



**IEMA**



University at Buffalo  
Institute for European and  
Mediterranean Archaeology  
College of Arts and Sciences

# Archaeology of Mountain Landscapes:

## Interdisciplinary Research Strategies of Agro-Pastoralism in Upland Regions

CONFERENCE PRESENTERS AND ABSTRACTS

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*Keynote: Stairways to heaven: mountains as sacred topographies*

**Felipe Criado-Boado** (Institute of Heritage Sciences -Incipit-, Spanish National Research Council -CSIC-)

In many cultural traditions, mountains are considered as privileged sacred topographies that connect the earth and the heavens, the underworld and the upper world, the landscape and the skyscape. However, for practical reasons, this aspect of mountains has scarcely been explored in landscape archaeology despite the fact they served as visual markers, as focal points for orientating and permitting movement throughout a territory, as areas with special resources, and as a part of major herding routes or destinations. Although these aspects are very much alive in certain parts of the world, such as the Andes, they have fallen into disuse in Europe, and this could be the reason behind this relative lack of awareness of and interest in research about this dimension of mountains. While the presentation will focus on late prehistory in Galicia (NW Iberia), together with a number of examples from Europe (Valcamonica), Asia (Mongolia) and Southern America (Andes), I would like to mention a good example of the importance of this subject: the relevance of the town of Santiago de Compostela (in Galicia) as a pilgrimage destination is known throughout the world, but what it is less widely known is that tradition of Santiago was based on an old sacred mountain: Santiago became the materialization of an earlier cosmological landscape.

*Landscape-shaping in the Andes: the case of Cusco as inka capital*

**José Alejandro Beltrán-Caballero** (Seminar of Ancient Topography, Rovira i Virgili University); **Ricardo Mar** (Seminar of Ancient Topography, Rovira i Virgili University) & **Joaquín Ruiz de Arbulo** (Seminar of Ancient Topography, Rovira i Virgili University)

During inka time Cusco was the core of a hierarchical system of settlements with different sizes and functions. A dense network of roads based on the four main branches of Qhapaq Ñan linked those settlements with the ceremonial centre of the system located on the top of Watanay valley. The whole valley was fed by a numerous terraces and canals for advanced agriculture. The symbolic appropriation of this territory was based on the maintenance of hundreds of “wakas” -or sacred places- and shrines around which the population was gathered during the important days marked on the calendar.

Cusco is one of the most remarkable examples of a pre-Hispanic settlement in the Americas. Traditionally, the idea of inka Cusco as a city is related to the space limited by two canalized streams: the rivers Saphy and Tullumayo. The settlement placed in this hillside that forms the head of the valley was just the Representative or Ceremonial Center. An extensive network of settlements exceeded this limit to extend over the valley slopes occupying what is now the modern city of Cusco. The foundation of Cusco involved the complete reorganization of the natural environment in the Valley of the Watanay River. Land drainage, torrents channeling and construction of terraces and settlements guaranteed a balance between the water resources of the Valley and the maintenance of the apparatus of the inka capital.

Springs, rocks, rivers and mountains influenced the spatial relationships at all levels; they were references, ceremonial sequences, limits and memory. The case of inka Cusco illustrates a way of thinking and understanding the natural environment not only as the context for the development of an activity, but also as the facilitator in itself of human activities. The case of Cusco is an example of a millennial cultural process. The works accomplished by inka people are not only the expression of genius and inventiveness but the product of ancient Andean traditions which generated responses based on the deep knowledge of the environment. This research carried out since 2009 by the Seminar on Ancient Topography research group (SETOPANT-URV) in cooperation with the Municipality of Cusco and the National Museum of the American Indian-Smithsonian Institution seeks to reconstruction the cultural landscape that completely transformed the Valley in inka time.

*Exploring Seasonal Transhumance of Hunter-Gatherers and Neolithic Pastoralists in Poland's High Tatras and Foothill Lowlands: Applying Landscape Archaeology Methodologies from the Colorado Rockies to the Western Carpathians*

**Robert H. Brunswig** (Department of Anthropology, University of Northern Colorado);  
**Pawel Valde-Nowak** (Institute of Archaeology, Jagiellonian University)

This paper's authors represent decades of mountain landscapes research in different world regions, Robert Brunswig in the Southern Rocky Mountains (USA) and Pawel Valde-Nowak in the Harz and Schwarzwald Mountains (Germany) and Western Carpathian Mountains (Poland and Slovakia). Rocky Mountain landscape studies modeled eleven thousand years of seasonal transhumance by Native



