

Presentation

Throughout the last two decades, archaeological research has undergone a profound conceptual and instrumental transformation, first because of the scientific knowledge and then due to the generalisation of numerous software and digital resources that have been conceived and applied to obtain a remarkable enhancement of our archaeological knowledge. This widespread trend began with the publication of works such as *Virtual Archaeology* (1997), by Maurizio Forte, a genuine milestone in understanding how these specialities of the archaeological discipline have evolved.

The increase in information provided by these multidisciplinary approaches was preceded by the application of experimental sciences to archaeology, noticeable from the 1950s onwards, with the discovery of carbon-14 and the appearance of journals such as *Archaeometry*. Archaeometry dominates virtually all epistemological developments in today's archaeological sciences, and this is justified by the ease that digital technologies have brought to the process of understanding specialised archaeometric techniques. In this sense, approaches to the records from antiquity from the study of architecture, geography, topography, chemistry, and geology are being fundamental in consolidating these new research lines. Digital applications have allowed the development of these multidisciplinary perspectives, their correct combination, and the projection of their results in an attractive and easily understandable environment, in such a way that they have allowed the general understanding of complex specialities that, on their own, would only be attainable for researchers and specialists.

It is on this postulate that the colloquium *Scanning the hidden. LiDAR and 3D technologies applied to architecture research in the archaeology of Metal Ages* was proposed in 2019, as part of the annual activities of the Metal Ages in Europe Commission of the Union Internationale des Sciences Préhistoriques et Protohistoriques (UISPP). These pages are a compendium of their proceedings, including their most extensive and main contributions. They summarise different works developed under these methodologies and focused on the Iberian Peninsula, mostly during the first millennium BC. Among them, I would like to highlight those produced by the project that inspired this congress: *Protohistoric Architecture in the Western Spanish Plateau. Archaeotecture and Archaeometry applied to the Built Heritage of the Vettones Hillforts (HAR2016-77739-P)*, of the State Programme for the Promotion of Scientific and Technical Research of Excellence, Sub-programme for the Generation of Knowledge of the former Spanish Ministry of Science and Innovation.

The original aim of this colloquium was drafting a key document that would bring together the main conclusions of the studies presented and the debates that would ensue, following the premises of the *London Charter* (2009) and, shortly afterwards, the so-called *Seville Principles* (2009), but focusing on the architecture of recent prehistory.

Unfortunately, the COVID-19 pandemic truncated all the initial expectations, and the desired approach was strongly conditioned by the health restrictions that led to the postponement of the colloquium at the scheduled dates, June 2020, with a considerable decrease in the number of participants. The relative improvement of the pandemic situation and, paradoxically, the possibilities of digital media have allowed the colloquium to be held on the same dates as planned, but one year later. The virtual

development of the working meetings over the past year has made it possible to hold this colloquium in a “semi-presential” format, whereby only the organisers and some of the speakers were physically present at the meeting, while the vast majority of contributions and keynote speeches were streamed via a well-known virtual communication platform.

In this digital environment, around twenty specialists presented and defended their most recent research on protohistoric architecture, in which different digital techniques have been applied to obtain first-rate scientific data. Other works were also included, focused on diffusion and divulgation, gathered under the term “dissemination”. Among them, we presented the results of our intense museological research on the hillforts of the western Spanish Plateau, directed by Professor Castelo, which had its counterpart in some similar national and international projects, such as the one carried out by our Italian colleagues in the region of Molise or that of the research team of the site of Monte Bernorio (Villarén de Valdivia, Palencia).

This monograph has been published mainly with founding from the HAR2016-77739-P project *Protohistoric Architecture in the Western Spanish Plateau*. Unfortunately, the pandemic prevented the project from achieving its objectives on schedule — at the end of 2020 —, and the Spanish Ministry did not agree to grant the requested one-year extension, so we had to accelerate the publication process. Therefore, due to lack of time, some of the fascinating contributions that were presented and discussed at the congress are not included in these proceedings. This is the case of the lecture presented by the IAM team lead by Sebastián Celestino, “What escapes sight: 3D documentation methodologies, analysis and reconstruction applied to the knowledge of the architecture of the First Iron Age in the middle Guadiana Valley”, as imponderable factors arising from the pandemic prevented their text from being ready for publication in such a short period. Something similar happened with the work carried out at El Cabezo de la Fuente del Murtal (Alhama de Murcia, Murcia). Fortunately, most contributors were able to send their papers and they are included in these proceedings.

Among these, most of the chapters focus on the study and research of built structures — whether defensive, such as walls, or domestic, such as houses — from Iron Age settlements on the Iberian Peninsula. The application of different digital techniques and resources (GIS, remote-controlled images, 3D scans, etc.) has made it possible to obtain innovative and quality data that only a few years ago would have been inconceivable from the traditional research approaches. The potential of this technology has been particularly evident in “fragile” archaeological environments: buildings and structures whose original contexts are unknown, either because they are not sufficiently preserved or because they have been displaced from their original sites. This is the case of the warrior stelae from the Late Bronze Age or the “verraco” sculptures from the Late Iron Age, both structures analogous to the “urban furniture” of our towns and cities. But also the rock architecture of settlements such as La Silla del Papa (Tarifa, Cádiz) or Ulaca (Solosancho, Ávila), where the lack of strata often prevents us from documenting the original contexts in which these buildings were constructed and inhabited. Other comparable cases, such as the so-called “gatehouse” of La Mesa de Miranda (Chamartín, Ávila), lack valid stratigraphies because they were excavated many decades ago, when the archaeological methodology of record did not have the means or the notions needed for the identification and interpretation of certain stratigraphic units. Likewise, the recording and study of particularly delicate artefacts due to their vulnerability can be carried out thanks to photogrammetric surveys and high-precision 3D scans, as has been the case of the courtyard of the Tartessian building at Casas del Turuñuelo (Guareña, Badajoz).

