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## Guest Editorial

### Biogeographic and geological contexts: New viewpoints on paleoenvironments during the populating of Latin America

The V International Symposium on Early Man in America, held in La Plata (Argentina) in November 2010 joined many specialists on these topics from all over the Americas. The exchange of rich and productive discussions, which provided new and fresh information in different publication formats, was then presented.

A session on Fauna and Paleoenvironment – co chaired by Mónica Salemme (CADIC – CONICET) and Laura Marchionni (CONICET, FCNyM-UNLP) highlighted the status of our knowledge about these aspects in different regions of the Americas, although presentations were focused particularly on the Latin American contexts. Thus, papers from Mexico, Uruguay, Chile and Argentina considered, from various points of view, the kind of environment for the time of human colonization at the end of the Pleistocene and the Early Holocene. Paleopedological studies, extinct megafauna, and exploitation of some vegetables (like cocoa) were the main subjects presented from Mexico. Site formation processes in early archaeological localities of Uruguay were characterized through the analysis of aeolian dune deposits and paleosols indicating windy and arid conditions around the end of the Pleistocene. Through several proxies, changes and continuities in the paleoenvironment and fauna were studied in the Interserrana area of the Pampean Region (Argentina). Megafauna and lithic assemblages from South Central Chile allowed the discussion of new dating to be added to the Monte Verde and Tagua Tagua early occupations. From Argentine Patagonia, different approaches through pollen, diatoms, taphonomy and copropalynology provided new data on ancient questions about environmental heterogeneity, as well as the problem of the areas with greatest potential for human occupation in the region. Based on paleoclimatic, paleogeographic and paleoenvironmental data, another presentation generated a strong debate on which would have been the potential ways and early times for humans entering the Americas.

Finally, a very interesting lecture on radiocarbon dating possibilities for the improvement of the calibration curve and the complications of local reservoir effects aroused the debate.

From all of those presentations, this volume contains six invited papers, selected from those originally presented. In addition, another paper was already accepted, as the topics discussed were related to the main subject of the meeting. Some other papers presented in that session were published as short articles in a special issue of Center for the Study of the First Americans (CSFA) (Miotti et al., 2012).

The article by Tim Jull and co-authors is an excellent contribution about the use of radiocarbon calibration curves and reservoir

effects for sites in the Southern Hemisphere. The discussion about this topic was recently polarized and became a central issue whether its use is appropriate when applied to South America. This paper demystifies recent methodological positions claimed by several North American archaeologists and demonstrates that the use of these curves is methodologically correct for South American archaeological contexts.

A very interesting approach to the understanding of the Pampean environments around the Late Pleistocene–Holocene transition is presented in two papers, showing similarities and differences between the Interserrana and the hilly Tandilia areas.

For the first of these areas, Martínez, Gutiérrez and Tonni emphasize upon the zooarchaeological record of the Pampean region for the timing of the earliest human settlement in relation to the megafauna extinction process. They present evidence of two sites from Paso Otero archaeological locality coming from geoarchaeological, sedimentary, palynofacies, pollen, diatoms and silica microremains data. Indirect evidence of human presence other than the hunting pressure on megafauna is considered to elucidate the Pleistocene massive extinctions.

The paper by Martínez, Mazzanti, Quintana, Zucol, Colobig, Hassan, Brea and Passeggi is an up-to-date geoarchaeological and paleoenvironmental analysis for the human occupations in Eastern Tandilia Ranges (Pampean Region, Argentina). This study contains, as well as the previous one, several lines of analyses (geoarchaeology, archaeology, zooarchaeology, paleobotany), and contributes to a fine-grained, paleoenvironmental reconstruction and to understand the processes involved in caves and rockshelters with human occupation evidence of the area during the Pleistocene/Holocene transition. It suggests that cold and semi-arid climate characterized the latest Pleistocene (ca. 10,500 <sup>14</sup>C BP) in the Pampas, and changed abruptly to warmer conditions towards the beginning of the Post-Glacial Period.

Data from Patagonia point in the same direction and they are presented by Mancini and co-authors. On the eastern side of the Andean Cordillera, in Southern Patagonia, two cases of pollen and archeological data reveal the climate and environmental conditions when the initial exploration phase occurred, in times coeval to the Younger Dryas event of the Northern Hemisphere (12,700–11,500 cal BP). The area south of the Deseado Massif was a grassy steppe, whereas ca. 11,000 cal BP, farther south in Lago Argentino there was a similar environment that allowed human life under wetter conditions than before 12,700 cal. B.P. (the Antarctic Cold Reversal period). Those conditions prevailed until ca. 9400 BP when drier environments returned.

Pino and co-authors analyze a new site, radiocarbon dated between ca. 12,000 and 11,000 BP. There, extinct and extant megafauna are associated with a hundred of lithic artifacts. From a careful study of the geomorphology, stratigraphy and sedimentology, the site formation processes were interpreted. Additional information on faunal and lithic analyses allowed the discussion of a probable special environment – a palustrine peat deposition event, followed by the retreat of a meander – by the time of human occupation as well as the comparison with sites in similar conditions like Monte Verde (farther south) and Tagua–Tagua (farther north).

Another point of view about the relationship between humans and megafaunal extinction comes from de Souza Lima-Ribeiro and Felizola-Diniz, Filho. They present a systematic review of the literature to be analyzed using a formal meta-analytic approach, thus they intend to assess the chronological overlap among earliest humans and now-extinct mammals in the New World under an unequivocal biogeographical context. Taking into account reliable radiocarbon dates indicating First-Appearance of Humans (FAH ages) and Last-Appearance of Megafauna (LAM ages) from South and North American archaeological sites, they compute the summary effect size to determine whether all extinct megafaunal taxa at the end of the Pleistocene were still extant when humans arrived in the Americas. The fauna analyzed is grouped into Proboscideans/non-Proboscidean and Sloths/non-Sloths.

Finally, the paper by Rabassa and Ponce constitutes a challenge for the American peopling theories. It supports, from geomorphological and paleoenvironmental viewpoints, with current and appropriate geological and glaciological data, the possibility of several time opportunities for humans to enter the Americas from Siberia, during the Marine Isotopic Stage 3 and before the Last Glacial Maximum.

We sincerely thank the authors for their contribution to this volume, since with their researches they enlarged our knowledge about the characteristics and availability of the environments of the Late Pleistocene and Early Holocene which were populated by humans in South America.

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## Reference

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