American hunter-gatherers from lower elevation mountain valleys to high elevation forest and tundra, following seasonal migrations of game animals. The Rocky Mountain landscapes modeling was based on more than two decades of high and mid elevation mountain archaeology surveys and supporting paleoclimate studies. Western Carpathian research has, among many other cultural periods, been successful in reconstructing Neolithic pastoralist and farming community life in mid and low mountain landscapes. Both scholars, drawing on their experience and past mountain landscape studies, describe an emerging, early stage research project designed to conduct advanced field studies and generate (and test) archaeological landscape models of past hunter-gatherer populations as well as pastoralist and early farming community seasonal transhumance migrations between lowland river valleys of the Podhale Basin and high altitude forests and meadows of Poland's High Tatra Mountains.

*Holocene anthropization of mid-elevation landscapes around Pic d'Orhy, Western Pyrenees.*

**Michael R. Coughlan** (Department of Anthropology, University of Georgia); **Ted L. Gragson** (Department of Anthropology, University of Georgia and IdEx Chair, Université de Toulouse); **David Leigh** (Department of Geography, University of Georgia); **Mélanie Le Couédic** (ITEM, Université de Pau et des Pays de l'Adour)

Prevailing syntheses of paleoecological and archaeological evidence suggest that middle Holocene agropastoral land use activities in the Pyrenees region mark the onset of mid-elevation (900-2000 msl) anthropization of mountain landscapes. Extrapolating regional interpretations to the scale of a landscape can and has led to simplistic and deterministic accounts about the human capacity to transform upland regions. Our place-based and local-scale investigations in the French western Pyrenees provide evidence for long-term, spatially heterogeneous anthropization processes in landscapes around Pic d'Orhy. Elsewhere we have examined the causal processes that redirect pedogenic pathways in the millennial history of human influence on these landscapes. Here we use Bayesian chronological methods to synthesize new and previously obtained radiocarbon results with evidence obtained from geomorphic, archaeological, and historical archives that serve to identify the processes of anthropization.

Our results indicate that geomorphic and archaeological signatures of human activities in mid-elevation areas fit into three temporal clusters that fall broadly within the Bronze Age, the Iron Age,

and the late middle ages/early modern period. The first two clusters comprised of three sites each appear to be coincident with the onset and culmination of the initial forest-to-pasture transition (ca. 4000-3200 cal yr BP). The third cluster dates a proliferation of seasonal pastoral habitation structures and associated features to the late Middle Ages to the 19th century. Historical evidence implies that these dates identify intensification of dairying activities associated with additional forest clearance, much of which has since reforested. Although our conclusions remain limited by our ability to collect datable evidence, the paucity of earlier sites associated with the most persistent forest to pasture transition is striking. We hypothesize that positive socioecological feedbacks involving earlier, extensive land use left a greater anthropogenic fingerprint on vegetation patterns than the more intensive agropastoralism of the last millennium.

*Agro-Pastoralism in a Dispersed Village, Mountain Economy: Results of the Shala Valley Project, Northern Albania*

**Michael L. Galaty** (Mississippi State University)

The Shala Valley Project (SVP) was a five-year, NSF-sponsored regional (ethno-)archaeological project focused on the Shala Valley of northern Albania. Shala is located in the Bjeshkët e Namuna (“Accursed”) mountains and is home to the Shala “tribe” (Alb. fis). Northern Albania is the only place in Europe where tribal groups, with origins in the Late Medieval period, survived intact into the 21st century, with chiefs, councils of elders, feuds, and an oral customary law code. The SVP conducted intensive archaeological, architectural, and ethnographic surveys throughout all of Shala, with a particular focus on the village of Theth. Results were published in a 2013 monograph titled *Light and Shadow: Isolation and Interaction in the Shala Valley of Northern Albania* (Cotsen UCLA). One particularly interesting result of the project was an ability to investigate mountain agro-pastoralism systematically, through time. The agro-pastoral economy of Shala depends on a so-called dispersed, i.e. non-nucleated, village system. Houses are organized into “neighborhoods” (based on lineage affiliations) that, in Theth, are on average 700 m apart. This matches Stone’s (1991) statistics for the Kofyar, who live in Nigeria in dispersed villages and depend on complex networks of reciprocal labor. Theth’s village system and built environment are a direct reflection of similar networks of reciprocal labor, that support an agro-pastoral lifestyle, but also reinforce the kinship-based sociopolitical system, based on ideologies of honor and hospitality. When such ideologies break down, feuds ensue.

