak (Brunswig & Valde-Nowak; in this volume).

There is a consensus that point to a prehistoric onset of the practices that lead to the development of high-altitude pasturelands in the long-term. The identification of the chronology and process of creation of extensive grasslands and its subsequent maintenance and/or abandonment have been an important focus of the research in mountain areas. Beyond prehistory, the analysis of the Roman and Medieval periods in those areas has provided insight about the diversification of activities, documenting minero-metallurgical activities and forestry activities alongside pastoralism.

The study cases included in this volume introduce examples from the main European subalpine environments and are based on projects that combine archaeological and paleoenvironmental analysis. The chapters include research in the Eastern Alps (Oeggel et al.; Nicolis, in this volume), the North Caucasus (Reinhold et al; in this volume) and the Eastern Pyrennees (Palet et al; in this volume).

A part of altitude, latitude also determines the extension of alpine conditions. Northern and circumpolar regions share characteristics with environments that, in other latitudes, are exclusive of high mountain valleys. Moreover, they also document similar agricultural practices (seasonal grazing) and similar archaeological and palaeoenvironmental archives. They represent outstanding study cases to explore the relationship between climate, grasslands and human activities. In this volume it is

illustrated by research programs in Norwegian mountains (Prescott & Melheim; in this volume) and Greenland (Gauthier; in this volume).

### *Euro-Mediterranean Middle and Low Mountain landscapes*

The next group of chapters address the archaeological context of the Middle and Lower altitude mountain landscapes. In temperate areas of the Northern hemisphere, it defines slopes and mountain formations where only exceptionally the highest points surpass the 2000 masl. They define extensive areas of the European subcontinent and the circummediterranean regions. Those landscapes are characterised by a higher anthropization, represented by patched landscapes combining montane forests and deforested areas of eroded soils occupied by grasslands and shrubs. Cultivation, usually in built terraces is also present. Lower mountains have historically been a source of building material for nearby urban centres, utilizing charcoal and other forestry products, metallurgical materials and many other resources. Permanent settlements can be present in those areas, and, in some contexts, they have been historically favoured locations for settlements that prioritize defensive, strategic and symbolic functions.

Middle and lower elevations represent a complicated challenge for archaeological research. High slopes and dense vegetation cover make the archaeological record less perceptible. At the same time, high-quality, long-term paleoenvironmental archives are less available than in high-mountain contexts, especially as the latitude increases. On the other hand, those areas can present a historical mix of uses combining cultivation, grazing, forestry and mining; providing different specialization and complementarity of uses during overlapping time frames. Despite the interest in those environments as historical landscapes, they are complex and difficult to interpret. The development of specific survey techniques to understand the archaeological and paleoenvironmental records, together with the analysis of this area in regional perspective are the main focus of the chapters included in this volume.

Representative examples of European mid-mountain contexts are the focus of the chapters dedicated to the Carpathian (Valde-Novak; in this volume), the Massif Central (Mirat et al.; in this volume) and the middle slopes of the Atlantic Pyrenees (Coughlan, et al.; in this volume). The development of archaeological surveys in Mediterranean

uplands is a subject addressed through study cases in the Taurus Mountains (Vandam et al.; in this volume) and in the Southern Apennins (Van Leusen et al.; in this volume).

### *Valley architecture*

In the context of mountain regions, valleys can have an important structuring role. They concentrated the arable land available in mountain contexts. At the same time, they can function as a socio-economic units and network nodes. The final two chapters explore the relationship between social structures and the formation of settlements in mountain valleys in a two very different study cases: in one case, the tribal community of a valley enclaved on Northern Albanian mountains (Galaty et al.; in this volume). The second case focuses on the valley of Cuzco (Beltran et al.; in this volume). Probably more than any other ancient state, the Inka territory exemplified the incorporated control of diversified landscapes; here defined by the steep slopes of the Andean range.

The volume closes with a review that addresses a series of modern pre-conceptions of mountain communities and economies (Orengo, in this volume). The authors analyse how these ideas, although much more critically considered than in the past, are still influential when we interpret the archaeological record in high altitudes.

### **Final Remarks: Base camps and new questions for the archaeology of mountain landscapes**

As with any other part of Earth's surface, human societies have been part of the history of mountain regions: moving through, settling, fighting, exploiting its resources, incorporating them into social ideological and belief systems and, as it is underlined by this volume, doing archaeological research.

Surveys conducted in different mountain environments have seen a quantitative and qualitative increase since the beginning of 21<sup>st</sup> century, expanding the results obtained by sparser previous work and making mountain archaeology a relatively new dataset in the context of archaeological disciplines. There is currently a large consensus among archaeologists that have developed projects in mountain areas since 1980s to reject

or nuance the image of upland regions as empty areas in terms of archaeological interest. On the other hand, combined palaeobotanical, geomorphological and archaeological approaches underline that mountain landscapes have an undoubted cultural character and human actions are part of the historic ecology of montane environments.

