Research Article

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Small Houses of the Dead: A Model of Collective Funerary Activity in the Chalcolithic Tombs of Southwestern Iberia. La Orden-Seminario Site (Huelva, Spain)

https://doi.org/10.1515/opar-2022-0294
received January 31, 2023; accepted April 30, 2023

Abstract: This study analyses the funerary activity of small collective tombs with a limited number of individuals in the southwest of the Iberian Peninsula during the Copper Age. These small burial spaces are one of the most frequent funerary manifestations and one of the most common forms of megalithic monumentality in the complex societies of this geographical area. The necropolis of La Orden-Seminario is put forward as a detailed case study, applying a multi-method approach that integrates the interrelated analysis of architecture, stratigraphy, funerary deposits, bioanthropological indicators, and chronological sequences. The research makes it possible to identify the overarching features that characterise these collective funerary activity: (a) the architectural and functional similarity between the hypogea and *tholoi*; (b) the periodic remodelling and reorganisation of the burial spaces; (c) the formation of superimposed funerary levels articulated in various phases; (d) the short periods of time in each level, with a concentration of 1–5 generations; (e) the coexistence of primary and secondary funerary deposits; (f) the low minimum number of individuals and the non-existence of dissymmetric practices according to sex and/or age; (g) the uniformity of the grave goods, the fragmentation of the objects, and the deposition of offerings; and (h) reuse during the Early Bronze Age.

Keywords: collective tombs, Funerary practices, Megalithism, Copper Age, Iberia

1 Introduction

The collective tombs of the southwest of the Iberian Peninsula are characterised by the high diversity of the funerary architectures and practices, reflected in the great range of construction techniques, types of deposit, organisation, and minimum number of individuals (MNI) recorded in each burial space.

The Chalcolithic or Copper Age (ca. 3300/3200–2300/2000 cal BC) in the south of the Iberian Peninsula saw a profound change in the sphere of death as a consequence of the development of societies with complex political and territorial structures. Four main transformations can be highlighted: the consolidation of hypogea as funerary structures; the appearance of *tholoi*, representing a technical innovation; the continuity in the construction and frequent funerary reuse of dolmens; and the multiplicity of the funerary

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practices documented in the collective burial spaces. For some researchers, these transformations are a consequence of the emergence of new funerary ideologies developed by hierarchical tribal societies characterised by the existence of intergroup relationships with evident traits of social dissymmetries (García Sanjuán, 2006, p. 154), as interpreted through the necropolis of Valencina de la Concepción (García Sanjuán et al., 2019a). In these mega-sites, the position of de "elites" was based more on the exhibition of wealth in certain strategic rituals than on an institutionalised political power supported by control over a stapple economy (García Sanjuán, Scarre, & Wheatley, 2017). For others, the funerary collectivism of the tombs may correspond to a process of masking social dissymmetries, as has been inferred from the funerary rituals and tombs of the Los Millares necropolis (Cámara Serrano, 2001; Cámara Serrano & Molina, 2015; Molina & Cámara Serrano, 2004), located in southeast Spain, in accordance with the models of pristine or primitive states with class societies (Chapman, 2008, 2010).

Hypogea and *tholos*-tombs, together with the dolmens and natural caves, are the most representative, numerous, and characteristic funerary monuments of the southwest of the Iberian Peninsula in the third millennium BC. We focus our study mainly on the western area south of the Tagus River, including the Portuguese regions of Estremadura, Alentejo and Algarve, Spanish Extremadura, and the Western Andalusia (Huelva, Cadiz, and Seville provinces), as this is the area with the highest concentration of these architectural models, sharing some constructive similarities and funerary patterns. They are mostly organised in polynuclear necropolises separated and/or within the settlements or associated with ditched enclosures, as in the case of Perdigões (Valera, Silva, & Márquez Romero, 2014a). The architectural polymorphism and building types of hypogea and *tholoi* may correspond to different regional styles and technical specialisations developed synchronously or asynchronously. In the case of the *tholos*, the variability in sizes, construction techniques, and materials is greater, although all the architectural models share a similar design, with the great majority presenting two internal spaces with different geometries and sizes (longitudinal passage and circular vaulted chamber) built in a circular mound. Funerary activity and the MNI buried in the collective tombs are very diverse, varying according to the type of burial, geological contexts, and geographical regions. Thus, the state of conservation of bones in acid soils is very poor or practically non-existent.

Natural caves are the most frequent burial sites in Portuguese Estremadura, representing 86 of the 136 sites recorded, and with the highest number of individuals buried in them (Sousa & Gonçalves, 2021). Hypogeum are underground constructions of various sizes consisting of longitudinal passages, antechambers, and oval or elliptical chambers with skylights. Two models are distinguished: hypogea with elements on the same level and hypogea with descending passages (Gonçalves, 2003a; Leisner, 1965; Leisner & Leisner, 1956; Soares, 2003). Most of the known *tholoi* are those made up of orthostatic masonry made up of large circular chambers and short passages, as shown by the tombs of Paimogo 1, Monge and Barro (Sousa, 2016). The tomb of Praia das Maças is a mixed monument, combining elements of the hypogeum and the *tholoi* (Leisner, Zbyszewski, & Ferreira, 1969). The *tholoi* and the hypogea are the tombs with the highest number of burials, both with records substantially higher than the dolmens. Thus, the average number of individuals buried in the *tholoi* is 124, while in the hypogea it is 106 (Boaventura, 2009, p. 298). The burials with the largest and exceptional documented MNI are the *tholos* of Paimogo 1 (413 individuals) and the hypogeum of São Paulo 2 (254 individuals).

In Alentejo, the situation is different, dolmens are the vast majority accounting for 1,490 out of 1,560 sites (Sousa & Gonçalves, 2021). The lower Alentejo hypogea present several elements dug at different levels: vertical access shaft, possible antechamber and circular vaulted chamber, in the case of the Sobreira da Cima necropolis (Valera, 2013) and Outeiro Alto 2 (Valera & Filipe, 2012), or Monte do Carrascal 2 and Monte dos Cortes associated with the settlement of Porto Torrão (Calvo, Moro, & Godinho, 2012; Valera, Santos, Figueiredo, & Granja, 2014b). In this region, they are presented with very diverse architectural forms and techniques of *tholoi* (Sousa, 2016): masonry and/or stone lining contained within circular mounds, such as the Escoural (Santos & Ferreira, 1969); tombs excavated in the substratum with stone lining slabs, in the case of the Perdigões necropolis (Valera, 2020; Valera, Lago, & Shaw Evangelista, 2000) or with mixed structural compositions, such as Cardim 6 (Valera et al., 2019); orthostatic slabs, such as de Monte Velha 1 (Monge Soares, 2008); tombs integrated into the dolmen mounds, case of Anta 2-Tholos de

Comenda, Anta 1-Tholos de Farisoa (Leisner & Leisner, 1951), Anta do Olival da Pega 2 (Gonçalves, 1999), and Anta 2 da Herdade dos Cebolinhos (Gonçalves, 2003b). In this area, the funerary activity is variable. On the one hand, the hypogea frequently present a reduced number of burials, with the exception of the Carrascal 2 necropolis: hypogeum I (MNI: 71) and hypogeum 2 (MNI: 48) (Neves, 2019; Neves & Silva, 2018a,b). On the other hand, most of the *tholoi* present a limited number of individuals, but also there is a series of monuments with a high number of MNI, such as tombs 1 (103) and 2 (56) of Perdigões, Horta de João da Moura 1 (26) and 2 (36) (Shaw Evangelista, 2019), and Olival da Pega 2b, with several dozen individuals (Gonçalves, 2016).

In Algarve, most of the known funerary constructions correspond to dolmens: 31 out of 67 sites (Sousa & Gonçalves, 2021). Hypogea present the structures at the same level, predominating the longitudinal passage tomb model with one or two circular vaulted chambers, represented by the Monte Canelas necropolis (Morán & Parreira, 2004; Parreira & Silva, 2010). The funerary activity is variable, even with uneven patterns in the same necropolis. Thus, in hypogeum I of Monte Canelas, skeletal remains of 171 MNI have been documented, while in hypogeum III the MNI is only 13 (Neves, 2019; Neves & Silva, 2018a; Parreira & Silva, 2010). *Tholoi* present in this area show various construction techniques, being built with facing slabs, in the case of the *tholos* of Eira dos Palheiros (Gonçalves, 1989), using masonry walls and orthostats, standing out the Alcalar necropolis (Leisner & Leisner, 1943; Morán, 2015; Morán & Parreira, 2004; Veiga, 1886/1887/1889/1891), or orthostatic slabs, case of Cerro do Malhanito (Cardoso & Gradim, 2007).

Dolmens also predominate in number over the rest of the collective burials in Extremadura and Western Andalusia. In Guadiana Basin, the necropolis of La Pijotilla stands out, especially the tomb composed of two asymmetrical mixed constructions with lintelled passages and circular chambers with a vaulted roof. Tomb 3 contained the remains of MNI of 300 individuals (Hurtado, 1991; Hurtado, Mondéjar, & Pecero, 2002). In the same territory, the *tholos* of Huerta Montero, consisting of a passage with vertical lining slabs and a masonry chamber, had a funerary deposit with the remains of a dozen individuals (Blasco & Ortiz, 1991). The most common hypogea in Western Andalusia (Rivero, 1988) are simple chambers, those formed by passages and circular chambers, as shown by the necropolis of PP4-Montelirio (García Sanjuán et al., 2019a; Mora Molina, García Sanjuán, Peinado, & Wheatley, 2013) and Valencina de la Concepción (Cruz Auñón & Mejías García, 2013), and mixed constructions, as evidenced by the necropolis of Paraje de Monte Bajo (Lazarich et al., 2010, 2015). The formal variability of the *tholoi* in this area is extraordinary, with the coexistence of necropolises with masonry tombs, such as La Zarcita (Cerdán Márquez, Leisner, & Leisner, 1952; Piñón Varela, 1987), with lining slabs, such as El Moro (Garrido Roiz & Orta García, 1967), Las Canteras (Hurtado & Amores, 1984), and Palacio III (García Sanjuán et al., 2019b), or with orthostatic slabs, such as San Bartolomé de La Torre (Cerdán Márquez et al., 1952), etc. The presence of monumental *tholoi* with large mounds stands out, both those made up of masonry with passages of dry stone and circular chambers with masonry interlocked with clay, as in the case of La Pastora and Matarrubilla (Leisner & Leisner, 1943; Obermaier, 1919), and those erected with cladding slabs, as in the case of Cueva del Vaquero in the El Gandul necropolis (Leisner & Leisner, 1943) or Montelirio (Fernández Flores & García Sanjuán, 2016). In most of the necropolises of the Guadalquivir Depression and its hinterland, they are characterised by the low number of individuals buried in *tholoi* and hypogea, both in monumental scale tombs, as in the case of the *tholos* of Montelirio with 26 MNI (Pecero, 2016), as well as in smaller structures of more limited spatial complexity, such as the cemeteries of Valencina de la Concepción, PP4-Montelirio, Paraje de Monte Bajo, among others, where a lower number of individuals per tomb is recorded, mostly 20 individuals.

