



# Book of abstracts

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**XXI-1. Interactions, networks and routes within and through mountain ranges.**

# Tracing prehistoric past human routes in the Pyrenees: new data about chert procurement at Montlleó open-air site (Prats i Sansor, Spain)

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Montlleó open-air site is located in the hearth of the Catalan Pyrenees, at 1040 m asl. The site, placed in one of the largest high-attitude valleys in the Pyrenees, the Cerdanya Valley, is a natural road to cross the Pyrenees in the Eastern part.

The site was discovered in 1998 and has been annually excavated since 2000. Two different human occupations have been recognized until now, regarding the stratigraphic sequence. The typology of lithic industry as well as several radiocarbon dates define a human occupation of the site during the Badegoulian (16900±110 BP and 18860±80 BP non cal) and the Lower Magdalenian (14440±80 BP and 15550±140 BP non cal).

The analysis of lithic raw materials has allowed determining the sourcing areas and has given data to trace probable past routes connecting the sourcing areas with the site. Despite not being present in the Cerdanya valley, chert was the most used raw material to elaborate the lithic industry. The analysis of the recovered cherts has been done using several analytical techniques. After a first macroscopic study with a stereoscopic microscope to determine the texture and the micropalaeontological and inclusions content, petrographic analyses as well as geochemical techniques (energy dispersive X-ray fluorescence and laser-ablation inductively coupled plasma mass spectrometry) were developed to precisely determine the origin of the exploited cherts.

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Results confirm the connection between the archaeological cherts from Montlleó and those coming from both slopes of the Pyrenees. Montlleó, placed at a crossroad area used repeatedly at the end of the Upper Paleolithic, shows that geographical barriers did not impede human mobility between both Pyrenean slopes.

**Keywords:** Upper Palaeolithic, human mobility, chert procurement, Pyrenees



# Interaction and exchanges between populations living in the Pyrenean Mountains, the Ebro Basin and the Mediterranean coast during the Neolithic.

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Social interactions between neighboring communities are known since early prehistoric periods through, for example, the exchange of lithic raw materials. However, these interactions do not necessarily mean that direct contacts existed, as economic changes can be due to influences from other groups even if these groups did not know each other directly. Objects, ideas and even changes in the productive system can be incorporated from other communities without direct contact between them. In this paper we present the exotic objects and raw materials recovered from central Pyrenean Neolithic sites. Despite first farmers groups were largely using local raw-materials for the manufacturing of flakes tools, exogenous cherts from the tertiary formations of Ebro Basin, at about 100 km of distance from the Pyrenean mountain areas, were employed as well. Tools made of tertiary cherts were transported to Pyrenean sites and here used for a diversity of productive activities, especially cereal harvesting and animal butchering. However, not only flaked stone tools, but also exogenous polished tools were used from Neolithic Pyrenean communities; the adzes and axes recovered in this area were, indeed, made of allochthons raw-materials, the exact provenance of which is often unknown, but in some cases they might proceed from extra-regional, faraway, areas. In addition, beads on marine shells from Mediterranean areas and marble bracelets from the SE of the Iberian Peninsula have been recovered as well.

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**Keywords:** Neolithic, High Mountains, Central Pyrenees, Raw materials

# Neanderthal and Modern Human Adaptations to the Zagros Mountains, MIS 5-3: new investigations at Shanidar Cave (Iraqi Kurdistan)

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The 1950s excavations by Ralph Solecki in Shanidar Cave in the Zagros Mountains in Iraqi Kurdistan have given the site iconic status in Palaeolithic archaeology, particularly from his discovery of a series of Neanderthal skeletal remains and the ensuing debates about the extent to which they represent natural deaths or cultural depositions (burials). Above the layers with Mousterian material culture and the Neanderthal skeletal remains, Solecki found evidence of occupation by hominins with an Aurignacian-like material culture termed Baradostian, regarded as the signature of the arrival of *Homo sapiens* ('modern humans') at the site. Solecki concluded that there was a 10,000-year interval between the last Neanderthals and first modern humans at Shanidar Cave. Since 2014 a new team has reinvestigated the cave's sedimentary sequence, changing palaeoenvironments and evidence of hominin activity, establishing that the latter can be assigned especially to MIS 5-3. The paper describes the models that are being assembled from this work regarding the changing character of Upper Pleistocene hominin settlement in this part of the Zagros Mountains at a time of significant climate change.

**Keywords:** Shanidar Cave, Neanderthals, Modern Humans, Zagros Mountains

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\*Speaker

# The high mountain exploitation onset. New prehistoric occupation evidence in Central Pyrenees (Ordesa and Monte Perdido National Park).

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The beginning of the so-called high-mountain archaeology has proved the use of inhospitable territories during different prehistoric periods. High altitude archaeological sites usually show a scarce material culture probably due to short and intermittent uses. Therefore, the absence of these cultural materials and/or domestic species can question a reliable anthropic use.

Here we address two new prehistoric sites found as a result of an intensive archaeological prospection during three campaigns that covered a territory of 400 ha (1700-2000 masl) inside the Ordesa and Monte Perdido National Park. The excavations of both sites, Cueva FP5 and Mallata Valle Pardina, reveal a simple stratigraphy probably due to a stational use, typical of a pastoral economy. Radiocarbon dates confirm the contemporaneous occupation of both sites (second half of the 3rd millennium cal BC). Archaeological remains, mostly pottery with carenated beakers, also help us to confirm the chronocultural period.

Our results have confirmed the occupation and exploitation of this territory since at least the second half of the 3rd millennium cal BC. Further surveys and excavations in the area will help us to precise the origin and extension of the (pre)historic human occupations.

**Keywords:** Prospection, shepherding, caves, rockshelters, Final Neolithic, Chalcolithic, Bronze Age

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# Between mountains and glacial valleys. Archeology in the mountain ranges of the central strip of Tierra del Fuego.

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The central strip of the Great Island of Tierra del Fuego is an area that has important mountain ranges of different origin, which were modelled by different glacial events. The topography and the characteristics of the geological formations, such as their rock diversity, made this area an environment rich in biotic and abiotic resources. This allowed the development of various subsistence activities of hunter-gatherer societies.

For at least 10 years we have developed prospections and archaeological surveys in the area, as well as systematic excavations at various sites on both shores of Fagnano lake (or according to its original name, *Kami* lake). Several objectives guided this research, including understanding site formation mechanisms, raw material supply sources, technological and functional characteristics of the lithic assemblages, landscape occupation and resource exploitation in the different environments of this area of Tierra del Fuego (mountain environment is one of them). However, recently we have focused our attention on human circulation in the mountainous area, in order to contribute to the mobility models of hunter-gatherer societies.

In this study area, there is ethnographic, ethnohistorical and archaeological evidence of contact between the groups that lived north and south of the mountain range. This contact was made through mountain passages, some of which are known and used today as tourist circuits, such as the Beban pass or the Bridges trail. However, there are also passages that should have allowed west-east mobility. Therefore, we ask if the shores of Fagnano lake could have worked as axes in the nomadic movements in that direction, thus connecting the eastern (Atlantic ocean) and western (strait of Magellan) coasts of the Island. At present, the results of field research and the study of ethnographic records suggest that utilisation of this and other corridors would have allowed the circulation of various types of goods and / or the acquisition of exotic resources by the populations that inhabited the island.

**Keywords:** hunter, gatherer, Fagnano Lake, human circulation, Tierra del Fuego

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# On the pathways of Early Mesolithic hunter-gatherers in the Eastern Alps

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Around 50 years of research in the eastern Alps produced particularly rich evidence testifying to their intense prehistoric occupation during the first part of the Holocene. This led to the proposal of a seasonal settlement model shedding light on the high mobility of early Mesolithic hunter-gatherers. According to this model, high-altitude camps were occupied during the late spring and summer by groups that used the main Alpine river systems as tracks to reach the inner Alpine areas. Subsequently, displacements took place along the main watersheds, across the open territory occupied by Alpine prairies. In our study, the lithic assemblages from two key-sites, Ullafelsen in the Stubai Alps (Austria) and Mondeval de Sora in the Venetian Dolomites (Italy) were analyzed and placed in context with the information on the routes taken by these groups. Main emphasis was put on the provenance of the observed siliceous raw materials, the characteristics of stone tool manufacture and the functional analysis of those tools leading to the reconstruction of site function and conducted activities. A multi-faceted framework emerged reflecting the exploitation of a high variety of lithic raw materials coming from different source areas. The identified patterns suggest the occurrence of encounters and exchanges between groups that settled along different river systems as well as in two opposite faces of the Alpine range, on the Northern with influence of the Beuronian tradition and on the Southern side with Sauveterrian influence. In this paper we stress that the development of such complex networks reflects the strategic role of these territories for the subsistence of early Mesolithic hunter-gatherers, as well as the relevance of social interactions occurring in mountain territories since the Terminal Pleistocene/Early Holocene boundary when the Alps became ice-free and available for human groups to recolonize the area.

