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(maj au 15-06-2017)
Sessions congrès - Congress sessions

UISPP Paris

(maj au 15-06-2017)

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I. SESSIONS GENERALES UISPP

I-1. Techniques, méthodes et théorie de l’archéologie
I-2. Paléolithique inférieur et moyen
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II. THEME DU CONGRES

II-1. Chasseurs-cueilleurs et agriculteurs face aux changements climatiques: adaptation et développement durable / Hunter-gatherers and farmers faced with climate change: adaptation and sustainability

François Djindjian¹, Luiz Oosterbeek

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L’objet de cette session est de traiter la réponse des sociétés humaines, de chasseurs-cueilleurs comme d’agriculteurs - éleveurs face aux changements climatiques depuis les débuts de la préhistoire pendant le pléistocène et l’Holocène. Pour les chasseurs-cueilleurs, les thèmes abordés concernent plus particulièrement la mobilité, les ressources alimentaires, la chasse, la cueillette, les accès aux matières premières, la démographie, la dimension du territoire, les migrations saisonnières, les conquêtes ou les abandon de territoire. Pour les agriculteurs-éleveurs, les thèmes abordés concernent plus particulièrement la domestication animale, les espèces cultivées, les rendements agricoles, les systèmes agricoles, la sédentarité, le pastoralisme, le nomadisme, les zones cultivées, l’irrigation, la conquête de nouvelles terres, l’abandon de zones cultivées, etc.

The purpose of this session is to understand the response of human societies of hunter-gatherers and farmers since the beginnings of the prehistory during the Pleistocene and the Holocene climate. For hunters-gatherers, themes particularly concern mobility, food resources, hunting, gathering, access to raw materials, demographics, size of the territory, the seasonal migrations, conquests or abandonment of territory. For the farmers, the themes concern animal domestication, crops, agricultural yields, farming systems, sedentary lifestyle, pastoralism, nomadism, cultivated areas, irrigation, conquest of new lands, abandonment of cultivated areas, etc.

II-2. The impact of Upper Pleistocene climatic and environmental change on hominin occupations and landscape use (130-10 ka)

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This session will explore changing hominin occupation patterns and landscape use in the light of different scales of climatic and environmental change. Its scope is not restricted to western Eurasia, but will examine these changes (including population dispersal and contraction) at a variety of scales, from the local to the global. We would be pleased to include contributions from Palaeolithic specialists working in Eurasia, Africa, Australasia and the Americas. In particular, we invite interdisciplinary contributions exploring the following themes:

- The spatio-temporal scales of climatic and environmental changes in the Upper Pleistocene (130-10 ka).
- The extent to which abrupt environmental transitions can be linked to changes in hominin occupation or behaviour.
- The extent to which energetic considerations (e.g. metabolism, mobility strategies) can be used to explain changes in hominin behaviour.
- How social networks and material culture might have been used to mitigate environmental and climatic changes.

Investigating these themes encompasses (but is not limited to) studies of raw material provisioning patterns and energetic costs; the costs and benefits of broadening diets and implications for mobility strategies; the impact of stable isotopic studies on reconstructing past faunal and hominin movements; the importance of environmental productivity to the distributions of fauna and hominins; the impact of seasonal variation in resource availability; the impact of environmental conditions on toolkit diversity.

II-3. Systèmes agropastoraux et dégradations climatiques. Analyse intégrée des données archéologiques et paléoenvironnementales

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Cette session aura pour thème la relation entre la dynamique des systèmes agropastoraux - européens, américains, etc – et les changements climatiques rapides qui caractérisent l’Holocène. Le développement de l’archéologie préventive française a permis de renouveler les connaissances sur le monde rural et a fait l’objet de récents colloques témoignant du grand dynamisme de cette recherche. La corrélation entre les rythmes d’implantation des établissements ruraux et les fluctuations climatiques y a été évoquée. Cependant, la majeure partie des travaux français privilégie toujours des explications historiques d’ordre politique, social et culturel. Par exemple, malgré les progrès conceptuels concernant l’étude de la relation homme-milieu (Muxart et al. 2003)[1], les synthèses archéologiques n’intègrent encore que trop peu les résultats issus des études sédimentaires concernant les milieux lacustres, palustres, les milieux faiblement anthropisés. Par ailleurs, le développement et le déclin (collapse) des sociétés d’Amérique ont souvent été reliés à des fluctuations climatiques courtes (sécheresse, événements ENSO). Récemment, ces relations de cause à effet entre climat, productions agricoles, et évolution des sociétés ont été rediscutés au profit de scénarios plus complexes.

L’objectif de cette session sera de présenter des analyses intégrées, à l’échelle régionale ou micro-régionale, associant des résultats issus de sites d’habitats (rythme de création-abandon, analyses des structures de productions, identification de la fonction des outils agricoles, analyses des restes végétaux et animaux), des données issues des terroirs agro-pastoraux (type et extension des parcelles, aménagements paysagers) et des analyses paléoenvironnementales issues des archives naturelles (séquences palynologiques, courbes dendrochronologiques, variations paléo-hydrologiques et des flux sédimentaires, marqueurs d’érosion, marqueurs moléculaires). Chaque communication devra permettre de discuter les résultats issus d’investigations croisées en abordant les problèmes de résolution temporelle (événements annuels à périodes pluri-décennales) et de représentativité des données archéologiques et environnementales.

Les actes de cette session seront publiés fin 2018 dans les revues en ligne, Americae et Arche®.


**II-4. Late Holocene Social and Climate Change in Arid and Semiarid Environments.**

Mario Rivera, Rafael Goni
For a long time the interaction between culture and environment has been a main issue regarding anthropological explanations about behavioral human patterns and cultural change. Lately, the relationship between human societies and environmental changes are getting increasing attention, especially in the field of scientific research, developing close connections between paleo-ecologists and archaeologists. The natural and cultural processes are structured relation- ships based on long term variations; therefore, they must be studied through long periods of time. This is where archaeology is especially prepared for investigating the man-environment interaction as far relevant variables of this phenomenon can be controlled. This symposium aims to generally assess and discuss aspects of world archeology from a perspective that incorporates environmental approaches in the study of human settlement processes in arid and semi-arid environments during late Holocene (last 2500 years BP.). Unknown climatic variations and how these could have affected human settlements constitute main issues for this symposium. Thus, it is relevant to the investigation of past climatic fluctuations, especially those with global reach (e.g., Medieval Climatic Anomaly, Little Ice Age), and the impact and responses these climatic factors had in human populations. Great emphasis is placed on case study analysis from arid and semi-arid environments, since this type of habitat constitutes a major portion of the earth’s surface and is among the most difficult for human occupation. Moreover, the symposium would gather data from archaeological, environmental, and chronological viewpoints in relation to paleoclimate models and human interaction, as well as research dealing with anthropogenic activity in connection to climatic variability and chronological records that characterize diachronic patterns of human presence.

II-5. Climatic variability and societal responses during the Metal Ages in Europe and the Mediterranean (3000-300 BC)
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In recent decades, climatic variability has featured prominently in discussions about potential triggers for episodes of accelerated societal change. Environmental downturns are often among the chief suspects where archaeologists observe pronounced changes in settlement patterns, economic strategies, material culture and demographics. The debate typically focuses on specific chronological horizons.
that define cultural transitions. For the Bronze and Iron Ages in Europe and the Mediterranean, these tend to be the centuries around 2200 BC, which saw the rise of new Early Bronze Age cultures from the Aegean to the British Isles, 1600 BC, which experienced the disappearance or transformation of said cultures, 800 BC, which in most parts of temperate Europe is equated with the Bronze Age/Iron Age transition, and 400 BC, which coincides with the beginning of the so-called Celtic migrations. At other times, more regionalized events have equally been linked to climatic factors, such as the collapse of the Terramare culture in northern Italy during the 12th century BC, while other parts of the central and western Mediterranean remain seemingly unaffected. This session aims at providing a broad platform for taking a comparative look at environmental and societal changes phenomena between these different "crisis" horizons. Particular issues relate to discernment of climate variability in palaeoenvironmental records, the temporal and spatial scale of the inferred climate impacts on societies, and the mechanisms by which climate change instigated a societal response. Did the same societies withstand climate variability at other times, were cultural transitions predicated by climate variability, or are there alternative explanations for the changes that are observed at these times? Speakers are encouraged to assume a diachronic perspective and/or undertake interregional comparisons between different regions.

II-6. Climato-geographical archeologies of the Americas
Nora Flegenheimer	extsuperscript{1}, Eric Boeda	extsuperscript{1}, Julio Rubin	extsuperscript{1}, Christelle Lahaye	extsuperscript{1}

The latest data’s arising from South America show that the entire American continent was steadily occupied at least from the second half of isotopic stage 3, ie, minimum 30,000 years.
This new perspective of a long temporality, covering the whole end of the last glacion until the Holocene, leads us to consider the geographical impact of such major environmental changes and related consequence on the populations, in as many perspectives as penetration routes, occupying zones options, occupation temporalities, reasons of forced or not displacements, isolation or disappearance of populations.
The taphonomic aspect of the changes should not be forgotten for it can shed light on the lack or to the contrary the hyper representation of the sites, including a specific geographical repartition.
The determination of macro and micro climatic variations and their geomorphological consequences on a micro and macro regional level is of considerable importance in understanding the why and the how of the presence of populations at a particular place, at a given time.
Population dynamics must be correlated with environmental dynamics. Such correlation does not mean the existence of a blind determinism on the settlements.
To avoid such pitfalls we need to be able to analyse all material vestiges and thus qualify the various coexisting cultures and their behaviours. We insist on the necessity to broaden the cultural reflexion to the entirety of the materials and artifacts rather than restricting it only to the categories familiar to us. Thus, superimposing environmental, geomorphological and archaeological points of views appears to be a necessary step for understanding the population settlements of the North and South American continents.

This session is designed for researchers from related scientific backgrounds who wish to share their points of view for an open understanding.

II-7. The role of climate in the transition from foraging to farming systems.
Caracuta Valentina

1. Laboratory of Archaeobotany and Palaeoecology. University of Salento - Via Birago 64, 73100, Lecce - Italie

The major social and economic changes associated with the rise of a sedentary lifestyle and the gradual transition to food production are often considered to have been triggered by climate changes at the end of the Pleistocene. The end of the Pleistocene was characterized by significant climate changes, which, although global, affected various human populations in different ways. This was a critical period in human cultural evolution including the appearance of the first sedentary communities in the Levant and Fertile Crescent, foreshadowing the transition to agriculture.

Within this session we encourage contributes that investigate the possible connections between the climatic variations and the cultural developments and changes in subsistence strategies at the end of Pleistocene. Multi-disciplinary approaches that integrate bio-archaeological analyses, study of the material culture, radiocarbon dating and palaeoclimatic investigations are most welcome.
III. COMMISSION METHODES ET THEORIE DE L’ARCHEOLOGIE

THEORIE

III-1 (T). New advances in theoretical archaeology
François Djindjian¹, Robert Whallon, Stephen Shennan

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The session is dedicated to papers offering new theoretical approaches or new developments of actual theoretical approaches: processual archaeology, neo-processual archaeology, evolutionary archaeology, postmodern archaeologies, paradigms, etc.

III-2 (T). Adaptation et théories de l'archéologie
Philippe Boissinot¹


Dans cette session, on examinera comment les concepts d’adaptation et de durabilité peuvent se trouver liés, devenir opératoires ou insaisissables, suivant les options théoriques retenues pour l’archéologie en tant qu’activité scientifique. La place que ces théories accordent aux questions environnementales est évidemment cruciale, mais celles-ci ne sont pas les seules qui peuvent être mobilisées dans cette problématique. La notion même de site, telle qu’elle est définie (relation entre diverses entités géographiques) comporte déjà un début de réponse. Et la question de l’adaptation renvoie par ailleurs au concept de fonction, pouvant être décliné suivant plusieurs échelles, et qui n’est pas sans poser de multiples problèmes que l’on peut tenter de contourner. Plus que des études cas, qui pourront éventuellement illustrer le propos, ce sont des aspects ontologiques et épistémologiques qui seront attendus ici, en liaison ou pas avec d’autres programmes scientifiques, tel celui de l’évolution par exemple.
III-1 (CA). Big Data and archaeology  
Paola Moscati\textsuperscript{1}, François Djindjian

\textsuperscript{1}isma – Italie

The session concerns the management of big data in archaeology elaborated from long excavations, large data bases, archeometric measures, GIS data, 3D data which are concerning, more and more, archaeology today. Papers will offers examples of application, ontologies, adapted archaeological information system, storage and dedicated computer services.

III-2 (CA). Données 3D en archéologie et nuages de points denses : vers de nouveaux objets de recherche

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Les techniques d’acquisition ont connu durant ces dix dernières années des évolutions technologiques majeures qui ont modifié les approches de capture du fait archéologique. L’acquisition des données 3D en plein développement a été particulièrement concernée par ces nouveaux capteurs haute fréquence dont l’utilisation ne cesse de se développer et cela quelle que soit l’échelle d’approche choisie (de l’objet au territoire) ou la chronologie en question (de la préhistoire ancienne à la période moderne). Un panel de technologies dont les coûts de production ne cessent de se réduire (de la lasergrammétrie, aux Lidar, à la photogrammétrie, à la géophysique) ont permis de multiplier les angles de mesure de la réalité archéologique et patrimoniale et de mettre à disposition des programmes de recherche archéologiques de nouveaux corpus d’étude.
Si chacune de ces technologies s’appuie sur des processus sensiblement différents, toutes permettent aujourd’hui de produire un objet commun : les nuages de points denses (dense point cloud). L’archéologue, spécialiste de l’interprétation et du qualitatif devient par la force des choses peu à peu un spécialiste de la mesure. Ces nouveaux objets supports de la recherche de l’archéologue, outre leur intérêt patrimonial strict (sauvegarde de l’objet ou du site), permettent d’envisager des approches novatrices basées sur des traitements de masse (Big Data). Ils
questionnent aussi tous les processus classiques d’acquisition, de structuration et de traitement de l’archéologue (notamment le relevé). Cette session se propose donc de questionner ces approches de collecte 3D dans le domaine archéologique sous l’angle de la méthodologie en cherchant à évaluer leurs apports mais aussi leurs limites et qualités pour nos projets de recherche.

III-3 (CA). Construire des référentiels partagés : Webmapping et archéologie
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Le développement de la cartographie en ligne en archéologie induit des transformations dans nos pratiques de recherche qui touchent aux dynamiques de recherche elles-mêmes. Le passage d’une recherche classique basée sur des publications papiers, vers des études totalement dématérialisées et basées sur un partage de référentiels en accès partagé (bibliographie, corpus…) et ouvert parfois à une édition collaborative renouvelle nos processus de travail. Ces infrastructures posent aussi de manière concrète les questions de l’accès aux données de la recherche (bibliographie, corpus, littérature grise), de la structuration de ces ensembles, de leur gouvernance et celles des procédés de mise à disposition vers la communauté et vers la société civile. La présente session se propose donc d’interroger les différentes pratiques associées à ces outils de webmapping et des moyens pour coordonner les différentes initiatives et favoriser le partage nécessaire au développement de nos problématiques de recherche archéologique.

III-4 (CA). Digitization, Databases, and Beyond
Ute Luise Dietz\(^1\), Christian Chiarcos\(^2\), Frank Falkenstein\(^3\)

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Among the humanities, archaeology has been a discipline experiencing a relatively early digital turn in terms of (some of) its analytical and methodological tools. As a consequence, creating, managing, sharing, and using digital data collections has become a matter of increasing interest, accelerated by the rise of Digital Humanities and subsequently intensified efforts to create digital editions of archaeological publications and corpora as well as to create digital-born databases and search engines to complement classical catalogues. Yet, the increasing availability of digital data for
the field does not only promise new scientific and analytical possibilities, but the growing diversity of digital data available for the field also poses a number of technological and methodological challenges for which no satisfying answer seems to have been found so far.

In our workshop on "Digitization, Databases, and Beyond", we aim to address these questions, both from a scientific and a technological perspective. We therefore invite contributions documenting

(1) the diversity of digital approaches to manage, access and analyze archaeological research data and/or associated publications,

(2) use cases demonstrating successful architectures, design principles and analytical tools, and

(3) methodological and technological challenges encountered in the process.

We particularly invite contributions addressing problems and possible solutions regarding the interoperability, (re-)usability and sustainability of digital editions of research data, catalogs and publications, e.g., regarding the development of sustainable data formats, terminology bases and analytical tools. In terms of technological foundations, we also aim to discuss advantages and limitations of conventional relational databases and PDF publications in relation to XML-based publication formats and innovative technologies such as graph databases, ontologies and Linked Open Data.

IV. TECHNOLOGIE

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Stone tools feature as an essential source of evidence since the inception of the archaeological research enterprise. They are durable and hence reliable information resources that can be encountered on archaeological sites even when other materials already perished long ago. More over, making and using ancient stone tools is long regarded to be deeply entangled with past human behaviour, cognition and culture. Yet in the past decade or so, we have witnessed an extensive shift of interest to other sources of evidence to unravel the distant past. Today, most, if not all, of the central narratives of human history and evolution are furnished by other fields, taking on an increasingly “natural science” character. Why is this
the case? Has lithic analysis become largely irrelevant for the “big issues” of anthropogenesis and humanisation? And if so, how should lithic scholars respond to this situation? Do we really have nothing substantial to say anymore?

This session brings together researchers from different generations and research traditions to critically review major developments and impasses faced in lithic analysis during the past years in order to address these and related questions. The aim is to debate the current situation of the field, not for its own sake but in order to map out new directions, perspectives and approaches to lithic technology that might emerge from new methodological, theoretical and/or conceptual orientations in wider academia. The main contention of the session is that we cannot just “go with the flow” and that new answers must be found if we are to reclaim a key role for lithic studies in the quest for understanding the human past.

The session in particular wants to animate participants to think “outside the box” and to make creative proposals on how to tackle and to re-conceptualise old stones to render them significant again. We envision some of the following broader themes to be addressed during the session:

- technological transmission: skill, apprenticeship
- techno-logic, typology and tool-use
- technology, interaction and connectivity: networks, social intimacy
- cognitive technology: affordances, embodiment
- technology and rhythm(s)
- technology and society-making: division of labour, stratification
- lithoscapes, artefactual environments, and mobility
- technological evolution: darwinizing culture?

**IV-2. Becoming Specialists. From Imitation to Professionalism: A Palaeolithic to Neolithic Perspective.**

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Since the beginning of early human use of tools, Stone Age lithic artefact manufacture has diversify significantly through time and space, employing different ‘modes’ of production – understood here as the combination of techniques and reduction strategies utilised in the production of the desired items. The different techniques and strategies demand distinct levels of knowledge, experience and skill, as well as learning and training. Against this
background, the Stone Age lithic record represents a valuable archive for the recognition and discrimination of the different levels of skill in the manufacture of artefacts up to the professional level. The present session aims at a systematic and thorough recognition of the distinctions between these levels and aims to shed light on the development of learning strategies in the social organization and structure of past societies.

A series of presentations of both theoretical approaches and case studies will address the characterization and distinction of different levels of knowledge and experience, as well as the training and skills required for lithic artefact manufacture. The presentations will focus on key-questions supporting the recognition and discrimination of different levels of skill and how they were socially embedded in the archaeological record, addressing questions such as:

- Did different “cognitive thresholds” limit / enhance the acquirement of skills?
- What are the limits in learning without language?
- Is it possible to distinguish between skills that could be acquired by everyone in the group, or that only a few individuals were capable of?
- How can learning affect group activities? Are learning processes an active part of becoming a master craftsman?
- What are the links between skill levels and raw material exploitation? i.e., are the most talented / experienced knappers responsible for raw material acquisition?
- What are the critical factors in learning strategies necessary to support an even transmission of knowledge into society and what are the factors that drive labor division and specialization?
- How can single individuals (‘beginners’, ‘specialists’) and their interactions (‘social learning’, apprenticeship) be traced in the Stone Age archaeological record?
- To which degree does social organization demand a specialization of work and professional- ization, and how far do the latter determine the organization of societies?

IV-3. Apport des approches technologiques de la céramique à l'anthropologie et à l'archéologie des sociétés pré et protohistoriques - Contribution of the ceramic technological approaches to the anthropology and archaeology of pre and protohistoric societies

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The reconstruction of the operating chains of ceramic manufacturing is an approach essential to the analysis of the relations and the contacts between human and cultural groups. These works lean on the identification of materials (clays and temper), manufacturing traces, sequences of gestures and stages of the manufacturing process and finishing of pottery. They give the opportunity to regard pottery at several spatial scales - the site, the region, the cultural area - their variability, at the same time diachronic and synchronic and to propose a putting in context and an interpretation in anthropological terms whether it is on the social organization, the modes of transmission of the know-how and the apprenticeship. We shall here try to show the contribution of these technological approaches, both in archaeology as in ethnology of techniques in the analysis of pre and protohistoric societies.

IV-4. Fire as an artifact: Advances in the study of Paleolithic combustion features

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Research on Paleolithic combustion features is often motivated by the key role fire played throughout the course of human evolution. Thus, research is usually focused on the identification of early evidence for fire use. In this session, we would like to bring to light the great potential of Palaeolithic combustion features as transmitters of behavioral and paleoenvironmental information. First, fireplaces are
anthropogenic features and as such, they are artifacts. Their study allows us to approach aspects of technology, subsistence, domestic activities and other behaviors. Second, the geoarchaeological record shows that most Palaeolithic fireplaces were made directly on the ground, thereby leaving charred traces of residues derived from human activity, as well as of soils and vegetation from the natural surroundings. From this perspective, archaeological combustion features have the potential to provide true snapshots of the past and enrich our knowledge of Palaeolithic societies. We invite researchers working on Palaeolithic combustion features from any time period and from different archaeological subdisciplines (geoarchaeology, paleoecology, archaeomagnetism, archaeological chemistry, zooarchaeology, lithic technology and others) to present their data in this session as a way to bring forward and promote the interdisciplinary study of Palaeolithic fire.

IV-5. Earthen construction technology
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The general theme of the congress, "Adaptation and sustainability in prehistoric and protohistoric societies confronted to climate change”, offers a perfect context to open a discussion on construction techniques that use earth, a raw material particularly susceptible to climate variations. The cases will not specific have to do with climate change, but will always evaluate the eff of climate on the architecture and the diverse strategies developed by the ancient builders to avoid collapse and weathering, from careful selection of earthen mixes to mechanical reinforcement of walls, from stone or stucco facings to the use of organic additives to stabilize earthen renders, from surface impermeabilization to enhanced drainage techniques, distinct antiseismic techniques, etc.

Though recently reevaluated because of its universal value as sustainable, economic and bioclimatic architecture by ICOMOS (with its International Scientific Committee on Earthen Architectural Heritage - ISCEAH) and UNESCO (with the World Heritage Earthen Architecture Programme - WHEAP 2007-2017), the studies have focused on the conservation of existing heritage sites (where extensive excavations are limited because of their protected status) and on the study of vernacular building strategies. Unfortunately, vernacular building is generally geared towards domestic architecture building for and by family units. The knowledge expressed in vernacular architecture does not reflect the architectural and engineering know-how required to achieve the monumental designs of cultures like Mesopotamia, Andes or Mesoamerica.
that were commandeered and backed by elite political programs. Thus a deepened technological under-standing of the finer constructive techniques of ancient monumental architecture, derived from extensive excavations coupled with mineralogical, chemical and mechanical studies of building materials, will only be achieved through archaeological research.

While fabrication procedures are a common and longstanding topic of research in lithic, ceramic and metallic materials (and in lesser degree in textile and woodcutting), architecture in Pre-and Protohistoric societies has mostly been approached in a descriptive way, with relatively little interest for its technological aspects (more so with earthen architecture as stone). Thus a technological approach is not only a novel way to approach the archaeology of building in earth, with or the social and economical correlates of understanding technological procedures, it will also reveal a corpus of engineering and architectural know-how relevant for both the preservation of earthen heritage sites as the promotion of earthen architecture as a viable and economical alternative for modern building.

IV-6. Different times? Archaeological and environmental data from intra-site and off sequences

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The aim of this session is to bring together scholars from the fields of archaeology (from Prehistory to the Middle Ages) and natural sciences (geography-geomorphology mostly), in or- der to discuss the "thorny" question of reading time in sedimentary sequences inside and beyond settlements, and its use for a joint reconstruction of past events. It is not always easy indeed to interpret correctly the different lines of evidence and establish solid links between the two records, in order to formulate well-built proposals about their relation - in terms of time (con-temporaneous, prior, posterior) or causality (related, simply coeval, irrelevant). We wish to put forward the following elements:
a) The necessity to take into account for our interpretations not only the *density or the precision* of time measures (diagnostic artefacts, absolute dates - especially radiocarbon) but also the *nature* of the dated facts and the *adequacy* of the elements used for dating with respect to the dated contexts and to the questions underlying the dating. A charcoal found in a house destruction layer and another found in a colluvium that reworked this same layer do not provide the same information in terms of temporal framing - and this, independent of the short- or long-lived character of the charred wood plant-species. The discrepancies generated by such contextual differences are essential for our understanding of the succession or amplitude of past events. Speaking of “time reading” instead of “time measurement” is a way to draw attention on this important aspect.

b) The necessity of a closer dialogue between specialists from the two disciplines that would overcome the separation between intra-site and off-site records, the former being considered as the “ground” of archaeologists, the latter being that of geomorphologists. Although convenient in practical terms and justify to a certain point, this separation minimizes indeed the interaction between the two spaces over the short, middle and long terms (people impacting on their environment but also living with it or “bringing it” at home), and neglects the similarities in the approaches, or the methodological tools, used here and there (core-drills applied inside settlements, study of artefacts’ distribution in areas off, etc.). Ultimately, comparisons between intra-site (i.e. basically anthropogenic) sequences with neighbouring off-site (i.e. basically environmental) sequences need to take into account, in addition to distance distortion, the eff of time delay observed, or estimated, in the recording of mutual impacts.

