



12/13
FEBRUARY
2014

YOUNG
NATURAL
HISTORY
SCIENTISTS'
MEETING

ABSTRACT BOOK

MUSÉUM NATIONAL D'HISTOIRE NATURELLE
AUDITORIUM OF THE GRANDE GALERIE DE L'EVOLUTION
- JARDIN DES PLANTES -
36, RUE GEOFFROY SAINT HILAIRE 75005 PARIS



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The BDEM (Bureau des Etudiants et Doctorants du Muséum) is pleased to welcome you to the **first Young Natural History scientists' Meeting** at the Muséum national d'Histoire naturelle, Paris!

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¹. MNHN, UMR 7204 Centre d'Ecologie et de Sciences de la Conservation

². MNHN, UMR 7194 Histoire Naturelle de l'Homme Préhistorique

³. MNHN, UMR 7207 Centre de Recherche sur la Paléobiodiversité et les Paléoenvironnements

⁴. MNHN, UMR 7205 Institut de Systématique, Evolution, Biodiversité

⁵. MNHN, UMR 7208 Biologie des Organismes et Ecosystèmes Aquatiques

⁶. MNHN, UMR 7245 Molécules de Communication et Adaptation des Micro-organismes

ACKNOWLEDGEMENTS

We would like to thank our sponsors for their financial and logistic support:

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alkaline and slightly saline shallow lacustrine environments. However, *Cyclopyris* lives in oligohaline to freshwater and is highly sensitive to changes in water salinity. According to these results on ostracod associations, the Loza lacustrine succession became progressively more saline and potentially restricted over time.

The study of mollusc assemblages from the medieval deserted village of Zornoztegi (Araba, Spain)

*Aitziber Suárez-Bilbao*¹, *M. Larraz*², *O. Suarez-Hernando*¹, *L. Elorza*³, *J.A. Quirós*³ & *X. Murelaga*¹

- 1: Euskal Herriko Unibertsitatea Apartado Departamento de Estratigrafía y Paleontología, Facultad de Ciencia y Tecnología. Bilbao. Spain
- 2: Universidad de Navarra Departamento de Zoología y Ecología, Facultad de Ciencias, Pamplona, Spain.
- 3: Facultad de Letras. Euskal Herriko Unibertsitatea, Departamento de Geografía, Prehistoria y Arqueología., Vitoria-Gasteiz, Spain

The assemblages studied in this paper come from the Zornoztegi site, located in Salvatierra (Araba, Spain). The Zornoztegi deserted village has been excavated in 2005-2010 in an extensive archaeological project, covering and extension of 1 Ha. Bioarchaeological evidence had been accurately sampled and several archaeological contexts had been floated. The site was in use between 2500 BC (Chalcolithic period) till today, even if the main archaeological occupation is dated in late roman and medieval period, covering seven periods.

There have been recovered 7210 identifiable molluscs shells, allowing the classification of 16 gastropod species and 2 bivalve species. One gastropod species and one bivalve species have marine origin and they could be probably used as a garnish. All other species are terrestrial or freshwater molluscs and they could be living in/or near Zornoztegi site. The small sized gastropods would live in Zornoztegi site at the moment of the deposit, whereas larger ones as, *Cornu aspersa* and *Cephaea nemoralis* could be transported there to human consumption. We do not have found remains of these two snails in the samples deposited when the site was used as a farm in the second and third period (4th.-7th c). On the other hand these two species are more common from period 4 (8th-11th c), when a village was established at Zornoztegi. The *Vallonia costata* and *Caecilloides acicula* species have an irregular distribution along the sequence except the period 1 (Chalcolithic period), 6 (last medieval occupation) and 7 (agriculture use of the site). The rest of taxa founded in Zornoztegi have an ample ecological range, however, helicid gastropods assemblages indicate a predominance of open areas in the vicinity of the site.

Amphibian evidence from the Medieval desert village of Zornoztegi (Araba, Spain)

Narrea Garcia-Ibaibarriaga^{1,3}, *Salvador Bailon*², *Xabier Murelaga*¹, *Lorena Elorza*³ & *Juan Antonio Quirós*³

- 1: Euskal Herriko Unibertsitatea Apartado Departamento de Estratigrafía y Paleontología, Facultad de Ciencia y Tecnología. Bilbao. Spain
- 2: Muséum national d'Histoire naturelle, UMR 7209 – 7194 du CNRS, Département EGB Paris, France.
- 3: Universidad del País Vasco, Departamento de Geografía, Prehistoria y Arqueología, Vitoria-Gasteiz, Spain.