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\*Speaker

**Keywords:** Mesolithic, pathways, raw materials, subsistence, interactions

# Cultural border? The Pyrenees during the Pleistocene / Holocene transition

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The evaluation of the Pyrenees as a natural and cultural boundary and / or a meeting place between the populations from two slopes has been a widely treated issue, being the subject of various works and projects in recent years. To what extent do the Pyrenees hinder the interaction between communities from both sides? What kinds of relationships are established?

In the present work we address these issues focusing on the Pleistocene / Holocene transition. During this period a series of profound transformations take place in prehistoric societies of Western Europe. These transformations occur in every levels of social organization: economy, technology, symbolic range... Among these changes, it is relatively common the tendency to exploit local resources, showing a lower mobility in contrast to the previous period. Did this regionalization motivate a reduction in inter-Pyrenean contacts? It would encourage the development of different cultural entities resulting from a new territoriality?

After the dismantling of the Magdalenian, it seems that the new reality that conforms in both slopes and surrounding regions, even if common general tendencies are appreciated, presents a wider range of situations. Certainly, in the current state of the art, French and Spanish studies show different cultural developments during the Late Glacial and early Holocene (ex.Epimagdalenian, Laborian, Azilian, Sauveterrian, Notches and Denticulate Mesolithic ...). In this sense, the archaeological record seems to present the Pyrenees not only as a natural

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border but also, apparently, as a cultural border. In this paper we address these issues by offering an integrated reading of archaeological data from both sides. We put special attention in the identification of concrete elements (particular arrowheads, raw materials, or other objects as ornaments, shells ...) that could participate in exchange activities. Also in the recognition of different styles, ways to make, that can evaluate technological influences (ideas, technical knowledge...) between regions.

**Keywords:** Pyrenees, Pleistocene/Holocene transition, boundary, exchange

# A microregional study: local raw material procurement in the "Mesolithic with geometrics" south of the "Picos de Europa" (Cantabrian Mountains, Spain)

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The aim of this work is to determine the type of procurement and technological management developed in the local raw materials of two Mesolithic sites of the southern versant of central Cantabrian Mountains. It will be taking into account the available data on raw material sources and the analysis of the "chaîne opératoire" of the different varieties identified in the sites.

The knowledge of the potential lithic raw material supply sources in the central-western area of the Cantabrian Mountains (north of the Iberian Peninsula) has been remarkably increased in the last years, especially concerning the Palaeozoic cherts. Thanks to the survey works developed, eleven geological formations containing chert have been recognized, and two main lithological groups, from a macroscopical point of view, can be outlined: radiolarite and "black chert". The geographical distribution of the formations indicates that some varieties are located only in one of the slopes of the mountain chain. The description and definition of these different varieties of Palaeozoic cherts involves the same group of analysis: petrological, mineralogical, geochemical and thermogravimetric. In general terms, there are some common features among them such as the frequency of fracture planes, the size of the available nodules, the difficulties for its acquisition in primary position and the black colour in the "black chert" group. Nevertheless, there are features that can discriminate the different lithologies in a macroscopic and in thin section analysis, for example the lamination or the presence of certain fossil remains.

The geographical situation of the sites, the identification of the sources of chert, in primary or secondary position, and the analysis of the technological management of the raw materials will allow to differentiate mobility patterns and strategies of exploitation of the territory in the different levels of those Mesolithic groups.

**Keywords:** Cantabrian Mountains, Mobility, Lithic raw material, Technology

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# An early Mesolithic mobility system in north-eastern Italy: the Circular model revised

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More than 10 years ago, author published for the first time and only in Italian literature a mobility model, the so-called "Circular model", in order to interpret the early Mesolithic (Sauveterrian) evidence in north-eastern Italy in terms of settlement strategies. The main issue to be here discussed is the epistemological nature of a scientific model: a scientific model seeks to represent empirical objects, phenomena, and physical processes in a logical and objective way. All models are *in simulacra*, that is, simplified reflections of reality that, despite being approximations, can be extremely useful. The aim of these attempts is to construct a formal system that will not produce theoretical consequences that are contrary to what is found in reality. Predictive models such as for instance the Circular model here discussed, hold significant value for our understanding the human behavior in prehistory because of their potential role in interpreting a large amount of different archaeological data. Since its publication, several other scholars answered to that model in different ways and, accordingly, new clues have been provided about this topic. Here, the Circular model is revised according to the new evidence. As it will be shown, this evidence, which comes from the interpretation of a limited amount of new archaeological data, fits very well into the Circular model.

**Keywords:** Early Mesolithic, Sauveterrian, Italian Alps, mobility, settlement strategy

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\*Speaker

# Routes transpéninsulaires de l’Isthme de Kra (Thaïlande-Myanmar) : corridors commerciaux et culturels privilégiés des routes de la soie ? Confrontation des arguments historiques, archéologiques et géomorphologiques.

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La péninsule Thaï-Malaise est une bande de terre qui constitue tout à la fois un pont entre l'est de l'Océan indien et la Mer de Chine et une barrière. Elle est caractérisée par la chaîne de Tenasserim qui peut atteindre 2000m d'altitude et qui s'étire du nord au sud. Elle est entaillée par endroits par des vallées fluviales majoritairement orientées nord-est/sud-ouest. Si l'utilisation de certaines de ces voies trans-péninsulaires est avérée depuis le 17ème siècle à l'époque du royaume de Siam, leur utilisation au cours de périodes plus anciennes était jusque récemment débattue. Toutefois, la découverte par la mission archéologique franco-thaïe d'un réseau de sites de la fin de la préhistoire et du début de la période historiques de natures variées mais liés entre eux conduit à repenser l'utilisation de ces axes de circulations montagneux et l'émergence de système politiques qui leur sont associés. La présence de ces sites qui ponctuent les vallées fluviales, ainsi que l'existence d'un possible passage souterrain repéré dans les reliefs karstiques, permettent de repenser les circulations sur ces axes montagneux difficilement empruntables. Ces derniers sont en effet caractérisés par de fortes pentes, des variations brutales saisonnières (moussons) et par une végétation tropicale dense. Leur utilisation implique de recourir à des moyens de transports multiples pour palier à ces difficultés. C'est dans ce cadre que de nouvelles approches géoarchéologiques, qui associent des éléments géomorphologiques et paléo-environnementaux, contribuent à renouveler les perspectives sur le franchissement de cette péninsule dans le passé et sur les axes de circulations régionaux. Elles consistent, à travers la mise en place d'un SIG, à restituer d'une part les dynamiques naturelles sur le temps court

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de la région et d'autre part, à intégrer les argumentaires historiques, archéologiques et ethnographiques afin d'appréhender les modalités de circulation en péninsule. Retracer l'histoire de ces routes devrait permettre de repenser les évolutions des structures économiques et politiques des cités marchandes dont le développement en péninsule est étroitement lié aux réseaux fluviaux, de leur arrière-pays (forestier et maritime) et au-delà des cités marchandes des bassins maritimes voisins.

**Keywords:** routes fluviales, vallées, montagnes, portage, commerce

# Chert exploitation and circulation in the Lombard Prealps. A diachronic overview through Prehistory

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The Lombard Prealps stretch between the Garda lake (to the east) and the Maggiore lake (to the west) and constitute the central-southern sector of the Southalpine. Flaking raw materials are represented by several chert types which are quite common in the Jurassic-Cretaceous sedimentary series and represent the upper outcropping rocks of the area. These series comprehend from bottom to top: cherty limestones, radiolarites and pelagic cherty limestones becoming more and more terrigenous. Due to the regional geological setting these series are mainly situated along an east-west oriented stripe (5-25 km wide) forming the lowest hills, close to the Po plain. By contrast the main valleys, following the drainage systems, are north-south (NNE-SSW) oriented. Human mobility in the region has been strongly influenced by these natural cuts which favoured displacements from the plain to the inner alpine area. In some cases, each valley constituted an almost closed system with respect to the nearby valleys. North-south mobility along the main valleys is indeed highlighted by the raw materials displacements from the outcrops, situated at the mouth of the valleys, to the north. Among the different available types humans selected those that were more fine crystalline but also fragile. Tectonics played an important role in the preservation of good chert outcrops. In the mid-high mountain Permian-Triassic sedimentary rocks devoid of suitable cherts or crystalline rocks crop out. The Palaeolithic record of the area is still very poor. Mousterian sites are generally located near the outcrops, while Epigravettian groups exploited also Prealpine cherts from far afield areas. A greater mobility of resources is documented in the Mesolithic and also extra-regional cherts from the Trento area are represented in some sites attesting that high passes were already deglaciated. In the Neolithic, Copper and Bronze ages we observe an increase in the import of very good chert types from

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the Baldo-Lessini area for some specific purposes together with the exploitation of the regional lithic resources for a domestic use.

