

Book of Abstracts

The Italian case in the context of the first European peopling.

Marta Arzarello (University of Ferrara, Italy)

The Italian Peninsula attests an early human peopling by the presence of several sites such as Monte Poggiolo and Pirro Nord, the first one dated to about 1.0 My (by paleomagnetism and ESR) and the second one dated to 1.2-1.5 My (on a biochronological basis and especially on the presence of *Allophaiomys ruffoi*).

Concerning the site of Pirro Nord, the techno-economical approach to the lithic industries has been used to highlight the technical behaviour, the choices related to raw materials exploitation as well as to make comparisons with other European sites with the same chronology. At the site, the lithic production is generally characterized by short reduction sequences strongly adapted to the initial morphology of raw material (always flint cobbles or pebbles). The lithic production is mainly made by unipolar/orthogonal/multidirectional *débitage* but also the centripetal exploitation is attested and seems to have played an important role within the *débitage*

From a general point of view, while the latter technological features identified at Pirro Nord are shared with the other contemporary European sites and with the African Mode 1, some peculiarities can be underlined attesting an extraordinary *savoir-faire* and capacity of adaptation to the raw material.

How to compare? New horizons in the study of lithic industries.

Daniele Aureli (University of Paris, France)

Since the origins of the prehistoric science to date, the methodology used for the study of lithic industries has hugely changed. Different disciplines have contributed to enrich the methodological tools and to open new perspectives of analysis. We can study the component of the retouched lithic industry through typology, describe the *chaîne opératoire* and the technical objectives with technology, define the function and functioning of tools with the techno-functional and use-were analysis, etc. But once we try to compare the so obtained results, between different occupational levels of the same site or between different sites, what aspects of lithic industries can we really compare? What questions can we answer thanks to our comparison?

In the recent decades overshadowed by the methodological debate based on how to study (typology versus technology), perhaps we have placed too little attention on the way we use to compare our results.

The aim of this communication is to raise some aspect of this issue by presenting a case study: definition, timing and development of the Levallois concept in southern Italy, starting from the lithic industries of the Riparo del Molare site (South Italy, OIS 5).

The Middle-Upper Palaeolithic transition as viewed through the Italian human remains.

Stefano Benazzi (University of Bologna, Italy; Max Planck Institute for Evolutionary Anthropology, Germany)

The Middle-Upper Palaeolithic Transition in Europe is still intensely debated. The interpretation of 'transitional' and Early Upper Palaeolithic cultures influences our understanding of evolutionary issues such as the timing of arrival of modern humans in Europe, their potential interactions with Neanderthals, the Neanderthal's cognitive abilities and the reasons for their extinction. The doubts about the makers of these early assemblages are not resolved because of the paucity of well-preserved human remains dating to the period of the transition. Here, I discuss the human remains available in

Europ during this time period and the uncertainty about their taxonomical attribution. Particular emphasis will be devoted to the Italian human fossil record, its importance within the European context and its prominence to decipher the biological shift that occurred in Western Europe around 45.000-35.000 calendar years ago.

Raw material provenance and circulation during the late Upper Palaeolithic of the Venetian and Trentino areas.

Stefano Bertola (Universität Innsbruck, Austria)

Geological research carried out over the last 15 years in the Venetian and Trentino areas has allowed to achieve a quite exhaustive knowledge about procurement areas, raw material selection and mobility of late Palaeolithic groups who inhabited the eastern Alpine region of Italy. During the Last Glacial Maximum the entire Alpine area was widely covered by ice and almost inhospitable. As a consequence of the sea level fall (estimated at - 80/-120 m) the upper Adriatic retired southwards near the city of Ancona, leaving a wide steppe, densely populated by herbivores, and crossed by the palaeo Po river. Around 20.000 years BP human groups coming from the south settled shortly in the Berici hills, at Paina, Trene and Buso Doppio del Broion caves, where they left hunting weapons almost entirely realized with Apennine cherts. Unfortunately no other sites are known between 20.000 and 14.000 BP, when the Epigravettian series of the Tagliente shelter starts. A re-cent revision of the lithic assemblage from the inner area of this site highlighted the presence of Apennine cherts comparable to those identified in the sites of the Berici area. They consist of a few pieces, mainly represented by armatures, tools and a couple of bladelets cores. This discovery demonstrates the persistence of a large scale mobility pattern during the earliest occupations at the Tagliente shelter. The Apennine cherts disappear in the more recent layers, and they seem clearly linked with an open steppe environment. All the other Epigravettian sites in the studied region are younger than Tagliente and were inhabited when the Po plain was already forested (since 13/12.000 BP). In these sites it is at - tested the exploitation of local and regional cherts.