Identification of dispersed village systems in the archaeological record may therefore signal agro-pastoral lifestyles, particular ideological systems, or both.

*Farmers in mountainous and subarctic areas: a diachronic history of land use and adaptation to environmental conditions.*

**Emilie Gauthier** (University of Franche-Comté, UMR CNRS 6249 Chrono-Environnement)

Human settlement and adaptation of farming activities in marginal zones, eg mountainous and arctic/subarctic areas, has often focused the interest of paleo-environmentalists. Archaeological data and sometimes historical data are of course essential to interpret these paleo-environmental data. In the Jura Mountains (Eastern France), the abundance of sedimentary archives, lakes and peat bogs, has enabled the development of diachronic and multiproxy studies describing the evolution of human impact on vegetation since the appearance of agro-pastoral activities. However, seven millennia of human pressure made difficult to disentangle climate and human forcing. Furthermore, agriculture has evolved and the succession of different kinds of agrarian systems has played an important role in the shaping of modern landscape. Nevertheless, the identification of different land uses, through pollen analysis for instance, is possible and brings a new interpretation of ‘impact’. Simplest pattern can be found in Northern regions, at the limit of sustainable agriculture, for instance in Greenland. The Norse colonization of Greenland, beginning by the end of the 10th century, lasted more than 400 years. It resulted in the introduction of a northwest European-style of pastoral farming to a ‘pristine’ environment. This example allows the study of a short impact, from the landnám to the demise, and the following environmental resilience. The development of modern farming since the beginning of the 20th century also enables a comparison between medieval and recent impact at the light of climate change. In this case, the multiplication of multiproxy analyses, with biotic and abiotic parameters, allows a better understanding of the notion of ‘impact’ on vegetation and soil in the catchment area, and on the lacustrine ecosystem.



*Research at the Late Bronze Age peak sanctuary on Mt Leska, Kythera (Greece)*

**Mercourios Georgiadis** (University of Nottingham)

A small scale survey and a more extensive excavation at Mt Leska on the island of Kythera in Greece has provided a new and very important site, a peak sanctuary of the Middle and Late Bronze Age (19<sup>th</sup> to 15<sup>th</sup> century BC). The research was conducted within a mountainous landscape at Kythera island, which revealed a unique context that combined a number of habitation sites and complex sacred locales. The most prominent site has been found on top of Mt Leska, which proved to be peak sanctuary with similarities to one more recovered on Kythera and a few more on Crete. The excavation at this site has provided a unique insight in the rituals conducted and the beliefs that existed at this site and the Aegean more broadly. The landscape played a prominent role at this sacred site with the environmental setting of Leska being a central one as well as the access routes to it, and the views provided from this location. The study of the material remains has provided the sacred as well as the social role of this site in a wider part of the island. The type of the research conducted during this study has provided a broader outlook of a mountainous landscape in which there was an important site among others. This study has provided a new methodological approach of archaeological research and understanding in which the landscape played a central role, while the thorough analysis of the finds has allowed a better comprehension of rituals conducted within a specific sacred site. These two elements have provided interconnected data that allowed to identify in more details the beliefs and the meaning of this site to the people using this sacred locale at Kythera during the Middle and Late Bronze Age.

*Ancient pastoralism and settlements in Central Italy mountains*

**Adriano La Regina** (Istituto Nazionale di Archeologia e Storia dell'Arte, Roma).

Pre-Roman settlements and hill-forts controlled the routes of seasonal migration of herds in Central Italy highlands. Transhumance roads, which linked the high pasture of Samnium with the plains of Apulia, survived through the Roman rule, as *calles publicae*, and through the middle ages down to modern times. Roman towns as Peltuinum, Sulmo, Aesernia, Bovianum, Saepinum, rose nearby them. These large (110 m, 360 ft) millenary routes, called *tratturi*, are no longer in use since the end of pastoralism, but they since still mark the landscape for hundreds of miles.