**Keywords:** Lithic raw materials, Lombard Prealps, Northern Italy

# Tracing late Quaternary highland-dryland social connectivity in southern Africa with ostrich eggshell bead strontium values: preliminary results

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Humans have frequented southern Africa’s highest reaches – Lesotho’s Maloti-Drakensberg Mountains – for at least 90,000 years. As with many high mountain systems worldwide, the Maloti-Drakensberg cast a rainshadow over neighboring arid lowlands (the eastern Karoo Desert). Based on previous archaeological and paleoenvironmental work in highland Lesotho, researchers have posited that source populations for human dispersals into the mountain zone often originated in the Karoo, particularly during phases of enhanced regional aridity or climatic instability. Lesotho’s mid/high-altitude temperate grasslands may have been attractive to lowland desert foragers because they offer topographical resource diversity and stable supplies of key resources, including surface water and aquatic resources. Such dynamics would have necessitated the existence and maintenance of strong cultural linkages between these ecologically contrasting macro-regions. To begin testing these hypotheses, we are conducting strontium isotope analyses of ostrich eggshell beads recovered from Sehonghong, a highland Lesotho rock shelter with a record of human occupation stretching from the late Holocene to early Marine Isotope Stage 3 (~57 ka), and constructing terrestrial strontium isoscapes in both regions. This paper presents our preliminary results, which demonstrate the existence and persistence of highland-dryland exchange networks and hold implications for tracing the development of social strategies for long-term survival in the southern African interior.

**Keywords:** Mountains, foragers, social networks, ostrich eggshell beads, colonization, southern Africa, Middle Stone Age, Later Stone Age

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## **XXI-2. Spiritual and Ritual Dimensions of Mountain Landscapes.**

# La figure de la Vieille dans les paysages montagnards européens.

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Ma communication vise à mettre en avant des concordances linguistiques et culturelles repérées dans le relief de certaines régions européennes à travers une approche interdisciplinaire. Il s'agira de présenter les résultats issus d'une base de données dont nous exposerons brièvement la méthodologie. Les nombreux éléments de cette base sont de nature diverse : des milliers de noms de lieux (montagnes, rochers, rivières, mégalithes, etc.), des dizaines de croyances (mythes et légendes, traditions, etc.) et des dizaines d'unités lexicales (phénomènes climatiques, faune, flore, etc.). Ces enregistrements partagent tous la dénomination " vieille femme " déclinée dans les différentes langues ou dialectes des zones étudiées : *kjerring(a)*, *áhkka* ou *ámma* en Norvège, *carling*, *cailleach* ou *caillich* en Écosse et en Irlande, *old woman* en Angleterre, *(g)wrach* au pays de Galles, *la vieille* ou *la vieio* en France, *la vieja* ou *la vella* en Espagne, *a velha* au Portugal, *la vecchia* en Italie, *γρι* ou *ρα* en Grèce, etc.

Les analyses et recoupements de ces données aident à mieux comprendre ce phénomène rencontré à l'échelle de l'Europe. Il s'agirait des vestiges d'une ancienne divinité (Rohlf, 1928 ; Alinei, 1997) en rapport étroit avec les paysages montagnards comme l'ont montré plusieurs chercheurs, ethnologues ou folkloristes (Jennings, 2010 ; Joisten & Abry, 1995 ; Van Gennep, 1946 ; Hull, 1927 ; Mackenzie, 1917). Mais que représentait précisément cette entité pour les peuples préhistoriques ? Quelles sont ses principales caractéristiques ? Existait-il des rituels à son sujet ? En quoi ces paysages peuvent-ils être qualifiés de sacrés ?

Nous tenterons de répondre à ces questions par l'interprétation de centaines de données recueillies sur plusieurs zones montagneuses européennes (notamment en Norvège, dans les Îles Britanniques et en France). Nous verrons que la figure de la Vieille s'inscrit pleinement dans le thème général du XVIII<sup>e</sup> congrès de l'UISPP car elle permet d'établir des liens entre zones de montagnes, préhistoire et phénomènes climatiques.

**Keywords:** ethnolinguistique, paysages sacrés, hauteurs, toponymes, littérature orale, dénomination " vieille femme ", mégalithisme.

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# Moving through the Alps

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Actual concepts of movement consider much more than functionally getting from A to B. They take into account the sensual engagement with the landscape as well as its aesthetic, spiritual, historical and other dimensions; in a nutshell, moving is considered as a way of perceiving, structuring and constituting space.

In this talk I don't aim at a timeline how concepts of alpine space and movement have developed, but I am roughly sketching the broad diversity of spatial concepts by looking at patterns of transalpine movement from the Mesolithic until today. I am focusing on two aspects:

The routes of movement in different times show a broad variety of "best ways" through the mountains, which rarely correspond to our concept of cost/energy-efficient least cost paths. Any of these routes may be explained in terms of functional advantages and any of them has functional disadvantages as well – which in itself tackles functionality as a monocausal explanation of routes. For historical periods at least it is clear that different routes also correspond to different social actors and their perceptions and needs (in the broadest meaning of the word). In the second approach I consider the rich depositional record of the Alps as a manifestation of spatial concepts. I don't go into the landscape setting of individual depositions, but I am looking at the distributional pattern of depositions in the Alpine area as a whole. Considering – as a working hypothesis – depositions as expressions of ritual practices in liminal areas they show very different concepts of the Alps as a region or as a line, as an area to enter and to leave or as a climax on the way. Moreover the distribution of depositions supports the idea of a high diversity of small routes through the Alps.

**Keywords:** Alps, movement, routes, space, depositions

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# The religious landscape of the shepherds of Mount Cornón in the Fiemme Valley

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More than 47.000 writings, made with red ochre during the centuries, have been painted on the slopes of Mount Cornón in the Fiemme Valley (northern Italy) at an altitude between 1200 and 2000 m asl. These writings of modern times were mostly made between 1400 and 1950 AD by shepherds engaged in the local short distance transhumance. Dates, signatures, initials, family symbols, herd accountancies, pictographs, sacred symbols, dedications and greetings are found, significantly concentrated along the steep trails to the highest pastures. The flocks had to be kept within an intermediate altitude, away from the fields and the meadows surrounding the village, and equally far from those on the highland on the top of the mountain, which could only be occupied after the last shearing of hay. The pastoral use of this mountain is therefore not connected with seasonal cheese production. This part of the mountain was only utilized to keep livestock far from the summer production area of the bottom of the valley and for exploiting even this part of land which couldn’t be cultivated because of the strong slope. This paper analyzes the religious landscape that has been revealed on this mountain by the presence of more than 2.600 slopes with sacral depictions, with the intention of providing an interpretative model for proto-historic rock art.

[www.scrittedeipastori.it](http://www.scrittedeipastori.it)

**Keywords:** Landscape archaeology, pastoralism, rock art, cultural landscape, ethnoarchaeology, PostMedieval period

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# Ransyrt 1 – A ritual site in the North Caucasus at the basis of a new Bronze Age culture

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During the early 2nd millennium BC in the mountain zones of Caucasia and beyond a new lifestyle consolidated on the basis of an increasingly sedentary form of pastoralism that replaced the mobile communities of the preceding millennium. In 2009 a unique site was discovered in the high mountain zone of the North Caucasus at an inaccessible plateau but overlooking a major pass route. The enclosure of Ransyrt 1 presented a surprising early and unique archaeological ensemble in this process. At that site the first stone architecture was built in form of a tripled half-circle enclosure, nearly 300 m in diameter. Excavation revealed an archaeological ensemble that is very different from any domestic site in the center of this enclosure. A number of stone platforms and a sunken room were in the focus of complex activities that resulted in the deposit of enormous amounts of ceramic vessels, animal bones and other artefacts. It is a spectrum that is known only from ritual sites such as the Alpine *Brandopferplätze* or early Mediterranean sanctuaries with *temenoi* and altars for burnt offerings. However, Ransyrt 1 date to the 18th century BC and thus was in use several centuries before the tradition of peak sanctuaries was established in the Alps. The site revealed an interesting stratigraphy that allows reconstructing the ritual activities that were performed in the central enclosure. Likewise, it revealed indicators for a wide variety of local affiliations of the communities gathering at that site. This is all the more remarkable because Ransyrt 1 is the earliest site in a process that led to the formation of an entire new culture of mountain dwellers that developed in the mid-2nd millennium BC. The sanctuary obviously was a focal point in the formation of a new social confederation and probably of similar importance for the mountain communities as the later sanctuaries at Olympia or Delphi with a pan-hellenic significance.