Hunting high and low: reconstruct hunting strategies during the European Upper Palaeolithic through the analysis of stone tools and bone points.

Valentina Borgia (University of Cambridge, United Kingdom)

Hunting plays a crucial role among hunter-gatherers populations as it provides not only food but also raw materials such as bone, tendon, skin, feathers and leather used for clothing and building shelters. Ethnographic studies have demonstrated the cultural value of hunting, which is always associated with highly symbolic representations (rites of passage, prestige, social life and spirituality). Despite its central role, Palaeolithic hunting techniques are still poorly known.

Recently, the study of use-wear and residues on prehistoric tools has provided new insights also thanks to experimental activity.

This paper presents the results of a combined investigation of stone tools (backed tools) and bone points in order to reconstruct the whole arsenal of hunting weapons available throughout the Palaeolithic and the evolution of hunting techniques in these regions. An interdisciplinary analytical approach to Gravettian material culture from sites in Moravia (Czech Republic) and Italy (Grotta Paglicci) has been applied in order to determine whether tools share morphological and functional characteristics and how they are related to hunting practices in different natural environments (i.e. mammoths in Central Europe, deers and horses in Italy).

Residues analysis on the archaeological armatures has allow us to understand of how the implements were hafted, which also included the possible use of poisoning substances.

Lithic technology around the great Adriatic plain in the Last Glacial Maximum.

Emanuele Cancellieri (University 'La Sapienza' of Rome, Italy)

This paper provides a technological analysis of early Epigravettian lithic assemblages from sites in the central Italian Apennines and the Salento peninsula, aimed at refining the meaning of an important series of convergences linking the east and west sides of the Adriatic basin. The research addresses the subject of human occupation of the eastern peninsular Italy at about the end of the Last Glacial Maximum (hereafter LGM), entering the debate on the favourableness of the Great Adriatic Plain for human groups in a period of worsening climatic conditions. When fully exposed, the plain probably represented a residual gathering, while the surrounding areas attracted specialized activities. Since the end of the LGM, with the gradual reduction of the plain, it is envisaged the spread southward of lithic assemblages which are progressively less specialized and interpreted as a gradual change of the role of the sites due to changes in geographical and paleoenvironmental setting, resulting in a profound modification of the settlement system.

Between flake and blade in Middle-Palaeolithic.

Leonardo Carmignani (University Rovira I Virgili, Spain)

This study focuses on the evaluation of the role of blades in the Mousterian operational concepts. By simplifying what is produced in the course of the lithic reduction sequence, we can identify three categories of possible products: flakes and blades, produced by knapping operations (débitage), and hand axes - choppers (sensu lato) by shaping operations (façonnage). If the shaping operations contain a conceptual structure of modelling a morphology from a block of raw material, the dichotomy flake-blade, is, at a macroscopic scale, a double variant of the same theme, which is a separation of a piece from a volume. Evidence of blade technology is confirmed in Northern Europe (France, Belgium and South England), at least from the last part of the Middle Pleistocene (MIS 7-6). Later on, in stage MIS 5 these productions cover a larger area, which includes North-western Germany, central France, and occasionally the South of France. A third moment (MIS 4-3) reveals the re-appearance of laminar productions in Southern Europe, more specifically in the South of France and the Italian peninsula. At the present state of the research these three phases appear as on-and-off events without a clear evolutionary continuity. The record of Riparo Tagliente reveals different operational systems punctuated by the creation of elongated products. Role, coexistence and interaction between flakes and blades productions at this site are discussed.

Social networks and connectivity among Late Pleistocene and Early Holocene foragers of Italy and the Balkans.

Emanuela Cristiani (University of Cambridge, United Kingdom)

Dušan Borić (Cardiff University, United Kingdom)

Major environmental perturbations over the last glacial period, with considerable changes in sea levels, have significantly affected the spatial organization of Palaeolithic and Mesolithic hunter-gatherer communities between the Balkans and Italy. For this reason, these regions are an ideal case for studying how different environmental factors could affect connectivity among human groups and rates of innovation.