The time of maximum funerary activity is concentrated in the first half of the third millennium cal BC, which saw the consolidation of the second megalithic tradition (García Sanjuán, Weathley, & Costa Caramé, 2011) and an explosion of the megalithic funerary phenomenon (Boaventura, 2011; Boaventura & Mataloto, 2013; Carvalho & Cardoso, 2015) as a consequence of a dynamic of demographic growth, the progressive increase in the social complexity of the communities aggregated in large groups and/or around large settlement centres, and the existence of a belief system of cult of the dead. In the case of the *tholoi*, the expansion and proliferation of this tomb model took place ca. 3000–2800 cal BC, continuing its

construction and funerary activity in short periods of use until the last quarter of the third millennium cal BC (Aranda Jiménez, Milesi García, Díaz-Zorita Bonilla, & Sánchez Romero, 2021). Some authors have suggested that the predominance of these architectures was due to the consolidation of a funerary ideology based on a new conception of death and the development of innovative mortuary and ritual practices (Díaz-Zorita, Costa Caramé, & García Sanjuán, 2012; García Sanjuán, 2006).

The aims of this work are two-fold and complementary. On the one hand, it analyses the collective funerary activity of the necropolis of La Orden-Seminario during the third millennium cal BC, which serves as a case study from which to extract the overarching features that characterise part of the complex dynamics of small tombs: hypogea and *tholoi*. On the other hand, the aim is to compare and contextualise the results with reference to other Chalcolithic necropolises in the southwest of the Iberian Peninsula (Figure 1). Small tombs are understood as those funerary constructions with "simple architectural" characteristics and a collective funerary activity limited to a few burials. They are tombs, totally or partially

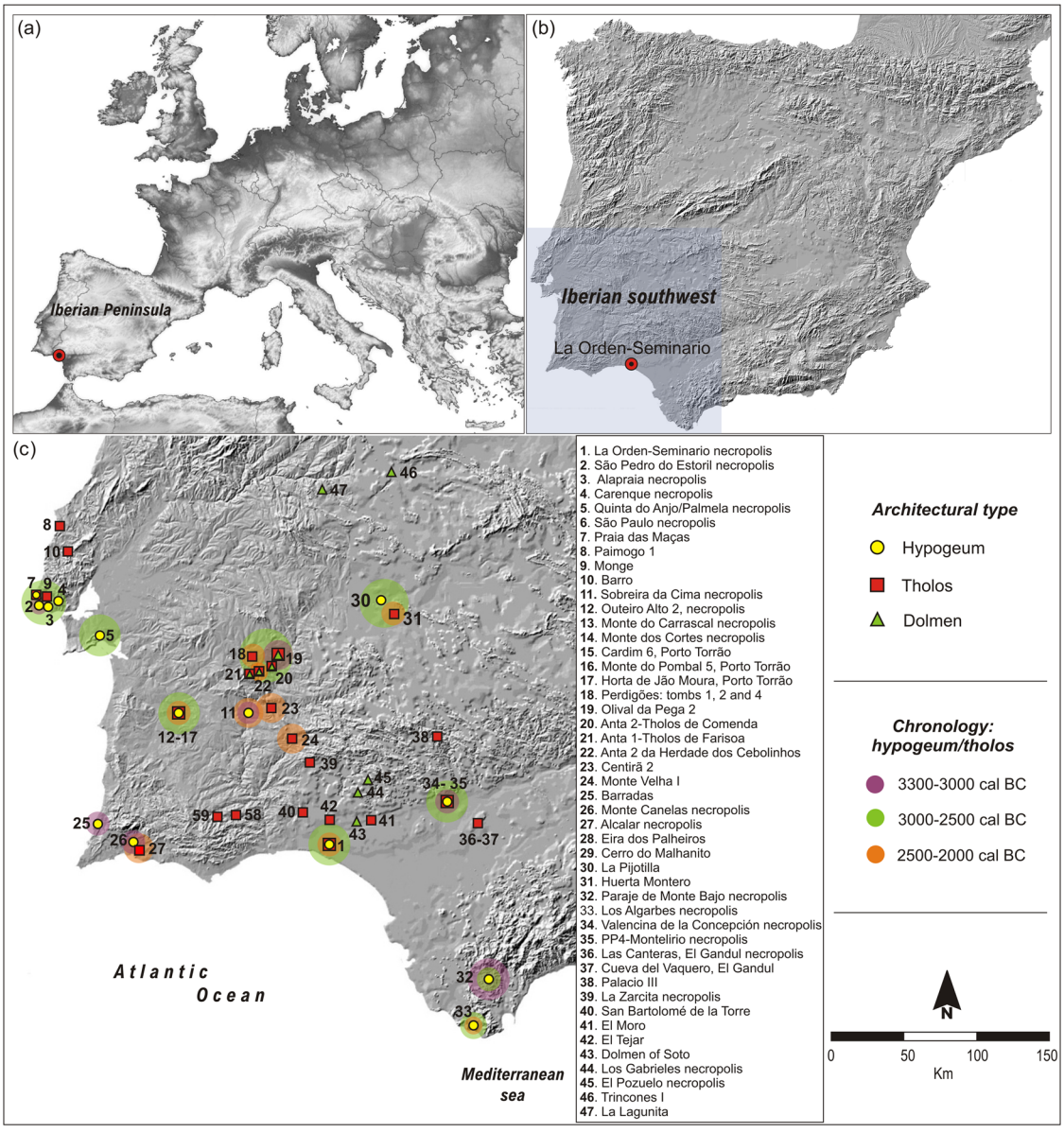

Figure 1: Sites and collective tombs from the Iberian southwest: (a) location of La Orden-Seminario site; (b) study area; and (c) sites studied and/or mentioned in the article.

excavated in the ground, composed of a passage and a chamber that do not stand out for their monumental scale and high technical sophistication. The dimensions of the stone structures are limited in extension (less than 10 m in length) and in the diameter of the chambers (generally less than 2–2.5 m). For this reason, these tombs may have been built by a small number of individuals, not requiring an organisation of the work that involved the participation of a large collective. Furthermore, these tombs present a small number of burials, with MNI generally less than 20. In this sense, it is likely that the construction and use of these "small houses of the dead" correspond to specific family units within the tribal lineage communities. This situation seems to be recurrent in certain models of hypogeum and *tholos*-tombs throughout this geographical area, and may be representative of one of the forms of funerary monumentality of the Chalcolithic societies of the Iberian Peninsula. The finding of similar patterns may reveal the existence of common cultural approaches and social behaviours in the sphere of death in the incipient complex societies of the Copper Age.

The collective funerary activity in Chalcolithic tombs is characterised by the multiplicity of the functional dynamics and the diversity of the mortuary practices. These tombs are governed by the existence of three recurrent variables related to the collective burial process: the staggered addition of burials, the formation of funerary deposits with mixed human skeletal remains from different generations, and the creation of commingled human remains by a body reduction process.

Generally speaking, collective funerary deposits are characterised by high bone fragmentation and low representation of skeletal and dental parts. This is due to two factors: the nature and the partiality of the deposits. First, it must be considered that the collective deposits are composed of the partial, fragmented, and mixed human remains of several individuals, formed by four interrelated processes: (a) the deposition of the deceased, with only some skeletal remains preserved *in situ* and securely attributed to the primary burials; (b) the actions of manipulation and remobilisation of the skeletal remains, generating secondary deposits; (c) the management of the burial spaces and deposits, with different practices (cleaning, removing, emptying, etc.) conditioning the absence of certain bones or the removal of particular skeletal parts of the buried individuals; and (d) the natural taphonomic conditions of conservation, entailing the destruction of part of the skeletal elements. Second, it must be assumed that collective funerary contexts offer partial information in terms of the quantitative and qualitative representation of the remains. Thus, it is plausible that the MNI recorded in the tombs does not directly correspond to the number of people buried throughout its funerary use, and that not all of the human remains are preserved due to various factors, including taphonomic processes and anthropic alterations that may cause the destruction of part of the bones (Robb, 2016). Therefore, the preserved deposits do not reflect the totality of the diverse and complex mortuary practices carried out in the collective tombs, but rather constitute a partial material testimony resulting from multiple operations throughout their funerary activity and biography.

Assuming the inherent limitations of the study of commingled deposits, we believe that it is plausible to make an assessment of the management of burial spaces and of the dynamics of the use of the collective tombs, and to draw social inferences. This requires the application of a multi-method research, which integrates and combines qualitative and quantitative information on the architecture, stratigraphy, micro-spatial organisation, physical anthropology, funerary deposits, and grave goods. In particular, the application of the archaeothanatology approach (or funerary archaeology) is essential to identify the types of funerary deposits, the funerary and post-funerary formation processes, the phases of use and reuse, etc. The study of skeletal remains in the spatial and architectural context of tombs allows us to understand and interpret the formation of funerary deposits and the events of collective funerary activity, such as the cycles of use of the tombs: tomb re-opening, body-manipulation, body reduction process, intentional anthropic disturbance of the funerary space, the deposition of corporeal relics, etc. The detailed analysis of the organisation of the sepulchral spaces, the treatment of the bodies, and the grave goods brings us closer to the social behaviour and the cultural concept that the Iberian Chalcolithic communities had about death. In this sense, the interpretation of bioanthropological data and funerary practices allows us to interpret biological aspects of the individuals buried and to draw hypotheses about the type of social organisation.

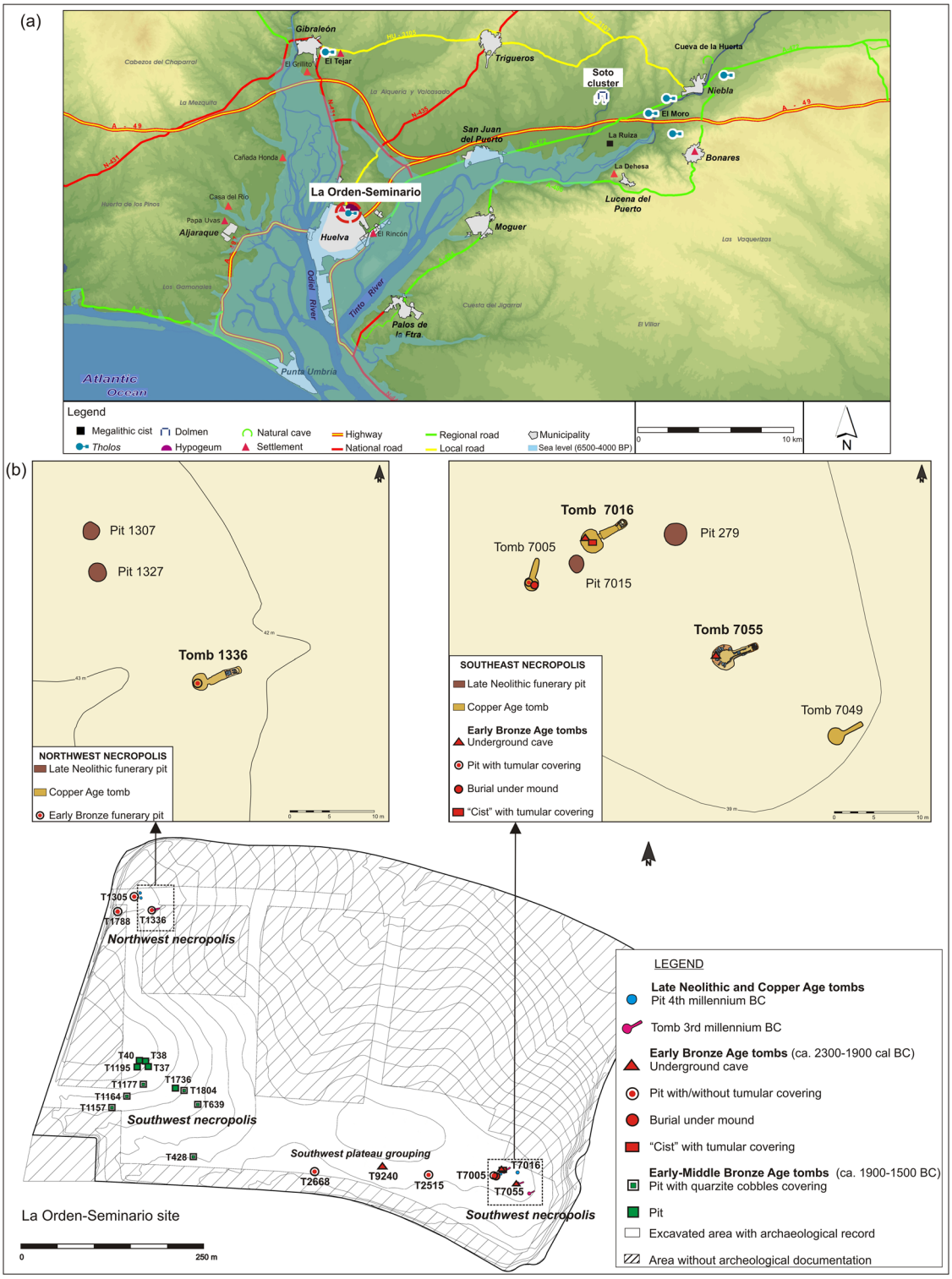

Figure 2: Location of La Orden-Seminario (Huelva): (a) palaeoestuary of the Odiel-Tinto rivers and (b) distribution of the polynuclear necropolis.