**Keywords:** sanctuary, ritual, mountains, Bronze Age, heterotopia

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# The Southern Sami Drum (*Gievrie*)- discovery, recovery and recontextualising

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Sami frame drums, consisting of a wooden frame covered by a decorated membrane are the most common type of ceremonial drum from the Southern Sami region in central Scandinavia. Well-preserved examples have complex decorations and offerings in the form of cords, rings and metal ornaments. Pointers and hammers were used together with the drums during certain ceremonies. *Gievrie* is Southern Sami language term for these drums.

Around 44 examples of the Southern Sami *Gievrie* exist today. They allow us valuable glimpses into the materiality of past ceremonies and ritual life. They also have enormous symbolic power. Not least in relation to historical and political negotiations in the recent past, when Southern Sami minorities were subject to christianization and nationalization processes by Church and State. During certain periods, Church officials confiscated Sami drum they were seen as pagan objects. Sometimes, the drums' owners hid their *Gievrie* in the mountains rather than hand them over to State authorities.

In recent years, a number of *Gievrie* that remained hidden in the mountains have been discovered and brought into regional museums. Furthermore, in 2017 a famous well-preserved *Gievrie* from Freavnantjahke that today belongs to a German museum, was loaned out temporarily to form the centerpiece of a museum exhibition during the *Tråante 2017* Sami centenary celebrations in Trondheim. This renewed archaeological and historical attention to the *Gievrie* from Southern Sapmi offers us the opportunity for critical discussions and reflections concerning sacred objects hidden in mountain depositories in the recent past.

In this paper, I will give a brief introduction to the Southern Sami *Giervie*, presenting both well-preserved museum examples in addition to other recent discoveries. I will also discuss how the renewed focus and process of rediscovering these objects opens for a critical discussion of how we recover and re-contextualize objects from sacred sites.

**Keywords:** Mountain Archaeology, Southern Sapmi, Norway

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\*Speaker

# RITUALITY AND LANDSCAPE IN THE TANDILIA HILL RANGE (PAMPA GRASSLANDS OF ARGENTINA) DURING THE LATE HOLOCENE

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**The Pampa grassland of Argentina** is a vast plain only interrupted by the Tandilia and Ventania hill ranges, located in the central east of Argentina. Since the early peopling of the region, during the end of the Pleistocene, these ranges have had a spiritual connotation for pre-historic hunter-gatherers. One example is the deliberated abandonment of particular lithic tools such as fishtail projectile points in particular buttes. Along the Holocene the hills were also used as support for rock art and their abundant primary and secondary outcrops constituted the main areas for the acquisition of raw materials for manufacturing stone tools.

In this paper, we present and discuss the main results of Calera, a ritual site located in a high valley in the north-western sector of the Tandilia hill range. This context has been interpreted as a place where a series of ritual activities were performed by hunter-gatherers during periods of band aggregation between ca. 3400 and 1700 14C years BP.

The Calera site consists of four intentionally excavated pits filled with a large amount of offerings and ceremonial trash. This thick deposits were separated by two levels of slabs indicating persistent events of occupation. Among the offering material, some are of a high symbolic value such as a carved plaque, a polished axe, a shell bead, a decorated guanaco bezoar stone, and potsherds with figurative motifs. Bones from some carnivores species, rarely found in Pampean sites, were also recovered. Moreover, skeletal parts from at least 22 different species, with evidence of human exploitation, were found. These includes the bones of guanaco (*Lama guanicoe*, NMI= 54). Other materials buried in the pits comprises hundreds of knapping and ground stone tools used to process different resources such as wood, bone, soft vegetables, and skin, abundant mineral pigments of different colors, and sherds from large ceramic vessels used to store and/or serve foods and drinks. One of the remarkable characteristic of the site is the presence of items

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coming from long distances.

Calera is interpreted as a Late Holocene locality with a great symbolic significance, due to its strategic location in the landscape. Several lines of evidence support the idea that the north-western sector of the Tandilia hill range was a place where hunter-gatherer bands from different territories performed meeting and ceremonies, which involved different generations and groups through time.

**Keywords:** ritual activities, hunter and gatherers, offerings and ceremonial trash, late Holocene



# Ritual sites in hunter-gatherer societies

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The identification of ritual spaces of hunter-gatherer societies is not easy an easy task, at least from the archaeological point of view. To do so, we usually require indicators, such as the presence of rock art, or special or different objects of which the function is unknown, which have been qualified as potentially "ritual". However, this attribution does not necessarily rest on its ritual character but many times on our ignorance about its function.

Years ago we studied a ritual site located in the mountainous region of Tierra del Fuego, in the geographical area where Selknam society lived. The site was investigated with archaeological methodology, in a Spanish-Argentine project, which allowed us to study it and finally date it from the spring-summer of 1905. In that frame, the main questions we asked ourselves were: What are the particular characteristics of a ritual site? What kind of sites do we identify as ritual? What are the archaeological indicators of a ritual place? The results of that project let us make a series of propositions regarding the differences between ritual and domestic sites in Fuegian hunter-gatherer's societies.

At present, based on the results of that research, we seek to go further, deepening the study of ethnohistorical and ethnographic documentation. We are interested in reflecting on the conception of mountains in the Selknam worldview and from there, discussing the particular role of ritual sites for hunter-gatherer societies in the mountains, and how were ritual and sacred sites integrated with other dimensions of human occupations in mountain landscapes.

**Keywords:** Tierra del Fuego, Selknam, ceremonial

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# Offerings consumed by fire. A proto-historic cult site in Vione - Tor dei Pagà (Upper Valcamonica, Brescia, Italy)

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The high-altitude site of Tor dei Pagà (2236 m asl) in Vione (Brescia) has been the focus of a multi-year archaeological project focused on a Late Medieval (13th-14th century) fortified complex, composed of two towers and several associated structures. Below the walls and floor surfaces of Tower B, the traces of an older, protohistoric, phase of use were identified, preliminarily dated between the 10th and 5th/4th centuries BC. The deposit consists of the remains of repeated episodes of burning: charcoal, burned bone, and (often fragmentary) metal objects – amongst which were fibulae, pendants and small "bullae" in bronze sheet – damaged by the fire. Amongst the fragments of ceramic vessels, with finely smoothed surfaces and sometimes decorated with linear incisions or cord impressions, there are large and small mugs, of a form that recalls those of nearby Trentino, along with cups and bowls. The context seems to fit well into the so-called Brandopferplätze type – Alpine cult sites characterised by ritual fires that developed between the Middle Bronze Age and the Iron Age and that in many cases continued in use into the late Roman era. This particular manifestation of ritual activity at the site of Tor dei Pagà (Upper Valcamonica) exhibits both differences from, and similarities to, other known Brandopferplätze. On the side of difference: the site has a relative lack of burned bone and those that there are tend to be extremely fragmented. On the side of similarity: the ritual fires occurred repeatedly, bronze objects were offered to the flames, the site is at high elevation, visually dominant and visible from afar. Of particular note is the continuity with successive occupation manifested in the towers of the Late Medieval period. Visibility, control, inaccessibility: these key words seem to define an "ideological landscape" that has, at differing times, met various needs: firstly religious but then also economic and politico-military.

**Keywords:** Brandopferplatz, Valcamonica, Bronze/Iron Age, ceramics, metal objects, animal bone

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# FROM STRABO'S TALES TO ARCAHEOLOGY. THE SACRED MOUNTAIN OF SARMIZEGETUSA REGIA, THE CAPITAL OF PRE-ROMAN DACIA

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According to archaeological data, *Sarmizegetusa Regia*, the capital of pre-Roman Dacia, was established in the second half of the 1st century BC in the heart of Șureanu Mountains (Romania), at a height of about 1100 m.