Italy and the Balkans are also key transitory regions for various dispersal events in the evolutionary history of the European continent that brought different hominin taxa into Europe from the areas of Africa and southwestern Asia. Yet, compared to various well-researched regional hotspots in central and western Europe, the picture of the Palaeolithic and Mesolithic adaptations remains coarse-grained in particular in the Balkans as a result of historical research bias followed by unsettled recent history preventing the application

of new research methodologies. In this paper, we aim to highlight particular examples of connectivity across large tracks of land during Palaeolithic and Mesolithic and to point out the potential that social network thinking has in the study of Italy and the Balkans.

Re-colonising the Southern alpine fringe: diachronic data on the use of sheltered space in the late Epigravettian site of Riparo Tagliente.

Federica Fontana (University of Ferrara, Italy)

Stefano Bertola (University of Innsbruck, Austria)

Maria Giovanna Cremona (University of Ferrara, Italy)

Fabio Cavulli (University of Trento, Italy)

Laura Falceri (University of Ferrara, Italy)

Alessia Gajardo (University of Ferrara, Italy)

Davide Visentin (University of Ferrara, Italy)

Antonio Guerreschi (University of Ferrara, Italy)

Riparo Tagliente has yielded the most ancient evidence of re-occupation of the Southern Alpine fringe after the end of the Last Glacial Maximum. Such early occupation has been possible thanks to the favourable location of the site at the bottom of Valpantena, a natural corridor connecting the Po plain to the Lessini Pre-alpine plateau, and to the high availability of natural resources offered by the surrounding area.

Radiocarbon dates from the Late Epigravettian series on the sheltered zone of the site (Northern sector) indicate a chronological span between 17.200 and 15.900 years Cal BP and locate this occupation during the first part of the Late Glacial.

New light on settlement patterns related to this sheltered zone has been shed by the revision of its complex stratigraphic series and the techno-economical and spatial distribution analysis of the lithic assemblages recovered during the last 30 years. Two main occupation phases have thus been recognised each of which characterised by the presence of hearths and/or dwelling structures. The spatial organisation of such structures and the distribution of lithic assemblages in the two phases indicate an intense frequentation of the site since the earliest phases of the Late Glacial and a change of settlement patterns along time.

The origins of bird hunting in Eurasia: investigations on avifaunal assemblages during the Middle and Upper Palaeolithic.

Monica Gala (Soprintendenza al Museo Nazionale Preistorico Etnografico 'L. Pigorini', Italy)

Ivana Fiore (Soprintendenza al Museo Nazionale Preistorico Etnografico 'L. Pigorini', Italy)

The regular and systematic exploitation of birds for subsistence purposes is considered to be a hallmark of behavioural modernity. Ethnographic data on recent hunter-gatherer suggests that in order to obtain birds in large quantities advanced prehistoric technologies (i.e. snares, nets, bow and arrow) would be necessary. So far, the mastering of these technologies has been attributed to Anatomically Modern Humans exclusively. Accordingly, to date only late Upper Paleolithic hunter-gatherers have been credited of capturing thousands of birds of different taxa, as at the sites of Grotta Romanelli and Grotta della Madonna in the Italian Peninsula.

This work presents the results of the taphonomic study carried out on the bird bone assemblages from 10 Middle and Upper Palaeolithic Italian sites. The aim is to evidence discriminating criteria for identifying anthropic traces related to the exploitation of birds as food. The most common human modifications detected on bird bones are those related to butchery: stone tool cut-marks, fresh bone breaks, peeling, *enfouissement*, *arrachement*, and, more rarely, notches or chop-marks. Furthermore, burning traces are very frequent.

This study demonstrates that birds were exploited as a food source already during the Middle Palaeolithic, although limited to a narrow range of species.

Human behaviour in Lower Palaeolithic: use-wear reflections and perspectives

Cristina Lemorini (University 'La Sapienza' of Rome, Italy)

Use-wear analysis provides an excellent tool for interpreting activities carried out with stone tools during prehistoric times. However, can use-wear data help to understand what were tools used for as well as the “perception” of the world behind the practical use of a tool? This is an intriguing question especially when we try to approach the “perception of the world” of ancient hominins, of other species than ours.

