

UISPP 2021 Meknès

Session 19-E : Circulations des peuplements holocènes à l'interface de la Méditerranée, de l'Atlantique, du Maghreb et du Sahara

Session proposée dans le cadre de l'[IRN-DECAPAN](#)

9:30 – 10:00

Introduction

Iddir Amara, Amel Chakroun, Alejandra C. Ordóñez, Jared Carballo Pérez, Thomas Perrin, Isabelle Sidéra

Isabelle Sidéra chairwoman

10:00 – 10:20

The Quaternary fauna of Algeria and its representation in rock art: Paleogeography, extinctions, survivals

Iddir Amara, Djillali Hadjouis

10:30 – 10:50

An Integrated approach to the study of Phytoliths and Thin Sections from Ground Stone Tools at Elephantine, Aswan, Egypt

Elshafaey Attia, Claire Malleson, Dagmar Fritzsich, Johanna Sigl

11:00 – 11:20

La place sociale des enfants dans les sépultures néolithiques du Sahara central

Hayette Berkani

11:30 – 11:50

Hunting during the Early Bronze Age in Northern Italy: new data from the archaeozoological study of the pile dwelling site of Oppeano 4C (Verona)

Gianluca Arnetta, Federica Gonzato, Ursula Thun Hohenstein

12:00 – 13:30

Pause

Alejandra Calderón Ordóñez et Jared Carballo Pérez chairmen

13:30 – 13:50

Trends in Bronze Age mollusc exploitation at Larda I and Larda II (Northeast Italy)

Silvia Gazzo, Marco Bertolini, Ursula Thun Hohenstein

14:00 – 14:20

Paleogenomic analysis of archaeological leather samples from indigenous archaeological sites in Las Cañadas del Teide (Canary Islands, Spain)

Javier G. Serrano, Emilio Vacas-Fumero, Milena Mirow, Selene Rodríguez-Caraballo, Clara Díaz-Pérez, Rosa Fregel, Matilde Arnay

14:30 – 14:50

Reprise des fouilles dans le site éponyme d'Oued Djebbana (Bir El Ater, Pléistocène supérieur, Atlas Saharien Oriental) : résultats préliminaires

Kahina Roumane, Yasmina Chaïd Saoudi, Mounir Rachedi, Toufik Merzouk, Mourad Idiri, Ahmed Semchaoui, Tarek Zerrouki

15:00 – 15:20

Sem technology for the analysis of tiny calcified remains from a prehispanic burial from El Hierro (Canary Islands)

Alejandra C. Ordóñez, Emma Suárez-Toste, Emilio González-Reimers, Matilde Arnay De La-Rosa

15:30 – 15:50

The non-metric features of the calcaneus and talus in El Hormiguero

Samuel James Cockerill, Richard Giovanni Guamán

16:00 – 16:20

Sites néolithiques de surface du Sahara central : Résultats préliminaires du site de Taberchante (Kahlouche), Adrar, Algérie [poster]

Yasmina Damouche

16:30 – 17:00

Discussion

Circulations des peuplements holocènes à l'interface de la Méditerranée, de l'Atlantique, du Maghreb et du Sahara

Iddir Amara, Amel Chakroun, Alejandra C. Ordóñez, Jared Carballo Pérez, Thomas Perrin, Isabelle Sidéra

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The transition period between the late Pleistocene and the Holocene is characterized by significant climatic changes involving North Africa palaeo-environments, biodiversity and human populations. Some scientists admit that the palaeo-geography related to climatic changes involving shoreline migration may have led Late Pleistocene hunters/gatherers coastal groups to migrate towards the mainland and later island territories. Warming episodes subsequent to this transition, alternating with humid episodes of the Middle Holocene climatic optimum, favored, new faunal assemblages and new human group settlements in the Sahara territories and the Saharan Atlas. Fluvial systems with good river flow were used for communication and traffic. During the Late Holocene, the climate environmental barrier which affected the northern Atlantic foothills, the lower pre-Saharan areas, and the neighboring ergs, caused a slow down in the trade between human groups that did not completely disappear while these communities adapted to past climate change. It was therefore during this period characterized by favorable climate (Early and Middle Holocene) that successive waves of Epipaleolithic populations exhibiting various cultures, dispersed and hunted in the Maghreb (mouflons, antilopes, cattle, etc..) until the domestication of animals (Middle Holocene). The practice of new subsistence strategies (breeding, developing domestication), included the maintenance of huntings. Pastoral activity (sheep-goat-cattle) spread unhindered and communities settled in the mountains. Holocene populations have practiced multidirectional movements in the North African territory, towards island spaces, in later periods, and to the central Sahara. The way in which this was done is still unknown. The subject of the old settlement in these territories still rises to debates and leads to several hypotheses regarding the origin of these populations. The evidence of these movements and settlements is a comparable cultural elements collected in several sites, such as open air sites and sheltered sites (technical knowledge, lithics, ceramics, ornament, symbolic figurations, painted and engraved) and the knowledge of a large megalithic movement (middle Holocene) related with new funerary practices consisting of necropolises situated far away from habitats (funerary monuments). Through anthropological and genetic data (cemeteries), old circulation patterns can be reconstructed between the central Sahara (ancient Holocene) and the northern territories, although there are still a lot of data missing. Keywords: Circulations, Transition, Final Pleistocene, Holocene, Maghreb, Mediterranean, Sahara. The session proposes the main themes:

- Human mobility through the study of bone markers and industry
- Migratory movements of wildlife
- Areas of continental, coastal and island occupation (recent period)
- Hunting, fishing and domestication of Vertebrates
- Funeral complexes – Paleogenomics

Les résumés

❖ The Quaternary fauna of Algeria and its representation in rock art: Paleogeography, extinctions, survivals

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More than 130 ancient species of mammals are distributed, by the presence of bio-documents, in around a hundred Quaternary archaeological sites in Algeria. If during the Pleistocene and the Holocene, hunting, fishing and gathering strategies are generally more documented, even if the action of carnivores is not systematically sought in many sites, the fact remains that the representation of wild species and domestic in rock art is insufficiently illustrated (less than 50 species). Do the animal figurations represent a selection of certain emblematic species present in the environment (terrestrial animal, lake, amphibian, flying), or a symbolic representation such as the imposing animal by size (aurochs, buffalo, rhinoceros, elephant, giraffe), elegance (prestigious horned antelopes), or fear (large predators)? Obviously, a large number of herbivore taxa, carnivores, insectivores, aquatic and flying species are absent from the bestiary of rock art representations. If some Pleistocene species will die out thanks to the optimal changes of the last glacial in Europe and its environmental repercussions in the Mediterranean and in North Africa in particular during the Neolithic subpluvial, those which are essential by their endemism in the central Sahara see their distribution geographic change by the rise of the same time by a milder climate with forest-gallery type vegetation around 6 000 BC. Other questions remain. What about the phylogenetic status of taxa represented in the Holocene, like elephantids, girafids, camelids, equines?

❖ Sites néolithiques de surface du Sahara central : Résultats préliminaires du site de Taberchante (Kahlouche), Adrar, Algérie

Damouche Yasmina

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Lors d'une campagne de prospection préventive organisée sur le plateau de Tademaït et la vaste région de Reggane entre 2015 et 2016, de nombreux sites de surface ont été identifiés par une équipe d'archéologues du Centre National de recherche en archéologie (CNRA), accompagnée par des topographes de sociétés d'exploitation pétrolière. Les moyens logistiques mis à la disposition des archéologues ont également permis de prospecter à l'est du grand Erg *Chech*. Lors de cette campagne de prospection, nous avons relevé la présence de traces néolithiques tout autour de plusieurs paléo lacs au lieu-dit *Taberchante*, situé à une centaine de kilomètres au sud-ouest de la petite ville de Sali. Ce site se trouve à l'intérieur de grandes dunes qui marquent les limites orientales de l'erg *Chèche*. Ces stations d'occupations Néolithiques révèlent un matériel lithique, en silex et en quartzite. Il est composé de lames, lamelles, perçoirs, pièces géométriques, pointes de flèche, haches polies, nucleus lamellaire, etc. On note également la présence de tessons de céramique, fragments d'œufs d'autruche et de matériel de broyage (meules et molettes). La présente communication se propose d'exposer les résultats préliminaires de notre prospection effectuée sur les marges orientales de l'erg Chèche.

