

Contents lists available at [SciVerse ScienceDirect](http://www.sciencedirect.com)

## Quaternary International

journal homepage: [www.elsevier.com/locate/quaint](http://www.elsevier.com/locate/quaint)

### Guest Editorial

# A Late Pleistocene/early Holocene archaeological $^{14}\text{C}$ database for South America and the Isthmus of Panama: Palaeoenvironmental contexts and demographic interpretations

The number of published archaeological radiocarbon dates for the late Pleistocene and early Holocene periods in the Americas has greatly increased in recent years. This has been matched by an increasing sophistication in the statistical tools used to calibrate and compare dates, in order to reconstruct settlement histories and cultural trajectories at different spatial scales. This volume contains regional contributions to a new project, involving compilation of a well-screened, geo-referenced archaeological  $^{14}\text{C}$  database for South America and the Isthmus of Panama for the period 13,000–7000  $^{14}\text{C}$  BP. We selected this time span because it is only in the terminal Pleistocene that we can detect evidence of a continuous occupation signal in most or all of the major biomes. Indeed, the country-based reviews suggest that this signal is often clearly detectable only after c. 11,000  $^{14}\text{C}$  BP. It is also only in this period that we see the emergence of regional cultural and economic variation.

Before this period the signal is weak, sparse and discontinuous. In both North and South America, there are numerous cases of single sites where an older occupation has been claimed, but such sites usually exist in spatial and temporal isolation in relation to the known archaeological record of the surrounding region. Invariably such sites are subjected to intense scrutiny by other researchers, precisely because the claimed chronology cannot be reconciled with existing evidence-based reconstructions of the 'bigger picture'. Consequently, it is difficult to work forward continuously in time from such sites to reconstruct the larger continental peopling process. Much more research is needed on the earlier sites that have been proposed elsewhere in the literature, in order to incorporate them into a more complete and geographically extensive demographic reconstruction of the early peopling of South America. In North America, rigorous  $^{14}\text{C}$  dating has meanwhile established a well-constrained date range for the Clovis culture, and this gives a useful chronological marker from which archaeologists can work backwards to reconstruct that culture's geographical and temporal origins and precursors. In this special issue we see evidence accumulating for a similar horizon of clear continent-wide archaeological visibility at c. 11,000  $^{14}\text{C}$  BP in South America, which gives us another fixed point from which to work backwards in time in reconstructing a continuous early population history. Several of the contributors discuss, in their country-based surveys, archaeological sites that appear to extend that history back in time to the beginning of the period surveyed or earlier.

The individual papers in this special issue each present syntheses of archaeologically reliable dates for one country, with information about the location of each site, and the cultural and palaeoenvironmental associations with each radiometric date. The authors discuss issues encountered in applying criteria for inclusion of dates in the database; in assigning cultural typological affiliations; and in reconstructing subsistence strategies and palaeoenvironmental contexts. The dates are recorded in 'raw' form as  $^{14}\text{C}$  determinations, but contributors also discuss the effects of their calibration. Each contributor also outlines the main interpretative issues and unresolved scientific questions for the archaeology of the region and period.

The contributors focus on explaining general trends in the temporal distribution and environment contexts of this archaeological evidence of early human occupation. Two major issues are addressed. One is the archaeological visibility of early settlement evidence, with several authors making specific proposals about sample biases produced by modern land cover characteristics, natural formation processes, and contemporary survey effort. The other is the early prehistory of human–environment interaction; this includes issues such as the relationship between humans and megafauna, and the different hunter-gatherer adaptive strategies implemented in different kinds of environment. Most of the papers present detailed information about each sample's provenience and related cultural context in order to discuss its reliability.

One important issue we observed while we were planning this volume was that the coverage of research in the different regions and countries is uneven. This is related to differences in local research traditions and to the preservation and visibility of the archaeological record in each region. Both factors contributed to a situation where areas such as Patagonia and the Brazilian Planalto are likely to be over-represented by  $^{14}\text{C}$  dates in proportion to original occupation densities, while others like the Amazonia and the Orinoquia are likely to be under-represented. Consequently although it is plausible that some regions and biomes would have been populated earlier and/or at higher densities than others, a clear continent-scale pattern has not yet emerged. Biases in survivorship, archaeological visibility and research effort are too pervasive. Despite this, we are confident that the data reviewed in the papers gathered in this volume are representative of the current state of knowledge in South America and the Isthmus of Panama, and will therefore enable us to identify the major existing

geographical gaps in archaeological survey effort. This should help to guide future research.