There are no habitation traces prior to the founding of this city. The place was wild, inhospitable, covered by thick forest and far from the roads. The dwelling emerged abruptly after the colonization of this area by a highly coordinated group with important material and human resources. There were extensive deforestation works and hundreds of artificial terraces were cut into the slopes on an axis of about 6 km, in order to accommodate houses and workshops.

There is no unanimity regarding the area where this group came from, nor about the cause of this migration. Most historians admit that the reason for choosing this place is a religious one and they suppose that the Dacians' famous holy mountain *Kogaionon*, mentioned by Strabo, could be Godeanu peak (1656 m), located near *Sarmizegetusa Regia*.

There was a sacred area in the centre of the city, towards which the civilian districts have always gravitated and which probably functioned also as a pilgrimage centre for a wider area. Several scholars claim that this religious core would have preceded the building of the city, and would have been the main cause of the capital's foundation (or transfer) in that place. At the time of its conquest and destruction by the Romans (106 AD), this sacred area included seven monumental temples laying on two large artificial terraces, that have been uncovered by archaeologists in the 20th century. Around the capital several settlements and fortresses were built in the same period or slightly later, covering a large area in the mountains.

But is there a congruence between literary and archaeological information? Is there a real connection between the holy mountain mentioned by Strabo and the mountain on which the sacred area of Dacian Kingdom's capital was set? Our study will attempt to answer these questions.

**Keywords:** Preroman Dacia, Sarmizegetusa Regia, sacred places, holy mountains, Strabo

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\*Speaker

# THEORETICAL CONSIDERATIONS AND EMPIRICAL CONTRIBUTIONS TO THE STUDY OF SACRED MOUNTAINS

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More than one hundred mountains above 5000 meters in elevation have been ascended by the author of this presentation with the purpose of surveying and recording mountaintop sites of the Inca civilization in the Andes. She also codirected archaeological excavations in collaboration with Johan Reinhard, On the summit of volcano Lulllaillaco (22,100 ft / 6739 m) - the site of the highest archaeological work ever undertaken - three of the best preserved mummies in the world were discovered together with numerous objects of typical Inca style, during an expedition funded by the National Geographic Society. Interdisciplinary studies of those findings were coordinated at the Catholic University of Salta, where the author is the founder and Director of the Institute of High Mountain Research. Additionally, she has conducted anthropological studies on sacred mountains in the Nepal Himalayas, India, Thailand, Australia, Polynesia, Greece, Norway, Italy, Spain, United States, Mexico, Costa Rica, Ecuador, Peru and Chile. More than one hundred scientific publications and twenty books have been published, and dozens of lectures presented in universities in Europe, the Americas and Australia. The UCASAL has created the Constanza Ceruti Chair on Sacred Mountains to acknowledge twenty years of pioneering research in the fields of high altitude archaeology, ethnography and ethnohistory of mountain processions and the study of myths, folklore and rituals in connection to landscapes perceived as sacred. In this presentation she will address theoretical and methodological considerations for the study of the spiritual dimensions of mountains from an archaeological / anthropological perspective.

**Keywords:** SACRED MOUNTAINS, ANTHROPOLOGY, ARCHAEOLOGY

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\*Speaker

# Magical care in the mountainous landscape of Langtang: learning conservations lessons from beyul narratives for Nepal's Anthropocene future

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An elaborate ‘hidden land’ (*sbas-yul* or *Beyul*) discourse exists in Tibetan Buddhism and endures in the popular indigenous religions of the Himalayas. These *beyul* occupy a complex spatiality, operating in multidimensional realms, which are accessible to varying degrees of comprehension depending on the spiritual attainment of an agent. According to one version of this tradition, an individual may actually wander through these valleys of enchanting beauty and be unable to see many of their true features because their existence operates at a higher plane of perception. In interviews with lamas, Bernbaun (1980) recognised three conceptual levels: an external one (perceptible by ordinary sensory experience), an internal one (as a visionary land capable of conferring spiritual power and hidden wisdoms), and a secret one (achievable only by the spiritual master for the purposes of receiving penetrating insight and liberation). In another version of the tradition, doorways to *beyul* are concealed in a rock or mountain, the location of which is revealed to a spiritual adept who may have to endure physical hardship akin to an initiation in order to access the place (Thondup Rinpoche 1997). In virtually all versions of the folklore, though, *beyul* are sites that contain a special spiritual energy (Orofino 1991) – hinted at through the beauty of the location – a place where the boundary between the divine and human realms narrows to permeability, and the virtuous can accelerate their spiritual journey to end *sasāra* by harnessing this energy. Traditions and practices of care for this divine geography have emerged since the narrative of the *beyul* was popularized in the 13th-century. Curiously, these popular spiritual beliefs have made small headways into environmental conservation management in Himalayan Protected Areas (PAs) and, even more conspicuously, these spiritual structures of care play little role in heritage management policies. Using the case study of Langtang (Dagam Namgo, Tib: *zla gam gnam sgo*), in north-west Nepal, we explore the role that magical and numinous valuations of natural and cultural heritage might play in an indigenously oriented management philosophy.

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\*Speaker

**Keywords:** Langtang, Himalayas, Landscape, Religion, Mountain archaeology, Anthropocene

# On funerary architecture, accoutrements, and activities and the permeation of the Bronze Age Andronovo Culture through Xinjiang

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As one of the most extensively examined archaeological cultures in recent Central Asian scholarship, the Andronovo's dominion over Xinjiang, the purported eastern periphery, remains yet a perplexing phenomenon. The geography of Xinjiang shares many similarities with regions to its immediate west; its mountain steppes and river basins constitute landscapes characteristic of environments in which elements of the Andronovan material culture thrived. What followed this eager inquiry into how and in what respects Xinjiang was connected to the rest of Central Asia in the Bronze Age was an overwhelming output of archaeological materials from local field research that nevertheless lacks synthesis and cross-examination. This paper assesses the latest corpus of materials from over a dozen sites across western and northern Xinjiang attributed to the Andronovo Culture or its influence. It centers on building structures and accoutrements of burial and commemorative activities, which constitute predominantly slabbed pit structures and round cairns for the former and ceramic pots, bronze implements and accessories for the latter. We assess the critical components of funerary and ritual designs and their connection to the physical environment in both topographic and symbolic spectrums. Through an integrated view of the evidence in hand, we seek to chart a more informative representation of the spatial reach of the "Andronovo" in Xinjiang and its implications in cultural terms based on substantive and systematic categories of evaluation that address rather than lean on differences in typology.

**Keywords:** Xinjiang, Bronze Age, Andronovo, typology, funerary architecture

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# MOUNDS, LANDSCAPE, RITUAL AND MEMORY

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This presentation focuses on natural features of the landscape such, hilltops, mountains, and calderas and artificial mounds (i.e. h'oy'uks) that present natural or manmade sacred features such as trees, shrines, tombs, and monuments that are used as locations for continuous active ritual in Anatolia. There is no denying the existence of a dynamic interaction between humans and their landscapes. It is generally accepted that landscape often becomes a physical embodiment of shared cultural memories and identities focused on particular settlements, sacred places and ritual locations. Archaeological, ethnographic, and historical data suggest that high altitudes in any given landscape, such as hills, mountains and mounds have always captivated people for different reasons, especially in the context of sacredness, creation myths, power and protection, in addition to whatever practical functions such locations may also have had. According to some scholars, people's "insist" for using high altitudes either for inhabitation or ritual purpose closely related with human psychology and needs. From this point of view, continuously occupied sites since ancient times both at natural and artificial mounds may be considered as a reflection of the mental attachments of their occupants. Such high locations probably were invested with concrete identity-related cultural traditions and meanings over generations.

**Keywords:** Mounds, ritual, animal sacrifice, rooster sacrifice, blood, feasting, landscape, memory, archaeology, anthropology, Anatolia, Turkey

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\*Speaker



**XXI-3. Prehistoric and protohistoric  
evidence of early farming and  
pastoral activities in mountain  
environments.**

# Bronze Age subsistence economy in the Leventina valley, Ticino (CH): models on territoriality and seasonality

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A large amount of archaeological, biological and environmental data could be gathered during the 2003–06 excavations in the prehistoric settlement of Airolo-Madrano, Ticino (CH), and the subsequent 2007–11 field surveys in the upper part of the Leventina valley. These data have been comprehensively processed and analyzed with regard to environmental evolution, settlement history and economic settings over the younger periods of the prehistory of the Central Alps (Early Bronze to Late Iron Age). Particular attention was given to GIS-based models on land use and subsistence strategies, as key factors of durable settlement in mountain environments. A specific Alpine type of forest subsistence economy can now be proposed for the Bronze Age Leventina valley in which land management, crop cultivation, transhumance, and food storage play essential roles.