This session is proposed as part of the activities of the Working Group ‘Environmental and Social changes in the Past’, animated in the frame of the Cluster of Excellence “Dynamite” (Territorial and Spatial Dynamics) of the University Paris 1-Sorbonne. Its topic illustrates the kind of questions asked by the Group’s members and anticipates the kind of answers that could be given in return. Papers or posters focusing on this topic (time measurement/time reading, dialogue archaeological stratigraphy/environmental sequence, building of historical scenarios) are welcome in our session.

**IV-7. La percussion lancée au Paléolithique : identification de son usage, types d’outils associés et étendue chronologique**

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L’utilisation d’outils en percussion lancée est une constante ethnographique largement étayée (Leroi-Gourhan, 1943). Au Paléolithique, ce mode d’action sur la matière n’est souvent que peu documenté et lorsque c’est le cas, il est le plus souvent limité à l’identification des percuteurs dans le cadre d’activités de débitage/façonnage d’artefacts lithiques.

L’objectif est de réunir les données existantes sur l’usage en percussion lancée en contexte paléolithique. Une part des communications sera consacrée aux méthodes d’identifications des outils percutants (morpho-fonction ; expérimentation ; tracéologie), dont les stigmates diffèrent en fonction des matériaux travaillant (pierre, os) ; travaillés (pierre, os, bois, sédiments…) et de la morphologie des zones de contact (linéaire, punctiforme, sphérique). L’autre part des communications attendues doit porter sur les résultats de ces méthodes d’analyses, en mettant en évidence les différents types d’outils utilisés en percussion lancée : percuteurs (dur/tendre), retouchoirs (os, pierre), mais aussi galets aménagés, bifaces, pics, hachereaux, tranchant (brut ou retouché) d’un éclat ou d’une lame ; ainsi que les outils percutants résultant d’un détournement – ponctuel – de sa fonction (nucléus, surface d’éclats ou de bifaces…).

Au travers de ces différentes communications, nous espérons disposer de suffisamment de données pour percevoir ce mode d’action sur la matière sur le plan diachronique et ainsi en percevoir l’évolution et la diversité sur un temps long. L’objectif à l’issue de la session est de pouvoir répondre aux questions suivantes : quels types d’outils, pour quelle activée et avec quelle extension chronologique ?
V-1. The sea, lakes and rivers: living dynamics, mobility relationships, resources and underwater traces.

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The sea, lakes and rivers are intimately related with different societies, not only for their resources, but also for their ability to be an excellent way of contact and reach routes for peoples and cultures. In this way he gained concepts, meanings and forms of adaptation allowing man to integrate him into his universe of life.

Whether they are verified on land, or in an underwater environment, they allow us to perceive the great relevance that would have in prehistoric or in proto-history.

This session invite to submit proposals and discuss communications that intents to focus and present data referring to the multiple and different dynamics of relation between Man and the marine, fluvial or lacustrine environment or between communities using them as a means.

In this sense there are 3 main focuses:
1. Mobility and economic relations between habitats or communities;
2. Underwater traces: data and methods
3. Places of worship, depositions and symbolic connections
VI. ETHNOARCHEOLOGIE

VI-1. “Man the hunter” revisited – Pleistocene Archaeology in the 21st century
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50 years ago, Richard B. Lee and Irven DeVore edited and published “Man the Hunter”, one of the most influential books of its time, revolutionising the agenda of Pleistocene Archaeology. In “Man the Hunter”, large game hunting was not considered simply as a way of subsisting, but as a way of life. For the first time, the consequences of hunting for our social structure and behaviour were discussed in an evolutionary perspective.

In Pleistocene Archaeology, the rising awareness of hunting as a major behavioural component of human evolution soon led to new research questions and priorities, along with the development of new methodologies and theoretical approaches to the archaeological record. For instance, one of the major outcomes of the hunting paradigm concerned faunal analysis, in which a taphonomic methodology and framework was established, accompanied by decades of lively debate on hunting-vs-scavenging. Over the last decades, the continuous development and incorporation of new methodologies, analytical techniques and theoretical frameworks have provided additional options for tracing different aspects of human evolution in the archaeological record. Thus, analysing and interpreting the Pleistocene archaeological record today is a multidisciplinary endeavour, in which the results of different research fields must be collated and contextualised. The scientific progress in Pleistocene Archaeology is stunning. Even so, the crucial key questions concerning hunting and our behavioural evolution remain the same as outlined in “Man the Hunter”.

50 years after “Man the Hunter”, this session gives us the opportunity to discuss and synthesise what we have achieved since then, to consider where we are now and to assess the recognitional limitations of the archaeological record. Two to three invited contributions shall present, from a diachronic archaeological perspective, a critical assessment of the state of knowledge of one specific topic of human evolution connected to hunting, providing a basis for broader discussion afterwards, enabling us to formulate a new agenda for the study of hunting in Pleistocene Archaeology. These topics include: Evolutionary theory in Pleistocene Archaeology, the human ecological niche and ecological tolerance, human subsistence and economic activity, human impact on food webs and quaternary
extinctions, human life history and division of labour, social organisation and population dynamics, dietary breadth and food preparation, transmission of knowledge. As in “Man the Hunter” the contributions and the subsequent discussions will be published.
VII. COMMISSION HISTORIOGRAPHIE

VII-1. Archaeology and interdisciplinarity, from the 19th century to present-day research
Laura Coltofean\textsuperscript{1}, Geraldine Delley\textsuperscript{2}, Margarita Díaz-Andreu \textsuperscript{3}, Marc-Antoine Kaeser\textsuperscript{4}

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This session aims to break with the histories of archaeology that examine archaeology in isolation. A closer look towards the development of archaeology easily shows that archaeologists have always borrowed practices and methodologies from a wide array of other disciplines, from the purest sciences (physics, chemistry), to environmental sciences (geology, biology), and the humanities (history, art history and philology). Moreover, the establishment of the archaeological discipline itself can be considered as the outcome of the merging of different research traditions coming from both the natural sciences and the humanities. During the 19th and 20th centuries (and still today) these disciplines therefore intersected with archaeology at anthropological and archaeological congresses that were attended by encyclopaedic scholars specialising in various fields. These scientific events, the creation of interdisciplinary institutions and laboratories, as well as specific research projects and other scientific events, such as specialised courses, academic visits and communication through correspondence, contributed to the creation of an active and strong academic network facilitating the discussion and exchange of the latest practices, theories and discoveries. This session will explore the process of incorporating other disciplines into archaeology, the impact of these other disciplines on archaeological research and their reception among professionals, as well as the relationships they created between scholars.

VII-2. The Decolonization of Asian Archaeologies
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In this session we aim to discuss the decolonization of Asian archaeologies from a historical perspective. In recent years historians of archaeology have developed
relevant new understanding of the ways archaeology is intrinsically connected to colonialism and imperialism, often with the help of post-colonial theory. The role and position of archaeology in Asia during the Japanese ‘interregnum’ and the following decolonization however continues to be understudied. Acknowledging that within Asia the trajectories of decolonisation differ strongly, we question therefore during this session how Asian archaeologies decolonized by studying biographies of (different generations of) archaeologists, the development of archaeological institutions (museums, universities, monument acts) and interventions at archaeological sites. How was colonial archaeology re-appropriated in post-colonial contexts? Which role did or do inter-Asian organisations and trans-Asian ideologies play in this context? In this session we aim to define colonial archaeological legacies without falling into the trap of colonial determinism. We do this by recognizing that the biographies, institutions and sites involved are not necessarily defy by, nor necessarily a representation of colonialism, even if colonial relations played, or have played a crucial role in shaping or transforming them.

VII-3. From stratigraphy to stratigraphic excavation in pre- and protohistoric archaeology

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Stratigraphic excavation is the cornerstone of archaeology; yet scholars have still not attempted a detailed and comparative historical examination of its effective achievement.

We are not referring to the acknowledgement of an effective need to place archaeological material in a stratigraphic framework (accomplished in prehistory in the mid-19th century), but rather to the effective establishment of stratigraphy as a key factor in archaeological excavation, an innovation that we can date to the beginning of the 20th century.

The transition from a mere recognition of stratigraphy to the practice of stratigraphic excavation can be analyzed from various points of view:

- a \textit{practical} dimension, concerning how an archaeological excavation is conducted. A stratigraphic excavation requires the presence of an archaeologist in the field, and it is well known that for many years this presence lacked continuity and mostly concerned the supervision of specialized workers. When can we say that archaeologists effectively began to excavate in person? Was the process favored by new administrative conditions, or was it the consequence of a new methodological awareness?

- a \textit{theoretical} dimension. From the beginning the attribution of archaeological finds to a stratum was a method of relative chronology and, at the same time,
the main way to reconstruct the connection between artifacts. Today we know that archaeological strata can provide information of their own, and that the horizontal distribution of the archaeological materials is just as important as their vertical distribution. To what extent did the progressive awareness of these (or other) factors determine the definitive affirmation of an effectively stratigraphic method of excavation?

- the context of the effective realization of the stratigraphic practice. Can different methods of excavation and recording of stratigraphy be detected in settlements, caves, and burials? If so, are there relationships between these different methods?
- last but not least, the relationship between different fields of study. Normally we think of a sort of linear evolution from geology to prehistory, and from prehistory to other archaeologies. As a matter of fact, the process was not so linear. If geology is considered as the “cradle” of stratigraphy, what kind of excavation practice did it inspire? And to what extent was it involved in the subsequent developments of archaeological excavation? Were other disciplines, starting with the other archaeologies, involved in the definitive affirmation of the stratigraphic excavation in prehistory?

We invite all interested scholars to debate these themes, without geographical limitations; we are interested in developments all over the world. The focus is on a chronological range between the mid-19th and mid-20th century.

VII-4. Epistemology, History and Philosophy of Science: Interdisciplinary Perspectives on the History of Archaeology

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Over the past 25 years, archaeologists have shifted from rejecting and trivializing the history of archaeology (traditionally considered a harmless amusement for their leisure hours) to considering that this discipline plays a major role in the understanding of archaeological research. This revalorization has been spurred by the emergence of a new generation of scholars who have met modern historiographical standards and practices. In this setting, historians of archaeology have benefit a great deal from a growing dialogue with historians, philosophers and sociologists of science. It is not by chance, for instance, that most of the French-speaking historians who have played a role in the reinvigoration of the
history of archaeology in the last two decades are historians and epistemologists of science. However, there are still few studies on the many epistemological, philosophical and sociological facets of archaeological knowledge. In this setting, this panel seeks to explore the relationships between the history of archaeology and other disciplines, include history, epistemology and sociology of science. In the first place, we will invite historians of archaeology and historians of other sciences to critically think about the relationships between their disciplines. This dialogue seeks to explore how historians of archaeology can enrich their work with a better understanding of the methods, techniques and concepts used in the history of science. In the second place, we seek to promote an interdisciplinary dialogue beyond the limits of historiographical studies. To do so, we will invite specialists in the epistemology and philosophy of science to consider how recent debates on their disciplines may intersect with the study of the history of archaeological knowledge.

**VII-5. Les archéologues victimes des régimes politiques, des idéologies et des religions : censure et répression**

François Djindjian

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L’objet de cette session est de donner des exemples historiographiques précis et documentés de régimes politiques, d’idéologies et de religions qui ont, dans le passé, empêché les archéologues d’exercer leur métier par des moyens divers : exécution, prison, exil, perte d’emploi, censure, etc.

The purpose of this session is to give accurate and documented historiographical of political systems, ideologies and religions that have, in the past, prevented archaeologists to do their work by various means: execution, prison, exile, loss of employment, censorship, etc.
VIII-1. Mapping the past. From sampling sites and landscapes to exploring the “archaeological continuum”

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The last decade has seen the application of new approaches to landscape archaeology, essentially based on high-precision, high-speed, large-scale geophysical survey along with the col- lection and analysis of high-resolution LiDAR data and the GIS-based integration of multiple data sources. These approaches have proved their potential effenes in rural and formerly urban landscapes, suggesting the possibility of prompting the adoption of new paradigms within landscape studies.

The application of this kind of large-scale and multi-source survey, eliminating as far as possible gaps in space and time, has radically transformed archaeologists’ views about almost every aspect of the past within recently surveyed parts of countries such as Britain, Austria, Belgium, France, Germany, Italy, Norway and Sweden.

A crucial concept shared by all of these major surveys has been the perceived possibility of identifying what might be called the ‘archaeological continuum’ within the areas concerned.

This concept can be defined as the impact of the sum total of the evidence detected (or detectable) within the area under examination, reducing spatial and chronological gaps as far as possible through the intensive and extensive application of a wide variety of exploratory methods and analytical techniques.

Project work across Europe has already demonstrated that it is now it possible, by developing and applying these deliberately holistic research strategies, to explore the whole landscape of carefully chosen areas as an archaeological continuum.

Archaeological interpretations derived from this kind of approach can be expected to reveal differing layers belonging to a variety of chronological horizons, each displaying mutual physical (stratigraphic) and conceptual relationships within that horizon.

Issues of applicability, reliability, standardization, sustainability, data interpretation and man- agement are currently the subject of intensive debate both inside and outside archaeology, though without yet leading to generally accepted practices across Europe or even within its individual countries.

This session will bring together papers reflexion the need to develop sustainable and reliable approaches to mapping our landscape heritage but also to define new archaeological questions and new conservation strategies directly stimulated
by the radical ideas inherent in the concept of landscape survey aimed at revealing the "archaeological continuum" more clearly than has been possible in the past.
IX. COMMISSION LANDSCAPE

IX-1. The use of Resilience framework in landscape archaeology and archaeogeography/ L’utilisation du concept de résilience en archéologie du paysage et archéogéographie.

Robert Sandrine

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The concept of resilience, initially used in physics, psychology and ecology, has been transferred in archaeology since the 1980s. Following the Canadian ecologist Crawford Holling, re-searchers of the European program Archaeomedes, for example, chose to use the term resilience instead of stability. Indeed, they argued that the notion of change in the dynamics of systems is more integral to resilience (Van der Leeuw ed. 1998, Van der Leeuw and Aschan-Leygonie 2000). Thus, resilience is not only the ability of a system to maintain its structure in the face of disturbance, but it is also “a property that allows a system to absorb and utilize (or even benefit from) change.” (Holling ed. 1978 p. 11). In archaeology, resilience places human-environmental interactions within an evolutionary framework.

Since the 2000s, archaeological studies have used the model of evolution proposed by Gunderson and Holling (2002): the adaptive cycle and the model of panarchy that articulates larger scale with slow dynamics, with smaller scale with faster dynamics.

The resilience framework is particularly well-adapted to the thematic of landscape because it enables to study complex systems that associate strong and sustainable structural relationships with constant transformations realized on other scales. In archaeogeography, I applied the resilience framework to the study of road networks, in a model articulating macro-meso-micro scales, and present and past forms (Robert 2003, Tome 2).

In 2005, the American Anthropologist devoted an issue on: Landscapes over Time: Resilience, Degradation, and Contemporary Lessons that highlighted the increasing interest of the archae- ological community for this framework (Fisher and Feinman 2005). And that interest has not been decreasing since (Anderson and Faulset 2015, for example). Today, resilience is invoked by risk-geographers, economists, sociologists... but a heated debate has arisen about its use in social sciences. Early on, landscape archaeology has been identified as a field where archaeologists can participate in the elaboration of the concept of resilience, through the studies of cycle in the long term perspective (Redman and Kinzig 2003).

In this session, we aim to welcome papers using the framework of resilience in landscape archeology and anthropology. We propose to discuss the
multiscalar approach permitted by the panarchic model. The loops of “revolt” and ”remember” can be well illustrated by landscape archaeology and archaeogeography. We propose too to discuss the contribution of archaeology and archaeogeography into the debate on whether resilience is relevant in social sciences.


Nous souhaitons accueillir dans cette session, les travaux utilisant le cadre conceptuel de la résilience dans le domaine de l’archéologie du paysage et l’anthropologie et discuter en parti- culier de l’approche multiscalaire qu’elle permet. Les boucles d’accélération ou au contraire de mémoire peuvent ainsi être particulièrement bien illustrées par l’archéologie du paysage et

X. COMMISSION ARCHÉOMÉTRIE

X-1. Archaeometry of prehistoric and protohistoric stone, metal, ceramics and glass

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The Commission intends to present the proposal for a session covering all aspects of analytical approaches to the studies of archaeological finds made of stone, metal, ceramics and glass. Materials of all periods from Prehistory to the medieval protohistoric cultures and civilizations will be taken into consideration. Special attention will be given to the quality of analytical performances. The presentation of special cases on how general problems concerning the various materials can be solved by applying diverse analytical methodologies, but also case studies on ancient quarries, the production of stone artifacts from various contexts, researches on mining, analyses of smelting remains, metal finds, metal workshop remains, ceramics of all kinds and periods, and researches on glass production, glass workshops, glass objects and coloring of glass will be collected and presented in different sections. A further aim of this session is to share the latest results and experiences which can provide useful information on the comparison of several archaeometric methods and technologies, and possibilities of standardization of test and database protocols.


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In the last decade analyses of prehistoric rock art have become widespread. The combination of different physic and chemical techniques and new methodological approaches has made it possible to determine raw material sources, operational sequences, pigments compositions, taphonomic processes, among other parameters, which can also have direct implications on the improvement of the chronological rock-art framework. Nevertheless, there are few studies linked to the characterization and identification of the organic binders, probably related to technical difficulties, components high degradation or sites preservation. The session will take into account
presentations related to these subjects of rock-art imagery from all chronological periods or cultural traditions. Likewise, papers will be accepted from any rock art site of the world.

Finally, since rock-art Archaeometry and Conservation is closely related with other disciplines (Geology or Biology, for example), papers will be accepted from practitioners from other relevant fields of study related to the theme. It is expected that the session will discuss relevant guidelines for archaeologists, geoscientist researchers, physics, chemists, conservators and managers.

We invite and encourage the participants in this session to debate around the different studies related with pigments, binders, absolute dating, the most recent methodologies, and scientific instrumentation, taking into account the state of the current issue and the future prospects of this line of research.

XI. COMMISSION DATATIONS

XI-1. Vers une amélioration des outils chronologiques pour la datation des sites du Paléolithique inférieur et moyen en Eurasie / Toward the improvement of chronological tools to date Lower and Middle Palaeolithic settlements in Eurasia

Christophe Falguères¹, Sébastien Nomade²,

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The oldest evidence of human presence outside Africa was found in the Dmanisi site, Georgia, around the end of the Olduvai Subchron (c.a. 1.8 Ma). Then, two paths were taken by Homo erectussensulato. The first was towards Asia where the oldest sites were found both in Java Island between and in China around 1.6 Ma. The first evidence of human settlements in Europe is found before 1.2 Main the Iberian Peninsula.

Java is a volcanic region, the northern part of China is mainly covered by loess deposits while in Europe, prehistoric sites are found in karstic environments as well as in fluvial deposits but rarely associated with volcanic layers. The large amplitude climatic changes that occurred in Western Europe starting about 800 ka ago have hampered the fossilization conditions but also on the preservation of the sedimentary sequences. It also participated in the recurrent contraction and extension of the possible
zone of hominin settlements. Several methods can be used to date archaeological remains such as cosmogenic isotopes (10Be/26Al), 40Ar/39Ar, ESR which results are compared with magnetostratigraphic, stratigraphic and biochronological data. However because of the geological context and scarcity of artefacts it is rare to get the opportunity to use a multimethods and/or multiproxies approach rending difficult the interpretation of the results. Moreover, when volcanic effluents are absent, 40Ar/39Ar method, which is the only one between 500ka and 1.6 Ma capable to yield ages with a two sigma error range with a precision <5% cannot be used. Results provided by other methods such as ESR or cosmogenic provide larger error range and do not constrain thoroughly the period of interest. In the time range between 1.2 and 1.8 Ma we therefore face several problems to get reliable and precise dates. Excluding some sites, the chronological framework for the period between Olduvai and Jaramillo is mainly based on magnetostratigraphic and biostratigraphic data. The sites ranging between 1.0Ma and 700 ka are very scarce in Europe while in Asia some sites show interesting characteristics such as the first Acheulian tools, faunal turnover etc... The Italian sites that are associated with volcanic layers are now well dated by 40Ar/39Ar and have provided for the 0.7 to 0.40 Ma time range a very precise and accurate chronological framework.

This session is opened to bio and geochronologists who try to elaborate a reliable chronology of the Lower Palaeolithic sites in order to improve the knowledge of human evolution and to better understand migrations paths and techno cultural changes in Eurasia.
XXII-1. New Technologies and Analytical Approaches in Traceology
Laura Longo¹, Natalia Skakun², Alfred Pawlik³,

¹: Nanyang Technological University
²: Institute for the Material Culture History, Russian Academy of Sciences, St.-Petersburg
³: University of the Philippines Archaeological Studies Program

Traceology continues to be the major method for the identification of prehistoric tool use and function since Sergej A. Semenov's fundamental work ‘Prehistoric Technology' (1964) introduced this method to prehistorians worldwide over half a century ago. The analysis of microscopic wear traces and use-related residues provides significant information to various important aspects of archaeological research. Among them are questions on site functions and activities carried out in prehistoric settlements or the reconstruction of archaeologically invisible components of complex tool technology, e.g. hafting and composite tool design. Traceology has also significantly contributed to the debates on human behavioural complexity, adaptation to changing environments and cultural and cognitive advancement as well as other aspects of the evolution of the human intellect.

The International Scientific Commission A17 on Functional studies of prehistoric artefacts and their socio-economic meaning is devoted to the complex and manifold role of artefacts in human paleoecology and the reconstruction of ancient economic systems. This implies that the reconstruction of production and use of artefacts in the past is not just the re-enactment of processing of materials, human activities or prehistoric technologies but a matter of understanding the evolution of production techniques and their consequences for the people that produced and used the artefacts in a socio-economic context. The Commission A17 will ensure that the greatest possible effort is made to promote methodological advancement and support cutting-edge research that is aimed at widening the informative capacity of use-wear analysis, as well as establishing new data recording and relational database systems.

Optical microscopy using reflected-light and stereomicroscopes continues to be the methodological backbone of Traceology. However, a variety of technological innovations in microscopy and material analysis have been introduced in recent years, with more or less success, to overcome specific problems and to achieve better results. The market introduction of affordable 3D digital microscopes coupled with extended imaging techniques as well as dedicated software applications has lead to a variety of researches taking advantage of digital features like High Dynamic Range images, wide-range imaging and stitching or fully automated focus stacking. New experimental frameworks and ground-breaking research are being conducted to successfully apply laser confocal microscopy, scanning electron microscopy, Raman microscopy, atomic force microscopy, scanning white-light interferometry, etc. to use-
wear and residue analysis. Micro-analytical applications like Energy-dispersive spectroscopy (EDS), Gas-chromatography coupled with mass spectrometry (GC/MS) and laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) are increasingly tested and used for micro-residue analysis. This session invites traceologists to present their cutting-edge research and the application of new techniques and instruments to contribute to the methodological debate and the exchange of ideas in our discipline.
XII.1. Bones, Bodies and Objects - Vectors of symbolic representations
Claire Houmard1, Ulla Odgaard2

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Bone and tooth – osseous and dental material – have properties, which make them suitable as resources for the manufacturing of tools, weapons and objects of art. Bones and tooth are also remains of living beings, and in this session the objective is to explore how objects in their materiality could refer to spiritual meanings and transcend the material support used for utilitarian purposes.

Vectors, in mathematics, are objects possessing both magnitude and direction, and in Latin vector means “carrier”. By using vector as a metaphor the session wishes to focus on archaeological objects and structures, which could possess multiple dimensions and meanings, by discussing the insights that studies of osseous and dental material, can bring to the understanding of past societies.

The relationship between the subsistence strategies and the modes of representations in bone and tooth materials, both animal and human, including human-animal interaction, will be the heart of the discussion. In objects it could be the raw material selected, the design and/or the drawing applied to the objects/bodies. These tacit material ‘connotations’ are hard to be tangibly grasped from archaeological finds, especially in the oldest contexts.

However, when data from different disciplines such as zoo-archaeology, anthropology and history of religion are combined, new perspectives on cosmology and ritual efficacy and performance could be reached. E.g. from Inuit traditional knowledge we know that hunting weapons, due to special attributes and/or chosen material can possess qualities, which will encourage the hunted game to allow its own kill.

The living world is usually intermingled with the next world, both having linked symbolic representations which deserve to be better understood. This session will welcome papers discussing possible metaphorical representations in the construction of materiality expressed in bone and tooth, and it is the aim to be able to draw pertinent comparisons between different times, places and cultures.

Claire Heckel1, Solange Rigaud2,
Personal ornaments are polythetic artifacts that are intimately connected to identity, social organization, and ritualized material practices. Their analysis, when performed with appropriate tools, offers unique insights into the social organization of prehistoric societies and, when considered longitudinally, cultural evolution. Evidence that has been uncovered in the last twenty years has substantially altered the timeline for the emergence of symbolic behavior and also shown that instead of a sudden emergence, personal adornment has a complex and mosaic prehistory marked at certain times and places by intensified investment. The conditions that motivate investment in symbolic material culture are complex and varied, and untangling them is crucial to understanding the contribution of symbolic practices to the form and function of human societies.

This session will focus on methods and approaches that further a more comprehensive and nuanced understanding of the factors that have influenced personal adornment production and use over time and space, going beyond typology and technology to examine broader economic, social, and cultural contexts. Examples are welcome from a wide range of contexts across pre- and proto-history, from hunter-gatherer bands of the Pleistocene to early pastoral and farming societies and including ethnographic and ethnohistorical examples, without geographic restriction. Contributions should focus on analytical methods and techniques (including microscopy and imaging, use-wear analysis, sourcing, morphometrics, GIS analysis, and statistical approaches) that contribute to discussions of production organization, social organization, demography, mobility, landscape use, technology, exchange, and cultural transmission. The primary focus of the session is beads and pendants in biogenic materials (tooth, shell, ivory, bone, antler, amber, ostrich eggshell), but we invite contributions based on other materials related to adornment such as minerals, metals, pigments, residues, and perishable materials such as hide, sinew, and hair.