*Addressing the complexity of the palaeoenvironmental impact of Prehistoric settlement and Protohistoric urbanism in the Auvergne mountains (Massif Central, France)*

**Yannick Miras** (CNRS, UMR 6042, GEOLAB. Clermont Université, Université Blaise Pascal); **Paul M. Ledger** (CNRS, UMR 6042, GEOLAB. Clermont Université, Université Blaise Pascal); **Michela Mariani** (School of Geography, The University of Melbourne); **Aude Beauger** (CNRS, UMR 6042, GEOLAB. Clermont Université, Université Blaise Pascal); **Marlène Lavrieux** (Institut des Sciences de la Terre (ISTO), UMR 6113 CNRS / Université d'Orléans / University of Basel, Department of Environmental Sciences); **Karen Seieyssl** (Laboratoire EVS-ISTHME, UMR 5600- CNRS, Université de Lyon); **Ansis Blaus** (Institute of Geology, Tallinn University of Technology); **Machteld Caspers** (Department of Physical Geography. Utrecht); **Anton Hansson** (Department of Geology, Lund University)

Most palaeoecological research carried out in Central and Western Europe has been primarily focused on tracing long term Holocene vegetation dynamics and also discerning if climate or human activity is the main driving force in landscape change. More recent integrated palaeoenvironmental studies have instead focused on unravelling the localised environmental impact associated with human settlements. This is a much needed approach in the study of mountainous areas which are spatially heterogeneous with a diversified resource distribution. Past human societies have taken advantage of such landscape diversity developing complex land use patterns which are patchily distributed in time and space. This results in the configuration of mosaic-like anthropogenic cultural landscapes. We present palaeoenvironmental research conducted in Auvergne, central France, and performed following a high spatio-temporal resolution in 2 case-study windows ranged in the same drainage basin of the Veyre River and connecting the mountainous Chaîne des Puys, in the upstream area, and the intra-mountainous Limagne plain, in the downstream area of the river. This comparison of “upland vs lowland” allows a discussion of: (1) the complexity of palaeoenvironmental impacts associated with Prehistoric and Proto-historic human settlement in terms of woodland clearance, landscape openness, evidence for agriculture and spatio-temporal variabilities at a micro-local scale, (2) the characterization of the palaeoenvironmental features related to the slow and chaotic development of proto-urban areas during the Late Bronze Age and the Iron Age, (3) how these two complementary areas operated together through time, and (4) the environmental consequences of these early human societies on ecological processes (eg. vegetation biodiversity) and aquatic ecosystem functioning (e.g. eutrophication of water bodies). The palaeoecological research presented here is based on: (1) the

inter-correlation of different complementary biotic indicators- pollen and spores, non-pollen palynomorphs (e.g. fungal spores, different resting spores and eggs of respectively phyto- and zooplankton, stomata, parasitic cysts), diatoms- and abiotic ones (sedimentology), and (2) the integration of palaeoecological and archaeological data.

*Central Alpine environments as Mountain Cultural Landscapes from prehistory to contemporary present.*

**Franco Nicolis** (Archaeological Heritage Office, Autonomous Province of Trento)

The current framework of knowledge as regards human occupation of the alpine environment in ancient times is no longer conditioned by the traditional image of poor, inhospitable areas inhabited by coarse, warlike peoples. On the contrary, the prevailing picture today is of regions with considerable economic potential, regularly exploited by groups of humans settling there. A case study site will be presented where a series of clues have been found suggesting pioneering colonisation of the high mountains in the period between the end of the Early Bronze Age and the beginning of the Middle Bronze Age. The data obtained from this site has made it possible to reconstruct the embryonic stage of a process that was to lead to a new model of exploitation and economic development.

During the Late and Final Bronze Age (second half of the 14th century- 11th century BC) the metal production and diffusion in Europe develops into a continental-size organized system. Within this frame a substantial copper metal production is observed in the highlands of the Trentino area undoubtedly related to diffusion of the products within a larger area. Here, archaeological sites showing traces of metallurgical activity are usually located a few kilometres from the closest known copper occurrences, and in places well served by travelling routes, abundant wood supply, and water sources.

In recent time, global warming and absence of regular and abundant snowfall in the Alps has prevented glacial basins from compensating for the effects of summer melting. This is changing the alpine landscape. The retreating of the glaciers is a climatic emergency, but is taking with it a cultural emergency. The melting of ice is bringing to light evidence of the human presence at high altitudes from prehistory to contemporary times. The icon of this phenomenon is Iceman, the Copper Age mummy discovered in September 1991 in Schnalstal. But a lot of other evidence is coming to light from

the Alps, first of all the remains of the highest battlefields in the world, fought during the First World War.

*The onset of alpine pastoral systems in the Eastern Alps*

**Klaus Oegg** (Botanical Institute, University of Innsbruck); **Daniela Festi** (Botanical Institute, University of Innsbruck); **Putzer Andreas** (Südtiroler Archäologiemuseum)

Since the discovery of the Neolithic glacier mummy “Ötzi” in the nival belt of the main Alpine ridge, the onset of alpine pasture is matter of a highly controversial debate both in archaeology and in palaeo-ecology of the Eastern Alps. The implication is that his sojourn in the high-altitudes of the Alps is considered to be connected with pastoral nomadism. Regrettably any archaeological evidence for the existence of such Neolithic alpine pastoral systems is missing up to now and the assumption is based on palynological data only. However, also the palynological record is ambiguous, because pasture indicators in the alpine regions react positive on grazing as well as on fertilization induced by a higher runoff of precipitation. Thus alpine pasture indicators reflect both grazing pressure and climatic change.