2 La Orden-Seminario Site

The site of La Orden-Seminario is located on the northern periphery of the city of Huelva (Figure 2). During the Flandrian transgressive maximum, ca. 6500–4000 BP, the interfluve of the Tinto and Odiel rivers formed a large open inlet (Cáceres Puro et al., 2018), with the Atlantic coastline 2 m above the present sea level. The progressive retreat of the sea, fluvial silt sedimentation, and the formation of sand bars on the coast took place from 4000 BP onwards (Carro, Borrego, & Morales, 2019).

The settlement of the fourth to third millennia BC was located in a strategic position on the peninsula of this palaeoestuary, occupying a known surface area of 23 ha of highland. The substrate is composed of tertiary sandy clays of the Arenas de Huelva Formation (Baceta & Pendón, 1999; Mayoral & Abad, 2009). Due to its high consistency, medium strength, and low plasticity (Camacho, García Navarro, & Alonso, 2009), it is suitable for underground or semi-subterranean constructions of a certain temporal durability. The Late Prehistoric settlement is composed of 250 negative structures of different functions. These structures are divided between domestic groupings (huts, pits, "silos," wells, hearths, "rubbish dumps," ovens, etc.) and other structures with ritual-votive uses, such as those containing the deposits of "idols" (González González, Linares Catela, González Batanero, & Vera Rodríguez, 2008; Vera-Rodríguez, Linares-Catela, Armenteros, & González, 2010) or the areas reserved for the domain of the dead: the necropolises (Linares-Catela & Vera-Rodríguez, 2015). It is plausible that the settlement pattern of the site was seasonal, being inhabited by different family units at specific periods during which the resources of the fluvial–marine environment were exploited.

The polynuclear necropolis of the fourth and third millennia BC consists of two burial clusters located on two hills 485 m apart as the crow flies. The Late Neolithic and Copper Age burials were located in both areas. The Late Neolithic graves, from the mid of fourth millennium BC, were organised in groups of pairs and were located relatively close to the living spaces. These burials were circular pits around 2 m in diameter and 1 m in depth with formal similarities to other domestic structures. During the Copper Age, the areas of the two burial clusters were dedicated exclusively to the realm of the dead. Two models of collective tombs were constructed: hypogea and *tholoi*. The northwest grouping consisted of two Late Neolithic pits (T1307 and T1327) and a Copper Age hypogeum (T1336). The southeast grouping contained six tombs, of which two were Neolithic pits (T279 and T7015) and four were Chalcolithic collective tombs (two hypogea: T7005, T7016, and two *tholoi*: T7049, T7055), distributed along a 45 m line on a northwest-southeast axis and at equidistant intervals, with a preferential orientation of the entrances towards 65° NE. Individual Early Bronze Age tombs were located in the area surrounding the necropolis as well as inside the Copper Age structures, with different typologies: subterranean small artificial caves, pits, burials under mounds, and quadrangular structures ("cists"), some of them covered by tumular structures (Linares-Catela, 2020).

3 Methodology

The study has focused on three tombs (T1336, T7016, and T7055) at La Orden-Seminario (Linares-Catela, 2017). These were identified as the structures with the best state of preservation, having remained unaltered after being covered in the Bronze Age, and in which excavations were carried out with a recording system and subsequent analyses in accordance with the mixed method approach. The three burials display complex stratigraphic sequences with superimposed depositional episodes and levels in accordance with an intense collective funerary use, which are characterised by two recurrent variables: the staggered addition of burials and the formation of funerary deposits with mixed human skeletal remains from different generations.

In order to evaluate their functional dynamics as collective burials and to understand the funerary activity of the necropolis, the research was focused in five components: stratigraphies, architectures, deposits and grave goods, bioanthropological indicators, and chronological sequences. For this purpose,

the following elements were identified and assessed in the archaeological record: (a) the existence of conceptual planning; (b) the permanent reorganisation of the burial spaces in order to foresee and accommodate successive depositional events; (c) the presence of closing and opening devices to ensure the protection of the deposits from external conditions and at the same time to provide facilitated access (Chambon, 2003; Leclerc, 1999; Masset, 1993).

The stratigraphic analysis made it possible to determine the relative sequence of each tomb, distinguishing the different phases of use, transformation, and reuse. The architectural analysis was oriented towards the study and characterisation of the forms, spatial sectors, and construction techniques.

With regard to the microspatial stratigraphic analysis, several aspects were recorded during the excavation and documentation process: (a) the relationships of superposition and discontinuity between funerary floor levels, for the purpose of determining their physical limits and the order and succession of levels; (b) the relationships of superposition, horizontal dispersal, and/or continuity between the remains and bone assemblages in each funerary level, in order to determine the processes of formation of the deposits, to assess the taphonomic conditioning factors, and to establish groupings of osteological remains that may correspond to primary burials, reorganised secondary deposits, or packages; (c) the spatial associations between the human bone assemblages and the grave goods, by means of the patterns of arrangement and placement of the latter around different skeletal deposits, in order to identify their possible association or belonging to specific individuals in relation to the sex and age of the deceased. It has, therefore, been possible to analyse and reconstruct the stratigraphic sequence of burials and to characterise the funerary gestures.

The physical anthropological study included the analysis of the skeletal remains, carrying out individualised identifications, the recognition of groupings and the identification of different types of deposits within each funerary level in each tomb. The biological profile of the identified individuals (sex, age, height, metric features) and the pathologies and traumas have been determined following established protocols (Buikstra & Ubelaker, 1994; Campillo & Subirá, 2004; Ubelaker, 1989; Waldron, 2008). The MNI was estimated according to standard bioarchaeological methods: representative elements and teeth, minimum number of elements (MNE), size and degree of preservation, absence of remains due to taphonomic conditions, density, symmetrical proportion of anatomical parts, and presence of paired bones with similar morphological features and thickness (Adams & Konigsberg, 2004; Buikstra & Ubelaker, 1994; Osterholtz, Baustian, Martin, & Potts, 2014).

The joint observation and comparison between the types of deposits (primary, secondary, and packages), the placement of individuals in the primary burials, the composition and arrangement of secondary deposits, and the taphonomic processes and alteration patterns have made it possible to interpret the gestures belonging to both the burial and post-burial funerary practices and for the management of the collective burial spaces (Chambon, 2003; Duday, 2010; Neves, 2019; Weiss-Krejci, 2011a). The archaeothanatological study of the funerary deposits was aimed at recognising the spatial organisation patterns of the burials and determining specific funerary practices (Duday, 2005; Solari, Pessis, Martin, & Guidon, 2020). To this end, a combined stratigraphic and osteological analysis of the deposits in each tomb was carried out. Thus, through an integrated approach to the funerary archaeology, which includes the study of anthropological remains, grave goods, and burial spaces, it is possible to understand the funerary activity and cultural and social aspects linked to the sphere of death (Duday, 2010; Knüsel, 2010; Weiss-Krejci, 2011b). It has not been possible to carry out a genetic study among the individuals in the tombs. The samples processed at Uppsala University have not yielded sufficient collagen for DNA sequencing. For the moment, we do not know the palaeodiet and mobility patterns of this population, as we do not have stable isotope analyses of nitrogen (δ15N) and strontium ($^{87}Sr/^{86}Sr$). Both elements will be studied in future works.

The analysis of the chronometric results and the Bayesian modelling of 17 radiocarbon dates carried out on human bones have made it possible to establish the precise chronology of the necropolis (Linares-Catela & Vera-Rodríguez, 2021). In tomb 1336, one remain from each bone assemblage has been selected for radiocarbon dating, as it has been associated with an osteological deposit of a specific individual. On the contrary, in tombs 7016 and 7055, one bone sample from each commingled funerary level has been

dated, since it was not possible to associate all the bone remains with an osteological assemblage of a specific individual. For this reason, in these two tombs, non-specific bones have been selected for dating. The dates were calibrated with the IntCal20 curve (Reimer et al., 2020) using OxCal 4.4 software (Bronk Ramsey, 2009, 2020), and the results are presented according to the guidelines of Stuiver and Polach (1977) and the recommendations of Millard (2014) and Bayliss and Marshall (2022). Their analysis and Bayesian statistical treatment have established the chronological sequence of each tomb and the duration of the funerary activity articulated in two phases during the third millennium BC (Tables 1 and 2, Figure 3). The Bayesian modelling and ordering of the radiocarbon dating of tomb 1336 has been carried out on the basis of the stratigraphic sequence of deposition and formation of the osteological assemblages of the individuals. In the case of tombs 7016 and 7055, as there is only one dating for each funerary level, the Bayesian models have been constructed based on the stratigraphic sequence of the superposition of funerary levels and the architectural evolution of the tombs. Therefore, the precision of the results of the chronological sequence is different, both in terms of the number of dated samples and the type of funerary deposit (collective or individual) in each tomb. In any case, we believe that we have reliable stratigraphic information and an adequate volume of dating to obtain a robust chronological sequence.

4 Materials: Analysis of the Burials

4.1 Tomb 1336

Tomb 1336 was a hypogeum with a maximum length of 6.50 m and height of 1.15 m in the chamber (Figure 4a). It was built according to a central axis oriented 80° E. It was composed of atrium, passage, and chamber. The atrium was an open space with a sub-rectangular morphology and a stepped frontal profile cut into the substrate, paved with stones and clay. The access to the tomb had a closing/opening device in the form of a rectangular slab slate sealed with mud mortar. The elongated rectangular passage (3.25 m long) had a trapezoidal cross-section and two door jambs cut into the substrate flanking an entrance. The circular chamber, asymmetrically offset with respect to the passage, measured 2.20 m at the base on the north-south axis and 2 m on the east–west axis, forming a burial space of 3.46 m^2. It had a domed section with smooth curved walls and a low ceiling. At the base, a continuous bench was cut into the wall, 45–50 cm wide and up to 10 cm off the ground, which was slightly sunken in the central space, probably the area used for the handling of the bodies, skeletal remains and grave goods.

The stratigraphy is characterised by the existence of a funerary floor level spreading over the solid ground of the passage and the chamber (Figure 4b). In the funerary level, a collective deposit was recorded with juxtaposed skeletal remains from an MNI of 9 and several groups of grave goods (Figure 4c; Tables 3 and 4; Table A1). In this grave, it has been possible to identify and correlate the bone assemblages with the associated grave goods. The funerary deposit was formed in four stages or episodes (Figures 5a and 6a). The chronological sequence has been establish by eight radiocarbon dates, one for each individual, with the exception of individual 9 that did not yield sufficient collagen, thus establishing the chronological sequence and the temporal limits of the beginning and end of each episode (Figure 4d) (Linares-Catela & Vera-Rodríguez, 2021).