In that sense, a series of consensual points must be considered in light of the research developed up to this point and exemplified by the different chapters collected here: First, mountain areas harbour a large and singular archaeological record. It represents an archive that archaeologists can identify, register and interpret using the appropriate conceptual and methodological tools. Secondly, human activities have been documented since prehistory in all sorts of mountain environments. Those activities represented a significant factor in landscape-shaping and landscape-conceptualization that integrated archaeological, anthropological and paleoenvironmental studies can explore. Third, mountain environments provide outstanding study cases to address highly spatialised and specialized exploitation of resources. In that sense seasonal transhumance, intensive and extensive pastoral practices, forestry, metallurgy could be considered the formation of symbolic topographies and landscape narratives. Finally, it emerges that the idea of a natural isolation of mountain communities has to be critically reconsidered. Economic practices and social structures of past communities inferred from material traces in mountain environments need to take into account its multi-scale regional connections. In that sense, the assumption that mountains are “secondary” areas or “archaic strongholds” can obscure key aspects of historical processes such as the emergence of complex societies and diversified economies.

Those points, as well as other ideas that can be extracted from the combined lecture of the different chapters of this volume and other similar works, represents features of what we can define, using alpinist vocabulary, as “base camps” for archaeological research in mountain areas. In our current state, archaeologists have at our disposal a basic infrastructure developed and systematized by recent research: an ensemble of tested methodological approaches, developed conceptual frameworks and models to explore in comparative perspectives.

Those base camps, among them those we consider in this volume, provide a preliminary guide to approaching the archaeology of mountain areas and offer support from which to develop new questions. Among those new questions we can consider a multitude of perspectives: new specifically directed projects could provide data to study

the still not very well know traces of Paleolithic hunter-gatherer societies in high altitudes. Why, how, when and in what extension prehistoric societies change mountain environments to adapt them to specific productions such as herding are questions currently open, in particularly in the light of the studies conducted in subalpine pastures. Settlement dynamics have a decided micro-regional character, but some trends can be documented in different areas. In that sense, the Bronze Age appears as a moment of intensification in grazing proxies in high altitudes, while in some cases there is an apparent reduction in the archaeological record available for different moments of the Iron Age.

Mountain products, specialization and landscape diversification have an intense relationship with the emergence of complex societies and state formation that can be explored in many different contexts. Pastoralism emerges as a key factor in landscape dynamics and, thus, the study of the complexity of herding practices appears as a challenge for future researches. The absence of zooarchaeology in the following chapters is not an intentional omission, but a consequence of the absence of consumption contexts in the grazing areas. In that respect there is great potential if effective interdisciplinary strategies can be established between high-mountain archaeology, ethnographical research, zooarchaeology and the application of isotope analysis.

Other activities that have defined the largest areas of mountain landscapes, such as forestry, are much less well known and specific methodological approaches to those areas have to be yet developed. Multidisciplinary multi-proxy analyses have been a key aspect used to understand upland landscape dynamics. Its potential as well as its limits and obstacles are questions addressed in several of the following chapters. On the other hand, multi-proxy studies in mountain areas have focused on the advancement and retreat of high-mountain grasslands and it has been less effective than in other aspects like prehistoric and historic woodland management or the environmental and cultural processes involved in the history of mixed cultivation and herding practices in lower altitudes. The continued discussion among multi-disciplinary teams stands, as it has been through the history of the discipline, as a foundation stone in the archaeological studies of mountain landscapes.

The acknowledgment of the cultural character of mountain landscapes poses the question of its heritage dimension. That aspect is addressed in the following chapters from the experiences and point of view of different research programs. In that sense, a

commonly expressed idea in the final discussion of the conference pointed to the challenge to reach the agents involved in heritagisation processes (authorities, local communities and visitors). In fact, most of the archaeological record presented in the following chapters is largely unnoticed as historic cultural heritage, not only by non-specialists but also by the archaeological discipline and, as a consequence, by the public bodies in charge of maintaining and promoting historic cultural heritage. Mountain archaeological records contain, in a general perspective, few remains that are likely to be perceived as archaeological monuments. That doesn't imply that mountain material cultural heritage lacks interest or explanatory potential, even those beyond local aspects. Perhaps the most illustrative case included in this volume is the intervention in the alpine during World War I, 3,629 masl, at the Austro-Hungarian post of "Punta Linke" (Nicolis, in this volume). The (re)materialisation of the place where soldiers would guard and fight in the highest landscapes of Western Europe is an outstanding testimony to the geopolitics, technology, human costs and consequences of the Great War. Its value is, in that aspect, the same as the fortifications of Verdun or the monuments erected throughout European geography.

In considering a heritage perspective, the long-term human-environment relationship is as part of the present of mountain landscapes as it was part of its past. As it will be developed in the next chapter (Criado-Boado, in this volume), mountains can be considered agents participating in human lives. That character can be traced in different cultural systems, both historical and contemporary, including contemporary western societies, as it is described, for example, by the characters of the novel "the eight mountains" (Cognetti 2018). In a general perspective, therefore, mountain landscapes are a present issue. As discussed in a previous section, this notion is underlined by the inclusion of mountain landscapes as a subject of global, regional and local politics.