Anyhow, alpine pastoral systems are a common practice in Alpine animal husbandry, but from an economic point of view such a seasonal vertical transhumance is costly. There are three main reasons for its practice: i) climatic, ii) economic (mainly in connection with population pressure or mining activities), and iii) cultural ideology. In this study we tested the above mentioned reasons in an interdisciplinary study on the beginning of pastoral activities in high altitudes in the central part of the Eastern Alps. This is conducted by palynological analyses of peat deposits situated in the vicinity of the timberline (1600 – 2400 m a.s.l.) combined with archaeological surveys. The investigated sites are located in traditional Alpine transhumance regions and aligned on a transect through the central part of the Eastern Alps. Moreover, isotopic analyses (Sr, O) conducted at high-spatial resolution to retrieve (sub)seasonal mobility signals were directly conducted on Copper aged sheep/goat molars from the Vinschgau site of Latsch. Taken together, these studies reveal that grazing pressure is reflected at the earliest since the Bronze Age, which is corroborated by archaeological findings near the palynologically investigated sites and isotopic analyses.

*Coastal Mediterranean Mountains: a neglected archaeological register for the study of the first complex societies*

**Hector A. Orengo** (McDonald Institute for Archaeological Research, University of Cambridge)

During the last years a steady increase in high mountain multidisciplinary studies has put mountain archaeology in the forefront of landscape-based archaeological research. Regrettably this high mountain trend has not been matched by research on lower mountain ranges. The lack of multidisciplinary research on lower mountains is possibly related to their proximity and accessibility to ancient and modern population centres. These areas have suffered the most intensive human use and occupation. This has caused deforestation and erosion processes, which have, in turn, contributed to great difficulties in the archaeological prospection of these areas. Furthermore, the lack of basins with anaerobic, continuous sedimentary records greatly hinders the adoption of multidisciplinary approaches. Nonetheless, it is precisely their proximity to ancient population centres and their continuous occupation history that renders them important archaeological registers for the study of ancient societies.

This paper will present two case studies from areas located at the extremes of the Mediterranean basin (Garraf Massif in Barcelona and Palaikastro in Crete) to: (1) illustrate the range of techniques available for the study of these neglected landscapes and (2) show their great potential for the understanding of the economy and socioenvironmental relations of the first Mediterranean complex societies.

*Landscape Archaeology in Eastern Pyrenees high mountain areas (Segre & Ter valleys): human activities in the shaping of Mountain Cultural Landscapes.*

**Josep M. Palet** (Catalan Institute of Classical Archaeology); **Santiago Riera** (University of Barcelona); **Hector A. Orengo** (McDonald Institute for Archaeological Research, University of Cambridge); **Arnau Garcia** (Institute for European and Mediterranean Archaeology, University at Buffalo, SUNY); **Ana Ejarque** (CNRS, UMR 6042, GEOLAB, Clermont Université, Université Blaise Pascal)

Since 2004, an integrated palaeoenvironmental and archaeological research programme has been developed in the Eastern Pyrenees, in the Madriu-Perafita-Claror valley (Andorra), the Cadí range (Alt

Urgell, Catalonia), and Nuria and Coma de vaca valleys, with the aim of studying the long-term landscape shaping of Mediterranean high-mountain environments from 1900 to 2600 m a.s.l. This programme involved extensive surveying, GIS, excavation and radiocarbon dating of archaeological structures. In each area, more than 400 archaeological structures have been reported ranging from the Early Neolithic to Modern times.

Archaeological and historical data underline the existence in these areas of diverse land-use and resource management strategies during the past millennia, which included fire-driven forest openings, grazing, woodland exploitation (such as resin and charcoal production), mining and melting activities. This high diversity of activities has led to complex cultural landscapes in the high Pyrenean areas.

In addition, multi-proxy palaeoenvironmental studies including sedimentology, micromorphology, micro and macro charcoal, geochemistry, pollen and other indicators providing a more local palaeoecological signal. The integration of multi-proxy palaeoenvironmental, archaeological and historical data has proved to be a priceless tool for assessing local human occupation and the distinctive nature of highland land-use practices on a micro-regional scale.