First, Episode 1 (Figures 5b and 6b) contains three secondary packages repositioned in the northern half of the chamber and under the bone deposits 6, 7, and 9. These packages contained the skeletal remains of an MNI of 3, one for each deposit (individuals 2, 1, and 4), with which particular grave goods were associated. Package 2, consisting of the remains of an adult male individual, with three long bones (left femur, tibia, and fibula) and two highly fragmentary indeterminate bone remains, alongside which were placed a broken pottery cooking dish and a rhyolite blade. Radiocarbon dating has given a result of 4155 ± 45 BP: 2890–2580 cal BC (CNA-334). Package 1 contained the remains of an adult male individual, comprising two fragments of long bones (left and right tibia) and an indeterminate fragment, associated with a small pottery vessel with a thin almagra red slip, an upside down cooking dish and a flint blade. The date obtained was 4130 ± 50 BP: 2880–2570 cal BC (CNA-333). Package 4, consisting of the remains of an adult female

Table 1: Radiocarbon dating and Bayesian modelling of tombs 1336, 7016, and 7055 from the necropolis of La Orden-El Seminario, from Linares-Catela, and Vera-Rodríguez (2021) (OxCal v.4.4 Bronk Ramsey, 2020; r:5 IntCal20 atmospheric data from Reimer et al., 2020)

Phases	Radiocarbon dates							Modelled dates: phases with boundaries		
Stage	**Lab. Code**	**Context**	**Sample**	**^{14}C Age (BP)**	**δ^{13}C (‰)**	**Calibrated date (68% confidence cal BC)**	**Calibrated date (95% confidence cal BC)**		**Posterior density estimated (68% probability cal BC)**	**Posterior density estimated (68% probability cal BC)**
Tomb 1336								A_{model} = 147.6/$A_{overall}$ = 144		
Episode 1								*Boundary Start 1*	2740–2590	2860–2570
	CNA-334	Funerary package 2, adult individual ♂	Human bone: tibia	4155 ± 45	−19.58 ± 0.38	2880–2660	2890–2580		2720–2580	2860–2570
	CNA-333	Funerary package 1, adult individual ♂	Human bone: NS	4130 ± 50	−21.34 ± 0.31	2870–2620	2880–2570		2700–2580	2780–2570
	CNA-336	Funerary package 4, adult individual ♀	Human bone: ulna/radius	4100 ± 50	−23.16 ± 0.32	2860–2570	2880–2490		2670–2570	2770–2560
								Boundary end 1	2660–2560	2760–2530
Episode 2								*Boundary start 2*	2600–2520	2630–2470
	CNA-332	Primary burial 8, adult individual ♂	Human bone: rib	4010 ± 50	−23.51 ± 0.29	2580–2460	2850–2340		2580–2520	2600–2470
	CNA-338	Primary burial 6, adult individual ♂	Human bone: humerus	3990 ± 45	−25.02 ± 0.30	2580–2460	2630–2340		2580–2520	2580–2470
	CNA-623	Funerary package 5, adult individual ♂	Human bone: right humerus	3970 ± 45	−22.27 ± 0.58	2580–2400	2620–2300		2570–2480	2580–2460
								Boundary end 2	2570–2470	2580–2440
Episode 3								*Boundary start 3*	2540–2440	2560–2370
	CNA-335	Funerary package 3, NS adult individual	Human bone: tibia	3950 ± 60	−24.81 ± 0.31	2570–2340	2630–2200		2510–2400	2550–2350
									2500–2380	2550–2320

(*Continued*)

Table 1: *Continued*

Phases	Radiocarbon dates							Modelled dates: phases with boundaries		
Stage	**Lab. Code**	**Context**	**Sample**	**^{14}C Age (BP)**	**δ^{13}C (‰)**	**Calibrated date (68% confidence cal BC)**	**Calibrated date (95% confidence cal BC)**		**Posterior density estimated (68% probability cal BC)**	**Posterior density estimated (68% probability cal BC)**
								Boundary end 3		
Episode 4								*Boundary start 4*	2480–2340	2550–2320
	CNA-624	Primary burial 7, adult individual ♀	Human bone: right humerus	3910 ± 60	−23.01 ± 0.73	2470–2290	2570–2200		2470–2300	2500–2200
								Boundary end 4	2460–2290	2530–2160
Tomb 7016								A_{model} = 70.4/$A_{overall}$ = 76.4		
Phase I								*Boundary start 1*	3130–2710	3320–2590
Hypogeum	CNA-325	Secondary deposit: Level 1, MNI: 4	Human bone: NS	4330 ± 60	−23.94 ± 0.29	3030–2890	3320–-2770		3010–2700	3090–2580
	CNA-326	Secondary deposit: Level 2, MNI: 3	Human bone: NS long	3960 ± 50	−23.37 ± 0.27	2570–2350	2620–2290		2850–2510	2860–2450
								Boundary end 1	2620–2430	2840–2390
Phase II								*Boundary start 2*	2560–2370	2680–310
Mixed hypogeum	CNA-324	Secondary deposit: Level 3. MNI: 2	Human bone: NS long	3975 ± 45	−20.67 ± 0.65	2580–-2450	2630–2300		2560–2340	2580–2300
								Boundary end 2	2490–2320	2560–2240
Phase III								*Boundary start 3*	2370–2190	2480–2130
Cave	CNA-327	Primary burial, adult individual ♂	Human bone: NS	3796 ± 50	−25.14 ± 0.30	2340–2140	2460–2040		2300–2140	2410–2050

(*Continued*)

Table 1: *Continued*

Phases	Radiocarbon dates							Modelled dates: phases with boundaries		
Stage	**Lab. Code**	**Context**	**Sample**	**^{14}C Age (BP)**	**δ^{13}C (‰)**	**Calibrated date (68% confidence cal BC)**	**Calibrated date (95% confidence cal BC)**		**Posterior density estimated (68% probability cal BC)**	**Posterior density estimated (68% probability cal BC)**
								Boundary end 3	2280–2090	2350–1970
Phase IV								*Boundary start 4*	2150–1950	2240–1830
"Cist"	CNA-622	Secondary deposit, adult individual ♂	Human bone: clavicle	3600 ± 60	−19.47 ± 0.68	2120–1880	2140–1770		2120–1890	2140–1770
								Boundary end 4	2100–1800	2140–1570
Tomb 7055								A_{model} = 95/$A_{overall}$ = 97.4		
Phase I								*Boundary start 1*	2780–2510	3000–2490
	CNA-331	Secondary deposit: Level 1, MNI: 4	Human bone: NS. Individual 4, children II	4060 ± 50	−29.02 ± 0.35	2840–2490	2870–2460		2660–2490	2840–2470
	CNA-329	Secondary deposit: Level 2, MNI: 6	Human bone: NS. Individual 1, adult NS	4010 ± 60	−23.80 ± 1.0	2630–2460	2860–2340		2630–2490	2850–2450
Tholos	CNA-328	Funerary packages. Level 3, MNI: 7. II	Human bone: NS. Adult ♂ Package 5, adult ♂ and children	4130 ± 60	−22.10 ± 1.0	2870–2620	2890–2500		2680–2490	2850–2470
								Boundary end 1	2610–2430	2830–2220
Phase II								*Boundary start 2*	2350–2070	2520–2000
Cave	CNA-330	Primary burial: children II	Human bone: NS	3700 ± 50	−15.64 ± 0.72	2200–1980	2280–1940		2200–2030	2290–1950
								Boundary end 2	2190–1890	2290–1380

Table 2: Probabilistic estimates of the start and end boundaries and duration of tombs according to Bayesian models, from Linares-Catela and Vera-Rodríguez (2021) (OxCal v.4.4 Bronk Ramsey, 2020; r:5 IntCal20 atmospheric data from Reimer et al., 2020)

		Parameter	68% probability	95% probability
Tomb 1336				
Tomb	Funerary activity	Start	2740–2590	2860–2570
		End	2460–2300	2530–2160
		Span	170–420 years	90–600 years
	Episode 1	Start	2740–2590	2860–2580
		End	2660–2570	2750–2530
		Span	0–40 years	0–110 years
	Episode 2	Start	2600–2520	2630–2470
		End	2570–2470	2580–2440
		Span	0–30 years	0–80 years
	Episode 3	Start	2540–2440	2560–2370
		End	2500–2390	2550–2320
	Episode 4	Start	2480–2340	2550–2320
		End	2460–2290	2530–2160
Tomb 7016				
Tomb	Funerary activity	Start	3130–2710	3320–2590
		End	2100–1800	2140–1570
		Span	780–1,260 years	530–1,540 years
Phase 1	Hypogeum	Start	3130–2710	3320–2590
		End	2620–2430	2840–2390
		Span	0–450 years	0–490 years
Phase 2	Mixed hypogeum	Start	2580–2400	2700–2330
		End	2500–2320	2560–2240
Phases 1–2	Collective burials	Start	3130–2710	3320–2590
		End	2500–2320	2560–2240
		Span	360–560 years	160–670 years
Phase 3	Cave	Start	2370–2190	2480–2130
		End	2280–2090	2350–1970
Phase 4	“Cist”	Start	2150–1950	2240–1840
		End	2100–1800	2140–1570
Phases 3-4	Individual tombs	Start	2370–2190	2480–2130
		End	2100–1800	2140–1570
		Span	0–190 years	0–350 years
Tomb 7055				
Tomb	Funerary activity	Start	2780–2510	3000–2490
		End	2190–1890	2290–1380
		Span	420–860 years	260–1,380 years
Phase 1	*Tholos*	Start	2780–2510	3000–2490
		End	2610–2430	2830–2220
		Span	0–110 years	0–270 years
Phase 2	Cave	Start	2350–2070	2520–2000
		End	2190–1890	2290–1380

individual, was placed next to the former remains. It consisted of fragmentary long bones (left tibia, right tibia, femur, humerus, ulna, radius, and an indeterminate long bone of the forearm) and a hip fragment. The artefacts were distributed around the bones, including a proximal fragment of a rhyolite blade and a fragmented pottery bowl, placed upside down and crushed by subsequent trampling and preparation of the burial space. The radiocarbon dating yielded a result of 4100 ± 50 BP: 2880–2490 cal BC (CNA-336).