**Keywords:** site catchment, forest subsistence economy, vertical transhumance, food storage, self sufficiency

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\*Speaker

# Early farming and pastoralism in Southern Pyrenees: new data

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Since the last fifteen years, the identification of new sites and the excavation of some of them have challenged the previous image about the prehistory in mountain and high mountain areas of the Southern Pyrenees. Acquired data show that the human presence in high areas of the Axial Pyrenees is dated back to Mesolithic times; however, the more relevant information comes from the Neolithic period. Current record display settlements located in the slopes of the mountains, at about 1500-1600 m. asl., with a fully developed agriculture and pastoralism, at least after 5300 calBC. This means no more than two or three centuries later than the first indices of agriculture in the northeast of the Iberian Peninsula. A paradigmatic site is the cave of Coro Trasito, in the Monte Perdido massif, where storage pits, a high amount of cereal and the zooarchaeological remains testify a well-established farming practices and livestock breeding around 5300-5100 calBC. After this chronology, it is possible to follow the expansion of the pastoralism (and possibly also of agricultural practices) to higher altitudes during the Fifth Millennium cal BC. Less intense and possibly more seasonally occupations of little rockshelters and caves, like Cova del Sardo and Obagues de Ratera, exemplify this process. Nevertheless, the consolidation of a general pastoral exploitation of alpine areas did not take place until around 3300 calBC. After this date, a multiplication of settlements is observed in different areas of the Southern Pyrenees, suggesting a general trend of intensification of the exploitation of high mountain areas.

**Keywords:** High mountain archaeology, Pyrenees, Neolithic, Farming, Pastoralism

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# Exploitation of plant resources during the Neolithic in the Swiss Alps: an archaeobotanical approach

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Between 5500 and 5000 cal BC, first farmers settled in the Upper Rhone Valley. Before these dates, a lack of data of almost 1000 years does not allow us to say whether these farmers are acculturated local populations or if they are from a colonization. With Italian-style ceramics, the colonization hypothesis from the southern Alps seems rather privileged.

Besides, preliminary archaeobiological studies have shown that these first farmers had an important knowledge of agriculture, based on crop cultivation (of mainly naked wheat, einkorn, barley and opium poppy) and on stock-breeding of sheep, goat and cattle. Furthermore, these studies inform about the exploitation of the area, from the alluvial plain to the pine forest around the settlements.

In this session, dedicated to early farming and pastoral activities in mountain environments, we will present new results of archaeobotanical analyses carried out on several sites in the Swiss Alps. They are principally located in the actual city of Sion (central Valais) and in the Upper Valais. Some of them represent the oldest agropastoral settlements in Switzerland. In addition they are among the first ones in the Western Alps.

Based on our new results and compared to recent studies, the question of the exploitation of the alpine territory and the subsistence economy of these societies can be approached from a new angle and with a more consistent data set: this talk will allow to consider the management of a territory and to determine to what extent the existing models of exploitation of the region are pertinent.

Studied samples come from settlements covering the entire Neolithic, enabling a diachronic approach and thus highlighting possible changes in the use of plant resources. Our approach, based on both charcoal and seeds/fruits analyses, aims to evidence and characterise 1) the choices made for diet in relation to the available resources and 2) the exploitation forms of plant resources, wild or cultivated, whether woody or not.

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**Keywords:** archaeobotany, charcoal, plant macroremains, Neolithic, Alps, Valais, territory exploitation, archéobotanique, carpologie, anthracologie, Alpes, Néolithique, exploitation du territoire

# First evidences of landscape anthropization on sub-alpine mountains areas at the central Pyrenees. The occupation of Sant Nicolau Valley during early Neolithic (5600 – 4400 cal BC).

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The last 14 years of survey and research in the area of *Aigüestortes i Estany de Sant Maurici* National Park, located in southern central Pyrenees, shows an early human presence related to the development of an agro-pastoral economic system. The collected evidences proceed from little cave and rock shelter sites, like Cova del Sardo and Obagues de Ratera, although in the nearby valleys of Andorra where some open-air sites are recorded at Juberrí and Madriu valley, mainly. Combined with archaeological research, that integrate surveys, site sampling and diggings, a new approach based on pit sampling research program for ancient landscapes reconstruction have been implemented. It works out soils micromorphology, pedoanthracology, pollen and phytoliths analysis. One of these test pits was 570 m away from Cova del Sardo, with human occupations over quite all the Neolithic period from 5609 to 2495 years cal BC. In this work we present the pit profile study, including the paleosol dated between 5200 and 4940 cal BC. The main results indicates that the first firing of primigenius sub-alpine button valley forest may be associated to early Neolithic occupation of Pyrenean Mountains, around 5000 years cal BC. We present the obtained data from the test pit, that provided information of human impact in the environment at the area beside Cova del Sardo, as well as archeobotanical data from the site. This microscale perspective complements the more general paleoecological data obtained in a nearby lacustrine core sited at 4.5 km, in the same valley: Estany Redó d'Aigüestortes. Finally, we discussed when neolithisation process arrive to mountains areas and how this first agro-pastoral societies impacts on forests and ecosystems, using burning for management, open the landscape and pastures formation or cultivation practices.

**Keywords:** Neolithisation, Pyrenean Mountains, Landscape archeology, Paleoecology, Pastoralism

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# Husbandry practices in the highland areas during the early Neolithic (5700-4500 cal BC)

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Research on animal management strategies in high mountain areas during the early Neolithic (5700-4500 cal BC) has been conditioned by the presumption that human occupations in highland areas had a prominent seasonal character and the economic practices focused mainly on the exploitation of wild resources. The results obtained in the framework of research developed recently on settlement dynamics during the early Neolithic in the highland areas indicate the existence of relatively permanent occupations and the exploitation of domestic resources. Regarding livestock, the role of ovicaprine transhumance in high mountains has been highlighted traditionally, conferring a marginal role to husbandry practices and emphasizing principally the temporary maintenance of herds of sheep and goats.

In this contribution we present and discuss the results obtained with an integrated analysis of the data related to animal management strategies in cave sites during the early Neolithic in highland areas (more than 1500 m. asl), in particular in central Pyrenees area. The importance of domestic species is assessed, emphasizing the role of species as suids and bovids, species also represented in most highland settlements. Additionally, husbandry practices are evaluated in terms of exploited products, taking into account both meat and milk. At the historical level, the possibilities of the existence of more stable husbandry practices are discussed in the framework of neolithisation models proposed for the Iberian Peninsula and, especially, for the central Pyrenees area.

**Keywords:** Husbandry practices, Neolithic, mountain, Pyrenees

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\*Speaker

# Investigating agro-pastoral activities in Neolithic high mountain settlements by organic residue analysis of pottery vessels

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Archaeological evidences from the second half of VIth millennium cal BC in the northwest of the Iberian Peninsula, in common with the rest of Europe, show the development of new economic practices (e.g. agriculture and livestock breeding), as well new social and ideological structures. In addition, mountain sites are usually seen as sites connected to pastoral or transhumant activities but the increase in the number of archaeological site investigated in the highlands allow us to rethink the evolution of human exploitation in these areas.

A multi-analysis approach of the study of the clay vessels founded in these high mountain archaeological sites will provide clues about the possible uses. Thus, the specific study of the pottery use based on the residue analysis preserved in the vessel will help to shed some light on the possible various uses of the vessels (cooking, storage, processing of different types of substances, etc.). Moreover, the identification of these residues can help to increase the knowledge of different aspects of the groups of people who used them, such as their environment, their consumption patterns, etc.

In this communication, we report on organic residue analysis of pottery sherds from different archaeological sites in the western Pyrenees, which date to the Neolithic (ca. 5600-4000 BC). The analysis by GC-MS and GC-C-IRMS techniques on a set of samples of ceramic vessels from high mountains settlements let explain the subsistence practices developed by these groups and it also allows significantly extend the findings to better describe certain characteristics of their socio-economic organization and particular aspects of the use of these sites.