**XIII-3. Integrating Ballistics into Archaeology**

Elisabeth Noack¹, Sabine Gaudzinski-Windheuser²

1 : MONREPOS Archaeological Research Center and Museum for Human Behavioural Evolution (MONREPOS) - Schloss Monrepos 56567 Neuwied - Allemagne

2 : Johannes Gutenberg Universität Mainz (JGU) - Schillerstraße 11 55116 Mainz - Allemagne

Adoption of hunting as the primary subsistence strategy is considered to be one of the major stages in the evolution of human behaviour. Hunting practices are culturally
transmitted and socially embedded. Thus, the reconstruction of hominin hunting behaviour is one of the keys to the understanding of human behavioural evolution. Research in Palaeolithic and Mesolithic archaeology has made great advances in the identification and characterisation of weaponry systems and hunting lesions. However, a theoretical framework incorporating the interdependencies of weapon system and target has not yet been defined. Here we attempt to initiate the development of such a framework with the help of ballistic science. The ballistic perspective fractionises the process of hunting into definitive components, along a timeline beginning with weapon construction and ending with a successful kill. But ballistic science not only structures the hunting process, it also provides sufficient background to explain the causal relationship between wound formation on animal bones and weaponry systems. Thus, we can recalculate the equation involving weapon, hunter and target by emphasizing the interdependent role of each component: the effect resulting from weapon use can only be understood in relation both to its target and to its user. We consider this approach to the interrelated effects of hunting weapons in regard to target and hunter to be a crucial step towards a novel and holistic perspective on past hominin hunting behaviour and its material signal.

At this inaugural meeting, we intend to discuss the potential of ballistics to serve as a starting point for developing a methodology for a new sub-discipline in Pleistocene and early Holocene archaeology, and its implications for our current methodological apparatus, especially in relation to experimental research. We invite contributions that discuss critically the current state of knowledge on the evolution of prehistoric weaponry and hunting behaviour in the context of Palaeolithic and Mesolithic archaeology.
XIV. COMMISSION ACHEULEEN

XIV-1. The first European peopling: chronology, behaviour and environment
Marta Azarello¹, Marie Hélène Moncel², Carlo Peretto¹,

¹: Università degli Studi di Ferrara (Università degli Studi di Ferrara)
²: MNHN (MNHN) Muséum National d'Histoire Naturelle (MNHN), Museum National d'Histoire Naturelle - MNHN (FRANCE)

Since the last decades, the discovery of new sites and the systematic excavations of several ancient sites allowed to outline a clear scenario in which the first European peopling is attested well before 1 Ma. The interdisciplinary approach utilized for the analysis of the oldest European sites allowed to investigate the behavioural strategies adopted by the first Europeans and to reconstruct the paleoenvironment.

Within this scenario, the aim of the session is to discuss the variability and the common points that characterize the first European settlements in a strongly multidisciplinary perspective.

The main questions addressed to participants are: are we using a common chronology to define the first European peopling? As the lithic production has a lot of common futures, which is the meaning of this “homogeneity”? Which is the role of the peculiarities of some lithic productions? How the environment (in terms of climate and exploitable resources) has influenced the characteristics of the oldest European settlements? Can we underline the migration routes? Which Homo specie/species have firstly occupied Europe? Which are the possible link between the first European and Asiatic peopling?

XIV-2. MIS 13-11: a major transformation in the European Lower Palaeolithic?
Robert Hosfield¹, James Cole²,

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Recent developments have seen renewed interest in the evidence for diversity and complexity in the identity, population patterns, behaviours and ecological tolerances of the hominins of the European Lower Palaeolithic. Key relationships are likely to exist between ecological variability, population structures (e.g. ebb and flow or source and sink models) and patterning in material culture, site distributions and the hominin fossil record. It has long been recognised that the period between c. 550-400kya (MIS 13-11) oversaw major changes in Middle Pleistocene Europe (e.g. faunal turnover, a
shift towards the mammoth steppe, and a richer and different hominin record), but there have to date been only limited attempts to connect the multi-disciplinary records from different regions.

The goals of this session are to: (i) critically evaluate whether MIS 13-11 is the most appropriate period to seek evidence for step-changes in the hominin record; (ii) review regional variations, and potential connections, in the available multi-disciplinary evidence from MIS 13-11; and (iii) highlight new developments in understanding of hominin behavioural packages and distribution trends, palaeoenvironmental contexts and the fossil/genetic record (e.g. new discoveries, innovative methodological developments).

We welcome multidisciplinary contributions focusing on, but not limited to, palaeoenvironments and palaeoclimates, palaeoanthropology, zooarchaeology, and the Palaeolithic artefact record, drawing on traditional and/or innovative approaches.

XIV-3. The bifacial shaping phenomenon over time and space
Marta Arzarello¹, Marie-Hélène Moncel²

¹ : Università di Ferrara (UNIFE) - c.so Ercole I d'este 32 - Ferrara - Italie
² : Muséum national d'Histoire naturelle de Paris

The bifacial shaping is in general mind linked to the Acheulean in Africa and Western Europe. However, if the phenomenon is observed from a broader perspective, it is obvious that almost all the continents yielded handaxes and dated to various periods of time. These bifacial tools may be considered as evidence of traditions/Homo diffusion and/or convergence phenomena over time.

The purpose of this session is to compare the bifacial technology in a diachronic and multiregional perspective. The discussion will be also aimed to analyse the spread phenomena in order to try to identify what could result from a “diffusion of cultures” or “multiregional appearance”.

XIV-4. In the shadow of the biface. Complexity of Middle Pleistocene technical systems in Europe / À l'ombre du biface. Complexité des systèmes techniques au Pléistocène moyen en Europe
Roxane Rocca¹, Jordi Serangeli², Vincent Lhomme³

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The Acheulean is still mainly defined today by the presence of the biface, but it is also associated with other chaînes opératoires. Whether these other methods “of making tools” are associated with bifaces or not, they play a role in European Lower
Paleolithic industries and it is essential to analyze them to enhance our understanding of the technical systems.

This session thus aims to bring to light the chaînes opératoires in the shadow of the bifacial method in order to understand the interactions between all the elements of the technical system. It is therefore preferable to present regional or site overviews based on analyses of the different chaînes opératoires and their aims. What is the role of debitage for producing functional blanks? Do other tools play a role in the technical system (flakes, macro-tools, pebbles, small tools, etc.)? What is the role of bifacial shaping for the range of tools?

Evidence of these different tool blanks and their interaction, in different geographic areas and for the whole duration of the bifacial episode in Europe, will lead to an enhanced assessment of Acheulean plurality.

Si l'Acheuléen est, encore de nos jours, principalement défini par la présence de biface, d'autres chaînes opératoires lui sont devenus associées. Ces autres modalités « de faire outils », qu'elles soient associées ou non à des bifaces, jouent un rôle dans les industries du Paléolithique inférieur européen et leur prise en compte est nécessaire dans la compréhension des systèmes techniques.

Cette session aura donc comme objectif de mettre en lumière les chaînes opératoires à l'ombre de la composante bifaciale afin de comprendre les interactions entre tous les éléments du système technique. Il sera donc souhaitable de présenter des synthèses régionales ou de sites en analysant les différentes chaînes opératoires et leurs objectifs. Quel est le rôle du débitage dans l'obtention des supports fonctionnels ? D'autres outils jouent-ils un rôle dans le système technique (éclats, macro-outils, galets, petits outils, etc.) ? Quelle place occupe les façonnages bifaciaux dans la gamme d'outils ? La mise en évidence de ces différents supports d'outils et de leur interaction, selon les aires géographiques et durant toute la durée du phénomène bifacial en Europe permettra de mieux cerner la pluralité des Acheuléens.

XIV-5. From natural to cultural object: raw material-related human behaviors in the early technologies
Rosalia Gallotti2,1, Jean-Paul Raynal3,1, Pierre-Jean Texier4

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1: Université de Bordeaux, CNRS, UMR 5199-PACEA (PACEA) - Université Sciences et Technologies - Bordeaux I, CNRS : UMR5199, Ministère de la Culture et de la Communication allée Geoffroy Saint-Hilaire, bâtiment 18, CS 50023, F-33615 Pessac Cedex - France

3: Max Planck Institute for Evolutionary Anthropology, Department of Human Evolution - Deutscher Platz 6, 04103 Leipzig - Allemagne
During millions years of evolution, hominins were able to survive, to adapt and to occupy new territories thanks to a progressive “emancipation” from the natural constraints of nature, i.e. thanks to their capacity to create culture. This long and discontinuous process represents one of the distinctive traits of our evolution.

But which are the tempos, modes, and phases of this process and which role does the human biologic variability play?

Our session intends to partially address this theme analyzing the human technical responses to the different qualities/limits of the raw materials (lithology, dimensions, geometry) in micro-regional contexts and in a synchronic/diachronic perspective between the late Pliocene and the early Middle Pleistocene. This period includes crucial phases of our biological and cultural evolution, i.e. the emergence of lithic technology, the disappearance of the Oldowan complexes and their replacement by the Acheulean(s), the developments of the Acheulean(s), a high paleoanthropological variability, major climatic shifts, the out of Africa, and the first settlement(s) of Eurasia.

This session will be focused to answer to the following topics:

- Do the availability and the variety of the raw materials allow differentiated technical strategies?
- If so, do the lithic industries indicate different levels of knowledge and knowhow, linked to the characteristics of a determined raw material? Are they related to the several phases of different productions?
- Does the technical variability reveal occasional choices, i.e. the outcome of the human adaptation to different situations? Or does it reveal an invariant knowledge, free from the several constraints imposed by the raw materials?
- Do the characteristics of the raw materials influence the concepts of anticipation, predetermination, and, more generally, the capacity for abstraction?
- Which role do the location and the composition of the procurement sources in relation with the phases of the lithic production play in the mobility of a human group?

Superseding the cultural labels of “Oldowan”, “early Acheulean”, “classical Acheulean”..., the main aim of this session is to understand whether the knowledge and selection of lithic resources and the “emancipation” from their constraints 1) constitute a linear evolutionary process or a sort of puzzle being gradually established; 2) by which natural constraints and technical purposes they are determined; 3) which are the spatio/temporal dimensions; 4) which is the role of the human biological variability.
XIV-6. The Middle Pleistocene of West Iberia

João Pedro Cunha-Ribeiro¹, Sara Cura², Alberto Gomez³, Eduardo Méndez-Quintas, Jose Meireles, Sergio Monteiro-Rodrigues

¹: Universidade de Lisboa (Faculdade de Letras.)
²: Prehistoric Art Museum of Mação
³: Universidade do Porto (Centro de Estudos de Geografia e Ordenamento do Território (CEGOT).)

The west of the Iberian Peninsula is an area with jolly potential for the knowledge of the human populations of acheulean technology for Middle Pleistocene. The present investigations focus in archaeological, geomorphologic aspects and geochronological of the main river basins-rivers Tagus, Miño or Lis-(Cunha Ribeiro, 1999; Oosterbeek et al., 2010; Cura, 2014; Rosina et al., 2014; Cunha et al., 2016; Proença Cunha et al., 2016; Santonja et al., 2016; Méndez-Quintas, 2017), the coast (Meireles, 1992; Texier et al., 1995; Monteiro-Rodrigues and González, 2010; Monteiro-Rodrigues and Cunha Ribeiro, 2014)and karstic surroundings(Marks et al., 2002). These works reveal the existence of an important human presence with acheulean technology, from the MIS 10 even the MIS 5, as of multiple sites in fluvial contexts, but for the most part without faunal remains. The recent publication from the Gruta da Aroeira’s cranium correlated to acheulean tools (Daura et al., 2017)comes to confirm the region potential. This session is a balance forum of the investigation in the region, discussing the main results of the present investigations. We will discuss the main problems with them that encounters investigation (limited faunal remains, absence of absolute datings) and the future investigation lines.
XV. COMMISSION PAEOLITHIQUE MOYEN 1 (N. CONARD)

XV-1. Current research on settlement dynamics and cultural variability during the Middle Stone Age
Maria Gema Chacon\textsuperscript{1}, Nicholas Conard\textsuperscript{2},
\begin{itemize}
\item \textsuperscript{1} : IPHES - Zona Educacional 4 - Campus Sescelades URV (Edifici W3) 43007 - TARRAGONA - Espagne
\item \textsuperscript{2} : Université de Tubingen - Universität Tübingen Ur- und Frühgeschichte und Archäologie des Mittelalters Burgsteige 11 72070 Tübingen - Allemagne
\end{itemize}

Research on the Middle Stone Age advances steadily, but many questions remain open. These include cultural taxonomic questions about defining the MSA and how we organize the roughly 250,000 years of cultural change during this period. Similarly, researchers continue to ask whether or not the MSA is a period of directed, long-term evolution or is characterized by more punctuated small scale or even stochastic variability resulting from diverse selection pressures or truncated patterns of learned behavior. Debate persists on the question of whether or not cultural change is primarily driven by environmental variables, or whether cultural innovations and cultural transmission significantly shape MSA lifeways largely independent of direct environmental causality. All of these issues can be addressed using multiple temporal, spatial and demographic scales. This session examines the social-economic context of behavior during the MSA to elucidate the variability in settlement dynamics and technological organization at intra-site, inter-site and larger regional and superregional scales. Partner sessions addressing these questions in the MSA and the Eurasian Middle Paleolithic should stimulate discussion and debate on the cultural patterns that characterize diversity within the MSA and Middle Paleolithic records.

XV-2. Current research on settlement dynamics and cultural variability during the Middle Paleolithic
Maria Gema Chacon\textsuperscript{1}, Nicholas Conard\textsuperscript{2},
\begin{itemize}
\item \textsuperscript{1} : IPHES - Zona Educacional 4 - Campus Sescelades URV (Edifici W3) 43007 - TARRAGONA - Espagne
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Paleolithic is a period of directed, long-term evolution or is characterized by more punctuated small scale or even stochastic variability resulting from diverse selection pressures or truncated patterns of learned behavior. Debate persists on the question of whether or not cultural change is primarily driven by environmental variables, or whether cultural innovations and cultural transmission significantly shape Middle Paleolithic lifeways largely independent of direct environmental causality. All of these issues can be addressed using multiple temporal, spatial and demographic scales. This session examines the social economic context of Middle Paleolithic behavior in Eurasia to elucidate the variability in settlement dynamics and technological organization at intra-site, inter-site and larger regional and superregional scales. Partner sessions addressing these questions in Middle Paleolithic and African MSA should stimulate discussion and debate on the cultural patterns that characterize diversity within the MSA and Middle Paleolithic records.
XVI. COMMISSION PALEOLITHIQUE MOYEN 2 (A. RINGER)

XVI-1. The variability of bifacial tools in the Middle Palaeolithic and their importance in the transition to the Upper Palaeolithic in Western Eurasia: raw material, techno-typology, chronology and interactions in their environmental and cultural context.
Arpad Ringer¹, Liubov Golovanova², Agnes Lamotte³, Vadim Stepanchuk⁴

¹ : University of Miskolc
² : ANO Laboratory of Prehistory
³ : University of Lille
⁴ : Institute of Archaeology of The National Ukrainian Academy of Sciences

This 2018 session in Paris would like to focus on the issues of lithic industries in the Middle Palaeolithic before the arrival of modern humans, and then to evaluate in a spatiotemporal way the transition towards the Upper Palaeolithic of the Near East to Atlantic Europe, via Anatolia and the Caucasus. The aim is to clarify the ideas on the coexistence of Neanderthals with modern humans, with regard to the lithic industries these hominids produced. What is the techno-typological variability of the bifacial tool industries before the presence of modern humans (in the predefined territory above), and what is the techno-typological variability of the industries with bifacial tools and leafpoints after the arrival of modern humans? How do the techno-typological elements of the Upper Palaeolithic arise in this transformation of the bifacial industries and leafpoints? Various topics will be considered during this session: the raw material sources, the workshops, the circulation of materials. The bifacial and leafpoint achievements in the Micoquian or Keilmessergruppen (whole tools, roughouts, fracturing): isolated phenomenon, or regional characteristics? A look will also be cast at palaeoenvironments, and the adaptation and response of hominids to variations. Assessments of faunal migrations in relation to those of humans (thus human-faunal interactions) will be welcome for the wide territory of South-West Asia to Europe, via Anatolia and the Caucasus: from the Urals to Britain.

XVI-2. Peopling dynamics in the Mediterranean area between 45 and 39 ky ago: state of art and new data / Dynamiques de peuplement dans la Méditerranée entre 45 et 39 ka BP : état de l'art et nouvelles données
Annamaria Ronchitelli¹, Stefano Benazzi², Marco Peresani³, Fabio Negrino⁴, Francesco Boschin⁵, Enza Elena Spinapolice⁶

¹ : Dip. di Scienze Fisiche, della Terra e dell'Amiente-UR Preistoria e Antropologia-Università di Siena (DSFTA) - via Laterina 8 - 53100 Siena - Italie
Anatomically modern humans (AMH) radiated out of Africa into the rest of the world starting from around 100,000 years ago. New genetic evidence based on European Palaeolithic human remains suggests that the arrival of AMH in Europe took place ca. 45,000 cal BP. However, the pattern of the biological and cultural shifts that occurred during this complex period, the exact geographic routes followed in the dispersal into Eurasia and the consequences on the autochthonous Neandertal populations are still warmly debated and are considered to be amongst the most important questions in Prehistory.

In this debate, the Mediterranean area plays a pivotal role for 1) its ecological variability and geographic position at the intersection of the possible AMH migratory routes 2) the presence of human fossil remains associated with the different cultural entities 3) the presence of transitional and early Upper Palaeolithic complexes. The purpose of this session is to update our knowledge on the crucial problem of the arrival of AMH in Western Eurasia. In particular, we aim to discuss both the state of the art and new acquisitions on a larger biogeographic perspective in order to better evaluate similarities and differences in behaviour and technology and potential interactions occurring among Late Mousterian and transitional-Early Upper Palaeolithic complexes (e.g., the Uluzzian and the Chatelperronian, Protoaurignacian) as well as the issue of the emergence of the Initial Upper Palaeolithic assemblages in the Near East. Attention should be given to the role of the environment and relative adaptive responses and their reflection in technologies, settlement patterns, subsistence practices and dispersal timing.

Communications proposed in the framework of this Session will concern research data in the fields of: Prehistory, Paleoanthropology, Paleo climatic Sciences, Zooarchaeology, Traceology, Cultural evolution and transmission, and all related topics without disciplinary restrictions.

Les hommes anatomiquement modernes (AMH) ont migré hors d'Afrique et occupé la planète à partir de 100.000 années. Les plus récentes données génétiques basées sur les restes humaines du Paléolithique européen, suggèrent que l'arrivée en Europe se place autour de 45.000 années. Cependant, les modalités et l'étendue géographique de ce
changement biologique et culturel, parmi les questions les plus importantes en Préhistoire, sont toujours objet de débat. Dans ce cadre, la région de la Méditerranéenne joue un rôle fondamental pour 1) la variabilité écologique et la position géographique au carrefour des possibles routes migratoires ; 2) la présence de restes humains fossiles associés avec des entités culturelles diverses ; 3) la présence de techno-complexes de transition. L’objectif de cette session est de mettre à jour notre connaissance sur la question cruciale de l’arrivée des hommes modernes en Eurasie occidentale. Nous cherchons en particulier à discuter, sous une perspective biogéographique, différences et similarités dans le comportement et dans la technologie, et les interactions potentielles entre le Moustérien final et les techno-complexes du début du Paléolithique supérieur (tels que l’Uluzzien, le Châtelperronien et le Protoaurignacien), mais aussi la question de l’émergence des complexes « Initial Upper Palaeolithic » dans le Proche Orient. Une attention particulière est posée sur le rôle de l’environnement, sur les relatives réponses adaptives et sur leurs conséquences dans la technologie, les modèles d’occupation humaine, les pratiques de subsistance, et aussi le timing de la dispersion. Les communications proposées dans le cadre de cette session regarderont des données de recherche autour de la Préhistoire et de la Paléoanthropologie, Paléoclimat, Archéozoologie, Tracéologie, évolution et transmission culturelle ainsi que toutes les disciplines affines.

The session was designed under the framework of the ERC project titled “The earliest migration of Homo sapiens in southern Europe: understanding the biocultural processes that define our uniqueness” (grant agreement n. 724046 - SUCCESS).

XVI-3. Short-term human occupations and mobility patterns
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The study of short-term human occupations allows us to get to know socio-economic behaviour during Palaeolithic. They exist several types of short-term occupations related to the kind of functionality of the archaeological site. Most of these sites, however, show an alternation between hominins and carnivores and, as consequence, overlapped remains left by both predators. From an archaeological point of view, this phenomenon generates palimpsests, which add difficulties to the correct interpretation. Some examples are the places of hibernation for bears which low indices of human
frequentation, occasional human refuges in caves and shelters usually used by carnivores as dens, ungulate natural traps where scavengers access to eat the carcasses, or kill sites with remains exposed to the action of the scavengers. The detailed study of these sites can be significantly informative to understand some basic questions about the development of the human communities in a landscape, their mobility across the territory, their subsistence strategies and, the relationships established between them and other biological entities (mainly carnivores).

XVI-4. The Origins of Traditions Regionalization in the Palaeolithic – evaluation, evolution and mechanisms
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The Stone Age archaeological material record becomes increasingly more diversified through time as well as its resolution becomes finer grain and enables an examination closer to historical and ethnographic timescales. As a result, the record also becomes increasingly regionalized in terms of what is defined below as tech-typological styles. During recent years, research into the roots of such spatially bounded techno-typological styles creating regional patterning with localized trajectories of change has witnessed a growing appraisal.

Techno-typological styles are the outcome of a long chain of decision-making processes, which are perpetuated within socially cohesive groups. Technological operations and resulting artefacts reflect socially-transmitted strategies of manufacture that may have been chosen from various functionally equivalent alternatives. Different modes of artefact manufacture reflect the transmission of learned knowledge over time. Proxies for such accumulated communal knowledge can be manifested in the Palaeolithic record in various items such as lithic or organic artefacts, personal ornaments or art objects.

Techno-typological style can arguably be perceived as a way to mark, maintain and differentiate among human groups or populations. They may be confined in time and space and vary between neighbouring regions with distinct cultural trajectories. By many archaeologists, they are perceived to reflect past identities mirrored in the archaeological material record. Probably, regional boundaries persisted between such traditions despite the constant influx of migrating populations and novel ideas.

Casting this perspective on the Lower and Middle Palaeolithic record creates several fundamental challenges: What is the appropriate scale of identification of a "region"? What are the underlying demographic constraints? How do variations in modes of learning play a role in regionalization? What explanatory frameworks can be used to interpret the mechanisms that create, maintain, and enhance regional cultural differentiation over prehistoric time-scales? Such an explanatory framework has not been fully developed yet.

In this session, we aim to take a step further from recognizing and documenting spatial patterns of regionalization in the Palaeolithic. We intend two complementary parts,
one that discusses case studies and possible explanatory mechanisms of each of the case studies. Connecting bottom-up (record-based) and top-down (development of explanatory models and implantation of those to particular case studies) approaches is an essential step towards an improved understanding of regionalization in this period. The case studies stem from varied places over the long course of the Lower and Middle Palaeolithic with diverse behavioural proxies. The second part will be dedicated to the development of more generalist theories and models (population dynamics, learning models, simulation models, etc.). Such avenues will contribute to a new overarching explanatory framework of the role of traditions in human evolution.

XVI-5. The search of small tools by Neanderthals populations in Western Europe
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Microlitization process and specially its reasons (raw material format, mobility strategies or productive processes transformations) are especially important in relation with Neanderthal societies. Although during Lower Palaeolithic there are many references to tools size reduction, is during Middle Palaeolithic when this reduction, related with ramified production systems, is particularly intense. Generally, these small size industries have been explained as a raw material format adaption or an raw material economization quality in contexts where it is not very abundant. This hypothesis doesn’t cover the possibility which microlitization process can be related with change in mobility patterns. Normally, there are an prejudice association with Neanderthals and massive tools and, therefore, there is no possibility in a conscience and planned election of this type of tools. Microlithic equipment presents advantages in relation with mobility, provide a better precision of use, increases the diversified possibilities including hafting tools and increases raw material potential which aid to economize it. Also, its integration in other complex systems through ramified productions benefits tool procurement and the structuration of activities on a size variability. In this sense, tool microlitization causes are especially important to evaluate raw material economies and the complexity and variability of the lithic technical systems.

XVI-6. Cantabrian Spain and surroundings during the Palaeolithic: new data and approaches
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Cantabrian Spain (northern Iberia) is a major focal point for the Palaeolithic at an international level, because of the quality of the record and the intense research that has been carried out for over a century. This region has often been regarded as a unit of analysis, suitable for the study of Palaeolithic societies. A large number of doctoral theses and research papers, as well as the latest publications summarising our knowledge about the period in the region, such as L.G. Straus's book (1992) and a monograph of the journal Kobie (2004), testify to this.

There is no doubt that, owing to the originality of its physical features and the personality of its landscapes, Cantabrian Spain forms a unit clearly different from other parts of the Iberian Peninsula. However, progress in research across a number of topics, such as art and lithic raw materials, alert us against drawing “frontiers” and advocate units of analysis that take into consideration the probable circulation of people, objects and ideas across different natural regions. This is the case of the model of a region on a crossroads, proposed by A. Arrizabalaga for the Basque Country.

This session aims to present and discuss new contributions to our understanding of hunter-gatherer societies in Cantabrian Spain, from the first occupations in the region until the disappearance of those kinds of societies at the end of the Mesolithic. Communications focusing on theoretical aspects, innovative methodological applications and new information will be especially appreciated. Equally, contributions referring to adjacent or surrounding regions, such as Galicia, the northern Plateau, Ebro Valley, Pyrenees, and Aquitaine Depression, or even further away, but which reveal connections with Cantabrian Spain, will also be welcomed, in that they are able to contribute towards a wider understanding of the record in the region.

**XVI-7. Is ‘Neanderthal behaviour’ a useful concept? Multiscalar approaches to the behavioural diversity of middle palaeolithic neanderthal populations**

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For some time now, research on the Middle Palaeolithic has been embedded in an apparent paradox. Back in the middle of the last century, researchers showed the variability of the Middle Palaeolithic archaeological record in such a way that the variability of the Mousterian lithic assemblages became a classic topic around which an intense debate was generated. However, one of the consequences of this debate was the simplification of the behaviour of Neanderthals as an adaptive response to a small number of factors related to the spatial-temporal distribution and availability of resources. This idea was reinforced in the context of another debate, that of the extinction of Neanderthals and their replacement by modern humans. As a result, Neanderthals have become for many researchers the antithesis of modern humans.
While the latter were portrayed as showing a rich behavioural diversity based on cultural traditions, the former were limited to responding to the conditions imposed by the environment. Neanderthal and modern behaviours became, therefore, disparate by giving a behavioural meaning to the taxonomic categories derived from palaeoanthropology.