The Bayesian model suggests that the burials of Episode 1 took place in a chronology ca. 2860–2530 cal BC, at 95% probability, or ca. 2740–2570 cal BC, at 68% probability. This episode could, therefore, have

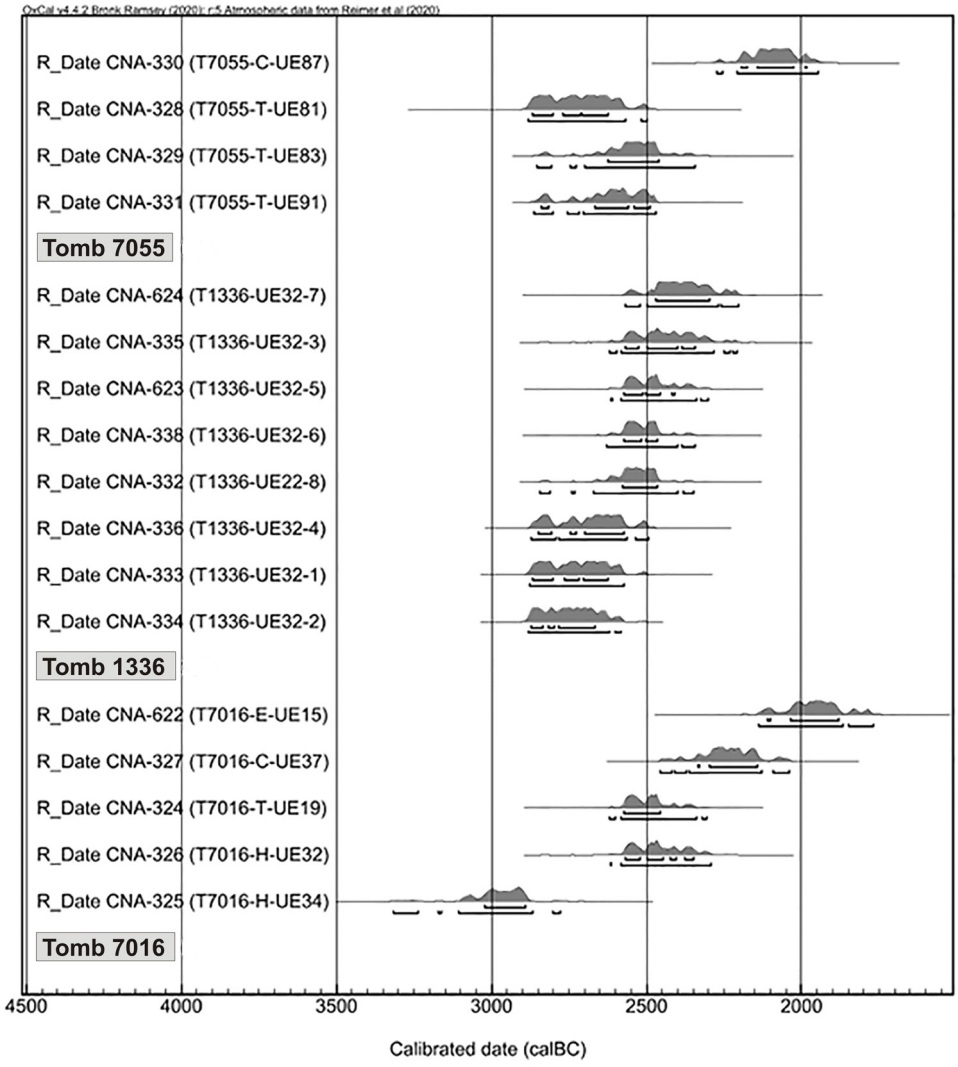

Figure 3: Calibrated radiocarbon dates of tombs 7016, 1336, and 7055 at the La Orden-Seminario necropolis (OxCal v.4.4.2 Bronk Ramsey, 2020; r:5 IntCal20 atmospheric data from (Reimer et al., 2020).

lasted 40 or 110 years, and contained the remains of a minimum of three individuals from four or five different generations. These deposits took place within a short time interval, and may have been grouped as packages at the time of the reorganisation of the burial space prior to the new depositions made in Episode 2.

The three deposits from Episode 2 (Figures 5b and 6c) were arranged successively to the south of the central axis: individual 8 (primary burial) in the passage and individuals 6 (primary burial) and 5 (funerary package) in the chamber. The first deposit may have been individual 8, buried in the passage, identified as an adult male of indeterminate age. His skeleton was anatomically connected and articulated, with the head close to the south door jamb, having been placed in a right lateral flexed position with flexed arms and legs, displaying pronation from the waist to the legs, the face oriented to the south, towards the wall, the sagittal orientation to the south (190° S) and on a southwest-northeast axis. The body rested directly on the solid ground of the passage and decomposed in an empty aerobic environment, as indicated by the pronation of the hips and lower limbs, which rotated after the completion of putrefaction and the loss of the articular tissues of the body. The skeleton was in relatively good condition, with most of the bones of different parts of the cranial and post-cranial skeleton and, particularly, the skull and upper and lower limbs being preserved. A small number of objects were placed to the west of the head, including a volcanic

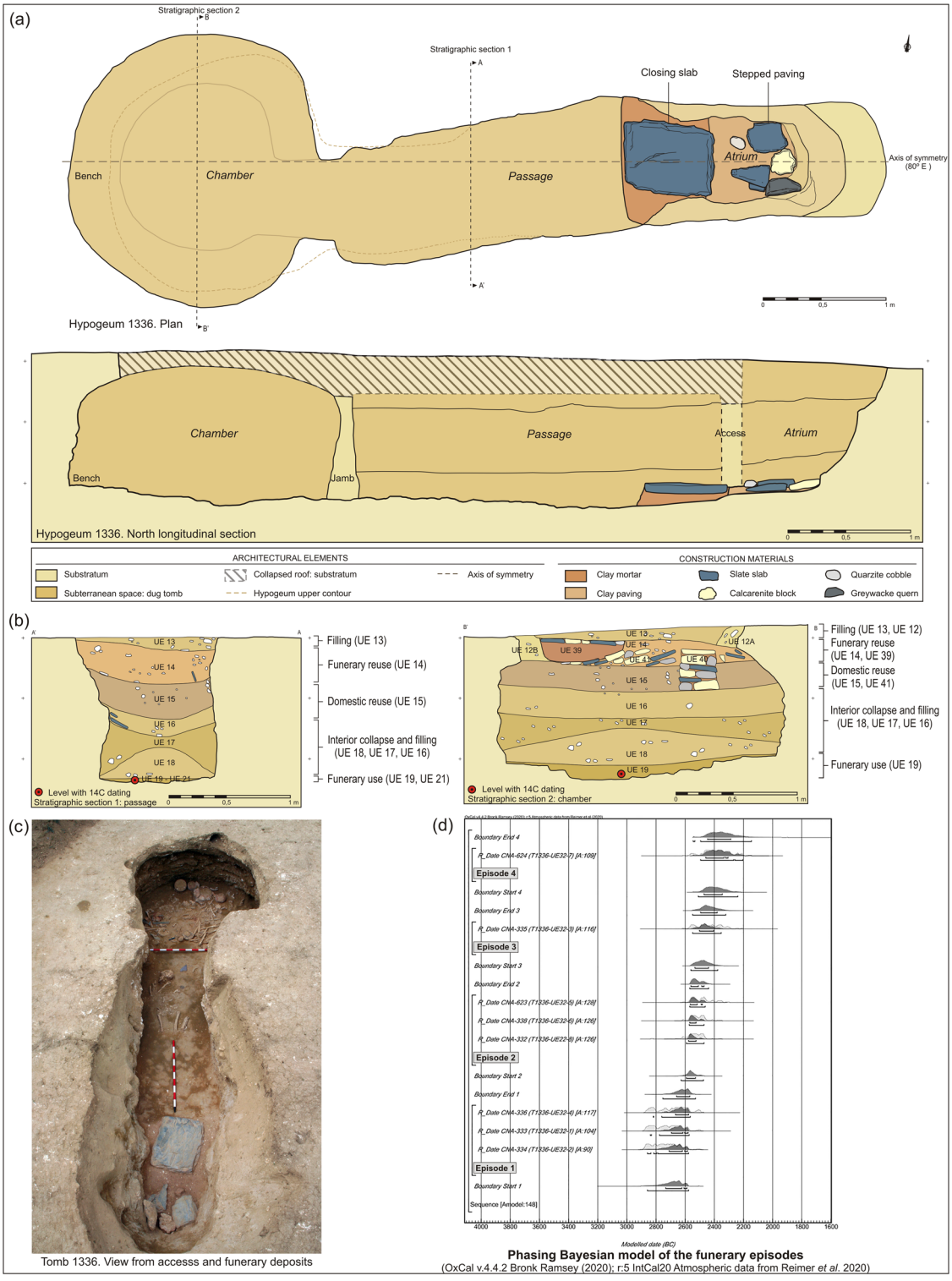

Figure 4: Hypogeum 1336 of La Orden-Seminario: (a) architecture; (b) stratigraphy; (c) photo of the tomb and funerary deposits; and (d) Bayesian model of radiocarbon dating.

rock concave-base arrowhead, two hyaline quartz bladelets, and a triangular slab of purple slate. To the north, a small thermo-altered stain was recorded containing particles of charcoal, possibly the remains of a vegetal torch or the residue of a lamp. Dating has provided a chronology of 4010 ± 50 BP: 2850–2340 cal BC (CNA-332).

Table 3: Funerary levels: types of deposits, individuals, and grave goods

Funerary level	Space	Funerary deposit	Individuals: sex and age	Grave goods and offerings
Tomb 1336				
Episode 1	Chamber	Funerary package	Individual 2 (UE 32-2): adult ♂	UE30 set • 1 pottery pot • 1 rhyolite carved blade
	Chamber	Funerary package	Individual 1 (UE 32-1): adult ♂	UE28 set • 1 pottery vessel with almagra gouache • 1 pottery pot • 1 flint carved blade
	Chamber	Funerary package	Individual 4 (UE 32-4): adult ♀	UE31 set • 1 upside down pottery bowl • 1 fragment of rhyolite carved blade
Episode 2	Passage	Primary burial	Individual 8 (UE 22): adult ♂	UE23 set • 2 hyaline quartz carved micro-blades • 1 jasper arrowhead with concave base • 1 purple slate plaque
	Chamber	Primary burial	Individual 6 (UE 32-6): adult ♂	UE24 set • 2 pottery vessels: bowl and cooking dish • 1 flint carved blade
	Chamber	Funerary package	Individual 5 (UE 32-5): adult ♂	UE27 set • 1 globular pottery vase • 3 carved blades (2 flint/1 rhyolite) • 1 flint arrowhead with fins • 1 triangular tool carved from siliceous slate
Episode 3	Chamber	Funerary package	Individual 3 (UE 32-3): adult ♂	UE29 set • 2 pottery vessels: pot and cooking dish • 1 rhyolite carved blade • 1 jasper arrowhead
	Chamber	Secondary deposit	Individual 9 (UE 32-9): adult	UE26 set: • 2 pottery vessels: bowl and cooking dish • 1 rhyolite carved blade
Episode 4	Chamber	Primary burial	Individual 7 (UE 32-7): Adult ♀	UE25 set • 2 pottery vessels: pot and cooking dish • 1 flint carved blade

(*Continued*)

Table 3: *Continued*

Funerary level	Space	Funerary deposit	Individuals: sex and age	Grave goods and offerings
Tomb 7016				
Level 1 (UE34)	Chamber	Secondary reorganised deposit	4 adult individuals: 2 ♂ and 2 ♀	• 2 fragmented open hemispherical bowls of large diameter
Level 2 (UE32)	Chamber	Secondary reorganised deposit	3 adult individuals: 2 ♂ and ♀	• 3 fragmented pottery vessels: 1 bowl, 1 straight-neck pot with mamelon, and 1 jar • 1 flint arrowhead with concave base • 1 deer antler
Level 2 (UE36)	Passage	Deposits of grouped materials: "offerings"	• 7 microgabbro axes: 1 behind the stele, 1 axe over the grindstone, 3 axes grouped behind the left jamb, and 2 axes over/around the threshold • 1 igneous rock hammer, behind the right jamb • 3 fragments of pottery plate	
Level 3 (UE19)	Chamber	Secondary reorganised deposit	2 adult individuals: 1 ♂ and 1 ♀	• 5 fragmented pottery vessels: 3 hemispherical bowls, 1 vessel, and 1 pot • 1 flint arrowhead with concave base • 1 greywacke polished stone
Level 4 (UE 37)	Subterranean cave in the chamber	Primary burial	1 adult ♂	• 1 hemispherical bowl • 1 bowl • 1 copper point of arrow "Palmela type"
Level 5 (UE15)	"Cist" in the chamber	Secondary burial	1 adult ♂	• 1 hemispherical bowl • 1 bowl with mamelon • 2 flint arrowheads: one with concave base and other with peduncle
Tomb 7055				
Level 1 (UE91)	Chamber	Secondary reorganised deposit	4 individuals: 1 adult ♂, 3 non-adults (1 child I and 2 children II)	• Fragmented pottery: 1 vessel, 1 bowl, and amorphous • 5 arrowheads with concave base (3 volcanic rocks and 2 flint) • 1 volcanic rock carved blade • 1 flint carved microblade • 1 flint carved blade • 1 copper axe

