

**JUANA MOLINA SALIDO, *From the Archaeological Record to Virtual Reconstruction. The Application of Information Technologies at an Iron Age Fortified Settlement (San Chuis Hillfort, Allande, Asturias, Spain)*. Archaeopress Archaeology Publishing, Oxford 2018. £ 40.00. ISBN 978-1-78491-875-0 (printed version). £ 16.00. ISBN 978-1-7849-1876-7 (E-book). x + 190 pages with numerous illustrations.**

The book by Juana Molina Salido on the application of information technologies at a Spanish Iron Age fortified settlement is the updated version of her dissertation defended in February 2016 at the Department of Prehistory and Archaeology of the National Distance Education University in Madrid. This work deals with the application of new information technologies for archaeological research. Using the example of the Iron Age San Chuis hillfort, the impact of computational archaeology is highlighted from the digitalisation of the archaeological record over integrated analyses of the archaeological data up to the virtual reconstruction. J. Molina Salido defines three objectives for this research: 1. “information digitalization, returning the record to its former location, the collection of coordinates, and SDI construction” (p. 180), 2. “spatial analysis” (p. 180), and 3. “virtual reconstruction” (p. 181). The triad can be found not only in the structure of the objectives but also in the structure of the book layout. Part one (“Objectives, support, archaeological and methodological framework”, pp. 1–47) deals with the archaeological context of the San Chuis hillfort and consists of the chapters 1 and 2. Part two (“The San Chuis hillfort”, pp. 48–114) presents all previous research, finds, and features in a kind of material presentation and consists exclusively of chapter 3. The following chapters 4 to 8 are located in the third part (“What was achieved and how”, pp. 115–178), which deals with the methods used and the results obtained.

In the first chapter (“The archaeological and chronological framework: the Iron Age in the Asturian West”, pp. 3–10), J. Molina Salido presents the archaeological context of the San Chuis hillfort and classifies it in the Asturian West Iron Age. In particular, she divides the settlement activities in the context of the hillforts into three time slices: the transitional phase / phase I c (6<sup>th</sup>–4<sup>th</sup> centuries cal. BC, p. 8), the Iron Age II (4<sup>th</sup>–late 1<sup>st</sup> centuries cal. BC, p. 8), and the Roman phase (late 1<sup>st</sup> century BC–2<sup>nd</sup> century AD, p. 10).

The second chapter (“Archaeology today: digital documentation, preservation, and the interpretation of archaeological sites”, pp. 11–47) focuses on virtual reconstructions. J. Molina Salido gives a compilation of graphic restorations and representations starting with the first examples from the humanism of the Italian Renaissance up to current studies of virtual reconstruction (pp. 13–21). Following Maria Gabriella Micale, she differentiates between two types of representation (p. 13): on the one hand the image as an exact representation of the current situation seen through the eyes of an observer, on the other hand the illustration as an imagination of a reconstructed situation. Based on her selected examples from the Mediterranean region, primarily Classical Archaeology, Egyptology, and Near Eastern Archaeology, she outlines a continuous history of science, which finally leads to the “representation of reality through the three-dimensional model” (p. 20). The “interest in heritage and its conservation and reconstruction [led] [...] to the emergence of protective legislation and an appropriate code of ethics” (p. 13). In this context, she presents the different conventions for protection of cultural property, from the Athens Charter of 1931 up to the Seville Principles of 2011 (pp. 21–26). At the end of this chapter, she presents the “recent relevant research” (p. 29) that thematises reconstructions of Iron Age monuments. She deals both with regional projects “in areas near Asturias” (p. 29; pp. 29–42) and with international projects of hillforts in the United Kingdom and oppida in France (pp. 42–47).

The third chapter (“The San Chuis hillfort”, pp. 48–114) is comparable to a material presentation that summarises and structures all available data of the San Chuis hillfort. All excavation campaigns

(1962–1963, 1979–1981, 1983–1986) and the geophysical prospection in 2001 are presented in detail (pp. 54–78).

A further focus of this chapter is the presentation of the “archaeological record” (p. 78) together with first interpretations. First, J. Molina Salido discusses the absolute chronology of the hillfort on the basis of radiocarbon samples “from perfectly identified archaeological and stratigraphic contexts” (p. 79). On the basis of these uniformly calibrated data, she achieves a solid chronological subdivision of settlement activity on San Chuis hillfort (pp. 79–86). In the following, she discusses the archaeological features which she analyses with the help of “stratigraphic units (SU) and stratigraphic wall units (SWU)” (p. 90) and which are interpreted as “urban evolution” (p. 87; pp. 86–95).