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**Keywords:** Neolithic, Pyrenees, pottery, organic residues, gas chromatography

# Les changements techno-économiques durant la transition Holocène moyen-récent (5500-2500 ans cal. BP) dans la Puna (> 3500 m asl) de la province de Jujuy, Argentine

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## Résumé

Dans un premier temps, nous discutons ici le terme de *néolithisation*, de son application pour la région andine, et des tenants et aboutissants d'une telle définition conceptuelle. Les difficultés rencontrées sont immédiates puisque nous avons à faire à des groupes de chasseurs-cueilleurs ayant un contrôle sur les camélidés sylvestres d'un côté de la séquence chronologique, et de l'autre, des pasteurs ayant des pratiques de chasse non négligeables pour leur subsistance, sans pour autant pouvoir appréhender en termes quantitatifs les apports diététiques et économiques d'une pratique ou de l'autre, dans un cas ou dans l'autre. L'agriculture n'apparaît que vers la fin de la séquence, et semble n'être qu'un processus secondaire dans les changements techno-économiques de la région, particulièrement étant donnée la géographie désertique d'altitude. Dans un deuxième temps, nous présentons donc les innovations techniques et leurs caractéristiques ayant lieu durant la séquence. Nous insistons plus spécialement sur les enjeux sociaux et économiques de ces changements observés dans les systèmes techniques. Ceci est en contraste avec une néolithisation comparable à celle se déroulant sur d'autres points du globe, et enrichit donc le débat sur les processus en jeu sur la sédentarisation des populations et l'apparition des premiers villages, où l'agriculture ne semble pas être au centre de ces changements dans les terres hautes andines.

## Resumen

En un primer paso, discutimos en este trabajo el término de *neolitización*, de su aplicación para la región andina, y de las implicaciones y consecuencias de semejante definición conceptual. Las dificultades encontradas son inmediatas, porque estamos lidiando con grupos de cazadores-recolectores teniendo un control sobre camélidos silvestre por un lado de la secuencia cronológica, y por el otro, de pastores con prácticas de caza no despreciables para su subsistencia, sin poder acercarnos en términos cuantitativos de los aportes dietéticos y económicos de una práctica o de la otra, en un caso o en el otro. La agricultura aparece solo al final de la secuencia, y parece ser solamente un proceso secundario en los cambios tecno-económicos en la región, particularmente dada la geografía desértica de altura. En un segundo tiempo, presentamos las innovaciones técnicas y sus características ocurriendo durante a través de la secuencia. Destacamos particularmente los aspectos sociales y económicos de estos cambios observados en los sistemas técnicos.

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\*Speaker

Esto contrasta con la *neolitización* observada en otras partes del mundo, y enriquece entonces el debate sobre los procesos involucrados en la sedentarización de las poblaciones y la aparición de los primeros pueblos, donde la agricultura no parece estar en el centro de estos cambios en las tierras altas andinas.

**Keywords:** Puna, Pastoreo, Domesticación, Pastoreo, Sistemas técnicos, Cadenas operativas

# Neolithic colonisation of mountain environments and the expansion of pastoral economy in the Alps: new data from Cadore (Dolomites, Veneto region, Italy)

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The spread of farming economy in Europe contributed to modifying human-environment interaction in mountain areas. The high-altitudes (around 2000 m s.l.m.) in the Alpine regions, seasonally and intensively re-occupied by the last Palaeolithic and the Mesolithic hunter-gatherers starting from the end of the Last Glacial Maximum, seem to be abandoned during the first phases of the Neolithic, and progressively re-colonised at the end of the same period. However, archaeological and palaeoecological data are often difficult to interpret, and it is not clear when and how the pastoral occupation of the upland pastures began. An intensive survey carried out between 2011 and 2015 in Cadore (Dolomites, Veneto region, Italy), and a revision of the data already known for the same area, have provided the necessary information to tackle these issues. The study area yielded a remarkable number of Mesolithic find-spots, enabling a reliable reconstruction of the last hunter-gatherers’ settlement patterns. The analysis of the few major sites associated to prehistoric pastoral economy, along with new archaeological findings of the survey project, have shed new light on the Neolithic and post-Neolithic occupation of the high mountains. This paper will present a reconstruction of the transition between hunter-gatherers and pastoralists in the uplands of Cadore, and it will investigate the implications of this reconstruction for a wider understanding of prehistoric pastoralism in the Alpine region. Particular attention will be paid to research biases and difficulties in data interpretation, which limit our understanding of the socio-economical phenomena occurred in the high mountains during the Early and Mid-Holocene. This paper will provide new insights on the complex processes that led to the formation of Alpine pastoralism, which becomes established since the Bronze Age in the investigated valley as well as in many neighbouring areas.

**Keywords:** Alps, Cadore, pastoralism, Neolithic

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# Neolithic in European Mid-Mountains: basic differences to classic patterns

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A survey of main views on the significance of European Mid-Mountains, like German Mittelgebirge, Carpathians and Sudety 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. 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 lugging can be explained with the ultimate form of the Neolithic settlement remnants in the mountains. Such findings are not connected only with transitional passing through the mountains, as it thought before.

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. 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.

Special meaning for the research on the quondam settlement in the mountains is determining of the scale, form and dynamics of the pastoral activity. As we know from geography and ethnology, this field of farming takes miscellaneous forms in the highlands. Its reflection in the archaeological materials is that dim, so for many researchers it constitutes an impassable impediment.

**Keywords:** Neolithic, ephemeral settlement, paleobotany, Mid, Mountains, stray finds

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\*Speaker

# Neolithisation and pastoralism in the Iberian Central System: the Amblés Valley (Ávila, Spain) as a case study

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The neolithisation process of certain areas of Iberia still remains poorly known. This is the case of the Central System, the mountain range that splits the Iberian inner plateau into two (the Northern and Southern plateaus), and divides the drainage basin of the Douro river from the basin of the Tagus. It consists of a number of smaller mountain ranges that run from Serra da Estrela to Sierra de Pela, extending for 485 km in a west-east direction. In the last few years, we have been conducting a research project aimed at examining the adoption of a food-producing economy at the northern foothills of the Sierra de Gredos, in particular in the Amblés Valley. This is a depression that, along 42 km, sits between Sierra de Ávila (Cerro de Gorría being the highest peak, at 1727 m.a.s.l.), to the north, and the mountain ranges of La Paramera and La Serrota (the highest peaks being respectively Pico Zapatero, at 2158 m.a.s.l., and La Serrota, at 2294 m.a.s.l.), to the south. The Amblés is crossed by numerous intermittent streams draining directly to the River Adaja, a tributary of the Douro. The spatial distribution of Neolithic settlements at the Amblés valley indicates that they are systematically found, not in the fertile soils of the floodplains of the Adaja, but in the transitional areas between the mountain outskirts and the valley floor. The locations of these sites have in common their proximity to granite blocks, (seasonal) watercourses and summer pastures. This seems to suggest that these Neolithic sites were oriented to animal husbandry. By presenting the results of the excavation of the site of La Atalaya, at Muñopepe, the hypothesis that the Neolithic may have been introduced into the Amblés in connection to herding practices is discussed in this paper. Based on an interdisciplinary and multi-proxy approach, this hypothesis argues that the Neolithic was linked to periodic movements of livestock (on a seasonal basis during the summer months?), and also that pastoralism predates the development of agriculture in the Amblés valley.

**Keywords:** Neolithic, Iberia, mountain ranges, Central System, pastoralism

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# New data about the Neolithic in Northern Caucasus

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One of the most important issues of modern research of *Homo sapiens* spread in northern latitudes is the appearance of agricultural economy. To date, in some regions, especially in the Levant, intensive studies undertaken by several generations of researchers have accumulated a large material allowing to reconsider the concept of "Neolithic revolution". The modern approach is inextricably linked with research of environmental and climatic dynamics. The spatial-temporal succession of Neolithic innovations in the Near East is currently considered as a quite long process (called "Neolithization") of cultural transformations that progressively increased but have not an unambiguous direction (Bar-Yosef, Belfer-Cohen 2010; Goring-Morris, Belfer-Cohen 2011; Biton, Goren, Goring-Morris 2014).