❖ Hunting during the Early Bronze Age in Northern Italy: new data from the archaeozoological study of the pile dwelling site of Oppeano 4C (Verona)

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During the Bronze Age in northern Italy, following the development of an economic strategy mainly centered on agriculture, hunting is significantly reduced in favor of breeding and aimed at exploiting mostly cervids (red deer, roe deer) and wild boar. New data on the exploitation of wild animals during the early Bronze Age come from the site of Oppeano 4C, a pile dwelling settlement discovered in 2015 in Vallese di Oppeano, in the Bussè valley, which represents the oldest pile-dwelling village in the Veronese Po plain dated to the ancient Bronze Age (between the end of EBA 1 and the beginning of EBA 2). From the archaeozoological analysis conducted on the finds from sector 4C, the faunal assemblage is mainly composed of domestic animals with a prevalence of pigs, followed by cattle and goats, but the exploitation, although reduced, of wild animals such as deer and roe deer is also attested, as well as occasional small prey such as beaver, badger and otter for fur recovery. The aim of this paper is therefore to provide these new data in order to analyze the role of hunting in the Early Bronze Age, compared to other contemporary sites of northern Italy.

❖ Trends in Bronze Age mollusc exploitation at Larda I and Larda II (Northeast Italy)

Silvia Gazzo, Marco Bertolini, Ursula Thun Hohenstein

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Archaeomalacology, the study of mollusc shells from archaeological sites, is a discipline that started in recent times, precisely from the second half of the last century. It's an essential approach to understand the human social and cultural behaviour and the dietary contribution of molluscs to human subsistence economies. Additionally, the taxonomic identification of malacological finds allows us to proceed with paleoenvironmental reconstructions, which are particularly useful for the understanding of human and environment interaction.

The examined sites of Larda I and Larda II are located near the town of Gavello (Rovigo), in the southern part of the Veneto Region, situated in north-eastern Italy. The first site is interpreted as a village endowed with bank and is dated between XIV-XIII B.C..

The excavations highlighted two main settlement stages: the oldest is dated between the Middle and the Recent Bronze Age, while the second one is dated to the Recent Bronze Age. The site of Larda II is not far from the site of Larda I and the excavations revealed two settlement stages dated to the Recent Bronze Age I.

From Larda I 380 (MNI 243) malacological finds have been recovered, while only 15 finds come from the site of Larda II.

In the two sites we identified a double role for marine and freshwater molluscs. Largely, marine shells have been collected dead from the beach, as suggested by the presence of traces produced by abrasion on beaches or undertows, bioerosion and gastropod predation. Moreover, the presence of natural and anthropic holes on some *Glycymeris*'s umbos, suggests a human desire of collecting empty shells for ornamental purposes. Nevertheless, we cannot exclude a collecting for other purposes: for example, the presence of *Glycymeris* valves inside a stake-hole, could suggest a deliberate deposition of shells as a wedge.

The sample of freshwater molluscs is composed almost exclusively by fragments of *Unio*, an elongated bivalve that lives submerged in mud, probably collected along the rivers close to the sites. The high degree of fragmentation of the shells, associated with the presence of striations produced by pointed tools on the inner part of the valve, suggests a collecting for dietary purposes and, at least in part, a consumption of raw molluscs.

A furthered analysis was conducted on *Glycymeris* perforated at the umbo. We compared the archaeological holes with those associated with modern specimens collected on the beach. This comparison allowed us to identify the natural origin for almost the totality of the archaeological sample.

Nevertheless, for one of the shells, SEM analysis revealed striations around the hole, produced by scraping activity, in order to obtain a perforation. Finally, a yellowish patina was recorded on the natural surface of a naturally perforated *Glycymeris* valve. The coloration recalls the natural colour of amber, whose manufacturing for the production of beads is documented in the near village of Campestrin during the Late Bronze Age; nevertheless, only future archaeometrical analysis will provide further information on the origin of the substance.

❖ **An Integrated approach to the study of Phytoliths and Thin Sections from Ground Stone Tools at Elephantine, Aswan, Egypt**

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The analysis of phytoliths represents an approach not previously used in archaeological work in Egypt. It allows reconstructing vegetation, climate, ecology and nutrition at a site and complements the study of macroscopic plant remains.

The Realities of Life project is conducting research on find material from Middle Kingdom (c. 1800 BC) non-elite dwellings in the island city of Elephantine. For the first time, a combined study of grinding stones using methods of micromorphology, macrobotany, and phytolith analyses is conducted here.

By comparing phytoliths isolated from the pores and surface of the stones with plant particles in micromorphological thin sections, the actual use of the tools can be better understood. Findings on this have so far been based primarily on pictorial representations, which were under the strong influence of the elite classes of the Pharaonic Empire, and on find contexts of the objects. The pilot study presented here aims, among other things, to better understand the techniques of preparation and the plant components of the food of the inhabitants of the buildings studied. Combining the results of the phytolith study with the results of the study of plant macroremains reveals the full spectrum of historically used flora, from wild plants to domesticated species. Thus, the interaction between humans and the environment in the area of the first Nile cataract is further illuminated. From an archaeological point of view, a tool that has been found in big numbers but hardly considered as a research subject so far is comprehensively analyzed in its historical framework of use. Thus, in various respects, hitherto hardly or not at all used paths in archaeological research within Egypt are trodden.