The very idea of "modern behaviour" as commonly used today does not reflect the diversity of behavioural patterns that Homo sapiens has shown throughout Prehistory and History. Can this reflection be applied to "Neanderthal behaviour"? Can behavioural diversity call into question or qualify the idea of a "Neanderthal behaviour" that explains all of the ways of life documented in Europe between ca. 300 and the c. 40 ka BP? Should we divert the focus of Homo neanderthalensis as a species and put it in the diversification of Neanderthal populations? These are some of the questions that we hope to discuss in this session. In this context, we believe that it is a good time to emphasize the behavioural diversity of the Middle Palaeolithic populations in Europe and the Middle East as a way to rethink the very concept of "Neanderthal behaviour". Recent research is emphasizing that such diversity is reflected not only in lithic technology, but also in other areas. On the other hand, this behavioural diversity can be expressed at several levels and from different approaches regarding the archaeological record. As a starting point, we think that the contributions to this session can address this problem taking as reference three scales of analysis:

- Unique events identified in contexts of high temporal resolution. These events, which often go unnoticed when analyzing archaeological assemblages as a whole, can express the flexibility of short-term behaviour.
- Behaviours specific to certain archaeological sites. This level of analysis transcends the singularity of the event and implies certain continuity in the transmission of knowledge.
- Instances of behavioural diversity that are discrete from a spatial and temporal point of view. Some behaviours that appear during restricted periods of time and have a specific regional scope may be adaptations to specific circumstances, but also the expression of cultural traditions.

Contributions can focus on one of these scales of analysis or address them together. The articulation of these different levels of variability from an intrasite or intersite perspective can provide arguments to discuss to what extent Neanderthals can be characterized as a behavioural or cultural unit.

**XVI-8. Small tools, big problem! Production, action and function of small tools throughout prehistory/Small tools, big problem! Production, geste et fonctionnement des petits outils durant la Préhistoire**

Roxane Rocca¹, Laurence Bourguignon²,³, Daniele Aureli²,⁴, Amélie Da Costa¹, Flavia Venditti⁵
Small tools, big problem!
Production, action and function of small tools throughout prehistory

The presence of small tools in assemblages since the Lower Paleolithic has been acknowledged for a long time, but they are often not studied in depth and rarely included in the study of technical systems. However, over the past few years, new research has identified assemblages where these small tools represent a significant part of the collection, necessitating the examination of these artefacts. Their study nevertheless often remains problematic. Are they really tools (geofacts, cores, waste)? How is it possible to use these tools? Are they always hafted? Are they limited to certain actions due to their size, or restricted to working certain materials?

Bearing in mind the fact that the notion of small tools reflects very different realities, in chronological, geographical, technological and techno-functional terms, this session proposes a detailed examination of this essential component of lithic series for understanding technical systems during prehistory. How should they be described? How were they produced? How were they used? With what actions? Is it possible to identify common points between these different tools linked to size (inertia, action, etc.)? What results have technological, microwear and experimental studies brought up until now?

Through the presentation, comparison and discussion of the results of each participant (technology, microwear, experimental work), the aim is to attempt to understand this category of small tools a little better, as they represent an essential component of the technical system, in the same way as the other lithic categories.

Small tools, big problem!
Production, geste et fonctionnement des petits outils durant la Préhistoire

Si la présence dans les assemblages depuis le Paléolithique inférieur, d’outils de petite dimension est reconnue depuis longtemps, ils sont souvent peu étudiés et rarement pris en compte dans l’étude des systèmes techniques. Toutefois, depuis quelques années, de nouvelles recherches ont mis en évidences des assemblages où ces petits outils
représentent une part importante de la collection, rendant nécessaire leur examen. Leur étude reste cependant souvent problématique. Est-ce que se sont vraiment des outils (geofact, nucléus, déchets) ? Comment est-il possible d'utiliser ces outils ? Sont-ils toujours emmanchés ? Leur taille est-elle une limite à certaines actions, ou au travail de certaines matières ?

Si la notion de petits outils reflète des réalités très différentes, en terme chronologique, géographique, technologique, technico-fonctionnel, cette session propose d'examiner dans le détail cette composante essentielle à la compréhension des systèmes techniques durant la préhistoire. Comment les décrire ? Comment sont-ils produit ? Comment fonctionnent-ils ? Avec quel geste ? Est-il possible d'identifier des points communs entre ces différents outils liés à leur dimension (inertie, geste, etc.) ? Quels résultats les études technologiques, tracéologiques et expérimentales ont-ils apportés jusqu'à maintenant ?

Il s'agira de tenter, à travers la présentation des résultats de chacun (technologie, tracéologie et expérimentation), la comparaison et la discussion, de comprendre un peu mieux cette grande catégorie des petits outils qui représentent, au même titre que les autres une composante du système technique.
XVII. COMMISSION PALÉOLITHIQUE SUPÉRIEUR D’EURASIE

XVII-1. Adaptations des sociétés du paléolithique supérieur aux climats / Adaptations of Upper palaeolithic societies to climates
Lioudmila Iakovleva 1, 2, Janusz Kozlowski, Marcel Otte
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Cette session de la commission 8 "Paléolithique supérieur d’Eurasie" a pour objet d'étudier comment les sociétés de chasseurs-cueilleurs du paléolithique supérieur d’Eurasie se sont adaptées aux variations climatiques des stades isotopiques 3 et 2 : colonisation ou abandon de territoire, mobilités et sédentarités, relations intergroupes, gestion des ressources alimentaires, approvisionnement en matières premières, déplacements saisonniers, expressions socio-symboliques dans l'art mobilier et pariétal, démographie, rites funéraires, etc.

This session of the commission 8 "Upper Palaeolithic of Eurasia" is intended to study how societies of hunter-gatherers of the upper Palaeolithic of Eurasia have adapted to climate variations of isotopic stages 3 and 2: settlement or abandonment of territory, mobility and sedentary lifestyle, intergroup relationships, food resource management, raw material procurements, seasonal travels, socio-symbolic expressions in mobile and cave art, demography, funerary rites, etc.

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This symposium will bring together specialists active in the excavation and analysis of Magdalenian (Late Glacial) sites in Cantabrian Spain and French Aquitaine to present the results of current work and to compare the records of these two contiguous regions that form the core culture area of this classic Upper Paleolithic cultural tradition. In light of new or re-studied stratigraphic sequences, large numbers of high-precision AMS radiocarbon dates and detailed analyses of lithic and osseous artifact assemblages, Spanish, French and American archaeologists will attempt to propose a new synthesis of Magdalenian phases, to discuss and evaluate the validity and social
meaning of key temporally diagnostic artifacts, and weigh the differences and similarities between the environments, economies and adaptations of human groups as they alternately intensified or pulled back on their contacts across the physical and ecological frontier of the western Pyrenees. Subjects to be debated (among others) will include the co-existence of the Badegoulian (in Aquitaine) and the Final Solutrean (in Cantabria), the possible temporal and cultural relationships of the classic Cantabrian Lower Magdalenian with the traditional French Magdalenian III or early Middle Magdalenian, the significance of the expansion of classic Pyrenean Middle Magdalenian artifacts across the Aquitaine and Cantabrian regions, the social implications of significant material culture similarities between the two regions despite major differences in subsistence (and lithology) in both the Middle and Upper Magdalenian. The aim is to foment genuine communication among researchers and the ability to closely correlate between the records of the two core areas of the Magdalenian culture area.

**XVII-3. Palaeolithic and Mesolithic dwellings and occupation floor structures**

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This session is dedicated to discuss recent results concerning domestic structures associated to Eurasian hunter-gatherers, either the Palaeolithic or Mesolithic ones. We intend to study evident dwellings or supposed dwellings, but also the other types of floor structures which may have multiple interpretations like large pits, small bone structures, bone posts, isolated or aligned hearths, bone alignments or bone walls, as well as associations with mobile art and wall art, relations between dwellings and burials, etc.

**XVII-4. The Upper Palaeolithic research in Central and Eastern Europe**

György Lengyel¹, Jarosław Wilczyński²

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The development of the Upper Palaeolithic (between 40 ka and 10 ka uncalibrated radiocarbon ages before present) in Central and Eastern Europe significantly differs from that of Western Europe. The difference started already with the Middle-to-Upper Palaeolithic transition and remains pronounced throughout the whole Upper
Palaeolithic, as shown by the anomalies in the succession of the archaeological cultures. Recent research projects in Central and Eastern Europe have brought new results to the understanding of the Upper Palaeolithic hunter-gatherer archaeological remains. Our aim with this session is to call for papers focusing on the understanding of the principles and variants of human subsistence strategies and the roots of archaeological cultural variability through the lenses of lithic analysis, absolute dating, isotopic studies and zooarchaeology, and all fields of Palaeolithic archaeology, which may explain the diversity of the archaeological record. We also welcome papers that discuss and explain differences between Western, Central, and Eastern Europe with the same scope. We hope to advance sharing and discussing new results and methods from the Upper Palaeolithic of Central and Eastern Europe, which eventually contribute to the understanding of Eurasian Palaeolithic human cultural assortment. The papers presented in the session are preferred to be published as a special volume of a peer-reviewed journal.

XVII-5. Use and Social Organization of Space: The Palaeolithic Origins of Human Spatiality
Olaf Joris¹, Sabine Gaudzinski-Windheuser¹, Lutz Kindler¹, ¹: MONREPOS Archaeological Research Centre and Museum for Human Behavioural Evolution - Schloss Monrepos D - 56567 Neuwied - Allemagne

Present day human behaviour is organised along various scales of spatiality. Humans create complex and multi-layered “spatial systems” to organise their relationships, interactions and transactions. Human spatial behaviour is thus tightly bound with sociality. Our spatial systems often follow strict rules and permeate most of our activities: they are the basis for the organisation of small-scale households - the basic socio-economic unit - and all other forms of settlements, including modern day megacities. The different modes of spatial organisation are also strongly tied to superordinate patterns of land-use and closely link the use of landscapes to the organization of on-site activities.

The present session aims at a better understanding of the origins of human spatiality. Special focus will be given to aspects that aim at understanding the links between the duration of occupation and the organization of space. With increased length of occupation, space may become intensely structured as multi-layered hearths or inter-related features indicate. But under which conditions and to what degree does social organisation and / or length of residency permeate into the structuring of space? Even our modern concepts of 'communal' and 'personal' or 'private' space are closely inter-linked to the social organization of space. They are rooted deeply in our Palaeolithic past, but little is known about the contexts under which our modern human socio-spatial behaviours evolved.

XVII-6. L'approvisionnement en matières premières lithiques pendant le Paléolithique supérieur de l'Eurasie. Approches
L'étude de matières premières lithiques utilisées par les groupes humaines paléolithiques est depuis quelques décennies un élément indispensable pour bien connaître les stratégies d'acquisition et gestion des roches. Son analyse permet en plus déterminer les territoires connus et fréquentés par les groupes humains du passé et est un outil intéressant pour établir les stratégies de mobilité au sein d'un territoire. Les études de caractérisation des matières premières lithiques des sites paléolithiques vont des approches macroscopiques à l'aide d'une loupe binoculaire jusqu'aux analyses physico-chimiques avec l'utilisation des grands appareils en passant par les déterminations pétrographiques à l'observation des lames minces. Cette session portera sur toutes les méthodes de caractérisation pouvant être utilisés pour analyser les matières premières lithiques et déterminer leur origine. Des propositions concernant une ou plusieurs méthodes et basées sur des sites archéologiques du Paléolithique supérieur eurasiatique sont les bienvenues.

XVII-7. Crossed views of the Aurignacian: Levantine and Western Europe comparison
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The spread of Anatomically Modern Humans (AMH) from Africa into Eurasia at ca. 60-40,000 years ago is one of the momentous events in the history of mankind. The emergence of AMH corresponds with the demise of the Neanderthals in the Eastern Mediterranean region and Europe, at the interphase between the Middle and the Upper Palaeolithic periods. Among the different typo-technical traditions identified in this “transitional” period, the Aurignacian is one of which most scientific literature has generated during the last decades. The Aurignacian has been long considered to be the expression of the first AMH colonizing the Eurasian continent. At least three dispersal events have been proposed by several researchers conceived to be reflected in the early stages of the Levantine Upper Palaeolithic - two from the Levant into Europe, and one from Europe to the Levant -. Similarities found between the Emirian techno-complex and the Bohunician industry, and between the Ahmarian and Proto-Aurignacian were proposed to reflect population movement from the Levant to Eurasia conforming to
the “Out of Africa” model. A later “back migration” of European Aurignacians into the Levant has also been suggested. In this framework, the Levant that constitutes the only permanent bridge between Africa and Europe, and the Western of Europe that provide the richest and best knowledge Aurignacian sites are two key regions to understand the shifts identified in the Eurasian archaeological record at this time. Likely because the Aurignacian (sensu lato, including the Proto-Aurignacian and the Early Aurignacian identified phases) is at the core of the definition of that we call Upper Palaeolithic and it is identified with our species spread out of Africa, it has involved an important part of the research on the Middle to Upper Palaeolithic transition. As such, several conferences and workshops have had the Aurignacian as a central topic (e.g. Nice 1976, Bratislava 1991, Madrid 1993, Liège 2001, Lisboa 2002, Santoña 2003 and Altamira 2004). Nevertheless, although important advances have been made, many aspects of this fascinating period of the Human evolution remain to be assessed (for instance the maker/s of the different phases – Neanderthals or AMH -, the role of the lithic and osseous projectiles in the adaptive strategies of the AMH, the timing and paths of the AMH colonization of Eurasia, etc.). During the recent last years, new and important insights about the Aurignacian have been figured out. These included the discovery of new sites (e. g. Manot Cave. Israel. Foradada Cave. Spain), Human remains (e.g. Oase. Romania) as well as the reevaluation of old stratigraphic sequences (e.g. Riparo Mochi. Italy). Moreover, improvements in direct dating technics have also contributed to refine our knowledge on this period. These new data need to be discussed and contrasted with the purpose of best understand the complex interactions which took place between the both concerned regions at the beginning of the Upper Palaeolithic.

The aim of this session is to constitute a discussion table bring together scholars from Western Europe and the Levant from different disciplines summarizing the last years advances on the Aurignacian knowledge from these two regions. As such, we encourage to colleagues having new and original research studies (including new insights to settlement patterns, lithics, fauna, bone and antler working, ornaments, absolute chronology, art, etc.) on the Aurignacian to join our session. The results presented will be discussed at the end of the session trying to establish a depiction of this techno-complex from the most recent data. The lectures will be published.

**XVII.8. Economy and mobility during the Early Upper Paleolithic: articulating technical systems within geographical spaces**

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The study of the Early Upper Paleolithic has, for quite some time, been focused on the appearance of Anatomically Modern Humans in Europe, leaving in its wake the signs of behavioral modernity during its expansion out of Africa. Nevertheless, it is becoming more and more clear that the emergence of these so-called “modern” characteristics are rooted in earlier phases of human prehistory. The specificity of the Early Upper Paleolithic is not, therefore, the invention of these features, but rather their systematization and diffusion, both spatially and temporally. The revolutionary aspect of the Early Upper Paleolithic lies, consequently, in the modes of transmission of practices and the reproduction of cultural norms, which have clear repercussions for traditions of mobility and the socio-economic organization of these groups.

To explore this key aspect of the Early Upper Paleolithic, we must concentrate on the operation and evolution of each technical system, and even more importantly on the articulation between these systems and their interactions with the environment. These articulations are perceivable at several scales of analysis. Each archaeological site is a constituent component of a network of places, which are collectively the material manifestations of a mobility system. In what way does the spatial and temporal segmentation of chaînes opératoires, or similarly, the organization of technology, reflect the organization of mobility systems and nomadic cycles? How are different activities (hunting, gathering, raw material acquisition, symbolic or politico-religious practices, etc.) interwoven within the daily lives of the prehistoric societies? Zooming out to a regional scale, inter-site relationships, as well as relationships between sites and different places of resource acquisition, draw circulation networks over landscapes. What movements (of people and/or objects) can we bring to light by conducting petroarchaeological studies or archaeozoological studies of seasonality? How does environment, notably the temporal and spatial variability in floral and faunal resources, influence the ways in which these hunter-gatherers moved across the landscape? Zooming even further out, regional studies have sometimes highlighted connections between distinct geographic areas. What can be said regarding the transmission of practices, which, during these periods, can cover expansive geographical spaces at the Eurasian scale? Finally, what factors influenced the diachronic evolution of these specific cultural identities?

In this session, we wish to discuss results crossing different subjects of study, and therefore underline the articulations between different technical systems within geographic spaces during the Early Upper Paleolithic. Regional syntheses are particularly welcome. Case studies can equally be presented as long as they present new results produced through interdisciplinary approaches and are explicitly related to the specific orientation of the session, i.e. the articulation of different technical systems at multiple scales of analysis.
XVIII. COMMISSION PALEOLITHIQUE FINAL

XVIII-1. Reindeer or fish? Late Glacial subsistence strategies in the light of new information
Jacek Kabaciński¹, Thomas Terberger²,

1: Institute of Archaeology and Ethnology, Polish Academy of Sciences
2: Niedersächsische Landesamt für Denkmalpflege

The session will be devoted to subsistance of the Late Glacial hunter-gatherers. There is still a limited data on this subject, nevertheless archaeological and bio-environmental data collected during last years point to a much broader subsistence base than it was previously suggested. It would be very useful to discuss and summarise the state of research during on meeting.

XVIII-2. Final Palaeolithic in Eastern Baltic
Gabriele Gudaitiene¹, ², Ilga Zagorska et Egidijus Satavicius

1: Ilga Zagorska
2: Egidijus Šatavičiu

In the research of northeuropean Stone Age it is still little known about the Late Palaeolithic period of Eastern Baltic. The aim of our session is to give insight into environment, reindeer and people during the Late Glacial times in our countries-Lithuania, Latvia and Estonia.

New, exciting results are obtained from an examination of three Lyngby type artefacts in western Lithuania. Radiocarbon data about reindeer and the artefacts, made from the reindeer antler (Lyngby axe and harpoon) will be introduced from Latvia and Estonia. One of the bone daggers, found in Lithuania, is dated to Late Palaeolithic and richly ornamented.

A short resume about Lyngby, Ahrensburgian and Swidry cultural complexes will be given, accenting the last appearance of the Swidry technological tradition on the eastern shore of the Baltic basin in the course of the transition to the Holocene.

The new data broaden our knowledge and suprises, and at the same time adjust the previously formed understanding of the most Final Palaeolithic human groups in eastern Baltic and their connections with the northwestern world. And, of course, there would be right place for discussions.
XIX-1. Holocene environmental and cultural variability in the Western Mediterranean
David Lubell¹, Thomas Perrin²
¹: University of Waterloo
²: CNRS, UMR5608 TRACES - Toulouse - France

Recent years have seen an upsurge in research on the Holocene in the Western Mediterranean (west of ~19°E), comprising Iberia, the Maghreb including Cyrenaica, southern Europe including the Italian peninsula and Sicily, the Adriatic coast of Croatia, and the islands of Malta, Sardinia, Corsica and the Balearics. This research has included detailed investigations into palaoenvironmental and climatic change, variability in the archaeological record with regard to both technology and subsistence, increased understanding of the biology, demography and movement of human populations, and the proposal of numerous hypothesis based on the data obtained from this myriad of investigations.

This symposium proposes to incorporate as many of these as possible and arrive at as accurate a synthesis as is feasible, given the present state of our knowledge, into the major questions that remain unanswered for this region. For example:
- Were cultural changes directly related to population movements?
- Were economic changes entirely the result of introduced ideas and species?
- How much of the change in the archaeological record can be ascribed to allochthonous developments?
- Did climatic oscillations of the beginning of the Holocene have an impact on the cultural dynamics or the strategies of exploitation in the region?
- What was the role of maritime space in these dynamics?

This session will be centered mainly on the beginnings of the Holocene – on the last groups of hunters-gatherers and the first farming communities.

XIX-2. Hunter-gatherers confronting the expansion of farming communities
Ofer Bar-Yosef¹, Pablo Arias²
¹: Harvard University
²: Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Universidad de Cantabria (UC)

One of the major issues of Holocene prehistory in a global scale is the interaction between late hunter-gatherers who were the last of the original foraging societies that characterized human evolution for 2.5 million years. The demise of these pristine societies was mainly caused by the expansion of Neolithic farmers who gradually took over the arable lands of continental mid-latitudes north and south of the equator except for Australia. The socio-economic development of agro-pastoral communities
that originally occurred in several centers (the Fertile Crescent, North and South China, Ethiopia, southwest Mexico, northern South America) marked a new evolutionary step that determined the more recent history of our planet since some 12,000 years ago. The nature of population growth of farming societies was determined by the adoption of crops that provided plenty of carbohydrates. The establishment of sedentism providing stored food to females increased the total fertility rate and the growing number of village inhabitants, especially when goat, sheep, pig and cattle were domesticated, triggered constant territorial expansion. Under these circumstances, three kinds of relationships between hunter-gatherers and neighboring agro-pastoral communities may be envisaged. Foragers could ignore the farmers, build collaborative relations with them, or fight them in order to stop them from encroaching into their traditional hunting and gathering grounds. These interactions could have changed through time. Archaeologists who study farming societies that evolved during the Neolithic Revolution in the few global centers according to Harlan's model (southwest Asia, north and south China, southwestern Mexico and northern South America) face the study of the last hunter-gatherers (Mesolithic in European terms) and their gradual demise. We would like to invite to this session researchers, whether archaeologists, archaeobotanists or archaeozoologists, who face in their investigations the various types of interactions between the agricultural communities and the local foragers. We encourage colleagues who are interested in this issue and experience the difficulties in uncovering and recording these types of intricate social and economic interactions in the different continents to take part in this session.

XIX-3. Exceptional sites or exceptional preservation?
Interdisciplinary Approaches to the Function of Early Holocene Wetland Sites in Europe
Colas Guéret¹, Alexandre Deseine², Harald Lübke³  

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2 : Archéologies et Sciences de l'Antiquité (ArScAn, Equipe Ethnologie Préhistorique) - Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense Maison René Ginouvès, allée de l'université 92023 NANTERRE CEDEX - France  
3 : Centre for Baltic and Scandinavian Archaeology (ZBSA) Holstein State Museums Foundation, Schleswig - Allemagne

In Europe, Early Holocene bog sites play an important role in the reconstruction of Mesolithic and Early Neolithic lifestyles according to very well-preserved organic remains (bones and plant material). Still, this exceptional preservation of organic materials must not hide the archaeological complexity of these settlements. Indeed, the precise analysis of the archaeological layers, their depositional processes and their evolution in wetland context shows a complex sedimentary and taphonomic history.
(truncation, hiatus, chronological mixing, differential preservation...). In addition, the particular conditions of wetland archaeology (underwater intervention, limited test pits due to rising groundwater) can restrict field data recording or extensive excavations. These factors complicate the archaeological interpretation of the discovered remains, their meaning and their representativeness. Due to different views concerning the nature of the archaeological deposits, some major settlements in Europe have been, therefore, at the centre of intense debates about their place in the landscape and their role in mobility patterns. In comparison with dryland sites, can Stone Age bog sites be seen as exceptional settlements or just as exceptionally preserved occupation deposits? This session will address the specific methodological and archaeological approaches developed to infer the function of Early Holocene wetland sites in Europe. Several questions could be discussed:

- Field methodology
- Taphonomic and archaeological approaches to sites and remains (environmental archaeology, dating and chronology of depositional process, analysis of organic and lithic remains...)
- Reconstruction of wetland site function (specialised or temporary camps, permanent settlements, unique, stratified or mixed refuse layers) and their relationship with dryland sites.

We will give priority to communications discussing one or more of these questions from an interdisciplinary perspective.
XX. COMMISSION COASTAL

XX-1. The Archaeology of Submerged Landscapes
Geoffrey Bailey, Karen Hardy, Matthew Meredith-Williams
1: Department of Archaeology, University of York (DoA, UoY) - King’s Manor, York, YO1 7EP - Royaume-Uni

It is now widely recognised that for most of human history on this planet, sea levels have been substantially lower than the present, and that the rise of sea level with glacial melting from about 20,000–6000 years ago drowned >20 million km2 of land worldwide, much of it highly attractive territory for human settlement and dispersal. This in its turn has led to a realisation that the currently available record of archaeology on land for periods of low sea level is only the truncated fragment of a more extensive and concentrated distribution of Pleistocene human populations, and that the spikes in the apparently increased intensity of marine exploitation during periods of high sea level are largely a function of differential visibility rather than an evolutionary or socio-economic reality. New studies are underway to explore this underwater realm, and to consider the social and demographic impact of sea-level change, involving new ideas and new technologies, many of them multi-disciplinary in character, and some involving collaboration with offshore industries and government agencies. This session will provide an opportunity to explore the current state of play and to compare ongoing research and results in different parts of the world.