The results obtained show an uninterrupted occupation of these high Pyrenean areas from the Early Neolithic until the present. A methodological approach based on fine spatial and temporal resolution analysis has allowed the detection of a high variability in human settlement and practices recording, thus, a high diversity of land-use patterns in the study area and neighbouring valleys.

Evidences of human presence in this highland area are reported during the Mesolithic coinciding with the 8.2 Kyr BP event. Settlements have been located ca 2500 m a.s.l. during the Early Neolithic. During the Early and Middle Neolithic human clearances were diversified in its spatial distribution allowing the recovery of alpine forests after impacts. A major landscape change occurred in the valleys during the Late Neolithic when the alpine grassland belt expanded and human settlements have been documented at ca. 2500 m a.s.l. Roman times report a diversification of representative practices including mining, metallurgy, pine resin exploitation, charcoal production, grazing activities and livestock, etc. Antiquity is configured as an important period in livestock expansion from the 2nd – 3rd centuries and during Late Antiquity, especially in the Ter basin. In high Medieval times (9th 10th c.), a largely grazed landscape resulted in a wide deforestation. Later on, during the modern and contemporary periods, an intensive transhumant grazing exploitation characterized these valleys land-use although forest-management practices such as charcoal production, related to iron melting



activities, continued being present in the archaeological record. The history of this landscape furnishes new data for the development of management tools for the sustainability of Mediterranean highlands.

*Norway's mountain landscapes: national romantic legends and the political economy of agropastoralism*

**Christopher Prescott** (The Norwegian Institute in Rome, University of Oslo)

Traditional national identities in Norway (and other areas of Scandinavia) have centred on perceptions of farming, seafaring and seasonal use of the mountains. In terms of the latter, the historical narratives have incorporated hunting/trapping with roots in the Stone Age, and summer dairy farming/pasturing with roots in the Iron Age or Medieval period. The ensuing narratives have emphasized tradition, and practices conservatively determined by stable natural conditions, customary production techniques and a particular ethno-cultural spirit – a product of millennia of cultural, human and environmental co-evolution.

A number of field projects in southerly Norway since the 1970s, largely driven by hydro-electric development, have brought forth a significant archaeological and environmental dataset. Interpretative consensus has often lagged behind the production of materials and data, emphasizing reindeer hunting. It is increasingly clear that the mountains were exploited through seasonal transhumant strategies as of the Late Neolithic Period (2400 BC). As of this time, use of the mountains was dynamic, integrated in wider historical developments and a central element in the regional economy supplying a number of products used in various spheres of transactions. Indeed, the uplands (traditionally perceived as a stable environmental setting) entered an increasingly dynamic phase as of 2400 BC, perhaps instigated through Bell Beaker migration, creating the modern landscape that is popularly, but erroneously, perceived of as primordial nature.

*From mobile pastoralism to combined mountain economy – the Late Bronze Age in the North Caucasus*

**Sabine Reinhold** (Eurasia Department of the German Archaeological Institute); **Andrey B. Belinskiy** (OOO Nasledie); **Dmitrij S. Korobov** (Institute of Archaeology, Russian Academy of Sciences)

The 2<sup>nd</sup> half of the 2<sup>nd</sup> millennium BC in many regions of Eurasia sees a fundamental shift from the mobile pastoral economies of the Early and Middle Bronze Ages towards more sedentary forms of pastoralism. In many parts of Eurasia high mountain environments play a crucial role in this process. At the northern flank of the Caucasian mountain range this transformation is studied by a German-Russian team in its long dureé. Due to an excellent visibility of the sites, which are represented by the ruins of thousands of Late Bronze Age stone built houses, enclosures and other features, a research strategy could focus on different levels – singular houses and settlements as well as the entire landscapes as such.

Meanwhile it is possible to follow the whole of this process very closely, both in the economic perspective of changing patterns of pastoralism as well as in the social dimension. The architecture e.g. reveals communities that adopt more and more to the demands of a sedentary lifestyle. The layout of the settlements shift from linear configurations that resemble mobile nomadic camps towards highly specialized configurations with multifunctional houses that allowed accommodating large herds in winter. Activity area research using geophysics and microbiological soil analysis allowed very precise assessments on the location and the quantities of animals in and outside the settlements. GIS and isotope analysis made it possible to predict and localize the seasonal movement of these animals within and outside the micro region. The combined mountain economic system that developed between the 18th and 10th century BC on the North Caucasian plateaus is so far the earliest documented example of this economy that is today essential to all mountain systems in Eurasia. It represents a highly complex society that, however, developed a specific corporate social system veiling social and economic disparities.