The excavation of a wide sector located on the southern area of the desert village of Zornoztegi site (Araba, Spain) revealed the presence of numerous “silos” (grain storage pits) that can be dated to the period between 8th and 12th. The infilling of these structures has yielded a large assemblage of amphibian remains. These correspond to a minimum of five taxa (*Alytes obstetricians*, *Bufo bufo*, *Bufo calamita*, cf. *Hyla arborea*, and *Pelodytes punctatus*). According to the rest of remains found in those silos and the use of structures, their filling was considerably rapid, which would be consistent with the good conservation state presented by the analyzed bones. More than a half of the specimens identified belong to *B. bufo* species, reinforcing the high degree of humidity and the existence of permanent water areas in the vicinity of the village inferred by all the assemblage. These assemblages are of especial general interest, to the extent that the surrounding areas of these kinds of medieval villages had been intensely modified by the agricultural works carried out during the 20th century.

Small mammals as tools to characterize archaeological contexts in the Chalcolithic of El Portalón site (Atapuerca, Burgos, Spain)

*Amaia Ordiales*¹, *Juan Rofes*^{1,2}, *Eneko Iriarte*³, *Verónica Mardones*^{3,4}, *Gloria Cuenca-Bescós*², *José Miguel Carretero*³, *Juan Luis Arsuaga*⁵ & *Narrea García-Ibaibarriaga*¹

- 1: Euskal Herriko Unibertsitatea Apartado Departamento de Estratigrafía y Paleontología, Facultad de Ciencia y Tecnología. Bilbao. Spain
- 2: Universidad de Zaragoza Grupo Aragosaurus-IUCA, Departamento de Ciencias de la Tierra, Área de Paleontología, Zaragoza, Spain.
- 3: Universidad de Burgos, Departamento de Ciencias Históricas y Geografía, Laboratorio de Evolución Humana, Burgos, Spain.
- 4: Centro Nacional de Investigación sobre la Evolución Humana-CENIEH, Burgos, Spain.
- 5: Centro Mixto UCM-ISCIII de Evolución y Comportamiento Humanos Instituto de Salud Carlos III, Madrid, Spain.

El Portalón is the current entrance to the Cueva Mayor Karst system of the Sierra de Atapuerca (Burgos, Spain). The latter is internationally well-known for its rich Early to Middle Pleistocene hominin-bearing localities. Besides, El Portalón is an important archaeological site with a long stratigraphic sequence roughly covering the last 30.000 years (latest Pleistocene-Holocene). The Holocene deposits, which document intense human activity, have been divided into nine chrono-cultural units comprising the Mesolithic, Neolithic, Chalcolithic, Bronze Age, Iron Age, Roman, and Medieval periods. We present for the first time the small-mammal assemblage from three different archaeological contexts of the Chalcolithic occupation of El Portalón: the prepared soil, the unprepared soil and the “Fumiers”. The complete set of small mammals from the Chalcolithic of El Portalón includes four insectivores (*Sorex minutus*, *S. gr. araneus-coronatus*, *Crociodura russula*, and *Talpa* sp.), nine rodents (*Apodemus sylvaticus*, *Microtus [Terricola] lusitanicus*, *M. [T.] duodecimcostatus*, *M. [Microtus] arvalis*, *M. [M.] agrestis*, *Chionomys nivalis*, *Arvicola sapidus*, *Sciurus vulgaris*, and *Eliomys quercinus*), one undetermined leporid, and two chiropterans (*Miniopterus* cf. *shreibersi* and *Myotis* gr. *myotis/blythii*). The sediment of the prepared soil, allochthonous in origin, also contains *Pliomys lenki*, but this species surely corresponds to a contamination from the Pleistocene. Fossil small mammals have been traditionally used for biochronology and palaeoenvironmental reconstructions. Here, slight but meaningful quantitative and qualitative differences among contexts in terms of their small-mammalian contents are used as effective tools to characterize them both chronologically and taphonomically.

EARTH AND PLANETARY HISTORY
ORAL PRESENTATIONS

Origin of water in lunar soil

*Alice Stephant*¹ & *François Robert*¹

- 1: Muséum National Histoire Naturelle, CNRS UMR 7202. Paris, France

For many years, the Moon has been considered dry, even after the return of Apollo missions. Since 2008, numerous studies have detected the presence of water in various lunar minerals from Apollo samples. However, the source/sources of this water remain enigmatic. How and when this water was added to the Moon has implications on its formation scenario. Hydrogen isotopic ratio of water is commonly used to identify water sources because each source (i.e. solar, chondritic, cometary) got an own D/H signature. Nevertheless, moon being an airless body implies that it is subject to space interactions which alter the original lunar D/H ratio. Solar wind implants H on grain surfaces and thus dilutes lunar D/H ratio while spallation reactions by solar and galactic cosmogenic rays product D and thus raise the lunar D/H ratio. We consider a new approach to estimate proportions of D/H from solar, cosmogenic, chondritic or cometary sources by coupling NanoSIMS 50 measurements of D/H with ⁷Li/⁶Li ratio, which is a signature of spallation reactions. Measurements were made both at the surface and the interior of glassy grains from Apollo 16 and 17 soils. Analyses demonstrate that almost all D comes from spallation reactions. No chondritic or cometary water evidences have been found. On the surface of Apollo grains, water contents are significant and D/H ratios indicate that this water can be ascribed to solar wind implantation.