XX-2. Shell mounds, shell middens and coastal resources
Geoffrey Bailey, Karen Hardy, Matthew Meredith-Williams
1: Department of Archaeology, University of York (DoA, UoY) - King’s Manor, York, YO1 7EP - Royaume-Uni

Shell mounds and shell middens occur in their tens of thousands on coastlines around the world, especially from the mid-Holocene onwards. New studies are under way in many parts of the world to investigate patterns and rates of mound formation, their significance as features in the landscape, the evidence they contain for patterns of site use and palaeodiet in the form of faunal and molluscan remains, stable isotope signatures, biomolecular and chemical signals, and spatial analyses, new methods of excavation, the evidence for Pleistocene and early Holocene use of coastal and marine resources, and the ethnoarchaeology of coastal resource use and site formation. This session will provide a forum for the presentation and discussion of the many different approaches to coastal resource exploitation, the way this is reflected in the archaeological record, and how comparative studies can be developed that bring together case studies from different parts of the world within a shared framework of concepts and methods.
XXI-1. Interactions, networks and routes within and through mountain ranges
Stefano Grimaldi¹, Federica Fontana², Xavier Mangado³, Estela Mansur⁴

The proposed session will join together scholars interested in the mobility and interactive strategies adopted by prehistoric human groups within and through mountain environments. The aim of this session is to compare the archaeological evidence available at a worldwide scale both from a spatial and chronological viewpoint in order to highlight common and divergent behaviors, including a focus on the factors that have enhanced this variability and which may be related not only to the availability of resources and peculiar topographic features of mountain environments but also, more generally, to cultural dynamics. What was the role played by the mountains during prehistoric times? Were mountains mere physical barriers or did they just represent cultural borders among geographically differentiated human groups? In which way did they allow communication and interactions among them? What were the adaptive responses in mountainous environments adopted by nomadic vs. settled societies also in relationship to the climatic and environmental changes? Mountains are complex ecosystems, largely spread on our planet, sharing several features but, at the same time, showing a large ecological variability which is strictly connected to latitudes, local morphologies, altitudinal variations, among others. Accordingly, they have been - and still are very sensitive to climatic changes, too. If this evidence, on one side, can give a measure of the interactions and networks established among different communities, on the other, it also helps re-tracing their routes of displacement and how these changed through time. The expected results will be useful for the development of an overall scientific consciousness that could be used towards a geographically-oriented common research methodology.

XXI-2. Spiritual and Ritual Dimensions of Mountain Landscapes
Martin Callanan¹, Sabine Reinho, Hayley Saul, Emma Waterton,

The HOME Commission (Human Occupations in Mountain Environments) works to promote archaeological, anthropological and environmental research related to past human activities without any chronological or geographical restrictions. The group
compares and shares approaches, methodologies and scientific results among its members and with any other individuals or research groups dealing with topics of interest to the Commission. The commission holds regular meetings and workshops for members and has organised a series of sessions and publications at recent UISPP congresses.

For this UISPP session at the Paris Congress, the HOME commission invites contributions on mountain ritual sites, sacral landscapes, the archaeology of pilgrimage routes, rock art or the meaning of mountains in ritual systems. Mountains and upland landscapes have played (and continue to play) a central role in spiritual or religious activities in many parts of the world. Impressive mountain terrains, for example, have inspired ideas of super-natural powers that resided in or around them. Indeed, there are numerous examples of holy mountains where gods or spirits were said to live on lofty peaks, or of entire mountain landscapes with sacral connotations. Archaeologists are certainly unable to uncover the many invisible spirits, trolls, gods, demons and supernatural beings that once inhabited those lands. However, we do recover the material remains of ritual activities and can trace the integration of sacred or ritual places in mountains within broader networks that sometimes included other landscapes.

This session aims to explore the nature of ritual sites and sacral landscapes in mountain and upland landscapes worldwide. What kind of sites do we identify as ritual? What are the archaeological indicators of a sacred place? How can we perceive the former spirituality of human activity in the material remains on sites? What common characteristics or features do ancient ritual places in mountain ranges around the world share? How were ritual and sacred sites integrated with other dimensions of human occupations in mountain landscapes (e.g. settlements or extraction sites)? Or are these the wrong questions to ask? Should we explore the spirituality of landscapes, and in particular of mountain landscapes in this way, asking for the integration any kind of activity into a genuine ritual landscape?

We welcome contributions from all fields of archaeology, history, anthropology and other relevant fields. Contributions can include sites and finds from mountain and upland sites that are relevant to this theme, but might also include evidence from other landscape settings that cast light on human/mountain relations in some way. Oral presentations in this session will be in English or French. Participation is open for all attendees at the Paris congress.

Please send a short abstract (max. 300 words) of your presentation, including the title, authors and contact info to: callanan@ntnu.no

XXI.3. Prehistoric and protohistoric evidence of early farming and pastoral activities in mountain environments
Ermengol Gassiot Ballbè¹, Francesco Carrer², Ignacio Clemente Conte³, Philippe Della Casa⁴, Pawel Valde-Nowak⁵

¹: Department of Prehistory, Autonomous University of Barcelona
²: School of History, Classics and Archaeology. Newcastle University
³: Institución «Milà i Fontanals», Consejo Superior de Investigaciones Científicas - CSIC
Archaeological evidence of crop cultivation and pastoralism in mid- and high-mountain areas has considerably increased in the last decade. The phenomenon starts in prehistoric times and, in some mountain ranges, its chronology corresponds to the earliest spread of agriculture in the neighbouring lowlands. The new data available, related to an increasing number of archaeological sites investigated in the uplands, influence the reconstruction of the processes of colonization and exploitation at mid and high altitudes.

This session will focus on the expansion of early farming and pastoral practices in mountain environments during prehistoric and protohistoric times. We welcome contributions addressing archaeological and palaeoenological evidence for these activities in the highlands, the reasons for their expansion, their integration and evolution, as well as their impact on the alpine and subalpine environment.
XXII. COMMISSION SAHARA

XXII-1. North African and Saharan archaeology recovering from the turmoil: Reconstructing the climate and cultures of the final Pleistocene and Holocene through innovative research strategies and rock art enhancement

Giulio Lucarini1, Jörg Linstädter2
1: McDonald Institute for Archaeological Research, University of Cambridge (McD, UC) Downing street, CB2 3ER, Cambridge - Royaume-Uni
2: Deutsches Archäologisches Institut (DAI)

In the framework of the general theme proposed by the UISPP for its 18th World Congress, this session aims to explore economic, demographic and social responses to climate changes in North Africa during the final Pleistocene and Holocene, bringing together specialists involved in innovative multidisciplinary projects.

The phase of political instability that some North African countries have experienced in recent years has unavoidably affected the archaeological research taking place there. Archaeologists have been pushed to rethink and reset their research agendas, often leading them to shift their interests towards more stable and safe regions. In the long run, this trend may have easily lead to biased reconstructions of population patterns and sociocultural dynamics of the North African context as a whole. As has clearly emerged recently (Lucarini ed. 2016) Africanist archaeologists were able to minimize this risk through a successful combination of fieldwork techniques - when possible - and multidisciplinary cutting-edge analytical works. Research programmes combining strong archaeological science approaches, applied not only to freshly excavated materials/samples, but also to “cold cases”, and spatial analysis resulting from accessible geographical and satellite data, have proved to be particularly effective tools in overcoming the difficulties that have prevented fieldwork in some regions. They have also allowed a better re-evaluation of archaeological materials and samples from old excavations stored in museums and laboratories. At the same time, in the study of rock art, the analysis of photographic fieldwork archives - also through image-based modeling, photo enhancement software, and the creation of open-access digital rock art databases - have allowed researchers to monitor archaeological site conditions and design risk-assessment strategies to preserve sites facing degradation because of climatic change, and/or human agency.

The session will highly encourage a diachronic and multidisciplinary debate among scholars working in North African countries and using different research methodologies. We particularly welcome the participation of colleagues working on:

- Palaeoenvironmental and palaeoeconomic reconstruction;
- Spatial analysis;
- Demographic modeling;
• Analysis of material culture elements (especially in terms of technology and function);
• Mapping, analysis and protection of rock art repertoires.

As we did for the session organized by our Commission for the 17th UISPP Congress held in Burgos in September 2014 (Lucarini ed. 2016), it is our firm intention to publish the proceedings of this session in a special issue of an international peer-reviewed journal.

References

XXII-2. The Nile Valley in Prehistory – did it play a role in human dispersals?
Mae Goder Goldberger¹, Alice Leplongeon²,³

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²: McDonald Institute for Archaeological Research, University of Cambridge (University of Cambridge) - Downing Street, CB23ER Cambridge - Royaume-Uni
³: UMR CNRS 7194 - Histoire naturelle de l'Homme préhistorique (UMR 7194 - HNHP) - CNRS : UMR7194, Muséum National d'Histoire Naturelle (MNHN), Université de Perpignan Institut de Paléontologie Humaine 1, rue René Panhard 75013 Paris - France

For a group of hunter-gatherers to disperse across geographical regions the landscape must be familiar. Groups recognize landmarks which help them navigate their way. Knowledge of distinctive natural features and associated routes are part of the learned behavior of a group. The Nile Valley may have acted as such a landmark which crosses the desert and connects the Ethiopian highlands with numerous routes through the Levantine corridor into Eurasia and along the Northern African coast. At times of climatic amelioration paths through the western and eastern desert could also have connected to the Nile Valley, while during drier periods it may have acted as a refugia. The Nile Valley has been suggested as a possible route for the "Out of Africa" early dispersals of Homo erectus, and based on genetic data, also the later dispersals of Homo sapiens "Out and Back into Africa". Conversely, archaeological data supporting dispersal events via the Nile Valley remain scarce.

This session intends to tackle research questions that address the role played by the Nile Valley in hominin dispersals. How does the Nile valley geology allow us to determine episodes that facilitated, or to the contrary hampered, movement along the Nile? What can we learn from the Nile behavior over time that may shed light on the way hunter-gatherers exploited it? What impact did groups living or passing through the Valley have on the on neighboring desert oases? How does this manifest in the archaeological record? What markers could be used to identify dispersal events? Can contact between adjacent areas and the Nile Valley be identified in the archaeological
record? What can we learn from the paleo-botany and paleo-zoology regarding natural dispersals along the Valley?
This session aims to bring together researchers working in northeastern Africa and neighboring regions during the Upper Pleistocene and early Holocene to discuss recent advances in studies which may shed light on hominin dispersal within the regional context.
One of the most keenly debated issues in human evolutionary research concerns the origin and timing of the emergence of cultural behaviours, and the dispersals of *Homo* from the Pleistocene to the Holocene. Recent studies have especially highlighted the key role of North Africa (located between Europe, Asia and Sub-Saharan Africa) in these issues. Broad themes identified by this session concern palaeoenvironments, early *Homo* populations, as well as the emergence and evolution of anatomically modern humans in North West Africa. Together, they encompass chronology, climate changes, culture-biological evolution, continuities-ruptures and dispersal-replacement of these populations. We propose several topics focusing on:

- Early hominin adaptation, occupation and the Acheulean emergence and development in North Africa and subsequent spread out of Africa, as well as, the transition between Early Paleolithic/Early Stone Age to Middle Paleolithic/Middle Stone Age;
- The origin, identity, variability and adaptations of the first Anatomically Modern Human populations in North Africa between 350 and 50 ka and its role in broader discussion concerning the evolution and dispersals of modern humans into and out of Africa;
- Origin, dispersal and behavioral variability of techno-complexes at the end of the Late Pleistocene (Iberomaurusian, Eastern Oranian and final Upper Palaeolithic of Egypt and the Nile valley). (In addition to this sub-topic, there will be a workshop entitled "Variability of Microlithic industries from the Late Pleistocene in North-West Africa. Recent interpretations and perspectives" which will be organized by L. Sari and G. Mutri).
"The transition between the last hunter-gatherers populations of the final Pleistocene and Epipalaeolithic cultures (such as the Capsian), as well as, the transition to the Neolithic and food production. Supported by new excavation, surveys and research, conducted across North Africa this session aims to elucidate these central issues promoting interdisciplinary discussions including on archaeology, material culture, art, geology, biology, chemistry, climate studies, paleontology, taphonomy, zooarchaeology, physics, botany, palaeoanthropology, etc. The goal of this session is to refine the understanding of the role of climate and landscape variability on technological, economic and symbolic behaviors of North African prehistoric societies. It will also serve to bring together the activities of two commissions, to present new results and to raise the awareness of the importance of North West Africa's Prehistory. This session will offer excellent opportunities for knowledge transfer and to develop the future research prospects since this region is of key interest in the understanding of human evolution and behavioural development.

XXIII-2. Variability of Late Pleistocene Microlithic Industries in Western North Africa. Recent Interpretations and Perspectives. Essay in Honor of Jacques Tixier
Latifa Sari¹, Giuseppina Mutri²
¹: Laboratoire de préhistoire. Centre national de recherches préhistoriques, anthropologiques et historiques. - 3 rue Franklin Roosevelt, 16000 Alger. - Algérie

Almost all scholars who have to deal with backed bladelets use the successful Tixier's (1963) Epipaleolithic typology which provides a widely used definition for backed bladelets and has correlates in archaeological records. However, to what extent can morphological variability of backed bladelets be useful in detecting homogenous versus distinct cultural communities and how backed bladelets can be involved in adaptive strategies?

This workshop aims to provide some avenues for reflection on the variability of Late Pleistocene microblade-based technologies with referring to hafting microliths for hunting purpose (blank-adjustment technique, morphometry, weight, balance, projectile media and glue efficiency) in connection with multi proxy data such as paleoclimatic data based on the available regional and local scale, as well as evidences of wide spectrum economy related to grass storage and processing. Ultimately, this workshop aims to address the issue of identifying demographic fluctuations and movements by building a diachronic analysis of the settlement pattern of the Iberomaurusian/Eastern Oranian sites.

Each participant is invited to propose a short theoretical introduction and a case study from specific context, possibly accompanied by archaeological and or experimental materials or other documents. Beyond school of thoughts and a different vocabulary,
this workshop intends to help establish contacts, exchanges and a real confrontation between different participants working on different geographical areas.
XXIV. COMMISSION AFRIQUE CENTRALE

XXIV-1. Archéologie, sociétés et patrimoine en Afrique de l'Ouest et du Centre
Kouakou Siméon Kouassi¹, ² ³, Moustapha Sall² et Abdoulaye Camara²
1 : Université Félix Houphouët-Boigny (UFHB) 01 B.P. V 34 Abidjan - Côte d'Ivoire
2 : Moustapha Sall (UCAD) - B.P. 5005 Dakar-Fann - Sénégal

Le constat, après de longues années de recherches archéologiques en Afrique de l'Ouest et du Centre, est l'absence d'un document de synthèse présentant cette région dans la longue durée. Un essai a rassemblé, en 2001, des textes pour le Burkina Faso, le Mali, la Mauritanie, le Niger et le Sénégal, sous le titre L'archéologie en Afrique de l'Ouest. Sahara et Sahel par le Centre de Recherche Inter-Africain (CRIAA). Seize (16) ans après, de nouvelles thématiques ont été abordées voire approfondies, et le champ d'investigation s'est accru, nécessitant une nouvelle synthèse. La présente session « Archéologie, sociétés et patrimoine en Afrique de l'Ouest et du Centre » est ouverte aux chercheurs qui aimeront partager leurs résultats sur l'étude des vestiges archéologiques et patrimoniaux ainsi que les réflexions en cours sur la protection, la promotion et la valorisation de ce riche patrimoine.

XXIV-2. Métallurgie ancienne du fer en Afrique
Elisée Coulibaly¹, Fouad Essaadi
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D'importants progrès ont été réalisés au titre des connaissances sur l'histoire de la métallurgie du fer en Afrique. Les travaux effectués dans ce domaine sont l'oeuvre de chercheurs nationaux des universités et centres de recherche sur le continent africain, mais aussi de nombreux chercheurs internationaux. Ces travaux qui conjuguent recherches de terrain, archéologiques, ethnoarchéologiques ainsi qu'ethnohistoriques et études de laboratoire, analyses physico-chimiques et diverses approches archéométriques, montrent d'abord que les paysages d'Afrique recèlent d'importants vestiges de la sidérurgie ancienne. Ils montrent ensuite que l'étude de ces vestiges apporte chaque jour des informations neuves sur les origines, dans le temps et l'espace, de cette industrie du fer, mais aussi sur ses aspects économiques et sociaux, ainsi que sur l'histoire des populations auteurs des techniques complexes dont les traces matérielles sont les vestiges concernés. A cet égard, il paraît important de pouvoir faire un bilan de ces recherches qui portent sur l'ensemble de la chaîne opératoire de la métallurgie du fer, recherche minière, métallurgie de production et métallurgie de transformation, afin de pouvoir mesurer...
l'importance et l'intérêt des connaissances accumulées dans ce domaine au cours des trois dernières décennies. D'où l'intérêt de la session proposée.
Il est reconnu que l'occupation humaine sur le territoire sud-américain est récente par rapport aux occupations en autres continents. Cette brièveté temporelle n'est pas, cependant d'une moindre complexité, ou, même d'une simplicité ou homogénéité dans l'enregistrement archéologique. L'objectif de cette section est de créer un grand espace de discussion qui catalyse, par l'entrelacement de plusieurs approches actuelles, une large perception de la richesse de ce que nous nommerons Préhistoire Atlantique de l'Amérique du Sud. Par cette désignation, nous voulons créer une distinction géographique que nous considérons très intéressante : un découpage qui prend les terres basses de l'Amérique du Sud, situées à l'est des Andes. Parce qu'ils ne présentent pas d'enregistrement archéologique des « civilisations monumentales » passées, comme c'est le cas de la région andine, la portion sous-continentale à l'est de l'Amérique du Sud – sauf en de rares exceptions – cela n'a pas attiré de grands efforts systématiques de recherche jusqu'au cours des dernières décennies du siècle dernier, quand les paradigmes en archéologie ont eux-mêmes commencé à changer. Cette vaste zone comprend une diversité de biomes tels que l'Amazonia, la Caatinga, la Floresta Atlantica, la Pampa, le Pantanal et la Estepe, chacun avec leurs écosystèmes spécifiques qui, saisis dans une dimension diachronique, témoignent de changements paléoenvironnementaux d'un grand intérêt dans l'étude de l'altérité culturelle du passé.

La session est ouverte aux résultats de recherches développées sur des données primaires obtenues dans des projets d'excavations actuels et/ou sur les matériaux de collection qui proviennent des sites préhistoriques de l'Atlantique l'Amérique du Sud. Nous cherchons à renforcer le réseau de connaissances relatives à la préhistoire de l'Amérique du Sud, en partageant des données concernant les réalités locales et régionales, donnant une visibilité aux données, aux interprétations, aux hypothèses et aux conclusions des chercheurs participants. À cette fin, nous espérons pouvoir compter sur la participation de chercheurs de différents domaines d'étude de la préhistoire : aspects technologiques et symboliques de la culture matérielle, utilisations de l'espace, géoarchéologie, études paléoenvironnementales, bioantropologie, pratiques funéraires, études archéométriques, entre autres approches. Ainsi, la session Préhistoire Atlantique de l'Amérique du Sud au promouvoir le dialogue entre les différentes approches qui constituent la préhistoire des basses terres du sud américain, situé à l'est de la Cordillère des Andes, contribuera à l'avancement de la compréhension des occupations.
XXV-2. The peopling of the Andes: Updating and new contributions / Le peuplement des Andes: Actualisation et nouveaux apports

Rodolphe Hoguin\textsuperscript{1}, Federico Restifo\textsuperscript{2}, Carlos Eduardo Lopez Castaño\textsuperscript{3}

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In the context of the settlement of America, and more particularly of South America, the Andean region constitutes a special landscape, at least from the geographical point of view. Indeed, the Cordillera is a remarkable relief separating, on almost all the latitude from north to south, the Pacific coast of the rest of the continent. On its highlands, multidisciplinary research shows that the environment has restricted human expansion in this area. In this way, glacial or peri-glacial pleistocene conditions with their low temperatures would have been an important restriction, as in other parts of the world. On the other hand, human colonization took several generations, also given the limitations that are specific to high-altitude areas, such as decreased availability of oxygen (hypoxia), infant mortality, lung disease and nutritional and reproductive health.

Now, what does archeology teach us? In recent years we have seen an increase in the number of sites with late Pleistocene and early Holocene dates on the different Andean altitudinal floors, including altitudes as high as 4000 m asl and above. Revisions of "classical" sites (e.g. Pikimachay, Peru) have also been realized. On the other hand, some researchers proposed that the migration took place from lower lands (e.g., the Pacific coast, among others). During this session, we invite, through this colloquium, the exponents to present their study cases, which can take into account different spatial scales, as well as various stages of their work (presentation of sites, updating, reflections from long-term research projects, etc.) to think and contemplate the archaeological research on Andean peopling. More specifically, we propose to bring together in this panel the different contributions coming from different specialties (lithic technology, zooarchaeology, biological anthropology, geoarchaeology, dating, paleogenetics, etc.) as well as paleoenvironmental sciences. Proposals for new methodologies and theoretical approaches are also welcome.

In this way, the aim of this symposium is to compare different point of view, to discuss the analyzes from the different specialties, the archaeological sites of the different altitudinal and latitudinal areas, and their interpretations in order to set up a debate on Andean peopling. In particular, we will focus on the direction and
chronology of Andean peopling. Where did the first men occupying the Cordillera and its margins come from? What were the first populated altitudes and latitudes? How did the first occupants subsist? These are the questions that will guide our session.

Dans le cadre du peuplement de l'Amérique, et plus particulièrement de l'Amérique du Sud, la région andine constitue un espace particulier, au moins du point de vue géographique. En effet, la cordillère est un relief remarquable séparant, sur quasi toute la latitude de nord à sud, la côte pacifique du reste du continent. Sur ses cimes, les recherches multidisciplinaires montrent que l'environnement aurait restreint l'expansion humaine sur ce territoire. Allant dans ce sens, les conditions pléistocènes glaciaires ou péri-glaciaires avec leurs faibles températures auraient constitué une contrainte importante, tel que dans d'autres régions du monde. D'autre part, la colonisation humaine a du prendre plusieurs générations, également étant données les restrictions propres aux zones d'altitude, telles que la disponibilité amoidnrie en oxygène (hypoxie), la mortalité infantile, les maladies pulmonaires et la santé nutritionnelle et reproductive.

Maintenant, qu'est-ce que nous enseigne l'archéologie? Ces dernières années, nous avons vu croître la quantité de sites avec des datations correspondant à la fin du Pléistocène et au début de l'Holocène, sur les différents étages altitudinaux andins, incluant des altitudes aussi élevées que 4000 m asl et plus. Des révisions de sites "classiques" (e.g. Pikimachay, Pérou) ont également vu le jour. D'autre part, certains chercheurs ont émis l'hypothèse d'une migration effectuée depuis des espaces de moindre altitude (e.g. la côte pacifique, parmi d'autres). Dans le cadre de cette session, nous invitons, à travers ce colloque, aux exposants de présenter leurs cas d'étude, pouvant prendre en compte différentes échelles spatiales, ainsi que diverses étapes de leurs travaux (présentation de sites, actualisation, réflexions à partir de programmes de recherche de longue durée, etc.) pour penser et réfléchir sur la recherche archéologique sur le peuplement andin. Plus particulièrement, nous proposons de réunir dans cet espace de discussion les différents apports provenant des différentes spécialités (technologie lithique, zooarchéologie, anthropologie biologique, géoarchéologie, datations, paléogénétique, etc.) ainsi que les sciences paléoenvironnementales. La proposition de nouvelles méthodologies et d'approches théoriques est également bienvenue.

De cette façon, l'objectif de ce colloque est de comparer différentes perspectives, discuter les analyses des différentes spécialités, les sites archéologiques des différentes zones altitudinales et latitudinales, et leurs interprétations afin de lancer un débat actualisé du peuplement des Andes. Plus particulièrement, nous centerons la discussion sur la direction et la chronologie du peuplement andin. D'où sont venus et où sont allés les premiers hommes occupant la cordillère et ses marges? Quelles ont été les premières altitudes et latitudes peuplées? Comment subsistaient les premiers occupants? Ce sont ici les questions qui orienteront notre session.

XXV-3. Peintures et gravures rupestres des Amériques: empreintes culturelles et territoriales
Brigitte Faugere1
Dans le contexte américain, l'art rupestre occupe une place particulière puisqu'il a été pratiqué à des époques très différentes, tant par les chasseurs cueilleurs que les agriculteurs, y compris ceux ayant développé des sociétés étatiques. Dans certaines régions, les techniques utilisées permettent de discriminer les groupes sur le plan chronologique et culturel, alors que dans d'autres peinture et gravure, voire sculpture, sont employées indifféremment, mais dans des cadres physiques particuliers. Ce symposium vise à réunir des spécialistes des différentes aires culturelles du continent américain pour apprécier ces questions par le biais d'études de cas.

**XXV-4. The Pleistocene Peopling of the Americas from a Circum-Pacific Perspective**

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Forty years ago, in 1978, Alan L. Bryan edited and compiled the book Early Man in America from a Circum-Pacific Perspective, a seminal collection of more than 30 papers presenting the archaeological record of Paleolithic humans in greater northeast Asia, Beringia, and the Americas, considering it in the context of the origins and dispersal of humans across the north Pacific rim. Much has changed since then: we now have a much richer record of Paleolithic humans in Siberia, China, Korea, and Japan (the theorized ‘homeland’ of the first Americans); much stronger evidence of early Americans from the Bering Land Bridge to southern Chile; greatly improved dating methods; and new molecular techniques for extracting and mapping ancient human genomes. Moreover, our theory and method explaining how Pleistocene humans dispersed, and how they adapted to new and changing environments at the end of the Pleistocene have become much more sophisticated. Despite these advances, as Bryan fostered nearly a half century ago, a circum-Pacific perspective is required for us to gain a full understanding of the Pleistocene peopling of the Americas.

In this symposium, we propose to assemble an international and interdisciplinary group of scientists investigating the problem of modern-human dispersal to the Americas, considering the following questions: 1) What are the ancient Asian origins of the first human inhabitants of the New World? 2) How did human dispersal across the Bering Land Bridge unfold? 3) What was the importance of the northern Pacific Ocean's maritime environment in the colonization process? And 4) How did the first Americans' adaptations evolve as they dispersed and settled into the New World's varied environments? Papers will consider not just traditional archaeological evidence, but also developing records in fields such as paleogeography, geochronology, archaeochemistry, and molecular archaeology/ancient genomics.
XXV-5. Techniques et technologies des chasseurs-cueilleurs maritimes du littoral américain

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L’homme s’est très tôt adapté à la mer, milieu d’où toute forme de culture ou d’élevage était pratiquement exclue jusqu’à une époque récente et dont l’exploitation est presque exclusivement réservée aux populations de chasseurs-cueilleurs.