*The Sacred Mount*

**Phillips Stevens, Jr.** (Department of Anthropology, State University of New York at Buffalo)

Students of the anthropization of mountain landscapes must look for evidence of ritual activity. Cultural reverence for striking geologic protruberances – mountains, tors, hills, inselbergs, large boulders, and such features replicated in human-made mounds – is probably universal. This paper applies the author's model of a "vertical dimension" of religious beliefs to understand the universal belief in elevated divinities, and the conceptualization of a sacred mountain. Some representative examples from world ethnology, and some possibly universal symbolic themes, are reviewed. Concepts of the "horned mountain" and the "mountains as breasts" emphasized by art and architecture historian Vincent Scully, and his argument that some Greek temples were planned as interactive with their environments, are examined for the possibility of wider ethnological application. And insights from the anthropological science of cultural ecology are useful in interpreting the layout of ritual structures vis-à-vis features in mountain landscapes.

*Agro- or pastoral thinking about Mid-Mountains Neolithisation*

**Pawel Valde-Nowak** (Institute of Archaeology, Jagiellonian University)

A survey of main views on the significance of European Mid-Mountains for early agrarian groups will be presented. Former proposals of exclusion of these terrains from the Neolithic ecumena will also be a matter. It will confront special character of archaeological sources, settlement–geographical observation, ethnographic and paleobotanical evidences. The paper will also stress a bid of recognition of these terrains as a domain of seasonal moving of groups, most probably pastoral in character.

The archaeology in the last decades, more and more shows a grasping phenomenon of delaying of the research over the Neolithic, especially in the European Mid-Mountains, like German Mittelgebirge, Carpathians and Sudety Mountains.

One can easily show entirely different face of archaeology of those terrains, if compared to the classic centers recognized explicitly by the casus of the chunks of fertile soils arisen out of the loess. The mentioned lagging can be explained with the ultimate form of the Neolithic settlement trails in the mountains, if such trails can be registered and actually understood anyway.

In the last years the interest of Neolithic relics in the mountains increases. More accurate results of palynological analysis played a large role to this. Archaeologist still better understand the utmost form of archaeological remnants from Neolithic in the mountains. There are more evidence for penetration of such regions already in the early Neolithic. Such findings, as well as the late Neolithic, are not connected with transitional passing through the mountains, as it thought before. The amount of such marks in each mountain group is so large, that it is important to take a mountain territories into serious consideration regarding the everyday live and economy of the Neolithic man.

*Hate or love? Exploring the relationship between the marginal landscapes of the Western Taurus Mountains, SW Anatolia, and past communities.*

**Ralf Vandam** (Sagalassos Archaeological Research Project, Department of Archaeology, University of Leuven); **Patrick T. Willett** (Department of Anthropology, State University of New York at Buffalo); **Peter F. Biehl** (Department of Anthropology, State University of New York at Buffalo) & **Jeroen Poblome** (Sagalassos Archaeological Research Project, Department of Archaeology, University of Leuven)

Previous archaeological research in the area and generally in Western Turkey has until now mainly focused on the larger fertile lowland areas (e.g. Burdur Plain). This research revealed numerous farming settlements from the Neolithic (6500 BC) onwards and illustrated clear distinctive periods of continuity and collapse in human occupation in these areas. Next to nothing is known about sites in other landscape units such as remote, high altitude locations, which in contrast to plain areas, are traditionally considered to be ‘marginal’, as they are not particularly favorable for permanent habitation. In 2016 the Sagalassos Archaeological Research Project started a new archaeological survey research in the Western extent of the Taurus mountainous which aims to fill the gap in knowledge by documenting all human activity in the so-called ‘marginal’ landscapes. With this new research we hope to investigate how communities operated in these landscapes in terms of subsistence, resource exploitation and mobility and to assess how different/similar they were in comparison to the city of Sagalassos and the lowland communities. In this paper will illustrate that marginal landscapes should be considered as integral parts of the cultural landscape. From early onwards (50.000 BC) until recent times (Late Ottoman period; 18th - 19th century) we have evidence that people were living and exploiting these landscapes and that they formed an explicit element in the different lifeways and

economic systems of past communities.