(*Continued*)

Table 3: *Continued*

Funerary level	Space	Funerary deposit	Individuals: sex and age	Grave goods and offerings
Level 2 (UE83)	Chamber	Secondary reorganised deposit	6 individuals: 2 adults (1 ♂ and ♀) and 4 non-adults (2 children I and 2 children II)	• Fragmented pottery: 1 pot, 1 hemispherical bowl, and 1 vessel • 3 carved blade fragments: 2 of flint from the same tool and 1 of volcanic rock • 1 volcanic rock arrowhead with concave base • 1 flint arrowhead with straight base on blade
Level 3 (UE81-82)	Chamber	Funerary packages	7 individuals: 5 adults (3 ♂, 1 ♀ and 1 NS) and 2 children II	Pottery receptacles: • UE 82-package 1: pot fragment • UE 82-package 2: bowl fragment • UE 82-package 3: pottery fragment • UE 81-package 5: pot fragment
Level 4 (UE87)	Subterranean cave in the chamber	Primary burial	Children II (7–8 years)	• 1 bowl with a half-flange • 1 truncated cone-shaped bowl • 1 rhomboid copper dagger • 1 sandstone wrist-guard

Table 4: Anthropological indicators (MNI, sex, and age) of the tombs studied. Levels of collective and individual graves

	Level	MNI	Sex			Age							
Space	**Floor**		♂	♀	**NS**	**Prenatal**	**Children I (0–6 years)**	**Children II (6–12 years)**	**Pre-adult (12–18 years)**	**Adult NS**	**Young adult (18–40 years)**	**Mature adult (40–60 years)**	**Senile (>60 years)**
Tomb 1336													
Chamber	Level 1: UE19 Episode 1	3	2	1						3			
Chamber–passage	Level 1: UE19 Episode 2	3	3							3			
Chamber	Level 1: UE19 Episode 3	2	1		1					2			
Chamber	Level 1: UE19. Episode 4	1		1						1			
Pit with covering	Level 2: UE39	1	1							1			
	Total	**10**	**7**	**2**	**1**					**10**			
Collective tomb		**9**	**6**	**2**	**1**					**9**			
Individual tomb		**1**	**1**							**1**			
Tomb 7016													
Hypogeum: chamber	Level 1: UE34	4	2	2						4			
Hypogeum: chamber	Level 2: UE32	3	2	1						3			
Mixed hypogeum	Level 3: UE19	2	1	1						2			
Cave: chamber	Level 4: UE37	1	1							1			
“Cist”: chamber	Level 5: UE15	1	1									1	
	Total	**11**	**7**	**4**						**10**		**1**	
Collective tomb		**9**	**5**	**4**						**9**			
Individual tomb		**2**	**2**							**1**		**1**	

(*Continued*)

Table 4: *Continued*

	Level	MNI	Sex			Age							
Space	**Floor**		♂	♀	**NS**	**Prenatal**	**Children I (0–6 years)**	**Children II (6–12 years)**	**Pre-adult (12–18 years)**	**Adult NS**	**Young adult (18–40 years)**	**Mature adult (40–60 years)**	**Senile (>60 years)**
Tomb 7055													
Tholos: chamber	Level 1: UE91	4	1		3		1	2		1			
Tholos: chamber	Level 2: UE83	6	1	1	4		2	2		2			
Tholos: chamber	Level 3: UE81-82	7	3	1	3			2		5			
Cave: chamber	Level 4: UE87	1			1			1					
	Total	**18**	**5**	**2**	**11**		**3**	**7**		**8**			
Collective tomb		**17**	**5**	**2**	**10**		**3**	**6**		**8**			
Individual tomb		**1**			**1**			**1**					
Tombs: total													
Collective tomb		**35**	**16**	**8**	**11**		**3**	**6**		**24**			
Individual tomb		**4**	**3**		**1**			**1**		**2**		**1**	
Total		**39**	**19**	**8**	**12**		**3**	**7**		**26**		**1**	

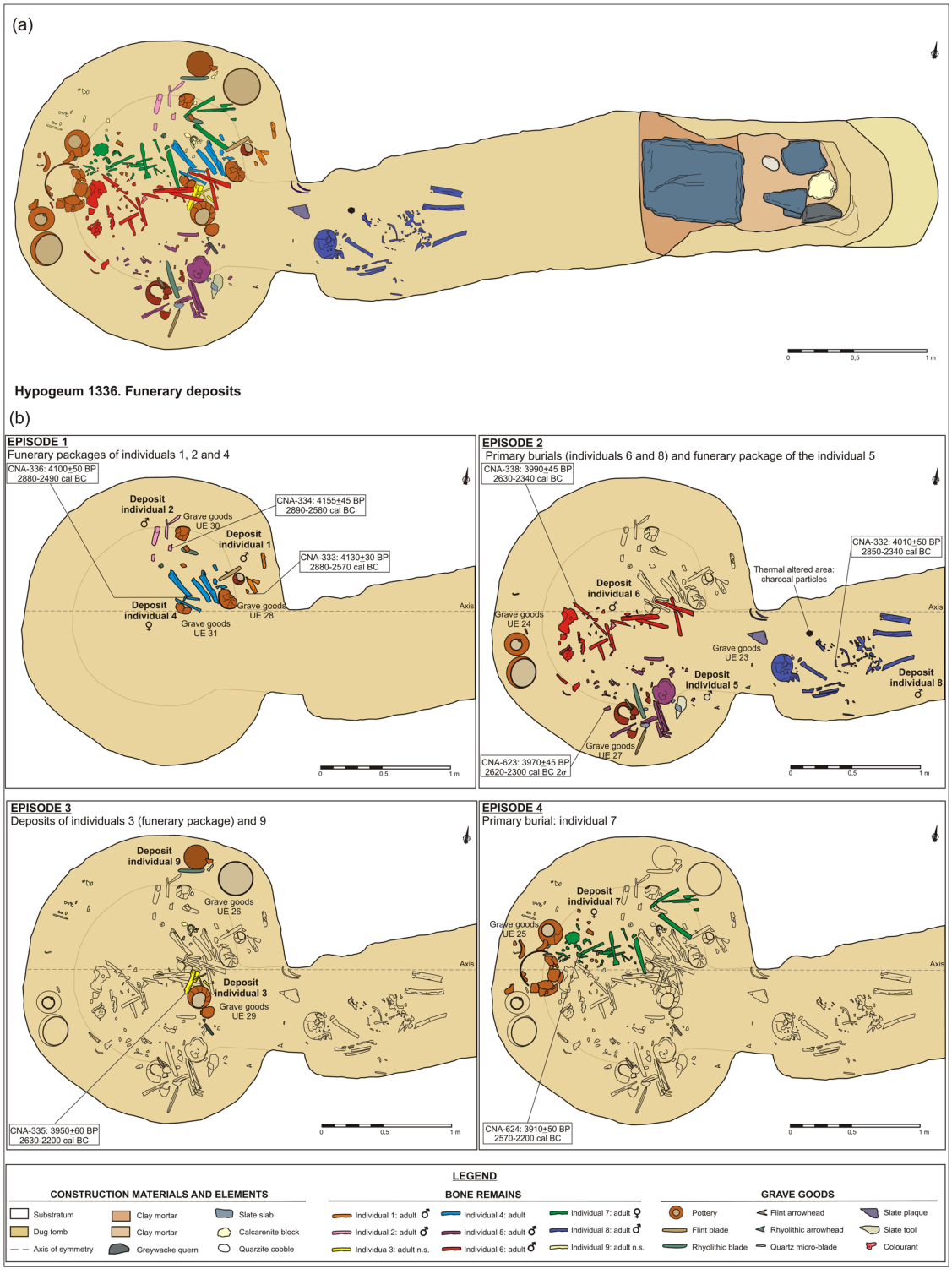

Figure 5: Hypogeum 1336 of La Orden-Seminario: (a) funerary level; and (b) episodes and funerary deposits.

Subsequently, individual 6 (an adult male) was buried in the central space of the chamber, his remains resting over deposit 4 and partially under some bones belonging to individual 7. This is a primary burial that preserved a partial anatomical connection, arranged in a right lateral flexed position with flexed arms and legs, with the skull towards the west wall of the chamber and face towards the south. Some of the bones

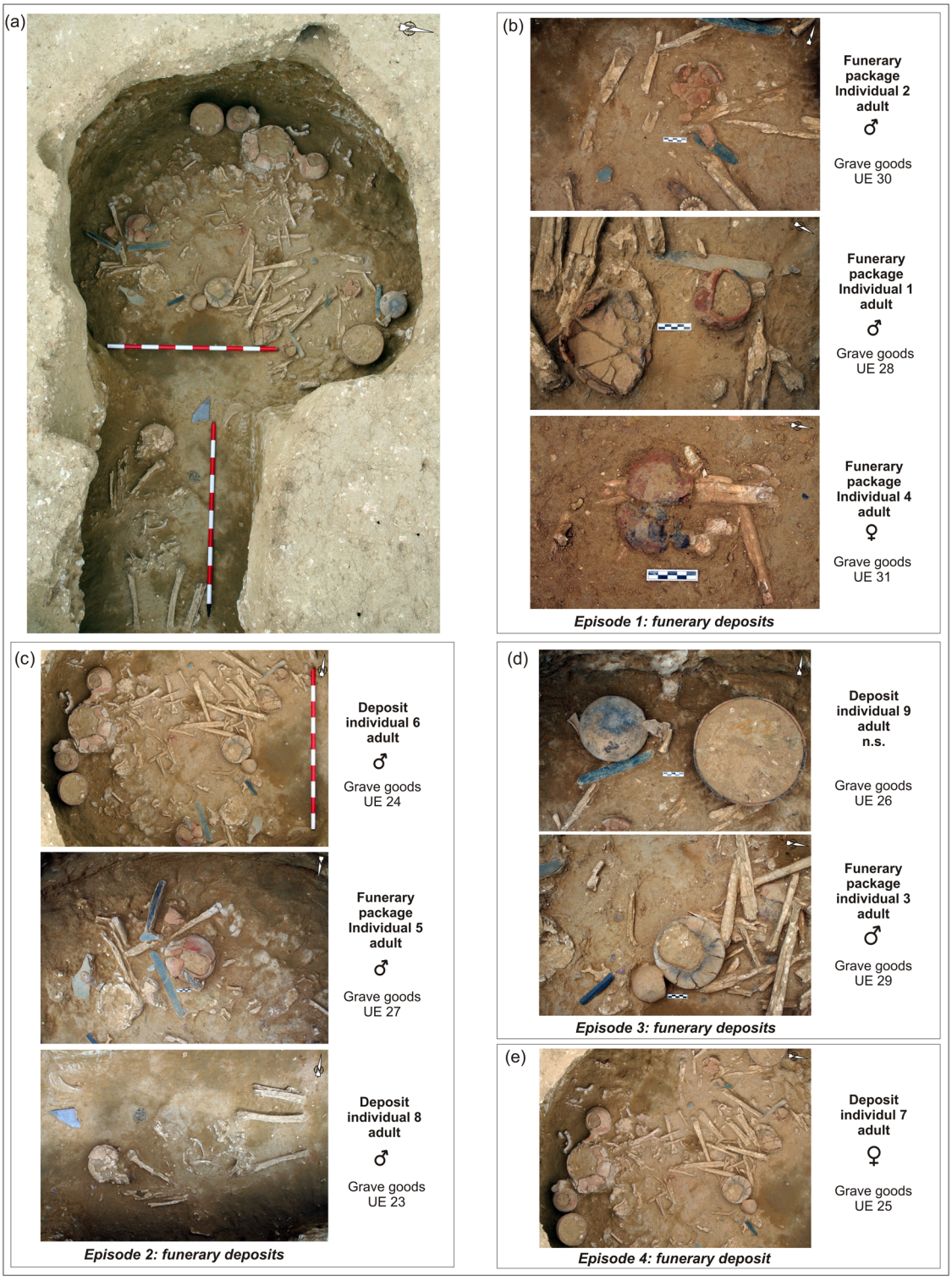

Figure 6: Hypogeum 1336 of La Orden-Seminario: (a) cenital view of the commingled deposit and grave goods; (b) deposits of Episode 1; (c) deposits of Episode 2; (d) deposits of Episode 3; and (e) deposits of Episode 4.