The third focus of this chapter lies on the finds in order to present the full spectrum of archaeological sources. The material classes “pottery” (pp. 95–99), “sculpture” (pp. 100–102), “metallic material” (pp. 102–107), “lithic material” (pp. 107–108), “charcoal” (pp. 108–113), and “bones” (pp. 113 f.) are presented summarily (pp. 95–114), partly further analysed, and interpreted. Based on the anthracological analysis, she reconstructs both the local flora and the “thermo-climatic characteristics” (p. 112). Furthermore, these analyses lead to the reconstruction of the building construction using the plant species of the “charcoal remains” (p. 112).

With the title “Materials and methods”, chapter four (pp. 115–122) presents the methods relevant for this study. For J. Molina Salido, digitalisation is a fundamental methodology. Material documentations of the archaeological record are to be transformed into a “non-perishable medium” (p. 115). In the sections “Hardware” (p. 120) and “Methodological development” (p. 121), she presents her technical resources as well as her workflow of data processing (pp. 120–122), which is why the heading “Workflow” would have been a better option for the content of the chapter.

The chapter “The spatial data infrastructure (SDI) of the hillfort” (pp. 123–142) seems to have been removed from the previous chapter because of its importance, which is fundamental to the entire study. Starting with “designing the methodology” (p. 123, chapter 5.1), digitisation (p. 123, chapter 5.1.1) and georeferencing (pp. 123–124, chapter 5.1.1.1), via creation of a “material record table” (pp. 126–131, chapter 5.2.1) and a “table of stratigraphic units (SU)” (pp. 131–135, chapter 5.2.2) as well as a “table of stratigraphic wall units (SWU)” (pp. 135–136, chapter 5.2.3) through to dissemination by a “website” (pp. 140–142, chapter 5.4), the entire chain of working steps is summarised. The exact definition of what is meant by SDI is not given in this chapter but at the beginning of chapter 2 (pp. 11–13).

Chapter six (“Spatial analysis”, pp. 143–165) is to be identified as the main analysis part of this study. J. Molina Salido analyses her data set of the San Chuis hillfort from a spatial point of view. It remains incomprehensible why she first sorts her data and insights in chapters 6.1 to 6.4 again according to excavation campaigns (pp. 143–157) before using the full comparative potential of her data fusion in chapters 6.5 to 6.9 (pp. 157–165). In her spatial analysis, find distributions of the entire pottery, skeletal remains, metals, and lithic remains of San Chuis hillfort lead to profound insights, which she interprets in a settlement-archaeological way and contextualises in the entire complex of the hillfort. In this way, she is able to classify the excavated area of the hillfort into seven “occupation units” (p. 161), an “industrial zone” (p. 164), and an area whose “functionality is unknown” (p. 164) and for which nevertheless a “ritual or religious use” (p. 164) is deemed probable.

The last chapter (chapter 7: “Virtual San Chuis”, pp. 166–178) before the summary deals with the virtual reconstruction of the San Chuis hillfort. To illustrate diachronic processes of its change, J. Molina Salido has reconstructed two of her time slices, the Iron Age II and the Roman period.

Large-format high-resolution images from almost the same angles enable the reader to visually compare the two time slices. A modified layout would have made this comparison more intuitive and thus more impressive, for example the illustrations 176 and 177 could have been exchanged on page 170. In the accompanying text, J. Molina Salido explains details of the reconstructed building structures.

In conclusion, let me summarise whether and how Juana Molina Salido approached her three main objectives, the “spatial data infrastructure”, the “spatial analysis”, and the “virtual reconstruction”.

J. Molina Salido fused all the sometimes very different information of the San Chuis hillfort to enable an integrated analysis through digitisation and the Spatial Data Infrastructure (SDI) developed by her. Due to the digitality, it is now possible to evaluate all the data from anywhere in the world. Unfortunately, only the data of the “Appendix I, Planimetry and Harris Matrix” (p. 189) can currently be accessed online on the Archaeopress website. The website <http://castrodesanchuis.evilinhd.com/> (p. 181), which is conceived as “a stimulating, dynamic and adaptable experience for a wide range of age groups, specialists and general public” (p. 141) and on which all raw data are to be found (pp. 140 f.), is currently not available (September 2019).

The connecting element of all the data of the San Chuis hillfort is their spatial character, which has often been added to the analogue data by digital georeferencing. First spatial analyses that include all fused data are presented by J. Molina Salido in the second half of chapter 6. This brief analysis led to settlement-archaeological interpretations of the hillfort. Based on the profound material presentation, further GIS-based research could be carried out in the future. For example, heat-map-analyses could lead to further interpretation opportunities.