*Developing a systematic approach to the archaeological study of mountain landscapes: the Raganello Basin experience*

**Martijn Van Leusen** (Groningen Institute of Archaeology)

The systematic archaeological study of mountain landscapes requires significant changes to the approaches we might be used to in lowland areas. On the plus side, mountains are where we would expect to find the clearest evidence of any major changes in demographic pressure ('boom-bust cycles'), and where the degree of anthropogenic postdepositional disturbance is generally less. But then again, the lower accessibility and ground visibility, and the stronger natural slope processes, make it much harder to systematically collect good archaeological data from mountain landscapes. The upshot is that we must place less reliance on the systematic coverage by fieldwalking of large contiguous areas or transects, and more on systematic geoarchaeological studies leading to an understanding of how gradational processes affecting the formation and postdepositional history of the archaeological record. I will use a range examples from the recently concluded research program 'Rural Life in Prehistoric Italy' (RLP), conducted in the Raganello Basin in northern Calabria (Italy), to show how we tried to develop a systematic approach to the investigation of mountain landscapes and to discuss implications for best practice. Examples will include the exploratory use of geophysical survey, the use of a stratified sampling approach to reduce biases in both the 'production' and the study of the archaeological record, the use of field experiments to assess the robustness of survey results, and the computer simulation of slope processes. I will argue that unless we develop a systematic approach to the study of mountain landscapes, we will remain at the mercy of a series of unquantifiable biases that will prevent us from truly understanding its archaeological record.

*Archaeology of a sacred mountain: longue duree, mobile pastoralism, and monumental landscapes in Eastern Eurasia*

**Cecilia Dal Zovo** (Institute of Heritage Sciences. Spanish National Research Council)

In this paper, I would like to review some significant aspects of my ten-year investigation project on the monumental landscape of the Ikh Bogd Uul- the 'Great Sacred Mountain- in the eastern Altai ridges that separate Mongolian central plains from the Gobi desert. In particular, I will discuss the benefits of adopting a multidisciplinary, holistic, and longue durée perspective in studying pastoral mobility, monumentality, and rituality of the mountain landscapes of northern Eurasia. In order to understand the construction of the cultural landscape of Ikh Bogd Uul Mountain, as a multifaceted and long-term phenomenon, I developed an integral research approach that combined manifold sources with the methodological contributions of anthropology, ethnography, history of religions, GIS technology, landscape archaeology, and archaeoastronomy. In this way, I could investigate the deep interconnection between mobile pastoralism and the stratified elaboration of sacred geographies, which emerges in the ritual practices, the traditional cosmologies, and the pattern of seasonal movements of the local communities since early times. In my investigation, I documented and analysed several hundreds of previously unknown late Bronze Age and Iron Age mounds on the Ikh Bogd Uul Mountain. These funerary monuments have a complex cosmologic and calendric symbolism and in all likelihood also functioned as astronomic and ritual sites. Through the quantitative analysis of the mounds and their relation with the materialisation of reiterated spatial choices across the mountain (pastoral paths), I show how the powerful spatial and symbolic values associated to the ancient burials, as well as the ancient definition of mobility in the pastoral landscape, likely percolated into the sacred and pastoral geographies of the local communities of Ikh Bogd Uul Mountain over time.



## Archaeology of Mountain Landscapes:

### Interdisciplinary Research Strategies of Agro-Pastoralism in Upland Regions

Agro-pastoral landscapes characterize not only upland plains or irrigated areas around water courses, but they also define most mountain landscapes, sometimes considered as “marginal lands” when the territories of urban centers are concerned. However, at least a fifth of the terrestrial surface could be defined as mountain areas, hosting a fifth of the human population and providing sustenance for a much larger percentage. Bearing this in mind it is not a surprise to know that mountain areas have been transited, inhabited, exploited and conceptualized by humans since the very beginning of the species.

Due to the multiple factors and relationships involved, landscape-shaping - not only in mountain areas - is an extremely complex subject. Landscape studies are part of a wide range of disciplines such as History, Archaeology, Anthropology, Geography, Geology, Ecology, Economics, and Paleo-environmental Studies. In this research context, interdisciplinary and diachronic approaches have a great potential and they are a practical reality in nowadays research projects about mountain Landscapes.

Fieldwork developed during the last decades has changed our knowledge about the history of mountain environments. The 10<sup>th</sup> International Visiting Scholar Conference at the Institute for European and Mediterranean Archaeology (IEMA) at the University at Buffalo will gather researchers who in different geographical areas (in both Eurasia and the Americas) have made significant contributions about land-use in mountain areas and human activities in the shaping of mountain cultural landscapes.

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IEMA



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The conference is generously co-sponsored by UB's Department of History and the Catalan Institute of Classical Archaeology (ICAC)