were fractured, fragmented, and displaced from their original position. The lower extremities rested partially on the bone remains of deposits 3 and 4. Part of the skull was preserved in several fragments, along with the long bones of the upper extremities (the two humeri, two ulnae, and two radii, and even some

phalanges of the hands), ribs of the thoracic cage, and long bones of the lower extremities (the two femurs, two tibiae, and one fibula). This individual was accompanied by a group of grave goods placed by his head on the bench against the west wall, consisting of two pottery vessels, one open (hemispherical bowl) and the other closed (a cooking pot), and a flint blade placed inside the pot. A stain of red pigment (iron oxide or ochre) was also found associated with the long bones of the arms of the deceased, which may constitute the remains of powdered pigment applied to the body, a common mortuary ritual in Chalcolithic burials in the south of the Iberian Peninsula. Dating has yielded a result of 3990 ± 45 BP: 2630–2340 cal BC (CNA-338).

The remains of deposit 5 (adult male) were regrouped as a funerary package in the southern sector of the chamber and next to the wall. It may have been the last deposition of Episode 2, having been manipulated prior to the burials of Episode 3, which required space in the chamber. The osteological deposit consisted of fragments of part of the skull (frontal, occipital, and parietal) and mandible, fragments of long bones from the upper limbs (two humeri and two ulnae) and lower limbs (two femurs, a tibia, and a fibula), a rib and an indeterminate bone fragment. The lower jaw showed the loss of teeth and a pathology of a receding alveolar ridge. The grave goods belonging to this individual had been placed at the centre of the package: a globular pot with a thin almagra red slip, three blades (two of flint, one of them inside the pot, and one of rhyolite), a flint barbed arrowhead, a hyaline quartz blade, a triangular tool made out of siliceous slate with lateral retouch and a cutting edge placed next to the skull, and several amorphous pottery fragments. This is the largest and most varied group of artefacts from the tomb. The dated sample yielded a result of 3970 ± 45 BP: 2620–2300 cal BC (CNA-623).

According to the Bayesian model, this episode could have taken place in a chronological span ca. 2630–2440 cal BC, at 95% probability, or ca. 2600–2470 cal BC, at 68% probability, thus over a maximum duration of 30–80 years, with the burials of a minimum of three individuals from three or four different generations, at the most. Indeed, the chronometric results show a great temporal proximity and/or some contemporaneity between the three burials.

Episode 3 (Figures 5b and 6d) comprised two secondary deposits located to the north (deposit of individual 9) and south (package of individual 3) of the axis of two individuals. The skeletal remains from deposit 3 were repositioned and redeposited as a funerary package in the centre of the chamber after the decomposition of the skeleton. The bones and pottery were highly fragmented and crushed. The package consisted of five long bones (two tibiae, a radius, an ulna, and an indeterminate fragment of the forearm) belonging to an adult male, and a grave good assemblage arranged to the south, grouping two pottery vessels (a cooking dish and a cooking pot broken in half), a rhyolite blade and a concave-base arrowhead made of volcanic rock. Radiocarbon dating has provided a chronology of 3950 ± 60 BP: 2630–2200 cal BC (CNA-335). The remains from deposit 9, belonging to an indeterminate adult individual, were very scarce, fragmented, dispersed, and deteriorated, and were limited to two parts of the skull, two fragments of tibia, a piece of the left clavicle, the upper maxilla, and an indeterminate bone. This individual may have been associated with three objects deposited on the bench: a hemispherical bowl placed upside down, a globular pot with a narrow, straight neck, also upside down, and a rhyolite blade placed underneath the pot.

The last deposit, individual 7 (primary burial of adult female) of Episode 4 (Figures 5b and 6e), was arranged in the northern half of the chamber. Her body was placed back-to-back with individual 6, with the lower extremities resting partially on the bones of deposit 4 and partially on some remains of individual 6. Her skeleton was in a left lateral flexed position with the skull towards the west wall of the chamber, face to the north, arms and legs flexed. The body decomposed in an empty aerobic space, consistent with the lateral displacement of the bones following the loss of joint tissue. The skeletal remains were recovered in relatively good condition, with most of the fragmentary bones of the different parts of the cranial and post-cranial skeleton preserved, mainly parts of the skull and the bones of the upper and lower extremities. This individual was accompanied by a grave good assemblage, placed next to her head on the bench against the west wall of the chamber, consisting of two pottery vessels, one open (a large diameter cooking dish) and the other closed (a globular cooking pot with a narrow mouth and a marked neck) and a flint blade placed underneath the pot. Radiocarbon dating yielded a result of 3910 ± 60 BP: 2570–2200 cal BC (CNA-624).

Episodes 3 and 4 correspond to short and close chronological events, within less than a century, thus limiting the burials to a minimum of one or two individuals per level. The Bayesian models indicate that the two episodes must have taken place between the twenty-fifth and twenty-fourth centuries cal BC. The funerary activity of the hypogeum must have ceased prior to the structural collapse and interior filling with sediments, which occurred due to the collapse of the roof, implying its disuse as a collective burial place. The upper part of the last level of fill was prepared as a workbench associated with a domestic space, in which a millstone and several scattered pottery fragments were documented. The upper section of the chamber was reused as a burial place during the Early Bronze Age, in the form of a pit sealed with stones, in which an adult male was buried without any grave goods (Linares-Catela, 2020).

4.2 Tomb 7016

Tomb 7016 displays a complex stratigraphic sequence, characterised by a succession and superimposition of different funerary contexts (Figure 7a and b). Two funerary cycles have been identified according to the different architectural models and burial levels: (a) collective (hypogeum and mixed hypogeum) and (b) individual (underground cave and "cist" with a mound). The tomb shows a long-term funerary activity, ca. 3130–1800 cal BC, at 68% probability, structured by discontinuous phases with hiatuses, as attested by the architectural transformations, the remodelling of the spaces, and the Bayesian model of the radiocarbon dating (Tables 1 and 2). The Bayesian model (Figure 7d) indicates that the collective funerary activity of the tomb could have developed during a time interval ca. 3130–2320 cal BC, at 68% probability, with a probable use as a collective space between fourth and seventh centuries. As the first hypogeum, it may have been in use ca. 3130–2430 cal BC, at 68% probability, probably functioning as a subterranean construction for up to five centuries. As a mixed hypogeum, it evidences a punctual activity in an imprecise time interval, ca. 2580–2320 cal BC, at 68% probability (Linares-Catela & Vera-Rodríguez, 2021).

Phase 1 of the tomb correlates with the original construction of the hypogeum. It was a subterranean architecture cut and excavated in the substrate with a symmetrical axis oriented 65° NE, reaching a length of 6.20 m and a height of 1.20 m in the chamber (Phase 1A) (Figure 8a). It had atrium, passage, and chamber. The atrium, of sub-rectangular morphology, had an access system composed of an upper step, two steps paved with calcarenite blocks and quartzite cobbles bound in clay and a threshold cut into the substrate. The access to the tomb was closed by a removable device formed by a masonry wall. The passage, 2.50 m long, had an elongated trapezoidal shape in plan and section, with slightly curved walls and ceiling. At both ends it was flanked and segmented by symmetrical door jambs cut into the substrate, which protruded up from the walls. At the end connected with the chamber, there was a raised threshold, delimiting a narrow quadrangular access. The chamber was irregularly circular, measuring 3 m by 2 m (6.16 m^2), with a curved profile and a sunken floor in the centre of the chamber, where it reached a height of up to 1.20 m. The internal space was vaulted.

During its funerary use, several spatial remodelling works were undertaken in the hypogeum (Phase 1B): a stele was placed in the entrance, and the atrium and passage were paved with a compact beaten earth (Figure 8b and c). The greywacke stele was placed vertically at an oblique angle against the north-western wall, fixed with mud or clay mortar. Its morphology is elongated, lenticular, with pointed ends, measuring 66 cm in height (Figure 8d). This reused stele shows traces of various technical treatments superimposed. The original element was an axe sharpener/polisher. Its recycling implied its transformation, reducing its height by working the edges by direct percussion and polishing the upper extremity. On both sides, there are traces of combined polishing, abrasion techniques, as well as pecking, that form engraved motifs, and possible zigzag traces of black pigments. The pecking was made using two techniques: (a) discontinuous thick pecking by direct percussion; (b) hammer and chisel pecking of small cups arranged in a line on the right side. On the visible face there is an abraded and recessed area within a semi-circular line, and three vertical stripes or grooves. These elements are suggestive of those belonging to an anthropomorphic representation with a face and talar clothing (Bueno Ramírez, Balbín Berhmann, & Barroso Bermejo, 2015, p. 448). This element