Stone tools are the major remains that pre-Sapiens species left as a testimony of their life. Moreover, the technological and functional choices expressed through stone tools reflect in biological and cultural terms how humans interacted with space and time.

This talk aims to investigate the potential of the use-wear analysis to disclose this subject using as case studies data coming from Late Lower Palaeolithic lithic assemblages from Italian peninsula and Near East.

Late Pleistocene and Holocene hunter-gatherers of Central Mediterranean. Human-environment relationship in Southern Italy and Sicily.

Domenico Lo Vetro (University of Firenze, Italy)

Andrè Carlo Colonese (University of York, United Kingdom)

Zelia Di Giuseppe (Museo e Istituto Fiorentino di Preistoria di Firenze, Italy)

Lorenzo Nannini (Museo e Istituto Fiorentino di Preistoria di Firenze, Italy)

Francesco Trenti (Museo e Istituto Fiorentino di Preistoria di Firenze, Italy)

Niccolò Mazzucco (IMF-CSIC, Barcelona, Spain)

Giulia Ricci (University of Firenze, Italy)

Francesca Romagnoli (University of Firenze, Italy)

Beatrice Vacca (Museo e Istituto Fiorentino di Preistoria di Firenze, Italy)

Fabio Martini (University of Firenze, Italy)

Lucia Sarti (University of Siena, Italy)

Central Mediterranean regions experienced consistent climatic and environmental changes during the Late Glacial and the Early Holocene, the evidence of which is sometimes recorded in prehistoric sites of the region. Southern Italy and, in particular, Sicily are very rich in Late Upper Palaeolithic and Mesolithic evidence and offer the opportunity to investigate human responses to environmental changes in the Mediterranean in a both synchronic and diachronic perspectives. Multidisciplinary researches carried out in Southern Italy (northern Calabria, southern Campania, and southern Apulia) and Sicily during the last decade elucidated temporal and spatial use of environmental resources by Palaeo-Mesolithic human groups inhabiting those regions. The evolution of the subsistence strategies and lithic production during the Late Palaeolithic-Mesolithic transition seems to indicate not an abrupt change but a rapid adaptation of the last hunter-gatherers to sudden changes of landscape and resource availability.

Palaeolithic diets and subsistence in Italy: new reconstructions through isotope analysis.

Marcello Mannino (Max Planck Institute for Evolutionary Anthropology, Germany)

Sahra Talamo (Max Planck Institute for Evolutionary Anthropology, Germany)

Michael Richards (University of British Columbia, Canada)

Isotope analyses are invaluable sources of information on past human diets. Despite their use in archaeology started 40 years ago, little work has been done on prehistoric samples from Italy. This is partly due to preservation issues in Mediterranean environments, but mainly a result of the limited application of archaeological science for the study of Italian

prehistory.

Within the remit of a project undertaken at the Max Planck Institute for Evolutionary Anthropology (Leipzig), well-preserved collagen has been extracted from many Italian Gravettian, Epigravettian and Mesolithic assemblages for palaeo-dietary reconstructions and AMS radiocarbon dating. Most of this research involved carbon and nitrogen isotope analysis on bone collagen, a method suited to establish the ecosystem of origin (i.e. terrestrial, freshwater and/or marine) and trophic level of the protein consumed.

These isotopic investigations have produced new data on the diets of the hunter-gatherers who lived in the Italian Peninsula and Sicily. When interpreted in the context of the archaeological record of subsistence, the isotope data show that central Mediterranean prehistoric foragers had diets mainly focussed on terrestrial resources, with significant consumption of aquatic foods only occurring at times when these were readily available and easily exploitable.

From Neanderthals to Anatomically Modern Humans in the Liguria region: the current state of knowledge.

Fabio Negrino (University of Genoa, Italy)

Liguria is a coastal region of north-western Italy. This area features impressive mountains descending sharply toward the Mediterranean Sea; the plains are rare and the landscape is characterized by narrow valleys sub-parallel or perpendicular to the coast. Mousterian evidence is quite widespread all over the region. Early Upper Palaeolithic finds are in contrast very rare and attributed exclusively to the Protoaurignacian, indisputably associated with anatomically modern humans (AMH). No Uluzzian or other “transitional” industries are so far known from the region. Open-air sites provide the only archaeological evidence in the Eastern part of the region, while deeply stratified caves and shelters are abundant in the Western part. Recent radiocarbon dates place the disappearance of the Neanderthals in Liguria at around 42 ky cal. BP and the most recent Mousterian deposits are clearly separated from the oldest Protoaurignacian artefacts, which date back to about 41.5 ky cal. BP, by a clear discontinuity in sedimentation, as highlighted at the Mochi and Bombrini shelters (Balzi Rossi, Western Liguria). There is no evidence of admixture and the transition between these two cultural worlds appears quick and sharp, as if AMH colonised an empty land

The impact of Uluzzian lithic technology for reconstructing the cultural dynamics across the Middle-Upper Palaeolithic transition.