Consequences of climate change, sustainability of economic activities or the resilience of local cultures in the context of globalised societies are among the central points that will define the future of mountain landscapes and their inhabitants. The long-term historical dimension of these phenomena make them an area in which the research included in this volume can present a necessary and critical contribution.

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## Figure Captions

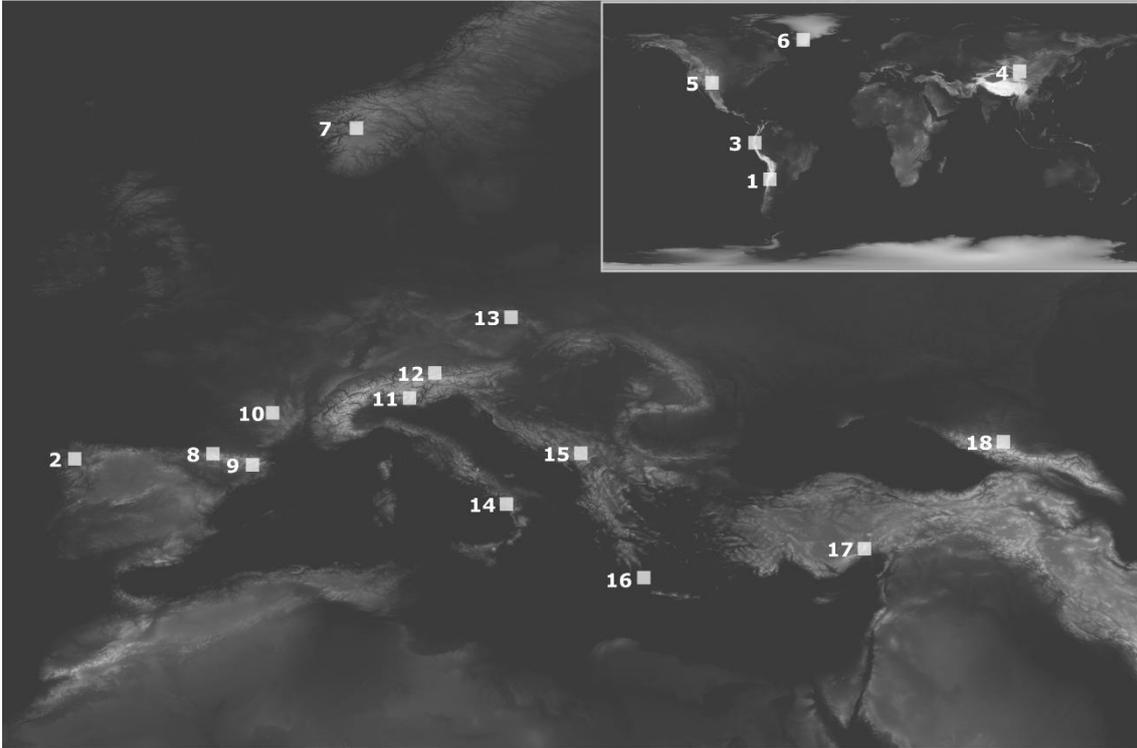


Fig. 1. Location of the mountain areas addressed in the different chapters of this book: 1 Central Andes & 2 Galician Massif (Criado-Boado); 3 Northern Andes (Beltran-Caballero & Mar); 4 Eastern Altai(Dal Zovo); Rocky Mountains (Brunswig & Valde Nowak); 6 Greenland (Gauthier); 7 Scandinavia (Prescott & Melheim); 8 Western Pyrenees (Coughlan et al.); 9 Eastern Pyrenees (Palet et al.); 10 French Massif Central (Miras et al.); 11 Central Alps (Nicolis); 12 Eastern Alps (Oeggli et al.); 13 Carpathians (Brunswig & Valde Nowak, Valde Nowak); 14 Southern Apennines (Van Leusen et al.); 15 Northern Albania (Galaty); 16 Kythera (Georgiadis); 17 Western Taurus (Vandam); North Caucasus (Reinhold et al.)



Figure 2: picture took during early spring in the Catalan Pyrenees (North-Eastern Spain). From this image is possible to do a first sketch of the different landscape zones: The alpine and subalpine zones situated over the timberline (figure 2: 1) are dominated by extensions of grass historically exploited in a seasonal basis as summer pastures. Slopes are mainly covered by forests (figure 2: 2), which were the principal source of energy, but also complemented the pastures and they might be object of clearances for the construction of terraces where forage could be grown. Permanent settlements (Figure 2: 3) are founded in different altitudes through the southern slopes but never above the timberline, usually taking advantage of small plains and accompanied by areas dedicated to the agriculture. The village in the image, at 1.400 m., is the highest permanent settlement in a valley where the highest peak is 2900 m high. Down the valley, the landscape is characterised by narrow mountain rivers (Figure 2: 4). Settlements in the junctions of different rivers act as small regional centres while the hydraulic power of the watercourses have played a major role powering proto-industrial and early industrial facilities.