In the Northern Caucasus, some researchers discuss a possible existence of local centers of the emergence of agriculture economy during the Neolithic, such as Chokh rockshelter in Dagestan, in the north-eastern Caucasus (Amirkhanov, 1987). However, the Chokh site has not radiometric estimates, and some researchers suggest that evidence of pottery production and agriculture in this site is probably dated to the Chalcolithic or Bronze Age periods (Motuzaitė-Matuzevičiute 2012:16). In the northwestern Caucasus, there are known only a few sites, mostly excavated over 50 years ago, that were assigned to the Neolithic (Formozov, 1965; Bjanija, 1996), as well as the Neolithic levels were occasionally mentioned in some sites, in which the Paleolithic deposits were the main object of excavations (Lovpache, 1994). The lack of Neolithic sites investigated on the modern level led some scholars to initiate the discussion: "Whether there is the Neolithic in the Northwestern Caucasus?" (Trifonov, 2009). Some authors note absence of sites precisely dated between the final Paleolithic and the Bronze Age, from 10000 to 6000 calBP, and question the existence of Neolithic in the region (Zaytseva et al., 2014).

Currently, in the Northern Caucasus (Golovanova et al., 2014), most sites have calibrated radiocarbon dates before the cold Younger Dryas (12600-11900 calBP). In the region, there is no clear evidence of human occupation coinciding with Pre-Pottery Neolithic A (12000/11800–11000 calBP) in the Levant. Only a few North Caucasian assemblages dated ca. 10500-8500 calBP can be preliminary synchronized with the Pre-Pottery Neolithic B (10950–8400 calBP) of the Levant. In the Northern Caucasus, the earliest sites with Neolithic ceramics (Mezmaiskaya Cave, layer 1-2B; Cmi open-air site) have similar dates about 8000–7500 calBP (Golovanova et al., 2016). We report results of modern research in these sites.

**Keywords:** earliest Pottery Neolithic, Northern Caucasus

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# New light on the Prehistoric sites of West Garo Hills in North East India

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**New light on the Prehistoric sites of West Garo Hills in North East India**  
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West Garo Hills in Meghalaya is one of the significant areas in North east India where traces of prehistoric man's existence have been verified by the prolific occurrence of stone artefacts and pottery over a large area in the Rongram- Ganol river valleys. Different scholars have carried out studies in these sites in the past on the typotechnological and chronological aspects of the artefacts and sites. Recent studies focussing on the topographical, sedimentological and petrographical aspects of the sites have revealed many interesting facts. The sites in West Garo Hills are characterised by occurrence in association with streams and water sources. Undulating nature of the topography has been another significant aspect of the sites. Confluences, terraces and stratigraphy with composites sections of silt, loose and cemented gravel have been the characteristic features of the sites. The sedimentological study of selected sites has indicated less transportation of the implementiferous sediments. The typological attributes of the sites also conform to the topographic nature of the sites facilitating the subsistence pursuit of the early man. The occurrence of dykes of doleritic composition indicating seismic activity in the past and consequent use of it for preparation of tools is another significant dimension of the sites in the area. The authors try to discuss the mentioned aspects of the sites in West Garo Hills of Meghalaya in North East India in the light of the investigation made in recent years.

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**Keywords:** West Garo Hills, typotechnology, sedimentological

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# Pastoral transitions – Neolithic upland exploitation in the Alps

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The period in which prehistoric societies first began to move their livestock to pastureland at higher elevations in the Alps is a much discussed and methodologically complex question. Thanks to a number of fruitful and interdisciplinary research projects realized in last years, pastoral and dairy activities in mid- and high-mountain areas are comprehensibly attested for the Iron and the Bronze Age. Archaeological features connected to this form of pastoralism ("Alpwirtschaft") include dry-stone buildings discovered at elevations above 2000 m asl, that were only occupied during parts of the year, stock enclosures, and ceramic vessels that had been used to process milk. These finds indicate that humans already had a major impact on the natural Alpine landscape during the Metal Ages. In contrast, concerning the Neolithic, archaeological and palynological evidence for pastoralism and animal husbandry in the uplands is still sparse, contradictory and highly disputed. Paleo-environmental data suggest that pastoralism was practiced already in the 5th-3rd mill. BC, but the shelters and structures connected to it must have been more ephemeral and multifunctional. Therefore, evaluating the real extent of seasonal grazing activities starting already in the Neolithic remains insecure at the moment. This paper summarizes the current state of research for the prehistoric upland colonization and exploitation processes in the Central Alps, between Western Switzerland and the Inn Valley. It focuses especially on new archaeological and palynological results from the Lower Engadine (Switzerland) and the Karwendel Mountains (Austria). Our data show that considerable differences existed even within small regions between sites situated in the mountains and in the valleys. It also suggests that in certain areas a (Post-)Mesolithic lifestyle was practiced far into the Neolithic period.

**Keywords:** Pastoralism, Mesolithic, Neolithic, Bronze Age, Iron Age, Alps

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# RECENT ARCHAEOLOGICAL WORK AT AOSTA (587 M S.L.M.) IN THE ALPINE REGION OF THE VALLE D'AOSTA - NORTH-WESTERN ITALY.

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Archaeological discoveries have cast new light upon the prehistoric and protohistoric development of agriculture in the mountainous region of the Aosta Valley, with recent work concentrating in particular on the lowland zone around the actual city of Aosta.

These discoveries complement recently-illustrated data for prehistoric agricultural expansion into the mountainous hinterlands, with settlement activity in the uplands even beyond 2000 m s.l.m., and cereal pollen stratified in the peat of an ancient alpine lake at Mont Fallère, 10 km to the NW of Aosta, including important testimony of a potential peak in cereal-production during the III millennium BC.

This contribution focuses in particular on the preliminary results of the large-scale and ongoing excavations at the Hospital site, at the base of the hillside to the north of the roman city of *Augusta Praetoria*, where archeologists supported by paleo-environmental studies and radiometric analysis, have revealed a continuous sequence of well-stratified field-systems and associated irrigation schemes, testimony to the gradual evolution of a rural landscape on the eastern plain of Aosta during the IV-I millennia BC; a sequence clearly parallel to that of the well-known megalithic site of Saint-Martin-de-Corléans situated on the western plain of Aosta with its evidence of very early agriculture parting in the second half of the V millennium BC.

The development of the agricultural landscape on the eastern plain was notably interrupted during the Early Iron Age, when monumental structures, including a stone circle of diameter m 135 and a major tumulus, were imposed upon the existing field-system. However the transient nature of power in this 'marginal' transalpine context is notably illustrated with momentarily important symbols rapidly losing their cultural significance with a return to the more important work of agricultural production.

Studying a successive Middle Iron Age field-system of the Hospital site in relation to recent landscape archeological data deriving from a nearby deeply-stratified rescue excavation (Via Roma) and the extensive trenching for the urban central-heating project, has allowed not only the hypothetical extension of a landscape agricultural scheme across the eastern plain, but also

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the creation of a 'model' irrigation system, presumably applicable to other alpine contexts, illustrating how the Iron Age indigenous population not only distributed the all-important water resource but plausibly also made fertile a previously sterile terrain with artificial deposition of silts.

**Keywords:** Aosta Valley, field system, irrigation system, Prehistory, Iron Age

# Textile production during the Inka occupation (1.400-1.536 d.C.) in Mauro Valley (Precordillera of Semi-arid North, Chile, 31°S): documented from the study of bone artefacts and from camelid domestication

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Textiles could give an approach about the importance, the intensive use, and the animal management practices in the elaboration of fibers for its production. In the Andean areas, they are significant elements within the Inka Empire strategies of reciprocity and redistribution. However, the knowledge about textile production in environments where this type of evidence is not preserved is limited, such as in the Andes mountain range in Chilean Semi-arid North, which bias the discussion of its production in the control dynamics of local populations. This work discusses the textile production during Inca times in Mauro Valley (IV Region, Chile), an area located in the southern fringe of the Chilean Semi-arid North, based on indicators such as bone artefacts and the osteometric evidence of camelid remains. The first one indicates a high frequency of artefacts in MAU094 and MAU067 sites destined to textile production such as *torteras* and *wichuñas*, which were defined from morphological and micro-wear analysis. The second evidence -the osteometric one- points to a size diversity associated with llamas (*Lama glama*) used as cargo animals common in the caravan system implemented by the Inkas in the area, wild camelids (guanacos), and others of intermediate size possibly associated with animal fiber production. These evidences relate to animal management practices, and to camelid domestication during Inka times in the Andes areas. In addition, it is linked to an Inka logic associated with a production system such as the mit'a, in this case destined to the production of goods of great significance for the Empire and as a mechanism of control or management of local populations. This project was funded by "Proyecto Arqueológico Mauro".

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**Keywords:** Textile production, domestication, camelids, mit'a, Inka, Semi, arid north, Andes mountain range