En Amérique, continent peuplé tardivement (ca. 15 000 BP), on a les traces précoces d’une exploitation maritime le long du Pacifique, en particulier depuis les zones arctiques, à l’extrémité nord, jusqu’en Patagonie et en Terre de Feu, à l’extrémité sud. Ces activités liées au monde marin se sont perpétuées dès la fin du Pléistocène et tout au long de l’Holocène et ont souvent été observées et décrites par les premiers voyageurs et par les ethnologues qui ont parcouru le continent.

Pourtant le milieu marin n’est pas naturel à l’homme. L’appropriation de ce territoire fluctuant a souvent nécessité une organisation sociale spécifique. Mais surtout son exploitation exige des connaissances techniques particulières et sophistiquées. Qu’elle soit purement côtière (pêche à pieds ou en plongée), ou en mer (nécessitant la fabrication d'embarcation et une connaissance de la navigation), les espèces recherchées (mollusques, poissons, mammifères marins, oiseaux de mer) sont des proies spécifiques qui impliquent l'usage de techniques adaptées à leur capture (harponnage, piégeage, pêche à la ligne...), leur transport (notamment dans le cas des grands cétacés), leur consommation et leur conservation (fumage, salage...).

En effet, si l’exploitation côtière reste à portée des chasseurs terrestres et peut leur fournir un utile complément alimentaire, souvent saisonnier, ce n’est pas le cas de la chasse/pêche en mer des poissons et mammifères marins, et de la capture d’oiseaux installés en colonies sur des îles ou des falaises. Sur tous les continents, les chasseurs-cueilleurs marins ont donc développé un équipement spécifique, au premier rang duquel l'embarcation et le harpon. Certains de leurs outils et armes offrent des points communs avec l'équipement des chasseurs terrestres (comme les armes de jet), tout en présentant des caractéristiques qui leurs sont propres, telle la ligne du harpon qui permet de poursuivre le gibier dans l'eau sans le perdre. D'autres techniques sont spécifiquement adaptées à la mer, comme la pêche à la ligne et à l’hameçon, la construction de murets de pêcherie destinés à piéger le poisson à marée descendante, ou l'utilisation de pièges en vannerie, etc.

Certs matériaux utilisés dans la fabrication de l'équipement sont également communs aux chasseurs terrestres et marins : pierre, écorce, bois végétal (parfois flotté), bois animal, os ou dent de mammifère terrestre... D’autres sont plus spécifiques aux groupes maritimes, car le gibier marin lui-même fournit des matériaux exceptionnels qui ont été largement exploités, aussi bien par les Inuit que par les Indiens canoeros (en canot) de l’extrémité australe de l’Amérique. En particulier, les os...
de mammifères marins, par leurs grandes dimensions et leurs qualités physico-chimiques permettaient quand ils ne servaient pas à l'armature des maisons, de fabriquer des pointes d'armes et des outils parfois spectaculaires, tandis que les os d'oiseaux de mer, fins et résistants, étaient facilement transformés en de très efficaces poinçons, et les coquilles marines utilisées en couteaux.

L'objectif de cette session est, à partir de l'exemple américain, de contribuer à la connaissance des techniques spécifiques développées en vue de l'exploitation des produits marins, dont on retrouve les traces aujourd'hui jusque dans les sites paléolithiques d'Europe ou de Sibérie.
XXVI-1. State of the Art in Southeast Asian archaeology
Victor Paz

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The session is opened to prehistory and protohistory researches in Southeast Asia: new excavations, new results, new projects, next studies in order to update the knowledge on prehistoric and protohistoric peopling of Southeast Asia
XXVII-1. New probing of human migration and adaptation in the Upper Pleistocene of Eurasia
Kidong Bae¹, Ya-Mei Hou²

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Beijing - Chine

The human population of Upper Pleistocene reached a peak point in migration and adaptation of human evolution. The dispersal route of migration is always hot topic to be probed. Some new data are keeping accumulated and renew our knowledge and understanding. For example the new model of “sink and source” proposed a new direction of discussion and put Eurasia again as a very important region of human evolution. According to new research result, whether archaeological or gene evidence are all providing some new interesting clues that the population between Europe and Asia are closer than that between Europe and Africa. To face mixing character of Neanderthal in Chinese late human fossil keep us to have a big space of discussion and imagination for future situation of the study. Archaeological evidence would also need to be related and help to get a larger view of the topic. Thus, opening all this discussion becomes the focus of the present session we propose here
XXVIII. COMMISSION ART

XXVIII-1. The symbols in rock art: a global Reflection for their analysis and Interpretation, from Hunter-gatherers to the production Economy societies

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The presence of symbolic figures in rock art around the world is an universal fact. From the beginning, all societies have developed symbolic capacities and depicted symbols were situated both deepest part of the caves, as rock surfaces on open air. The use of these symbols have remained over time, from hunter-gatherers to the production economy societies.

Traditionally, different interpretation lines in rock art, have linked these symbolic figures with the necessity of human groups to express beliefs or rituals, spreading events, establishing social relationships or marking territories.

In this meeting, with the participation of researchers from different countries, we want to put in common the study of symbolic figures in the rock art around the world with these topics:

- The birth of first symbols: When, how, where, who and why?
- Techniques used in symbolic figures of rock art.
- Comparison between symbolic figures in the rock art from hunter-gatherers and production economy societies.
- The contexts of symbols in rock art: caves, open air and portable art.
- The message of the symbols: ritual, territory, identity.

XXVIII-2. Is there palaeoart before modern humans? Did Neanderthals or other early humans create ‘art’?

Dario Seglie¹, Luiz Oosterbeek², Marco Peresani³, Piero Ricchiardi⁴

¹: IFRAO
²: UISPP
³: University of Ferrara
⁴: CeSMAP

International Conference under the aegis of UISPP (The International Union of Prehistoric and Protohistoric Sciences) and the auspices of IFRAO (The International Federation of Rock Art Organisations); President of the Scientific Committee: Prof. Dr. Henry de Lumley, Director of the Institute of Human Palaeontology in Paris.

The Vice Presidents are: Prof. Dr. Luiz Oosterbeek, Secretary General of the UISPP (The International Union of Prehistoric and Protohistoric Sciences); Prof. Dr. Giacomo Giacobini, Secretary General of the International Association for the Study of the Prehistoric and Protohistoric Sciences.
of Human Palaeontology; Robert Bednarik, Secretary General of the IFRAO (The International Federation of Rock Art Organizations).

This conference will be held by Centro Studi e Museo d'Arte Preistorica (CeSMAP), Pinerolo, Italy:

- “Is there palaeoart before modern humans? Did Neanderthals or other early humans create ‘art’?”

Conference to be held at the University of Turin, Italy, From 23 to 27 August 2018

Academic sessions will be from 23 to 25 August 2018, followed by field trips to Neanderthal sites on 26 and 27 August (Fumane Cave, Verona, Italy and Ciota Ciara Cave, Borgosesia, Italy).

The three sessions:

- Changes in environment and human adaptations.
- Changes in the utilitarian and non-utilitarian productions in two million years of human history.
- The dawn of art-like productions and behaviours.

XXVIII.3. Au-delà des images: Des nouvelles conceptualisations de l'art préhistorique

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Au cours des dernières années du XXᵉ siècle, plusieurs auteurs ont remis en question l'utilisation du concept d’« art » pour désigner les images créées par l'Homo sapiens pendant la préhistoire. Selon eux, l'utilisation de ce terme avait contribué à réduire un ensemble varié de manifestations (peintures, sculptures, statuettes) à une seule catégorie. Ces auteurs proposèrent de remplacer le terme d’« art » par des concepts alternatifs d’« image » ou de « représentation ». Cette redéfinition eut comme résultat un élargissement de la catégorie « manifestations artistiques ». Néanmoins, depuis une dizaine d'années, nous sommes témoins d'une nouvelle mutation dans la définition de l'« art » préhistorique. En effet, pendant la dernière décennie, nous avons assisté à l'incorporation de nouveaux matériaux qui ne peuvent pas être définis comme « images » ou « représentations » et qui sont en train de dissoudre définitivement les catégories traditionnelles pour l'analyse de l'art préhistorique. Parmi ces matériaux, il faut mentionner les objets de parures, les pièces d'ocre, les pierres gravées, etc. Nous allons interroger cette nouvelle conceptualisation d'un double point de vue. D'un point de vue théorique, nous allons examiner les implications que cet élargissement de l'objet d'étude peut avoir sur la définition même de l'art préhistorique. L'utilisation du concept d’« art » pour définir un ensemble d'objets de plus en plus hétérogène pose la question de l'extension du sens de ce terme aujourd'hui. D'un point de vue pratique,
nous allons examiner cette mutation conceptuelle en présentant plusieurs cas d'études qui montrent comment l'étude de l'« art préhistorique » s'est récemment orientée au-delà des cadres conceptuels traditionnels.

XXVIII-4. Caractérisation, continuités et discontinuités des manifestations graphiques des sociétés préhistoriques
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L'objectif de cette session est d'aborder, à travers le prisme des productions graphiques (art pariétal, rupestre, mobilier, parure), la question de l'identité, des échanges et de la mobilité des sociétés préhistoriques confrontées à des changements environnementaux. Le Pléistocène supérieur et l'Holocène sont des périodes marquées par des bouleversements importants des milieux naturels. Leur impact sur les sociétés peut être interrogé au travers des pratiques artistiques.
Comment ces différentes manifestations peuvent-elles illustrer, différencier ou identifier des groupes ou des sociétés, des changements ou des permanences dans leurs pratiques, des modifications dans leur rapport à leur environnement (faune et flore), mais aussi dans leur propre dynamique interne, au fil du temps, selon leurs contextes socio-culturels et les aléas climatiques affrontés ?
En quoi les pratiques artistiques offrent finalement un regard complémentaire ou différent sur ces sociétés de celui issu des études sur les productions d'outils, d'armes, leurs stratégies de subsistance ou d'acquisition de matériaux et de biens ?
Face aux données issues de l'analyse des objets archéologiques et aux facteurs environnementaux, l'étude des productions graphiques et des ornementations mobilières ou corporelles peut-elle faire apparaître des aspects singuliers des sociétés préhistoriques, de leur identité, de leur organisation, de leur économie, de leurs échanges sociaux, de leur lien à leurs environnements, ... ?
Pour nourrir la discussion, les contributions attendues pourront mettre en exergue aussi bien des analyses synthétiques (sur une période/un territoire/un contexte) que transversales. Des études monographiques susceptibles d'être représentatives d'une pratique culturelle pourront également enrichir le débat, ainsi que les mises en
confrontation des productions graphiques avec les données archéologiques traditionnelles (outils, armes en matière minérale ou organique...). Ces exemples pourront être issus d'une chronologie longue (du Pléistocène à l'Holocène), à l'échelle de la planète, dans différentes régions.

**XXVIII-5. Traces, tracks, and pathways. Rock art, archaeology and the lines of life**

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There is a long tradition in archaeology to tacitly understand the basic question or problem of the discipline in terms of a static/dynamic dichotomy. Past life was dynamic and the archaeological record is static. The people once were alive; now the people are dead. In this session, we want to encourage critical explorations of this theme from a particular perspective. We want to start out from the understanding that life is lived along tracks and pathways (S. Rose 2005). At different speeds, in different time scales, plants, animals and humans are continuously making tracks in the world and leave traces for others to follow, to engage with (Ingold 2015). In this way, explicitly and implicitly, life is continuously and irreducibly enmeshed in the lives of others. As Pina-Cabral (2017: 11) has recently stated, “humans invest their meanings in the world (they reify meaning) and then interact with these reifications – theirs and other people’s. Even if I am alone, I permanently interact with the traces of others; I encounter the traces of earlier persons as affordances with which I engage in my own processes of meaning creation [...] the very development of problem solving and skill acquisition in children is a process of scaffolding, to the extent that adults provide the child with pathways for problem solving”. Life means engaging with the traces and tracks of others, finding and creating our own pathways. For the Ju/hoansi San hunter-gatherers from the Kalahari, Namibia, this process is described by Kxao/Lukxao, an old experienced tracker, in the following way: "If you listen carefully, nature communicates through many channels, often in discretions... and to understand it, it is important to enter any territory with an open mind and child-like curiosity" (Nankela 2017: 308, translation by N. Rlkxao and A. Nankela).

In traditional and indigenous knowledge systems, dynamic and storied aspects of life are often given central and dominant significance (Porr & Matthews 2016). Landscapes are networks and meshworks of stories. In fact, landscapes are nothing but the traces of the ancestors. Artefacts, art and rock art are infused with meaning because of their position in stories and within the paths that the ancestors have taken. Landscapes are the products of past actions and agencies (Lenssen-Erz 2008). Accordingly, humans, animals, plants and seemingly natural features are the products
of their own agency, their own and their past movements and activities. However, they are also always the product of entangled agencies and movements. They are not created in isolation. Within this framework of understanding, everything is fundamentally constituted by spatial-temporal relationships through which meaning and significance is generated and acquired. This understanding has important consequences for the notion of knowledge and interactions between people and the environment. For traditional Aboriginal Australian knowledge systems, D. B. Rose (1996: 12-13) explains: “Each whole country is surrounded by other unique and inviolable whole countries, and the relationships between the countries ensure that no country is isolated, that together they make up some larger whole, clusters of alliance networks, Dreaming tracks and ceremonies, trade networks, tracks of winds and movements of animals. In this way, a working system can be known to exist way beyond one's own countries, but no one ever knows the full extent of it all because knowledge is of necessity local”. In contrast to the scientific worldview, in the indigenous understanding, knowledge is fundamentally attached to place and knowledge about a place can only be acquired by bodily engagement that is always spatially and temporally situated. This principle was aptly described by Kxao /Lukxao from the Ju/'hoansi San: "A tracker must still his mind, spend time alone in nature and openly accept guidance from the landscape" (Nankela 2017: 308, translation by N. R!kxao and A. Nankela).

How can these insights from indigenous ways of knowledge and understanding the world help us in understanding aspects of the deep past? In this session, we equally aim to consider the impact of these considerations on the development and application of formal archaeological methods and interpretations, for example, in the investigation of cave sites that constitute original documents that might allow an understanding of the (symbolic) behaviour of past societies. In many cases the intrinsic characteristics of caves have ensured an exceptional preservation of archaeological evidence. The existence of seemingly symbolic and non-symbolic graphic remains, evidence of fire, artificial structures and prints are unique testimonies to enhance our understanding of the culture, behaviour and collective imagery of these societies. For example, while daily activities have been carried out in half-shade as well as dark zones, special task activities left their traces in dark parts only (Pastoors 2016). Historically, caves with rock art were seen as sanctuaries in which rituals took place just because of the presence of rock art. However, Arias (2009) has reassessed the question of rituals in caves in detail and concluded that allegedly ritual activities are nothing more than extracted single aspects of daily activities that were carried out elsewhere in the cave. Can the perspective of traces, tracks and pathways (Ingold, 2011) throw new light onto these longstanding questions, structures and divisions?

In this session, we want to take up the challenge of bringing together archaeological methods of analysis and interpretation and the lines of life.

**Literature**

XXVIII-6. Contribution and limits of 3D and cutting-edge technologies to the recording of mobiliary and parietal art

Juan F. Ruiz¹,², Elia Quesada Martínez³

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The last decade has seen an authentic revolution in rock art recording procedures thanks to the incorporation of cutting-edge technologies that allow to record in an easy and affordable way the three-dimensional reality of prehistoric imagery. While the use of 3D technologies in rock art seemed utopian at the beginning of the 21st century, or it was just reserved to the departments of big universities, nowadays almost the entire rock art recording projects are based on 3D techniques like close range photogrammetry or laser-scanners. Unfortunately, this radical shift has not been matched by a parallel reflection about how, why and when to use what of these new technologies.

The recording procedures based on photographic methods, analogic or digital, have been hegemonic since the 1970s until well into the current century. But these procedures did not essentially change the recording paradigm that was set in the beginning of the 20th century, and that was oriented to the isolation of the iconic content from the media on which it was made. The final objective was to reproduce prehistoric graphism on a two-dimensional surface: a piece of paper. Three-
dimensional recording techniques break away from that paradigm and are opening the
door to new technologies that, curiously enough, are mainly based on digital imaging,
now transformed into synthetic products.

For those reasons, this session has been proposed as a discussion forum about the
limits of current technologies for 3D recording of mobiliary and parietal art, and about
their future contributions. For instance, incised hairline engravings are a real challenge
for any of the current scanning technologies, from structured-light scanning to
photogrammetry based on computer vision principles. So, what would we do with
them? How should we record them hereafter? On the opposite side, there is no doubt
that these cutting-edge technologies are turning volumetric and surface monitoring of
alterations of rock art sites into a reality thanks both to technological development and
to the reflection about the opportunities offered to the researchers by them.

More accurate and affordable scanners, increasingly evolved software and more
powerful computers will certainly come in the next years. So, it is extraordinarily
urgent to define the right questions in connection with the parietal and mobiliary art
recording requirements in the current context. It will be necessary to avoid that the use
of these new techniques becomes a pure technological exhibition unplugged from the
real archaeological enquiries and the general objective of going deeper into our
knowledge of the prehistoric human societies that produced imagery. In this regard,
many debate subjects can be connected to this approach, but we would like to
highlight and suggest for debating the search of new communication and presentation
media for the 3D and synthetic products, the changes that are going to produce the
virtual reality environments, the progress in image processing and its abilities to
recover an almost vanished past, the future possibilities of light-field and plenoptic
photography, or the development of new techniques for 3D tracings, among others.

XXVIII-7. La reformulation des interactions artistiques dans le golfe
de Gascogne à la lumière des nouvelles études et découvertes
Garate Diego 1, Rivero Olivia, Ontañón Roberto

La distribution géographique des grottes ornées du Paléolithique Supérieur en Europe occidentale a changé au long de la recherche. Aux noyaux initiaux qui ont donné lieu à l'art « franco-cantabrique » (Cantabres, Périgord et Pyrénées) on ajoute maintenant de nouveaux secteurs avec des concentrations remarquables comme le Rhône, l'Andalousie ou le Plateau Ibérique.

Cette nouvelle réalité est la raison d'une certaine « inattention » dans les dernières décennies envers les territoires non « classiques ». Depuis le début du XXIe siècle des nouvelles découvertes spécialement abondantes dans les Cantabres (Atxurra, Armintxe, etc.), mais aussi importants dans le Périgord (Cussac), et la révision des « grands sanctuaires » pyrénéens (Tuc d'Audoubert, Trois Frères, etc.) oblige à reformuler les interactions artistiques entre ces territoires pendant tout le Paléolithique Supérieur.
La session a comme but d'apporter de nouveaux éléments en faveur de cette révision, à partir des nouvelles découvertes et des études dans les grottes ornées du Golfe de Gascogne.

XXVIII-8. From hunters to breeders: a single path? Perspectives to transitions processes through the study of rock art
Juan F. Ruiz¹,², Carole Dudognon³

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Archeology highlights the existence of several centers of animal and plant domestication throughout the world but the issue of the transition from societies based on a predatory economy to a production economy remains complex. Beyond the study of centers these new lifestyles and the system of propagation of these technical, social and economic advances appear, the current difficulty lies in the study of the reception of these many innovations for the populations situated in the margin. The advance of Neolithic processes in all the regions of the world raises recurrent questions to understand the choices made by the populations in contact with these mutations. The extent of socio-economic and symbolic changes, affect, in particular, the relationship with animals, because hunter-gatherers must completely rethink their relationship to the environment. The dissemination of new modalities in the exploitation of resources, the transmission of unprecedented technical knowledge and the emergence of new symbols are all vectors of this mutation that can give rise to multiple scenarios at the time of their reception. How did the hunter-gatherers accept this profound change in their way of life? It seems that several situations had occurred. A posteriori, the Neolithic process which has occurred everywhere and at different times in prehistory, has been an evolutionary advantage for societies that have adopted pastoralism and agriculture as a source of subsistence, but this has not been done without a radical change in societies' mindset, or without abandoning an ancestral way of life and learning new technologies. Did the hunter-collectors have any choice but to integrate themselves into the dynamics of production societies or to stay away from them?

One of the areas that best reflects this issue is rock art, painted or engraved. Across the world, in different environmental contexts, the shift from an economy of predation to a production economy is reflected in new forms of expression and new symbols. Without undue generalization, the most notable changes that accompany these processes are a stylistic evolution from naturalism to schematization, an increasing proportion of anthropomorphich patterns and the emergence of domestic species (which do not completely replace wildlife). On the basis of new reflexive schemas, we come out of the dichotomy of hunters versus pasters, emphasizing the existence of several transition models or various types of relations between these universes that we can approach in rock art if we abandon the simple opposition of representation to wild
animals with domestic animals. Recent advances in the study of superposition systems at the scale of a panel of a region show us the very strong interweaving of different communities in these regions which often exhibit zones of tension. The reading of the scenic representations proposes a sometimes very clear vision of the conflicts between populations or on the contrary can allow to reveal areas of distribution not of a style but themes showing explicitly the use of technical advances like the capture. The analysis of the graphic representations that integrates technique, styles, themes, scenes, panel construction, symbolism offers a key material to understand the major changes within these societies.

One of the objectives of this session will be to collect archaeological and parietal observations in order to open a debate on the rock art of the last hunter-gatherers at the time of their ultimate social and symbolic economic mutation and to try to analyze how graphic productions offer us possible scenarios to understand this key moment in the history of humanity. We will attempt to convert rock art into a first-rate archaeological datum that can complement the impressive advances that have recently taken place in fields such as genetics or landscape archeology for the understanding of Neolithic processes.

**XXVIII-9. Syntaxes of Prehistoric Iconography. Formal methods to record, analyze and interpret graphical expressions of past societies**

Thomas Huet

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Prehistoric imagery (e.g. rock art, ceramic decoration, statuary) is generally considered as a privileged artefact to achieve the zeitgeist of a past society. But because the conventional relation between the representation – the signified – and the represented concept – the signifier – is lost, its social signification is obscured and commonly discussed. These last decades, development of physics and informatics in archaeology has enriched the methodological toolbox and has permitted to go beyond the classical opposition between description (objective) and interpretation (subjective) by a modelling based on formal and statistical methods.

For example, on paintings, colour enhancement (e.g. PCA on colour space) help to distinguish forms that, despite common difficulties (variability of the iconography, missing data), can be reduced to variables with shape analysis (e.g., procrustean analysis) and classified into iconographical styles. Analyse of matter (e.g. X-ray fluorescence) and painting technics (e.g. macro-photography) help to define the technological style. Once the contemporaneity of a given set of graphical units is established, by absolute (e.g. AMS dating, OSL) or relative methods (e.g. typo-chronological classification), their distribution is studied with spatial analysis (GIS) on
the painted support. This latter, which is the space of representations, is reproduced by 3D technics (e.g. RTI, photogrammetry). On engravings (rock-art, ceramic decorations, etc.) and statuary (e.g. stelae), such 3D approaches have shown their efficiency. In all cases, exploratory and confirmatory statistics (e.g. data mining, clustering and tests) represent an important stage within the analysis by revealing conventions in studied iconographic series.

Finally, results of analyses are compared to other proxys of the social organisation (e.g. artefact productions, mode of subsistence, type of settlement) to infer – by recognising correlations, trends, etc. – the possible signification of the imagery.

This session will welcome communications on prehistoric imagery which will present such formal methods in integrated approaches; from the recording to the interpretation. The focus will be on European and Mediterranean Neolithic, especially for large series (e.g. cups-and-rings traditions, megalithic statuary, ceramic decorations), but presentations on other periods (Palaeolithic and Protohistoric) or geographical areas, are also welcome. homas Huet
XXIX. COMMISSION ANATI

XXIX-1. The intellectual and spiritual expressions of non-literate peoples
Emmanuel Anati¹

¹ : Commissiom Scientifique UISPP the intellectual and spiritual expressions of non-literate peoples (CISENP)

The visual arts, music, dance, rituals, myths, traditions and other aspects of the human conceptual expressions, reveal the peculiarities of each society and, at the same time, the common intellectual and spiritual heritage that unites humanity. The CISENP (International Committee on the Intellectual and Spiritual Expression of Non-literate Peoples) is conveying its session at the forthcoming UISPP Congress 2018. As in previous occasions, colleagues from various disciplines are invited to share experience, ideas and scientific approaches for a better understanding of the human creativity and behavior, for a broad-minded study and understanding of the past. You are invited to present title and short abstract (300 to 500 words) of proposed papers, before March 30, 2017, to “Session CISENP 2018”, atelier.etno@gmail.com, providing your full name and postal address.

Prehistoric archaeology is in urgent need of this new landscape of “Conceptual Anthropology”, for a step forward. It is a new academic approach for building up a solid future for the study of man. Archaeology, both prehistoric and historic, needs a constant and open dialogue with other disciplines. The study of man includes anthropology, sociology, psychology, human geography, semiotics, art history, and other disciplines that have to join efforts. This is the aim of Conceptual Anthropology. What is to be the image of prehistoric sciences in the future? How can we convey to a large public the notions and wisdom accumulated in the study of the roots? Understanding the past is necessary to build a future. And not only: it is necessary to understand the present, our present. The knowledge of the roots is the elementary base of culture. Even in the tribal world young people are being initiated to the knowledge of their past. The study of prehistory has to awaken interest and passion in the public: there is nothing more fascinating than discovering the background of human behavior, the emotions and passions that have caused the intellectual and spiritual adventures of humankind. This is the message that we can convey to our society. Let us join efforts to develop public awareness, education, formation, engagement, research, for a broader understanding of our past and our present. We can convey this passion only if we have this passion. You are welcome to join.
XXX-1. Interdisciplinary Methods of Research for Bronze and Iron Ages Funerary Monuments (3rd-1 Millennia BC)
Valeriu Sirbu¹, Stefan Dan², François Djindjian³

1 : Muzeul Brăilei; Institutul de Arheologie „V. Pârvan” Bucureşti
2 : Institute of Archaeology "Vasile Parvan", Center of Thracology
3 : UMR 7041 Arscan CNRS

The session concerns for the bronze age and iron age, the following topics :
- Archaeology of construction;
- Funerary rituals;
- Inventory;
- Offerings;
- Funerary anthropology;
- Paleopathology;
- Gender;
- Social structures, status of the dead;
- Genetics;
- Religious interpretations;
- Taphonomy of bone remains;
- Statistics (sampling, descriptive statistics, spatial statistics, seriation, exploratory multivariate analysis, hypothesis testing);
- Survey (geophysical techniques, lidar, satellite teledetection, etc.);
- 2D and 3D acquisition;
- Landscape analysis;
- Heritage management

XXX-2. Le monde funéraire du II millénaire BC en Europe Atlantique Occidentale
Laure Nonat¹,², Maria Pilar Prieto Martinez²

1 : Laboratoire ITEM. Université de l'UPPA.
2 : Área de Arqueología. Departamento de Historia. Universidad de Santiago de Compostela

La connaissance de l'âge du Bronze Atlantique s'est profondément accrue ces trente dernières années. L'état de la recherche actuel n'est cependant pas homogène d'une région à une autre. Il persiste encore des zones pour lesquelles une caractérisation culturelle demeure difficile à établir. Une dichotomie des connaissances entre le nord et le sud de l'espace occidental atlantique est particulièrement perceptible. La documentation archéologique permet ainsi de définir aujourd'hui des cultures bien connues, dotées d'une identité marquée au sein de cet espace. Il s'agit par exemple de
la culture Manche Mer du Nord (MMN), de celle des Tumulus Armoricains ou encore celle du Wessex pour le sud de l’Angleterre. Cependant, vers le sud, et au delà du grand Centre-Ouest de la France et de la culture des Duffaïts, énumérer les identités culturelles en présence consiste en un exercice beaucoup plus complexe. Sur la frange atlantique, des régions, comme la Galice ou encore le nord de la péninsule Ibérique, n'apparaissent encore que très faiblement dans les travaux à échelle européenne. Les artefacts métalliques sont souvent les seuls éléments retenus à l'heure d'inventorier les différents traceurs culturels dont elles sont dotées.