The papers are the outcome of an Electronic Symposium held at the 2011 Annual Meeting of the Society for American Archaeology in Sacramento, Ca. At that meeting, first drafts were discussed and a shared database format was defined in which to record all the data gathered for each country. The volume includes a total of eight papers covering the late Pleistocene to early Holocene period on a country-by-country basis, for Argentina, Bolivia, Brazil, Colombia, Chile, Panama, Peru and Uruguay. Unfortunately it was not possible to include papers on Ecuador, the Guianas, Paraguay, and Venezuela.

In providing this database, our aim is to offer a solid empirical framework for modelling the early peopling of South America. The peopling of the Americas has been a dominant focus of both North and South American anthropology for over a century, and has also been the subject of some of the most heated debates ever witnessed in that discipline. Twenty or thirty years ago, there was only a handful of late Pleistocene archaeological sites in South America that regularly featured in this debate, and these had often been excavated by North American archaeologists. Since then, the widespread professionalization of academic and field archaeology in South America has seen a huge increase in the volume and quality of research done by archaeologists based in that continent, while a trend to globalization both in the scope of archaeological conferences and in the readership of archaeological journals has enabled much faster and more accurate exchanges of results and ideas between the Spanish- and Portuguese-speaking and the Anglophone scientific worlds. The circumstances of origin and publication of this special issue exemplify such trends.

Finally, the widespread availability of AMS dating in the last twenty-five years or so has also had a great impact on the study of the early peopling of the Americas. Since the mid-1980s it has become possible to date small pieces of charcoal and bone, which has allowed a chronology to emerge for sites and contexts where such dating had previously been impossible. For instance, in the Pampas grassland biome almost all dates for late Pleistocene samples have been obtained by AMS, due to the lack of large enough pieces of charcoal for conventional  $^{14}\text{C}$  dating. The support (financial and scientific) that the NSF Arizona AMS Laboratory, directed by Timothy Jull, has given to South American scholars during the last twenty years has also had a very positive impact. Many sites

have been dated with multiple dates thanks to the constant support of this Laboratory.

We acknowledge the AHRC Centre for the Evolution of Cultural Diversity (UCL, London) for financial support for the SAA symposium and for hosting two of us (LB and LP) during the research collaborations that preceded that symposium, and we thank the Centre's Administrator, Manu Davies, for practical support. We also thank the participants in the SAA symposium for their commitment to this project, Michael Waters for providing very useful concluding remarks at the symposium, and the Museo de La Plata for hosting JS during the final editorial stages of preparation of this publication. We also thank the general editor of *Quaternary International*, Norm Catto, for his help and patience in the long editorial process.

Lucas Bueno\*

*Laboratório de Estudos Interdisciplinares em Arqueologia,  
Universidade Federal de Santa Catarina, Florianópolis,  
Santa Catarina, Brazil*

Luciano Prates<sup>1</sup>

*CONICET, Facultad de Ciencias Naturales y Museo, Universidad  
Nacional de La Plata, Paseo del bosque s/n° – (1900) La Plata,  
Buenos Aires, Argentina*

*E-mail address: lprates@fcnym.unlp.edu.ar (L. Prates)*

Gustavo G. Politis

*INCUAPA-CONICET, Facultad de Ciencias Sociales, UNICEN,  
Del Valle 5737, 7400 Olavarría, Argentina*

*E-mail address: gpolit@fcnym.unlp.edu.ar (G.G. Politis)*

James Steele<sup>2</sup>

*Institute of Archaeology, University College London,  
31-34 Gordon Square, London WC1H 0PY, United Kingdom  
E-mail address: j.steele@ucl.ac.uk*

\* Corresponding author. Universidade Federal de Santa Catarina, Departamento de História, Campus Universitário – UFSC/CFH, Bairro Trindade, Florianópolis, SC, CEP 88040-970, Brazil.  
*E-mail addresses: lucasreisbueno@gmail.com,  
leiarqueologia@gmail.com (L. Bueno)*

Available online xxx

<sup>1</sup> Tel.: +54 221 425 7744x123; fax: +54 221 425 7527.

<sup>2</sup> Tel.: +44 20 7679 4773; fax: +44 20 7383 2572.