❖ **Paleogenomic analysis of archaeological leather samples from indigenous archaeological sites in Las Cañadas del Teide (Canary Islands, Spain)**

Javier G. Serrano, Emilio Vacas-Fumero, Milena Mirow, Selene Rodríguez-Caraballo, Clara Díaz-Pérez, Rosa Fregel, Matilde Arnay

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Las Cañadas del Teide National Park is located in the high mountain area of Tenerife (Canary Islands). This territory has been occupied by human populations from pre-Hispanic to modern times. Consequently, we can find ample evidence of human presence within the National Park. Although many activities were developed in this space, the most representative indigenous archaeological sites in Las Cañadas del Teide are burial caves dated between 970-1050 AD to 1500–1580 AD. Optimal conservation conditions have allowed the recovery of leather pieces that the indigenous people used to wrap up the body of their deceased. Because their livestock mainly consisted of goats, sheep and pigs, this type of material offers the possibility of using new paleogenomic techniques to determine the species from which they were obtained. However, ancient DNA extraction from leather is challenging because the tanning process strongly degrades the genetic material and further complicates analyses due to the presence of enzyme inhibitors. In this study, we tested the use of two different DNA extraction methods (Wales & Kistler (2019) and a protocol modified from Kistler (2011)) and two bioinformatic pipelines (hypothesis-free and biased approaches) to the identification of Canarian indigenous leather samples. We recovered endogenous DNA using the protocol proposed by Wales & Kistler (2019), consisting of lysis with proteinase K and phenol:chloroform purification followed by silica spin column-based purification. We successfully identify goat (*Capra hircus*) as the best candidate for the leather sample species using the hypothesis-free metagenomic analysis and thus propose this method as the most appropriate for highly degraded samples. This is, to our knowledge, the first time an ancient leather sample has been successfully identified using next-generation sequencing, highlighting its potential as an ancient DNA source. The identification of the use of goat leather by the indigenous people in Las Cañadas is in agreement with biological, ecological and cultural evidence pointing to them as the more adapted livestock to survive in this high mountain environment. This result, added to the whole set of zooarchaeological evidence, allows us to propose that goats were the animal chosen for grazing in Las Cañadas del Teide.

❖ **Sem technology for the analysis of tiny calcified remains from a prehispanic burial from El Hierro (Canary Islands).**

Alejandra C. Ordóñez, Emma Suárez-Toste, Emilio González-Reimers, Matilde Arnay De La-Rosa

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Careful excavation of archaeological sites is a crucial procedure to obtain information about socioeconomic conditions and style of life of past populations. The recovery of seeds, phytoliths, and the remains of microfauna and microflora coupled with micro-sedimentological analyses of soil samples provides detailed information about diet and also allows radiocarbon dating. In the case of burial sites, minute calcified remains may be recovered after sieving the sediment around the corpses. Differential diagnosis constitutes a major challenge, since the list of tiny calcified structures is enormous. Some of them may belong to gallstones, renal calculi or sialoliths or may even correspond to sesamoid bones. A proper identification of the exact nature of these calcified remains is mandatory, since they may provide important insight into disease, diet, and everyday life. In recent years we have tested the ability of scanning electron microscopy (SEM) equipped with an energy-dispersive X-ray spectroscopy detector to precisely identify the composition and structure of these tiny calcified remains. In the present study we have applied this methodology to the analysis of three different small calcified structures, recovered during the excavation of a large collective

prehispanic burial from El Hierro, one of the Canary Islands. The three samples (1–3), measuring 7, 12, and 6 mm, showed a relatively smooth outer surface. Spectroscopic analysis revealed that composition of sample 1 is compatible with hydroxyapatite (Ca₅(PO₄)₃OH: Phosphorus= 7.15%; calcium 11.49%; oxygen=46%, with also probably some salts of magnesium (0.7%) carbonate and sodium (0.6%) bicarbonate and organic structures (collagen?). SEM image showed bony trabeculae, so, both by SEM image and chemical composition it probably corresponds to a sesamoid bone. Analyses of samples 2 and 3 are still in process, but they possibly correspond to a nephrolith and a complex mineral silicate. Thus, we confirm that SEM analysis is a useful tool in the identification of small calcified structures recovered during the excavation of a burial site.