A part no less important of the studies presented here was oriented towards archaeotopography, assisted by orthophotos and LiDAR data. Sites analysed using this methodology have seen their data expanded to an extent that would have been inconceivable only a few decades ago. The work of the research team of El Cabezo de la Fuente del Murtal (Alhama de Murcia, Murcia) is a good example of

this, as has also been the case at other particular sites, such as Plaza de Moros (Villatobas, Toledo), El Raso de Candeleda (Ávila), or Las Merchanas (Lumbrales, Salamanca).

The third group of contributions focuses on the archaeometric study of the materials used in the construction of these buildings. General works such as those presented by Rosario García Giménez, Francisco Blanco and Gregorio Manglano, which focused on the study areas of our own project, the western Northern Plateau, have been complemented by other specific studies, such as the one dedicated to the earthen architecture of the Cantabrian Façade, in which geochemical analysis have been combined with the production of 3D models in order to identify artefacts and their possible functions. Some of these cross-cultural studies were even applied to other materials — such as objects of personal adornment — to test the effectiveness of these strategies in generating quality and verifiable information. The same was true for the analysis of vitrified, calcined or simply rubefacted stones from walls with obvious signs of fire. Important testimonies and vestiges were obtained to advance in an almost unknown field of peninsular protohistoric architecture, providing not only the demonstration of the use of wooden beams in internal frames but also the possibility, with a fair degree of verisimilitude, of the use of iron nails to bind the latter together.

The last group of contributions is the first of those mentioned above: works focused on the musealisation of these vestiges from a virtual perspective, which has dramatically increased as a consequence of the COVID-19 pandemic. Despite the quality and quantity of virtual museums that have proliferated in the last year, the participants in this colloquium were strongly in favour of supporting face-to-face visits to museums and archaeological sites. Virtual museology, like virtual archaeology, cannot be an alternative to presence, but a complement that helps and stimulates both research and cultural tourism. For this and for other reasons implied in the desire of this colloquium to contribute, from digital technology, to the advancement of higher quality research, we have drafted a series of criteria in order to remind and guide its application from the strictest deontological requirements. These criteria, following the old tradition of naming such agreements after the city where they were formulated, are known as the Ávila Criteria and are the key achievement of this colloquium.

This event has been possible thanks to the patience and generosity of three institutions that supported us unconditionally, even in the most difficult circumstances of the last months: the Provincial Council of Ávila, the Ávila Foundation and the Universidad Autónoma de Madrid Foundation. It would be not fair to conclude this introduction without expressing our enormous gratitude to county council member for Ávila, Eduardo Duque Pindado, president of the Committee for Culture, Heritage, Youth and Sport, who supported us from the beginning and granted us the necessary financial support to hold this colloquium. We would also like to thank María Dolores Ruíz-Ayúcar Zurdo, president of the Ávila Foundation, for the free loan of the Palacio de los Serrano, a magnificent 16th-century building that has been extraordinarily refurbished for meetings of various kinds as well as for art exhibitions and other cultural activities (BEX Award 2006). Both she and its director, Laura Marcos, as well as the staff of the palace, facilitated the celebration of this colloquium in a semi-presential format and with all the safety measures required by law at the time.

No less important has been the coverage and support received from the Universidad Autónoma de Madrid Foundation, its director, Fidel Rodríguez Batall, and its technical staff, among whom we would like to acknowledge Inmaculada Martín, coordinator of conferences and events (CongresUAM), Cristina García Recuerdo, coordinator of contracts and projects, and José Antonio Martín Bravo, from the Treasury and IT department, for their continuous availability and kindness.

Together with all of them, many other colleagues and friends have supported and accompanied us in this venture, especially Professor Marta Díaz-Guardamino, from Durham University (UK), who delighted us with a splendid inaugural lecture; Professor Dirk Brandherm, from Queen's University of

Belfast (UK), chairman of the UISPP Metal Ages in Europe Commission, who chaired this meeting as part of the activities hosted by this commission; Francisco J. Fabián García and Nicolás Benet, archaeologists of the General Directorate of Heritage of the Junta de Castilla y León; Máximo Velayos, sculptor, stonemason and craftsman from Cardenosa (Ávila), and the collaborators and members of our research team in the different phases of the project: Luis Basabe Montalvo, Fabián Ledo García, Mario Freire Ruiz, José María Izquierdo, Gadea C. Cabanillas de la Torre, Mario Ramírez Galán, Marcos Osorio, and, especially, Susana de Luis Mariño, together with all those who have participated in this colloquium.

To all of them, our greatest gratitude.

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