J. Molina Salido discusses a “code of ethics” (p. 13) as a theoretical foundation for virtual reconstructions. The benchmark is to implement these theoretical considerations in the practical implementation of virtual reconstructions. Virtual reconstructions offer the potential to visualise existing archaeological knowledge three-dimensionally and to examine and verify hypotheses through it. Unfortunately, the hypothesis that “Erica branches [...] [were used as] roofing material” (p. 111) is not visualised (p. 167) but rather “thatched roofs” (p. 180). Also, a hypothetical entrance situation on the northeast side of structure 12 is not visualised (pp. 173–176, Fig. 185), only the corresponding “staircase and small platform” (p. 175). In her “Spatial analysis” (chapter 6), J. Molina Salido proved convincingly that all hand-mills were found outside, “possibly in family use areas located in front of each house” (p. 160). Incomprehensible for a scientific virtual reconstruction is the passage: “Letting our imagination run more freely, a circular hand-mill and vessel have also been inserted here” (p. 168), inside a building. This seems as if the visualisations were made before the analyses had been completed. Such a procedure destroys the opportunity of gaining scientific knowledge. This merely nourishes the frequent criticisms that question the scientific value of virtual reconstructions. Therefore, it is essential for future studies to pay more attention to the reconstruction of archaeological details.

However, if considering the virtual reconstructions not only in detail but on a larger scale, the modelled mountain spur on which the hillfort is located already indicates a landscape-archaeological perspective that could be explored in the future with additional landscape modelling. The entire summit including the ditches in front as well as the surrounding valleys should be considered. In this way, the relationship between the Iron Age fortified settlement and its vicinity could be brought into the focus of archaeological questions. Supplementary modelled vegetation reconstructions could adjust the sparse landscape-model and also address environmental archaeological issues.

This book by Juana Molina Salido inspires to deal with archaeological virtual reconstructions. The desideratum of computational archaeology is a foundational study that creates such a profound virtual reconstruction that new archaeological research can be based on it. The virtual reconstruction is then no longer the result but the data basis. This book prepares the ground for such a foundational study by presenting the broad basis of fused data. Unfortunately, the full scientific potential has not been exhausted because her virtual reconstructions do not consistently visualise and verify archaeological hypotheses.

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**JENNIFER KERNER, Manipulations post-mortem du corps humain. Implications archéologiques et anthropologiques.** Sidestone Press, Leiden 2018. € 135.00. ISBN 978-9-08890-544-5 (Hardback). € 44.95. ISBN 978-9-08890-543-8 (Paperback). € 9.95. ISBN 978-90-8890-545-2 (E-Book). 380 pages with 88 illustrations.

From feet preserved in jars on museum shelves to jewelled skeletons on display in Baroque churches or commingled remains in Neolithic deposits, humanity displays a wide variety of modes of engaging with the dead body. The treatment of the cadaver is part of ritual processes aimed at dealing with the specific ‘ontological crisis’ – death (L. NILSSON STUTZ, *Embodied Rituals and Ritualized Bodies. Tracing ritual practices in late Mesolithic burials*. Acta Arch. Lundensia Ser. in 8°, 46 [Stockholm 2003]). Capturing these processes at the cross-roads of their biologic, taphonomic, and cultural dimensions poses interesting challenges. John ROBB (*Creating Death: An Archaeology of Dying*. In: L. Nilsson Stutz / S. Tarlow [eds], *The Oxford Handbook of the Archaeology of Death and Burial* [Oxford 2013] 441–457) and Liv NILSSON STUTZ (*Building bridges between burial archaeology and the archaeology of death. Where is the archaeological study of the dead going?* *Current Swedish Arch.* 24, 2016, 13–35) have rightly pointed out in recent years that death is a process and not a simple event. This calls for what they see as a need to theorise about death, dying, and the dead, and hence to move towards an ‘archaeology of death’ (see also A. ION, *The body of the martyr. Between an archival exercise and the recovery of his suffering. The need for a recovery of humanity in osteoarchaeology*. *Arch. Dialogues* 23, 2016, 158–174). With this book, Jennifer Kerner moves precisely in this direction. Written at the intersection of archaeoanthatology and ethnoarchaeology, this volume takes the reader on a comparative journey from the deep past to present day, from Paleolithic France to the Chinese Neolithic, or to contemporary relics sold at auctions. The guiding question throughout is: when is one dead for society (‘quand le mort est-il mort pour la société?’ p. 18). By looking at the ways in which people and cultures have manipulated the bodies post-mortem, J. Kerner ultimately aims to discuss the processes through which the dead (body) becomes the Other – ‘creation d’un Autre’ (p. 20).

Jennifer Kerner is Junior Professor in Prehistory at the Department of Anthropology, University Paris-Nanterre, and a specialist in funerary archaeology. She is also a public archaeologist through an active Twitter presence and dedicated YouTube channel, “Boneless Archéologie” (<https://www.youtube.com/channel/UC7ktqoCpxEbP9TV-xQLTonQ>), which ‘distille le #macabre sur YouTube’. In this volume she brings together insights from ethnology, funerary archaeology, taphonomy, and osteology in a captivating read, moving between methodological reflections and interpretative insights. The book, which is written in French, is divided into seven sections – an