❖ **The non-metric features of the calcaneus and talus in El Hormiguero**

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Non-metric features consist of morphological characteristics in the bone that can be observed macroscopically and can give us information about kinship relationships and the lifestyle of past populations. El hormiguero is a pre-Hispanic archaeological site consisting of a group of six burial caves located on a cliff on the north coast of Gran Canaria in the municipality of Firgas. Of these six caves, two of them contained well-preserved calcaneus and astragalus. Therefore, a study of the non-metric features was carried out in 15 calcanea and 17 astragali from these two caves. The results show that the distribution of the non-metric traits between the two caves is entirely homogeneous. No significant difference ($P > 0.05$) was found except for one trait: The anterolateral facet of the posterior facet of the calcaneus ($P < 0.05$) with a considerably large effect size ($\phi = 0.66$), indicating a substantial difference between these two caves concerning this trait. Thus, this difference could be indicating a slight epigenetic difference between these two groups in the Hormiguero.

❖ **Reprise des fouilles dans le site éponyme de Oued Djebbana, Bir El Ater, Pléistocène supérieur, Atlas Saharien Oriental ; résultats préliminaires**

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Le gisement atérien de l'oued Djebbana, découvert par Reygasse en 1917, est situé à 97kms au sud de Tébessa dans l'Est algérien, à 2 km environ au Sud-ouest de la localité de Bir El Ater, aux confins de l'atlas saharien oriental dans un grand bassin quaternaire constitué de croutes calcaires. La station préhistorique est située sur la rive concave d'un méandre menacé de disparition par l'érosion, dû aux violentes crues de l'oued.

La reprise des travaux de recherches dans le site était un pas indispensable pour une meilleure lecture sur le plan paléo-environnemental, biostratigraphique et culturel. Pour cela nous avons mené deux campagnes de fouilles depuis 2019 et une prospection étalée sur tout le pourtour de djebel Onk, afin de déterminer l'origine de la matière première utilisée et taillée par les occupants du site de l'oued Dejebbana. Ce travail de recherche nous a permis d'actualiser et réviser la stratigraphie et la sédimentologie des accumulations sédimentaires des dépôts pléistocènes de cette localité préhistorique et faire une corrélation avec toutes les séquences lithologiques des dépôts des sols d'occupations sur toute l'étendue de la formation.

❖ La place sociale des enfants dans les sépultures néolithiques du Sahara central

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De nombreux sites étudiés au Sahara nigérien et libyen ont fourni de multiples informations sur l'aspect architectural, les modes funéraires et la chronologie de divers monuments. Mais l'intérêt porté aux interprétations archéologiques concernant les sépultures d'enfants est assez limité par rapport aux milliers de monuments funéraires à l'échelle du Sahara. Nous mettons particulièrement l'accent sur les résultats issus de l'étude globale de la nécropole à tumulus à couloir et enclos d'*Emi Lulu 2* (Niger) et de sites dispersés de l'*Ahaggar* (Algérie).

Pour ce type de sépultures que nous pensions jusqu'à alors réservées aux sujets adultes de sexe masculin, la sépulture de *Tourghine 2* (Tassili du *Fadnoun*, Algérie) change tout par rapport à ce que nous savions sur les pratiques funéraires. Elle a livré un immature en position hyper-fléchie, dans une fosse aigue, avec des parois aménagées et sans mobilier d'accompagnement.

Il est bien certain que ce cas isolé et cette documentation, malgré leur importance majeure, ne soient pas suffisants pour répondre complètement à nos interrogations, mais nous pouvons néanmoins avancer quelques hypothèses d'interprétation.

Les enfants disposaient d'un espace sépulcral isolé (du contexte d'habitat) qui leur est réservé et bénéficiaient des mêmes modes d'inhumation que les adultes tant dans la disposition soignée du corps que dans l'architecture funéraire (fosse aménagée, structure externe). Que témoigne cette catégorie de sépultures dans le paysage saharien, qu'il soit funéraire ou rupestre ? Représente-elle une classe socialement importante jusque dans la mort ? Faut-il distinguer l'enfant biologique de l'enfant culturel ? Autant de problématiques complexes que je vais tenter d'exposer dans cette contribution, dans l'optique d'une meilleure compréhension des traitements funéraires des enfants au Néolithique d'un point de vue culturel et social.