Marco Peresani (University of Ferrara, Italy)

The intricate ensemble of evidence related to the Middle – Upper Palaeolithic transition in Europe is the subject of an intense debate, which also involves the material record, represented by different technocomplexes constrained to specific regions or diffused at larger scale. Out of these ensembles, the Uluzzian has recently been considered crucial for investigating the social organization and the subsistence strategies of the Modern Human population who settled in Mediterranean Europe. In last years, several studies have increased our understanding of the chronology, taxonomy, material culture and subsistence of the Uluzzian in Italy and Greece, and generated debate. Yet, more data are required especially from the material culture, which reveals an ensemble of innovations in stone and bone technologies. New evidence contributes to this subject as recent studies on the lithic technology have shown the persistence in flake production, the increase in the incidence of blade-bladelet making, and the appearance of new types of implements, whereas new formal tools define the bone technology during the Uluzzian. The social significance of such technological improvements should be assessed on a wider, supraregional scale, through a comparison with older, contemporaneous and younger technocomplexes.

Evolution of lithic production systems during the transition from Middle to the Upper Palaeolithic in southern Italy.

Filomena Ranaldo (University of Siena, Italy)

The relevant geo-climatic changes of MIS 3 correspond to not less important bio-anthropological and cultural changes. In the south of the Italian peninsula, the identification of the Uluzzian had relied primarily on typological data of the tools but many recent works have added new data and open several questions. The overall goal of this paper is to record technical changes in stone tools which occurred during the transition between the Middle and the Upper Paleolithic. With regards to the reconstruction of the techno-cultural variability, we have identified the main characteristics highlighting the Uluzzian evolution and those distinguishing the Uluzzian from the end of the Mousterian and the Aurignacian.

In southern Italy the transition to the Upper Palaeolithic is characterized by closing of a technical cycle and the introduction of new tools. In this period the category bladelets undergo important evolutionary steps and implement their technical role.

New Insights into Epigravettian Funerary Ritual at Caverna delle Arene Candide.

Julien Riel Salvatore (Arizona State University, Canada)

Claudine Gravel-Miguel (Arizona State University, Canada)

While we know that Caverna delle Arene Candide was the site of repeated burials in the Final Epigravettian, we know comparatively little about the broader context in which these ritual acts took place. Combining archival work and the analysis of new material recovered at the site 2008-13, it is possible to flesh out this poorly known dimension of the Epigravettian symbolic sphere. Our recent excavations at the site yielded quite a few flat, elongated beach pebbles that are identical to those found in several of the Arene Candide burials by Cardini in the 1940s. While the vast majority of them bear traces of ochre, there are no recognizable designs on this new sample. Further, experimental data indicate that many were broken by intentional, direct blows to their centre. We propose that flat and elongated pebbles might have been used to grind and apply ochre in ritual settings, and that some were subsequently ritually "killed" and fragments were discarded in burials. Combined with a re-analysis of previously published lithic and faunal data on the site, these new observations suggest that an extensive series of ancillary social activities, including possible funerary feasts, likely accompanied the burying of individuals at the site.

Technological organization in the Salento Mousterian (Apulia, Italy) shows Neanderthal logistic land use

Enza Spinapolice (University of Cambridge, United Kingdom)

This paper will present results from the technological study of five Mousterian sites (Grotta Romanelli, Grotta Uluzzo C, Grotta Mario Bernardini, Grotta Torre dell'Alto, Grotta dei Giganti), showing technological organization, curation and expediency behaviours, corresponding to a logistical mobility. The combination of planning the subsistence strategy and flexibility in the use of raw materials is becoming part of our understanding of Neanderthal behaviour, characterized by a fragmentation of stone working in space, time and social dimensions and a planned and complex organisation, until now considered as distinctive to modern Homo sapiens.