Bien que les données sur la sphère domestique alimentent chaque jour davantage la personnalité régionale des différentes cultures archéologiques du domaine atlantique, celles sur la sphère funéraire constituent encore aujourd'hui la principale source d'informations pour retranscrire les principaux marqueurs à l'origine de leur identité. Nous aimerions donc dans cette session nous centrer principalement sur ces contextes funéraires, les plus visibles, de la documentation archéologique. L'objectif consiste à définir les différents types d'enterrements (architecture, mobilier), leur typologie et leur chronologie à partir de plusieurs échelles d'analyses. Des analyses locales permettront de mieux comprendre le développement du phénomène funéraire au cours du II millénaire BC dans des régions considérées comme méconnues dans la bibliographie spécialisée. Des comparaisons régionales permettraient de constater les similarités ou les divergences à différents niveaux du phénomène funéraire afin d'établir les liens éventuels entre les différentes cultures. Ces comparaisons pourraient permettre de souligner des dynamiques communes dans une aire pour laquelle on a supposé très tôt une interaction culturelle forte tout au long de la préhistoire. Ainsi, l'objectif de cette session consiste à réunir des communications ainsi que des posters qui fourniront des informations d'ordre contextuel et interprétatif sur le monde funéraire du II millénaire BC.
XXXI-1. Through time, space and species: implication of new discoveries, technological developments and data diffusion improvement in Biological Anthropology
Dominique Grimaud-Hervé1, Carlos Lorenzo2, Julie Arnaud3
1 : MNHN
UMR 7194
2 : IPHES
3 : Université de Ferrara

As also part of the principal goal of the Biological Anthropology commission, the present session aims to divulgate new discoveries, discuss new theories and share innovative methodologies correlated to the study of human extinct and extant populations in biological and evolutionary perspectives. The session proposes to embrace a large spectrum of specialities correlated to the biological anthropology field of research, in terms of chronology, geography and phylogeny.

The study of the biological aspect of ancient populations is in a constant modernization and implementation, through the improvement, application or adaptation of methodologies / instrumentations / techniques and most of all by the discovery of new fossils. It is no coincidence that, in recent decades, technological advances in biological anthropology have allowed us to clear (a little more) some aspect of human evolution and migration.

The purpose of mixing different anthropological fields of research is to stimulate debates and inputs about different approaches and methodologies.

In this context, we highly encourage graduate students and junior researchers to present their current research in order to update the community of anthropologists about what is going on in the anthropological sciences.

Additionally, the interdisciplinary and transcontinental aspects, at the base of the session, will encourage discussion between researchers from different institutions/specialities/continents.

Potential authors can send poster or oral proposal on a broad range of chronological, geographic, theoretical or methodological topics. The session might be subdivided in sub-sessions in function of the different themes proposed by the authors.

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sub-sessions in function of the different themes proposed by the authors.

XXXI-2. Ancient DNA
Ludovic Orlando¹

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After more than three decades of research, ancient DNA has now come of age. The 
complete genome sequence of hundreds of ancient individuals has been characterized 
and genome-scale datasets are under development using thousands of archaeological 
remains from both humans and non-human organisms. This wealth of genetic 
information allows the reconstruction of past population affinities at unprecedented 
detail, charting through space and time the history of population migration, contact, 
admixture and adaptation to novel environments. The recovery of DNA from 
microbes, especially pathogens, also opens for a deeper understanding of the origins of 
major infectious diseases, the genomic changes underlying virulence, and their impact 
on human history. Applied at the scale of communities, ancient DNA has started to 
reveal how our microbial self but also how plant and animal communities have 
responded to major environmental crises and/or cultural transitions.

This one-day workshop will cover five main areas of ancient DNA research. The 
‘Laboratory and computational methods' session will present the latest methodological 
advances, improving the recovery and analysis of ancient DNA data, and reducing 
related experimental costs. The ‘Human evolution' session will address how novel 
genome-scale datasets have helped revisit our own evolutionary history, including our 
relationships with archaic hominins. The ‘Plant and animal domestication' session will 
present how ancient DNA analyses of plant and animal archaeological remains can 
help better understand the domestication process, both in terms of when and how 
domestication centres developed and spread, but also which traits were particularly 
valued in past individual populations and cultural groups. The ‘Diseases and microbial 
communities' session will focus on the identification of the etiological agents of past 
epidemics, their virulence, and the characterization of wealthy microbiomes in ancient
populations in the face of important environmental, cultural and/or lifestyle changes. Finally, the ‘Population dynamics and Environmental DNA’ session will cover the wide range of applications opened by the characterization of genetic variation in non-human macrofossil remains but also within sedimentary and/or ice cores, and allowing to track past population and ecosystem dynamics.
XXXII-1. Lieux de vie et espaces domestiques : organisations fonctionnelles et stratégies sociales / Living spaces and domestic areas: functional organisation and social strategies

Luc Jallot1, Alessandro Peinetti

1 : UMR 5140 - ASM (ASM) - CNRS : UMR5140, Université Paul Valéry - Montpellier III, Ministère de la Culture et de la Communication

La sélection et la hiérarchisation des documents que livrent les lieux clos, maison, occupation en grotte ou abris, aire d'activité ou de stockage,... permettent d'envisager l'organisation des espaces domestiques, de dresser la liste et la distribution des activités et l'effet de cette organisation sur les espaces extérieurs. Cette analyse implique le mode de subsistance, les chaînes techniques opératoires et les stratégies sociales. Cependant, la perception de la partition fonctionnelle des sites et des habitations est parfois difficile en raison de la nature des architectures, des réaménagements, des processus impliqués dans la sédimentation et plus généralement de la préservation des vestiges. L'étude de l'espace bâti, l'analyse physique et chimique des sédiments et la caractérisation des surfaces d'occupation d'un point de vue archéologique ou géoarchéologique peuvent apporter des données complémentaires et décisives pour la compréhension des zones d'activité. Il ne s'agit pas ici de traiter de l'ancienne question palethnologique — aussi vieille que l'archéologie elle-même — mais de la réévaluer. Cette réévaluation s'appuiera sur des études de cas ou des synthèses régionales, concernant le Néolithique et l'âge du Bronze en Eurasie, sous forme de communications, ou de posters. Ainsi, nous proposons de rapprocher les points de vue, les différentes méthodes mises en œuvre et leurs résultats. Les travaux de terrain portant sur des milieux clos et les démarches méthodologiques sont particulièrement appréciées.

The selection and the organization of archaeological data issued from closed contexts, dwellings, caves, activity areas, storage areas,... allow the reconstruction of the domestic space, as well as the identification and the distribution of different activities performed both in roofed and courtyard spaces. The analysis of the use of space and the recognition of activity areas is closely related to the study of the artifacts distribution, the subsistence strategies, the social and cultural partition of inhabited space, the technical behaviors and the social strategies of a community. However, the perception of the functional partition of sites and dwellings is sometimes difficult, due to the nature of architectures, the past maintenance activities, the processes involved in the sedimentation and more in general to the preservation of the archaeological record. Distribution analysis of artifacts, microartifacts and ecofacts, coupled with their functional and technological analysis, are useful tools for the understanding of the use of space in inhabited contexts. The study of the built space, the physical and chemical analysis on sediments and the characterization of occupation surfaces from an
archaeological or geoarchaeological point of view can bring complementary and decisive data for the understanding of activity areas. This session aims to reevaluate the old concept of palethnological analysis of the archaeological context, focusing on the presentation of case-studies or regional overviews from the Neolithic to the Bronze Age. Different point of views, methods and results will bring together. Papers focused on methodology or the analyses of closed context are welcome. Interdisciplinary papers and posters are encouraged.

XXXII-2. Transitions démographiques. Mythes et réalités du Néolithique à l’âge du Bronze
Thibault Lachenal, Olivier Lemercier

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Pendant le Néolithique et l’âge du Bronze, certaines périodes connaissent un important nombre de sites domestiques et/ou funéraires dans une région donnée et beaucoup moins à la période suivante. Certaines transitions, d'une période à une autre ou d'une culture à une autre supposées successives sont ainsi marquées par des croissances ou des baisses importantes du nombre de sites. Ces transitions sont le plus souvent interprétées en termes démographiques : crises ou développements, d'emprises ou de dépris es sur un territoire etc., et parfois en termes d'organisation de l'habitat (groupé ou dispersé) ou d'exploitation du territoire. Elles sont parfois mises en relation avec des crises climatiques et environnementales ou des événements d'ordre historiques (mouvements de populations etc.).

Si certaines de ces « transitions démographiques » sont probablement réelles et très intéressantes pour l'histoire des peuplements, il faut alors en préciser les causes, tout en écartant les potentiels biais taphonomiques (conservation différentielle des sites au cours du temps ou en fonction des types d’implantation, etc.) et chronologiques (liés à la chronologie radiocarbone).

Cette session souhaite aborder ces questions sous des angles variés :
- Identifier les supposées « transitions démographiques » dans diverses régions,
- Préciser les changements au niveau du nombre et du type de sites et de l'exploitation des territoires,
- Rechercher les biais potentiels de ces observations (histoire de la recherche, taphonomie, problèmes de chronologie radiocarbone...)
- Rechercher les concomitances entre ces « crises démographiques » et les crises climatiques ou les potentiels mouvements de populations aujourd'hui identifiés par les analyses isotopiques ou génétiques.

XXXII-3. Pre and protohistoric stone architectures: comparisons of the social and technical contexts associated to their building
Florian Cousseau, Luc Laporte
Building architectures is a common action of pre and protohistoric societies of the entire world, both for the worlds of the livings and of the dead. The assembling of blocks, from rubble stones to cyclopean size, is one of the first gain of mankind, but traditions, styles, techniques and materials are different for each society. The research about the pre and protohistoric stone architectures began with the early age of archaeology. Nevertheless, there’s an important lack of knowledge for our time periods, regarding the construction work. This will be the main focus of the session.

We want to present a large view of the archaeological and ethnographical data surrounding these architectures, acquired from different chronological and geographical frameworks. For the presentation, five themes have been chosen to guide the comparisons between the different contexts which occurred during the construction.

If possible, each / every stone architecture must be presented according these themes:

- Definition (Function, uses, typological criterions) and methodology (Methods, focuses, tools)
- Economic sphere (Quarry, supplying, costs)
- Technical sphere (Actions of builders, tools, architectonical control, chaîne opératoire)
- Social sphere (Organisation of the construction work, management of the event, social place of the builders in the society)
- Symbolic sphere (Aesthetic, natural colour, particular masonry, styles, forms)

With these various experiences, a final discussion will allow us to exchange about how to improve the data acquisition on these architectures and their construction. Despite of the great distances, both in time and geography, the aim is then to develop possible parallels between some social and technical contexts presented and thus offer the possibility to fill some gaps in our limited knowledges about the construction works.

**XXXII-4. Cross-channel connections from the Neolithic to the Bronze Age**

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The aim of this session is to trace the prehistory of both sides of the Channel, and the links between these areas, between two major technological revolutions: the introduction of agriculture to Britain and Ireland and the appearance of metalworking and its subsequent developments (4300-1150 BC). This original approach draws on two complementary traditions of research – one French, the other British – and on the results of 30 years of discoveries through commercial archaeology and of investigations into material culture and palaeoenvironment. This research calls for the writing of a comparative history of the cultures on either side of the Channel, emphasising the processes of cultural and technical transfer and environmental conditions that influenced their trajectories, and the hybridisation that resulted from regular two-way sea crossings. This history, which relies on the interdisciplinary nature of current archaeology, is also the history of identity: it unites our contemporary nations by demonstrating that they shared a common past.

XXXII-5. Between Economy and Symbolism: approaches to territories in Neolithic Europe
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Between tenuous traces and monumentality, domestic objects and precious metals, local usage and long-distance circulation, the boundaries between economic and symbolic functioning during the Neolithic period in Europe are not only constantly moving, but also permeable. During this session, we propose to approach the notion of territory – both economical and symbolic – during the Neolithic period. The aim is to locate, analyse, and identify these territories, to recognise their components, and to discuss how these might be tied in multiple ways to the economical and symbolic functioning of these Neolithic societies.

The wealth and complexity of archaeological data from the European Neolithic allows for a finer approach to the functioning of societies and the degree to which they were hierarchised. Territory models, whether centralised or not, centred around the economic territory or with a larger community or symbolic reach, can reveal the social relations between groups. These relations are themselves the result of distinct choices and strategies. We wish, within this session, to see all these aspects of Neolithic
Europe brought to light, as well as taking the opportunity to discuss questions regarding the (pre)historic trajectories of societies.

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Surtout connue pour les stèles gravées en Bretagne (L’Helgouac’h 1983), Irlande (Robin 2010), Suisse (Gallay, Chaix 1984) et Espagne (Bueno Ramirez, Balbin Behrmann 2002), la question du réemploi des mégalithes européens ne s'est ouverte que très récemment aux cas des chambres mégalithiques entièrement démantelées et dont les éléments structurels ont été réutilisés dans des contextes et configurations différents.

C'est dans le domaine Angoumoisin (Centre-Ouest de la France), où la tradition technique d'emboîtement des orthostats les uns dans les autres grâce à des rainures dédiées, que des anomalies répétées ont attiré l'attention. Ces anomalies consistent en la présence sur un même piliers de deux rainures d'emboîtement, l'une active et l'autre non, ou encore de rainures inutiles, voire inadaptées aux piliers voisins. Tous ces « détails » ont permis de démontrer qu'une ou plusieurs chambres funéraires avaient été déconstruites pour bâtir celle de la tombe à couloir de la Motte de la Jacquille (Ard, Mens 2016).

Sans être surprenant, ces cas sont néanmoins fort peu documentés à l'échelle européenne et commencent à poser des questions qui semblent constituer une authentique et nouvelle problématique de recherche.

En termes de chronologie : à quel moment intervient le réemploi ? De quand date l'architecture réemployée ? Cette voie de recherche trouve un intérêt majeur dans la possibilité de mettre en lumière des architectures aujourd'hui totalement disparues, que ce soit d'ailleurs en contexte de pierre dressées ou de chambre funéraire.

Se pose également la question des raisons du réemploi : simple recyclage pragmatique ou forme d'appropriation assurant une continuité symbolique ? Il apparaît d'ores et déjà que les gestes du recyclage sont beaucoup plus complexes que pour une stèle : gestion des dépôts humains et enlèvement des parties supérieures du cairn, puis de la table de couverture.

L'interrogation porte également sur les distances parcourues : les monolithes viennent ils d'une chambre éloignée ou sont-ils remobilisés sur place ? S'agit-il enfin d'une destruction ou d'une déconstruction minutieuse d'un premier monument ?

Toutes ces questions pourront être débattues à la lumière des cas, anciennement ou récemment reconnus, de stèles gravées en réemploi, mais également des exemples
ethnographiques. Deux axes de recherches susceptibles d'aider à formuler des scénarios explicatifs pour les recyclages de chambres funéraires.
XXXIII. COMMISSION FLINT MINING

XXXIII-1. Siliceous rocks: procurement and distribution systems
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The analysis of the production of the siliceous rocks bases on two main axes: the production system and the distribution system. For the first one, the reconstruction of the methods of extraction, the equipment, the structure and the social organization are the key elements. We shall also be interested in the environmental impact and in the relationship with the strategies of occupation in terms of mobility and exploitation or appropriation of the territory. As regards the second axis, it in connection with the purpose of the production (local use or exportation). It asks for the knowledge of the questioned number of people and for the nature of the transaction (direct or with an intermediary), the place of transaction and the method of payment or exchange, informations that are difficult to obtain with archaeology alone. On the other hand, the statistical and cartographic tools can allow to reconstitute roads of exchange and networks and create models of diffusion.

This session is opened to at the same time theoretical contributions, but also to of case study illustrating the one, the other one or both aspects whether it is in archaeology or in ethnoarchaeology.

XXXIII-2. Flint mines and chipping floors from prehistory to the beginning of the nineteenth century
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The flint mines are the principal places to study chipping floors which are sometimes well preserved around the shafts. In some cases the debitage was thrown into the shafts. Nevertheless, recent research has shown that workshops existed not only within domestic settlements, but also on sites that could be characterised as ‘intermediaries’ between the extraction sites and settlements. The study of chipping floors offers the possibility of examining the knapping processes and to identify the objectives of the producers. By comparing the technical quality of the products at various sites, it is then possible to specify which stages of the reduction sequence was done in each studied context. Such research thus affords the opportunity to discuss both the organisation and the evolution of distribution networks.
XXXIV. CONDITIONS FOR THE ADOPTION OF MONEY, CROSSED CONTRIBUTIONS FROM WEIGHTED METAL TO ANTIC COINS

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Coins appeared in Asia Minor, during the last third of the 7th century BC and spread through the Greek world (continental Greece, Asia Minor's coast, Southern Italy and Sicily) around the second part of the 6th century BC. Coins were after adopted by the Western proto-historic world.

Historically, the interpretation of coins and monetary factors, especially as regards their use, differ according to the specialists of the Greco-Roman world, who, start by emphasising their military purpose, and then go on to considering it from a purely economic perspective. Protohistorians on the other hand, are less focused on the question of the first beneficiaries in the system, but are willing to consider monetary factors in an anthropological perspective, often with ritualistic traits.

Recently, however, there has been a transformation in these study lines: while protohistorians are more inclined to recognize an economic function for Celtic coinage, which apparently took place earlier than has long been maintained, Greco-Roman numismatics is today engaging in an opposite movement: it is interested (we could say finally) in the use of coins in other ways than the strictely economic. Alongside these various approaches to money, as means of payment, scale of value and object of storage of wealth, it is also necessary to clarify the notion of value and the modes of economic and ritual functioning that govern activities in complex societies of the first millennium BC.

The discrepancies in the use of coins that appear between the regions and peoples of the Mediterranean region and continental Europe invite questions concerning the practices of exchange and consequently the different units of account of value. Without money, the distribution of goods is made by gift, requisition and compensation. Without denying a linear evolution which would see the transition from metal in weight to struck metal, we should notice the social and political importance of the entity or person of authority that signs its mark and marks its identity. The coin is minted under the control of an issuer, the guarantor for it. It has legal tender, that is, if
the authorities can use the coins to pay with them their benefits, the citizens can reciprocally use it to pay taxes or to settle debts of any kind. But what are the conditions that determine the switching to metal coins? How to quantify ancient coinages? What functions and uses are there for the different monetary series? The time seems to have come to engage in what constitutes an essential debate for both parties.

XXXIV-2. La spécialisation des productions et les spécialistes / Specialised productions and specialists
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Organisée en association avec la commission UISPP "Metal Ages in Europe", Interneo, APRAB, AFEAF, RMPR, SPF
Avec l’avènement des économies de production à partir du Néolithique, la définition et la caractérisation des productions spécialisées intègrent de nouvelles dimensions, relatives à l’organisation et aux échelles de la production, à l’émergence d’un statut d’artisan et à l’intensification des échanges et réseaux de circulations des produits. Petit à petit, les filières de production se structurent pour aboutir à une fabrication de masse mais également à la création à la demande d’objets de haute technicité qui participent à un système économique complexe de consommation et d’échange. Il ne s’agit pas d’une progression linéaire mais d’une diversification des productions, des produits et des savoir-faire, dont la remise en contexte chronologique et sociétale semble fondamentale à sa compréhension.

Nous proposons d’aborder ces questionnements à travers trois grands thèmes suivant une perspective diachronique du Néolithique aux âges des Métaux:

- L'organisation de la production : comment les contextes archéologiques permettent-ils de les définir (site domestique, sites spécialisés, production centralisée en contextes proto-urbains)? A partir de quand peut-on mettre en évidence une segmentation économiquement et spatialement structurée de la chaîne opératoire (ateliers, habitats) ? A quelles échelles s'organisent l'activité et comment se structurent les réseaux de production (acquisition/redistribution/interdépendance) ?
- Les objets produits : ils pourront être abordés à travers différents prismes, qu’il s’agisse du niveau de technicité, de compétence, du savoir-faire, du degré de standardisation (objets uniques / production normalisée / de « masse »), de créativité de ses producteurs, de même que les destinataires de ces productions.
Organised in association with the UISPP "Metal Ages in Europe" commission, Interneo, APRAB, AFEAF, RMPR, SPF
With the emergence of manufacture based economies during the Neolithic, specialised productions take on new dimensions and can be characterised according to their scale, how they are organised, the status of producers and the intensification of the exchange and circulation of manufactured goods. Production networks develop progressively resulting on the one hand in mass production and on the other in the creation of highly technical objects on demand within a complex economic system of consumption and exchange. This is not seen as a linear progression but as a diversification of productions, products and know-how, the chronological and social contextualisation of which are fundamental to their comprehension.
We propose to approach these questions using three themes within a diachronic perspective from the Neolithic to the Metal Ages.

- How productions are organised: how are archaeological contexts used to define productions? (domestic contexts, specialised sites, centralised productions within proto-urban contexts)? Does evidence point towards an economic and spatially structured division of the chaîne opératoire (workshops, settlements)? At what level is this activity organised and how are production networks established (acquisition/redistribution/interdependence)?
- The products can be studied using different filters, their technical nature, the competence, know-how and creativity of the producers, standardisation (unique objects/normalised production/mass production), creativity of the producers, recipients of the products.
- The status of craftspeople: types of activity, itinerancy, time management, status (relationship between the elite and the producers including production control, religious aspects, data from the funerary context).
- These questions can be tackled using syntheses or a thematic approach. It would be particularly interesting to compare how the concept of specialised productions is studied and interpreted for each chronological period: the Neolithic, the Bronze Age and the Iron Age.

XXXIV-3. Economic change as an interplay of institutional and technical factors: some insights from metallurgy
Julien Zurbach¹, Katherine Gruel¹, François Lerouxel, Olivier Buchsenschutz, Vincent Sermeels²,
The historical approach of economic systems has to abandon all teleological perspectives: it cannot do without the question of change, as the transformation of production structures and the allocation of goods in all its dimensions (scales, actors, rhythms and diffusion, factors and vectors). We want to focus on the relations between institutional change and technical change. Institutions, in the sense of the neo-institutionalist economics, are formal (legal) or informal (customs); technical changes are understood as essential changes in production processes.

A considerable quantity of data is available today on the outbreak and development of iron metallurgy in all its technical, economic and social aspects, from Africa to the Northern Sea. We would like to invite papers on that subject. Preference will be given to topics that may form part of comparative approaches on a fairly large scale, including but not limited to Eastern or sub-Saharan Africa, Anatolia, Italy, the Iberian peninsula, Gaul, etc. The central point of reflection should be the spectrum of possibilities between the use of niches in preexisting systems and real economic revolutions.

XXXIV-4. Across the borders: intangible transfers

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Cette session a pour objectif de susciter une réflexion sur l’impact des réseaux de circulation dans la transformation des sociétés. Il s’agit de mettre l’accent sur la signification de la mobilité à partir de cas d’étude concrets analysés en pluridisciplinarité (analyses archéométriques, biologiques biochimiques et moléculaires, traitements statistiques, analyses spatiales, modélisations mathématiques). Les mobilités impliquant des circulations entre des groupes culturels différents seront privilégiées. On pourra ainsi évoquer la variabilité des modes alimentaires (boisson, cuisson, service de table etc.), des relations de parenté, des déplacements humains (individuels, collectifs, saisonniers ou ponctuels), des expressions culturelles (langues, art et coutumes) et des pratiques (artisanats, systèmes de comptage, gestion des ressources).
The purpose of this session is to stimulate reflection on the impact of traffic networks in the transformation of societies. The aim is to emphasize the significance of mobility patterns from cases studied by multidisciplinary approaches (archaeometric, biological biochemical and molecular analyses, statistical treatments, spatial analyses, mathematical modeling). Mobility involving circulations between different cultural groups will be favored. That includes changes in dietary patterns (drinking, cooking, table dressing, etc.), kinship relationships, human movements (individual, collective, seasonal or occasional), cultural expressions (languages, art and customs), and practices (crafts, counting systems, resource management).

XXXIV-5. Modelling Spheres of Interaction in the European First Millennium BC
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Long distance interactions in the first millennium BC in Europe are already well attested by archaeology. Such large-scale exchanges are particularly documented by artefacts whose assumed origin differs from the place where they were discovered, such as the thousands of Roman amphorae identified in Latenian Europe. Reconstructing systems of interactions needs, however, to be based on a sufficient theoretical and methodological background. This session focuses on the reconstruction of exchange/contacts, the study of established systems of interaction, and the effects influencing contacts. Despite interesting isolated foreign objects, intense interaction occurs upon regular contacts, through time. This will result in distinctive zones of interaction: market places, communication corridors, or borders. Centrality or custom, as complex structures, might emerge out of systems of interactions. Reconstructing part of those past systems is not beyond the reach of archaeology. Diverse evidence for contact can be identified by analysing material culture. Provenance studies, economic approaches, and modelling are the foundation of any analysis or reconstruction of exchange. Additionally, to improve the knowledge about systems of interaction, the driving forces need to be recognised; like political elites controlling trade and goods flows, interest in specific products, and means of transportation. In contrast, disturbances
have to be considered. Which events reduce or even stop interactions? How do warfare, conflicts, pirates, crisis, political or climate changes influence contacts?

This session is embedded in the initiative “Regional and trans-regional interaction between the Baltic and the Mediterranean spheres in the first Millennium BC”, initiated from Oslo and Kiel in 2015, and in the “Mosaic Summer School – Modelling Spheres of Interaction”, Kiel 2016. It is also planned as an extension of a session at the “International Open Workshop: Socio-Environmental Dynamics over the Last 12,000 Years”, Kiel 2017.

XXXIV-6. Late stone talks: Lithic Industries in Metal Ages
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In study of protohistorical and early historical times, the general indifference for late lithic industries, and the idea that stone-metal replacement was a self-evident and automatic process, explains why, traditionally, archaeologists focused on the new materials and technologies related to their productions. The emergence and development of metallurgy has always been more attractive. Lithic productions were neglected and considered a heritage of prehistoric traditions. Although chipped-stone tools were recognized as a component of the material culture of the Metal Ages, lithic industries did not interest the archaeologists working on protohistorical and early historical societies, or the Paleolithic and Neolithic flint tool specialists. The limited importance given to lithic productions as an expression of cultural identities of protohistorial and early historical societies drives the archaeologists working on these periods to prefer other materials considered to be more informative. At the same time, these industries did not seem suitable for approaching the socio-political and historical aspects which are the dominant topics in archaeological research of these periods.

Despite these premises, analyses of chipped stone tools of the Metal Ages have developed significantly since the 60's in Europe and the 80's in the Near East. These studies show new potential for the characterization of the societies producing and using flint tools, and for understanding the ultimate replacement of those tools by metals.

In this session, we will bring together scholars working in the Near East, in Eastern and Western Europe to present their research and present the state of art of lithic industries in metal using societies. We will encourage debate on change and continuity related to the use of chipped-stone tools, theoretical frameworks, methodological approaches and current issues. We anticipate stimulating discussions among the participants from these different geographical areas that focus on lithic industries from protohistorical and early historical times.

Dans le cadre des études sur l'âge des métaux, l'indifférence générale pour les industries lithiques récentes et l'idée que la substitution de la pierre par le métal a été
un processus automatique et évident en-soi explique pourquoi, traditionnellement, les archéologues se sont concentrés sur les nouveaux matériaux et leurs technologies. Pour les chercheurs, l'émergence et le développement de la métallurgie ont toujours été plus attractifs. Les productions lithiques ont été souvent négligées et considérées comme un simple héritage des traditions préhistoriques. Bien que les outils en silex aient été reconnus comme un composant de la culture matérielle, les industries lithiques de l'âge des métaux n'ont pas intéressé les archéologues travaillant sur les périodes protohistoriques et historiques, ni les lithiciens spécialistes du Paléolithique et du Néolithique. Le rôle limité des productions lithiques dans l'expression des identités culturelles des sociétés récentes, a amené les archéologues qui travaillent sur ces périodes à préférer l'étude d'autres matériaux considérés comme plus informatifs. Parallèlement, ces industries ne semblaient pas utiles pour aborder les dimensions sociopolitiques et historiques ; sujets dominants dans le cadre des recherches archéologiques de ces périodes.

Malgré ces prémices, les analyses de l'outillage en pierre taillée de l'âge des métaux ont vu un développement progressif depuis les années 60 en Europe, et les années 80 au Proche-Orient. L'étude des productions lithiques récentes a montré leur potentiel ; pas seulement pour la caractérisation des sociétés qui produisaient et utilisaient des outils en pierre, mais aussi pour aborder, dans une perspective plus large, le thème des changements technologiques ; plus précisément l'abandon de la pierre et son remplacement par le métal.

Le but de cette session est de réunir les chercheurs travaillant au Proche-Orient, en Europe de l'Est et de l'Ouest pour présenter leurs études et faire un état des lieux concernant les industries lithiques dans les sociétés utilisant les métaux. Les discours sur le changement et/ou la continuité de l'outillage en pierre taillée, les débats théoriques ainsi que méthodologiques, sont fortement encouragés. Ces présentations permettront d'avoir une discussion entre tous les participants issus de zones géographies et champs d'investigations différents liés aux industries lithiques des périodes protohistoriques et historiques.

XXXIV-7. Archaeologies of warfare in ancient Eurasia. The emergence and consolidation of warrior aristocracies
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Among the most important developments of the Metal Ages was the emergence and consolidation of warrior aristocracies. Epic poems such as the Iliad or the Edda reveal a world of symbols and materials in which warlords and the ideology of warfare play a fundamental role, associated with codes of honour and prestige. The development of metallurgical production was a key element in this process, which can archaeologically be traced through elements such as the proliferation of elite burials with weapons, hoard depositions and the construction of fortified hillforts. Building upon anthropological approaches, it can be argued that the "art of war" imposed deep cultural changes, with new myths and rituals, and new social relations among human beings and even between humans and animals.

In this session, we call for paper proposals that provide examples of the warrior aristocracies that developed in the Metal Ages of ancient Eurasia, from the Calcolithic to the Iron Age, in the diverse manifestations of human culture, such as rituals, mythology, arts, architecture, technology, the environmental space and warfare.

XXXIV-8. Peuples, migrations, colonisations : des approches historico-culturelles aux analyses génétiques en archéologie protohistorique, de la néolithisation à la fin de l’âge du Fer
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Pendant la première moitié du 20e siècle, la plupart des interprétations concernant les changements culturels et les grands phénomènes du Néolithique et des âges des Métaux étaient interprétés en termes de déplacements de groupes ou de populations, selon les modes de l’archéologie historico-culturelle. A partir des années 1960-1970, le développement d’approches scientifiques en archéologie (archéologie processuelle) a conduit à rejeter les vieilles thèses historico-culturelles qui demeuraient impossible à prouver scientifiquement et à développer d’autres interprétations des changements observés. Il s’agissait alors de modèles d’ordre socio-économiques qui ont généralement survécu jusqu’à nos jours, les seuls pouvant être éventuellement soutenus par des analyses scientifiques. Pourtant les modèles socio-économiques peinent encore à expliquer l’ensemble des observations archéologiques, alors que les idées des quelques archéologues attachés aux vieux scénarios historico-culturels ont été marginalisées, amenant parfois à des situations de blocage.
Depuis une décennie, le développement des analyses isotopiques, génétiques et autres a remis sur le devant de la scène les questions de déplacements d’individus, de groupes et de populations. Si ces analyses ne parviennent pas encore à répondre à toutes nos questions et à résoudre tous nos problèmes, une évidence apparaît clairement : depuis le Néolithique, les déplacements d’individus, de groupes et de populations sont nombreux, fréquents et concernent de nombreuses régions et de nombreux sens de circulations/diffusions.
Cette session s’intéresse à deux approches distinctes :
Un regard historiographique sur l'évolution des idées et des approches concernant l'archéologie des peuples, en interrogeant les termes de "migration" et de "colonisation" souvent utilisés pour la Protohistoire.

Un retour actualisé sur les modèles historico-culturels anciens de la Protohistoire qui pourraient maintenant être testés aux moyens d'analyses scientifiques, ouvrant sur l'intérêt de problématiser les très nombreux programmes d'analyses actuellement engagés.

XXXIV-9. The Past and Past Societies: reuse and reinterpretation of ancient places during Metal Ages
Hugo Sampaio1, Ana Bettencourt2

Studies about the relation established between past communities and the past go back to the 90s from XX century (Hingley 1996; Williams 1997; Bradley & Williams 1998; Bradley 2002, among many others), and the issue is being worked by several authors, despite its link to different chronologies, contexts or geographic areas. Percept, reinterpret or transform the past is also a form of human agency that brings to light a kind of understanding about the world. As such, it can serve to legitimate, modify, or even delete past remembrances. Imagining the meaning attached to past by past societies, this session encourages approaches to traces/materializations of reuse and/or reinterpretation of ancient places during Metal Ages. In this sense, works focusing the manners how these reuses/reinterpretations are present would be welcome. The approach can focus a delimited area, a broader region, or any form of past human agency (like funerary practices, rock art, hoarding, etc.) denouncing a direct link between Metal Age's communities and past occupations/evidences.

XXXIV-10. Let there be Rock and Metal: l'outillage en pierre des métallurgistes préhistoriques de la mine à l'atelier
Linda Boutoille, Sylvie Cousseran-Néré

A l'exception des moules, l'outillage en pierre utilisé dans le cadre de la métallurgie est souvent un grand mal aimé de la recherche sur les sociétés et les techniques de la préhistoire. Il est jugé, a priori, comme un outillage de fortune, sans grand intérêt en raison du faible investissement technique employé dans sa mise en forme à l'exemple des maillets des mineurs ou bien des marteaux utilisés pour le déformation plastique des métaux. Perçu comme rudimentaire, il ne fait souvent l'objet que de brèves
mentions au sein des études relatives aux techniques préhistoriques et n'est que peu associé aux études sur les sociétés des âges des métaux. On retrouve, cependant, cet outillage dans de nombreux contextes où il semble présenter une grande diversité de formes et de fonctions couvrant toute la chaîne opératoire du minerai à l'objet fini. Sa place également au sein de sépultures ou de dépôts ne peut être anecdotique et témoigne de l'importance de cet outillage au sein des sociétés préhistoriques.

Le thème retenu de cette session a pour objectif de mettre à l'honneur l'outillage en pierre du métallurgiste son évolution depuis l'apparition de la métallurgie jusqu'à l'âge du Fer ainsi que sa place au sein des sociétés pré- et protohistoriques.

Dans la thématique du colloque sur les « connexions », l'idée est de s'intéresser aux relations qui unissent les outils en pierre aux chaînes opératoires des différents métaux. Nous nous interrogerons sur les choix qui ont conduit à leurs réalisations, leur utilisation ainsi que leur sélection dans les dépôts et les sépultures. L'idée est également de créer un groupe de travail international de chercheurs qui continueront à échanger sur les outils en pierres de métallurgistes.

Pour cela plusieurs thèmes seront retenus :

- **De la mine à l'atelier : forme et fonction de l'outillage en pierre.** On s'interrogera ici sur les choix ayant guidé leur réalisation, leur évolution, leur place au sein des lieux de productions et l'organisation de ces derniers. Quelles solutions techniques sont utilisées à travers le monde ?

- **Des pierres et des dieux :** La présence d'outils en pierre liés à la métallurgie dans les dépôts et les sépultures voire sur les sites de productions semble être l'objet de nombreuses variations aussi bien chronologiques et géographiques. Ce thème orientera donc la réflexion sur la place des outils dans la sphère rituelle pour en dégager les principales composantes. Le but sera d'essayer d'analyser les raisons qui ont conduit à placer des outils dans ces lieux particuliers. Les problématiques de ce dernier thème pourront s'orienter aussi vers la notion de spécialisation et, donc de ce fait, à l'organisation des sociétés.

Par le biais de cette rencontre, nous espérons ainsi approcher au mieux la place des outils en pierre liés à la métallurgie et son évolution au cours de la période que nous appelons l'âge des métaux.

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**XXXIV-11. Images and imaginary world in the Eurasian Bronze Age**

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At the start of the third millennium BC, the invention of bronze leads to major changes in societies. New modelling possibilities arise for representations, and with this, new ideologies come, combining figures of power and war with cosmos and nature.

Considering the diversity of iconographic remains known today (such as rock art, tattoos, statues and representative ornaments...), it is possible to outline a synthetic hypothesis about the symbolic universe in which Bronze Age mankind evolved. Nonetheless, the study and analysis of symbols and representations can only lead us to sheer idealistic concepts, based only on fragmentary artefactual remains. The structural polysemy of the image's creation and the absence of textual evidence do not allow a clear interpretation, calling archaeologists to distance themselves from an etic point of view and to adopt the emic point of view of the studied society as much as possible.

This session is open to contributions about images and the construction of the imaginary world of Bronze Age societies, encompassing the whole Eurasian zone, between the end of the third millennium BC to the beginning of the first millennium BC. Case studies and comparative studies, analysis of production settings, support systems and influences at different scales will be welcome, as well as theoretical and methodical approaches bringing a new level of understanding of those iconographic sources.
XXXV. COMMISSION HERITAGE

XXXV-1. Understanding and accessibility of pre-and proto-historical research issues: sites, museums and communication strategies
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Since several years UNESCO recommends to supplement and extend the application of standards and principles laid down in existing international instruments referring to the place of museums, and to their related roles and responsibilities. On the other hand, museums are increasingly linked to the research carried out on their collections and related contexts and themes. In this context, museums and sites are more and more the place where they meet scientific research and Heritage education, not being only a place for exhibitions. In this contemporary panorama, communication it is essential for the social role of the museums and for their reason for being. Museum's communication is internal and external. Critical parts of internal communication are: 1) mediate the scientific language of the researchers with a language understandable to all, but not trivial; 2) make the visit to the museum and the site an educational experience; 3) give everyone the opportunity to enjoy the educational contents, including visitors with physical and intellectual disabilities. Critical parts of external communication are: 1) involving the local community; 2) to be present in the media channels clearly, periodically and attractively. We invite to submit proposals to discuss these issues about the archaeological prehistoric and proto-historic museums and sites, carrying studies case, future projects and other experiences.
Archaeological Museums and Sites; Pre and Protohistory; Internal Communication; External Communication; Heritage Education

XXXV-2. Archaeology in transdisciplinary researches: contributions to a Sustainability Science
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Archaeology in transdisciplinary researches: contributions to a Sustainability Science
(the abstract will be inserted shortly)

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Prehistoric art is a fundamental part of the human heritage. It gives us essential information about the culture, the history and the artistic expressions from the peoples of the past and it must be safeguarded for future generations. In this XVIII Congress of the UISPP we propose a session on prehistoric art centered on the actions for its conservation. The session is aimed at researchers, curators and conservators-restorers of parietal art and mobiliary art from the Paleolithic to the Bronze Age. We would take advantage of this important event to create a forum presenting works and studies on the state of conservation and the direct interventions of conservation and restoration that are currently taking place. In this way, we hope to generate a debate on the criteria that are being applied in the preservation of Prehistoric Art. Although it has been unanimity for the minimal intervention, or not intervention in favor of passive or preventive conservation, in some cases it is necessary to intervene, either because procedures are needed to enable their study or to consolidate them to avoid their inevitable destruction. Proposals on case studies and methodologies used in direct conservation and restoration interventions will be accepted: application and results in consolidations, cleaning and reintegration systems, designs and proposals for preventive conservation interventions, techniques of analysis and results in characterization of materials and/ damage agents, dating, new recording methods, as three-dimensional documentation and reproduction, and use of non-invasive methods.
XXXVI. COMMISSION ARCHÉOLOGIE PRÉVENTIVE

XXXVI-1. Preventive archeology in Europe and in the world - current problems
Slawomir Kadrow¹, Pascal Depaepe², Pascal Orengo³,

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³: Scientific Consultant

The intention of the session is to touch upon all the current problems of preventive archeology in Europe and around the world. One of the goals of our session is to define preventive archeology. We want to answer the question of what is preventive archeology in current research practice in different countries, and what should it be? To make such an assessment we want to trace the legal, organizational, financial and institutional issues related to preventive archeology. It is also important in this respect to answer the question of the doctrine of preventive archeology in various countries. We also want to discuss in our session the link between preventive archeology and the sphere of politics. As the theme of the 18th UISPP Congress in Paris is focused on the climate, we want to address issues related to the protection of archaeological sites, remains and monuments threatened by such factors like erosion, water, wind, etc. Last but not least the session is also aimed at presenting the scientific results of rescue excavations centered around environmental and paleoclimatic issues. The organizers expect that the session will promote good practices of preventive archeology and will contribute to networking and fruitful exchanges of experience among its participants.
XXXVII-1. Documenting the annual cycle of nomadism of Palaeolithic and Mesolithic hunter-gatherers: issues, methods, and case studies. Mettre en évidence le cycle annuel de nomadisme des chasseurs-collecteurs paléolithiques et mésolithiques : enjeux, méthodes, et études de cas

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Dans le cadre de cette session, nous proposons de décliner cette problématique en de multiples questions, comme la variabilité des cycles annuels de nomadisme dans le temps et l’espace, ou la part relative de certains paramètres dans les choix effectués. Les moyens de la mise en évidence des cycles annuels de nomadisme en archéologie seront également questionnés, en accordant une attention particulière au potentiel informatif des différentes catégories de vestiges, à l’identification du statut des sites, et à la caractérisation du système économique. De la même façon, les difficultés inhérentes à ce type d’étude, comme la visibilité des cycles et la validité des données,
seront abordées. Les présentations de la session pourront donc, soit traiter en détail des aspects problématiques et/ou méthodologiques, soit les aborder en exposant un exemple d'étude de cycle annuel ou de synthèse régionale et/ou chronologique. Dans tous les cas, y compris celui de la contribution d'un objet d'étude particulier à la question du cycle annuel, l'intérêt et les résultats liés à la démarche intégrée de l'étude seront discutés.

The question of the annual cycle of nomadism by prehistoric societies of hunter-gatherers has been one of the main Anglo-Saxon research trends in the 1960s-80s, carried out notably by L.R. Binford - rather interested in the Palaeolithic societies of western Europe - on the one hand and by archaeologists from the Cambridge school (E.S. Higgs et al.) - working in Europe and the Near East on the end of the Pleistocene and the beginning of the Holocene - on the other hand. By attributing an unprecedented importance to the study of the environment and the economic system of past human societies, this archeology contributed to the integration of these aspects into the study of European Prehistory. Since the mid-1980s, regardless of the way Palaeolithic and Mesolithic hunter-gatherer cultures are defined and studied (through different theoretical viewpoints), the attention on identifying the annual cycle of nomadism has decreased despite numerous data that still remain to be analyzed and new discoveries. However, understanding the organization of human groups at the scale of a whole year and within a defined space remains a question with major anthropological challenge: how did these systems work in terms of mobility, seasonal distribution of activities related to the procurement and exploitation of resources, as well as social behaviors? Such a questioning is related to the way past societies perceived, integrated and exploited resources and environments, by making choices reflecting the symbolic and social systems specific to their culture.

This session aims at addressing this issue through multiple angles, such as the variability of annual cycles of nomadism in time and space, or the role played by certain parameters in the choices made. The means to document archeologically annual cycles of nomadism will also be examined, paying particular attention to the informative potential of the different categories of remains, to the identification of the status of the sites and to the characterization of the economic system. In the same vein, difficulties inherent to this type of study, such as the visibility of the cycles and the validity of the data, will be addressed. The papers of this session will thus be able to either focus on theoretical and/or methodological aspects or to address them through examples of an annual cycle study or a regional and/or chronological synthesis. In any case, including the contribution of a particular subject of study to the topic of annual cycle, the focus and results associated with the integrated approach of the study will be discussed.

XXXVII-2. Human subsistence and settlement patterns during the Late-Glacial and early Holocene: insights from bones
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The Late-glacial and early Holocene periods (ca. 16,000-5,000 BC) have witnessed rapid and severe climatic oscillations. Following the cold conditions of the late Pleniglacial, these oscillations start with the warming phase of the Late-glacial interstadial (GI1e to GI-1a), which was interrupted by the Younger Dryas, and succeeded by the definitive global warming of the early Holocene heralding the current climatic conditions. The warm phases of the Late-glacial and early Holocene generally correspond to an expansion and intensification of human settlement, which is reflected by a large number of archaeological sites, rich in faunal remains. Such dramatic, rapid climatic fluctuations have triggered not only significant changes in ecosystems but could also be the origin of important cultural transitions. In fact, research on hunter-fisher-gatherer groups during the pre-Neolithic period has been flourishing in recent decades. Establishing links between cultural innovation and/or persistence with environmental variation requires deciphering local prehistoric frameworks and recording tools at different levels of resolution. For this purpose, skeletal remains (bones, teeth, antlers and horns) of animal specimens and human individuals yield insightful information on diet, environment, phylogeny, and cultural practices through studies in paleoanthropology, zooarchaeology, bone industry, proteomics, stables isotopes, and paleogenetics. Researchers working in all disciplines related to human subsistence and settlement patterns during the Late-glacial and early Holocene from various geographical contexts and settings are invited to contribute. Papers providing archaeological overviews and/or methodological and theoretical insights relevant to these issues are also welcomed. This session intends to stimulate exchanges and discussions pushing the limits of disciplinary frontiers.
XXXVIII. OCÉANIE PACIFIQUE

XXXVIII-1. Mobilités et réseaux en Océanie ancienne : approches archéologiques et ethno-historiques

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Le Pacifique, espace océanique couvrant environ un-tiers de la superficie de la Terre, est caractérisé par la multiplicité de ses îles de toutes tailles, allant de masses subcontinentales comme la Nouvelle-Guinée, à des atolls plats de quelques kilomètres carrés de superficie. L'éloignement variable entre chaque île et archipel a représenté un défi pour l'homme, que ce soit lors des phases cycliques de premier peuplement d'ouest en est, ou durant les siècles et millénaires suivants la première découverte de chaque île, afin de pérenniser des occupations.

Un des mécanismes mis en place au cours du temps par les sociétés mélanésiennes, micronésiennes et polynésiennes pour assurer la viabilité des installations, a été de structurer des solidarités entre îles éloignées. Ceci permettait notamment d'assurer des déplacements sécurisés entre communautés, nécessaires après une catastrophe écologique ou une crise politique/sociale locale par exemple. Par ailleurs, la création plus intégrée et pérenne de réseaux d'échanges formalisés entre communautés, a pu avoir pour objectif de faire circuler des matières premières (coquillages, pierres, plumes, etc.) ainsi que des objets manufacturés (nattes, tapa, parures, herminettes, etc.), permettant de diversifier les types de matériaux sur des îles aux environnements pauvres ou de construire des alliances entre chefferies.

Les traditions orales nous enseignent en outre que les populations anciennes du Pacifique n'échangeaient pas que des biens matériels, mais aussi des cérémonies, des noms, des conjoints, des services. L'extension interinsulaire des généalogies ou la large dispersion des toponymes dans certaines parties du Pacifique attestent en creux de l'importance et de la pérennité de réseaux dont la nature et les modalités de constitution restent souvent mal connus.

Cette session se propose de rassembler un certain nombre d'intervenants sur le thème des mobilités et des réseaux en Océanie ancienne, qu'il s'agisse d'archéologues travaillant sur la provenance des matériaux, de ceux analysant les typologies, ou d'anthropologues s'intéressant à la complexité des phénomènes socio-culturels à partir d'un angle ethnologique ou ethno-historique.
XXXVIII-2. Monumentality in the Pacific Islands: archaeological contexts
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The Indigenous Cultures of the Pacific Islands have over the last 2000 years produced a unique and diversified set of Monuments and Architectural Constructions. These rank from complex religious shrines, sometimes associated to massive sculptures (like the Moai of Easter Island-Rapa Nui), to extensive fortifications characterized by walled and/or moated enclosures, to monumental burial grounds for elites, extended settlements forming architectural compounds for elite groups etc. Aside from these easily recognizable remains of monumentality, Pacific Islanders had put sometimes massive working effort to create intensified agricultural landscapes, digging deep extended plantation pits, artificial terraces and/or elevated planting mounds over wide expanses of their fertile floodplains and hill-sides. Most of these monumental structures are linked to indigenous oral traditions, detailing their association to complex political Chiefdom systems, inequality as well as group solidarity creating the impetus for constructing politically prestigious elite centers, symbolically powerful religious shrines and collectively shared burial monuments. These oral traditions allow for a unique anthropological analysis of the socio-political dynamics at play between power and architecture in Neolithic Societies, helped by archaeological studies, who produce chronological frames and material culture background to these traditions. Settlement pattern studies, mappings and excavations have given the needed ground-data to show regional patterns as well as specific local architectural or typological trends, while also allowing to study building techniques. Provenance studies of archaeological remains and detailed site analysis permit to reconstruct the historical rise of some of the centralized powers and to canvass long-distance connections between elite-centers. This session proposes to bring together a number of case-studies on the question of Monumentality from Melanesia, Micronesia and Polynesia, in order to highlight the diversity of this theme across the region and to bring to the forefront the latest outcomes of archaeological research on this pan-Oceanic topic.
XXXIX. HORS COMMISSIONS

XXXIX-1. Perspectives on the Prehistory of Central Asia

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The purpose of the session is to address the peopling of Central and North East Asia by looking at the environmental, archeological and fossil records. From the Caspian Sea to the Pacific Ocean, the broad geographic scope of the presentations set the stage for promising comparisons between human adaptive strategies in different ecological contexts. With landscapes as diverse as the highlands of the Hindu Kush, the Kazakh steppe or the Gobi desert, contrasts in physical geography likely played a significant role in the diffusion of populations and ideas well before the establishment of the Silk Road. Moreover, similar constraints are as likely to generate part of the regional variability observed in the archeological record. The chronological span proposed is ambitious and starts with the Middle Pleistocene to extend toward the Holocene. Such vast temporal and spatial approach is meant to highlight patterns of macroevolution and help to evaluate the impact of the Northern Hemisphere climatic events on the development of human societies. Global changes in climates, however, may trigger different environmental responses depending on the region. Comparing these smaller scale changes recorded in the sediments with oscillations derived from ice-cores remains challenging. Hence, a closer look at empirical data is a necessary complement to large scale studies with regional or site based analyses providing additional ground to test the prediction of ecological models. To connect the marine and the terrestrial records, to integrate variables such as topography and environment, to give a closer look at archaeological data, are among the main goals of the session. Ultimately, such effort could lead to a better understanding of when, how and why human groups overlapped or distinguished themselves by their cultural choices.