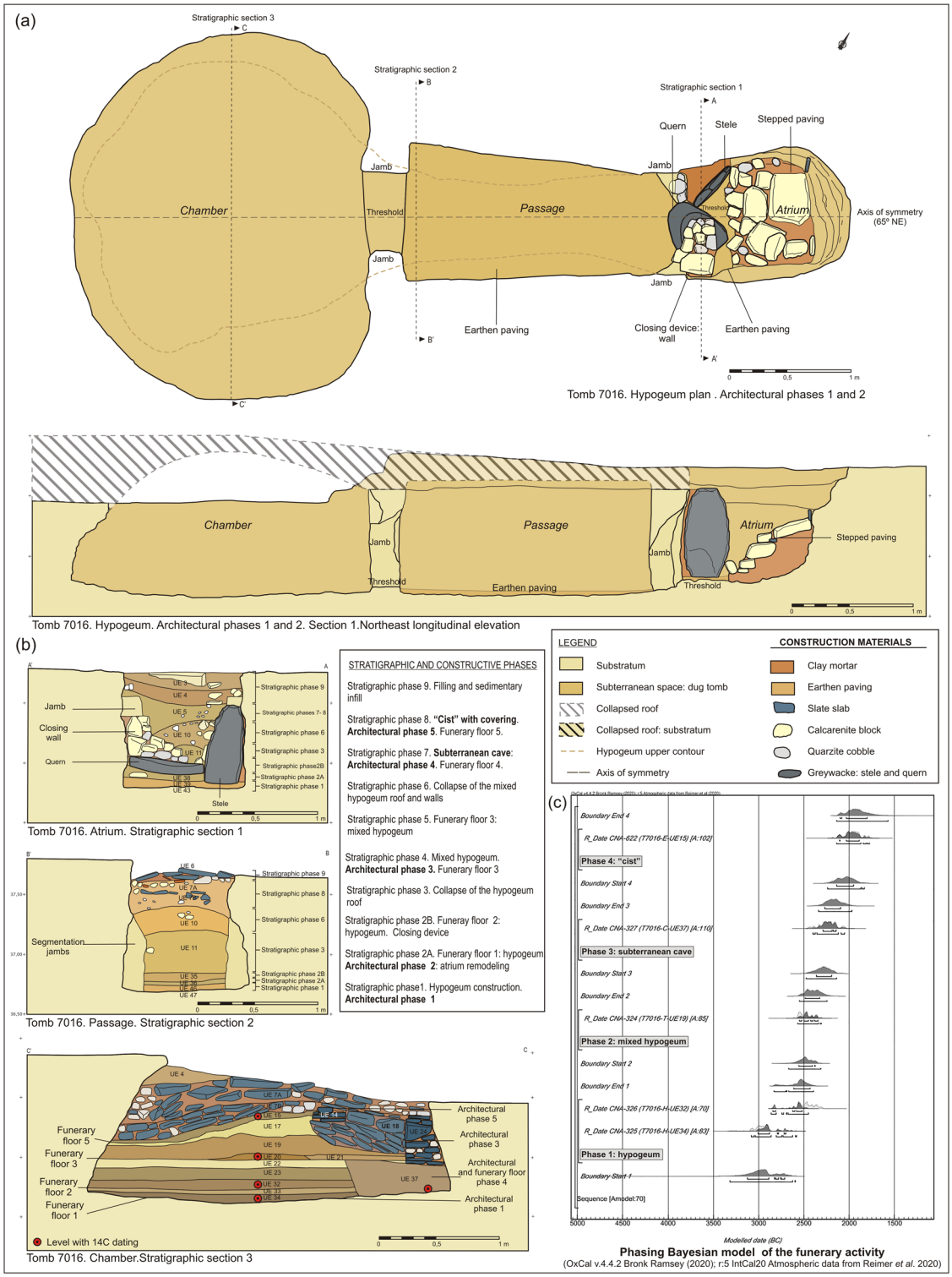

Figure 7: Tomb 7016 of La Orden-Seminario: (a) architecture; (b) stratigraphy; and (c) Bayesian model of radiocarbon dating.

reinforced the monumentalisation of the entrance to the hypogeum, displaying an outstanding morphology, chromatic contrast of the dark stone against the light materials, and symbolic and ritual significance.

The tomb had a closing/opening system between the door jambs of the entrance, formed by a masonry wall built upon a large greywacke millstone reused as construction material for the threshold. The wall,

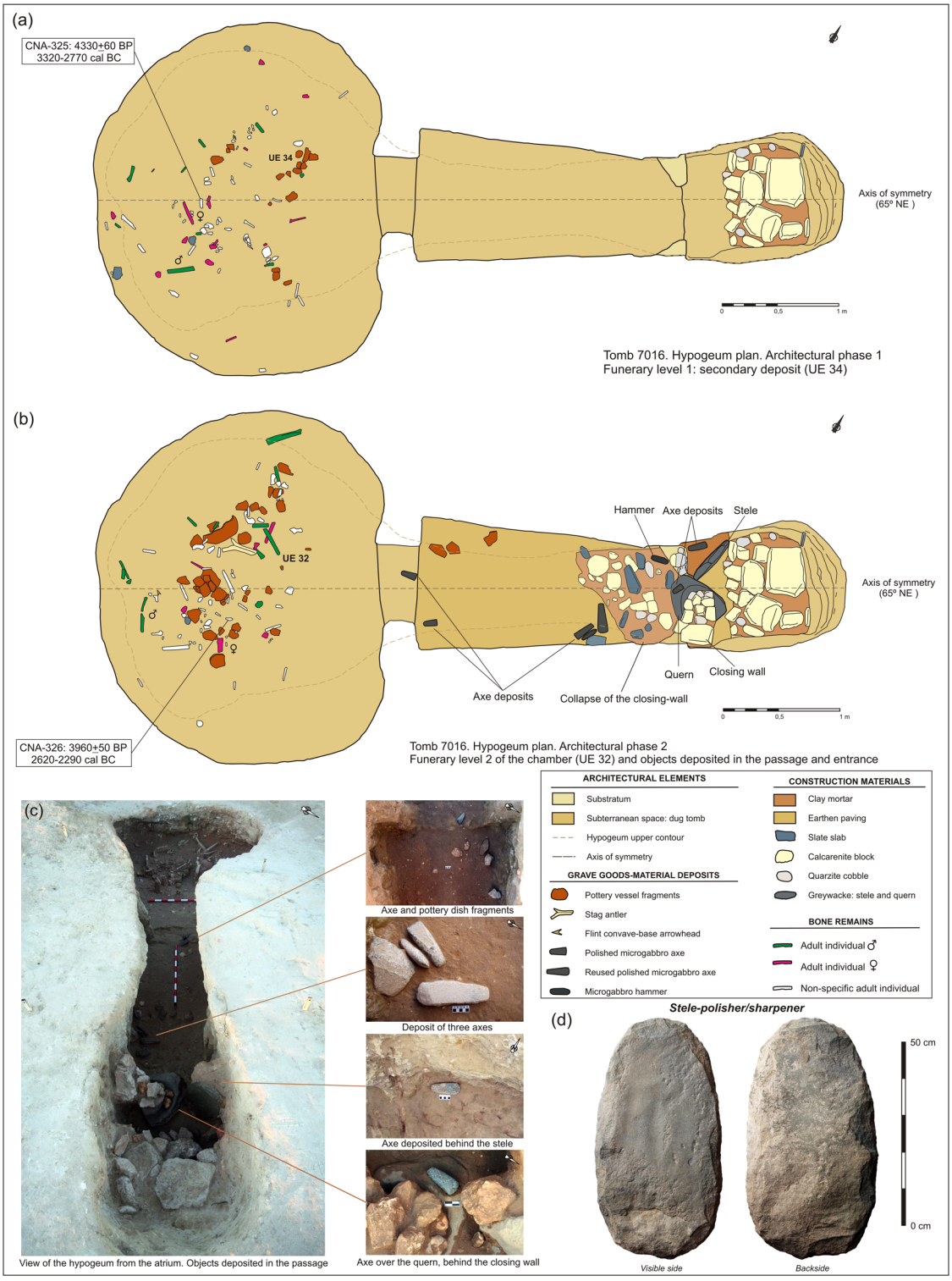

Figure 8: Hypogeum 7016 of La Orden-Seminario: (a) funerary level 1; (b) funerary level 2; (c) offerings in the passage; and (d) stele-polisher/sharpener.

0.40 m wide, was made of irregular masonry of calcarenite and quartzite, bonded with clay. This efficient seal may have been used recurrently, since it was easy to dismantle and quick to reposition in the event of successive burials and/or the consummation of offerings.

In the hypogeum, two superimposed funerary levels separated by a levelling layer of soil have been documented with reorganised collective secondary deposits, containing partial, fragmented, and dispersed remains (Tables 3 and 4; Table A2). A high number of skeletal remains were unidentifiable, most of them being plausibly attributable to fragments of long bones from the lower and upper extremities. In the first level, 122 remains recovered were attributed to an MNI of 4 adults of indeterminate age (two males and two females). The bones were preserved in a fragmentary state, identifying parts of the head (fragments of skulls, mandibles, and loose teeth), of the central trunk and spinal column (scapula, ribs, cervical, thoracic and lumbar vertebrae, coccyx), of the upper extremities: arms (humeri and ulnae) and hands (metacarpal phalanges), and of the lower extremities: legs (femurs, tibiae, and fibulae) and feet (calcaneus and metatarsals). The grave goods consisted of around 20 pottery fragments from two large hemispherical open dishes. The radiocarbon date of the level is 4330 ± 60 BP: 3320–2770 cal BC (CNA-325).

In burial level 2, 75 skeletal remains attributable to the skeletal remains of an MNI of 3 adults (2 males and 1 female) of indeterminate age were recovered. Fragments of bones from the head (pieces of skulls), central trunk and spine (lumbar vertebrae, coccyx, and ischium), upper extremities (humeri and ulnae), and lower extremities (femurs, tibiae, and fibulae) and feet (calcaneus, tarsi, and metatarsi) have been identified. The deposit had a meagre material assemblage, limited to around 30 fragments of three pottery vessels (a hemispherical bowl, a cooking pot with a straight neck, and a large storage jar), a flint concave-based arrowhead and part of a deer antler. The dating of the sample from this level has yielded a date of 3960 ± 50 BP: 2620–2290 cal BC (CNA-326).

On the floor of the access and passage, several grouped deposits of materials (seven polished micro-gabbro axes, an igneous rock hammer stone, and fragmented pottery) were documented, arranged at the points marking the transitions between the entrance and the underground spaces: an axe behind the stele with its cutting edge also facing north; an axe was placed on the greywacke grindstone, arranged as a threshold; a deposit of three axes with intentionally fractured and broken cutting edges; a sub-cylindrical hammer, behind the northwest door jamb; three pottery fragments from a flat dish in the elbow corner of the wall of the passage just before the chamber; an axe on the threshold of access to the chamber; an axe, on the opposite side to the previous one (Figure 8c).

The structural collapse of the hypogeum caused the fall down of the north-western half of the chamber and the passage ceiling. Its maintenance as a collective burial site required its rebuilding into a mixed hypogeum (Phase 2). The main work was the architectural reconstruction of the chamber by means of a dry stone wall bound with mud up to the point where it met the preserved structure (Figure 9c). This required the execution of four basic operations: (a) clearing and levelling the excavated subterranean section; (b) spreading the material from the collapse over the floor of the tomb; (c) the construction of a masonry wall of slate slabs and quartzite cobbles, as a base for the false dome; (d) the construction of a low hemispherical vault by the concentric approximation of courses of slate slabs fixed with clay mortar, as evidenced by the collapsed block of overlapping and superimposed elements with a marked bevel from the centre towards the edge. As a result, this hybrid chamber had a circular floor plan with a diameter of 2.50 m and an estimated height of 1 m in the centre, with a burial space of 4.91 m^2. Its access would have been a quadrangular opening on each side, with a closing mechanism. The atrium and the passage, partially filled in, functioned as open spaces, with the greywacke stele remaining as a symbolic landmark of the tomb.

On the floor of the mixed hypogeum, a burial deposit was documented with the skeletal remains of an MNI of two adults of indeterminate age, one male and one female (Figure 9a and d; Tables 3 and 4; Table A2). The 67 skeletal remains recovered are attributed to specific skeletal parts, being scattered mainly in the south-eastern half of the chamber and in the central area, with no evident anatomical connections. They correspond to bones from the head (fragments of the skull, mandible, and teeth), central trunk (ribs and cervical vertebrae), upper extremities (humeri and metacarpal phalanges of the hands), lower extremities (hip, femurs, tibiae, and fibulae), and indeterminate bones. The grave goods were preserved in a fragmentary state, the pottery being fragmented and scattered in the centre and eastern quadrant of the chamber as a result of the collapse of the roof. Three hemispherical bowls (one of them complete), a pot, a cooking dish, a volcanic rock concave-base arrowhead with marked barbs, and a polished greywacke stone were recovered. Radiocarbon dating of this level has provided a chronology of 3975 ± 45 BP: 2630–2300 cal BC (CNA-324).

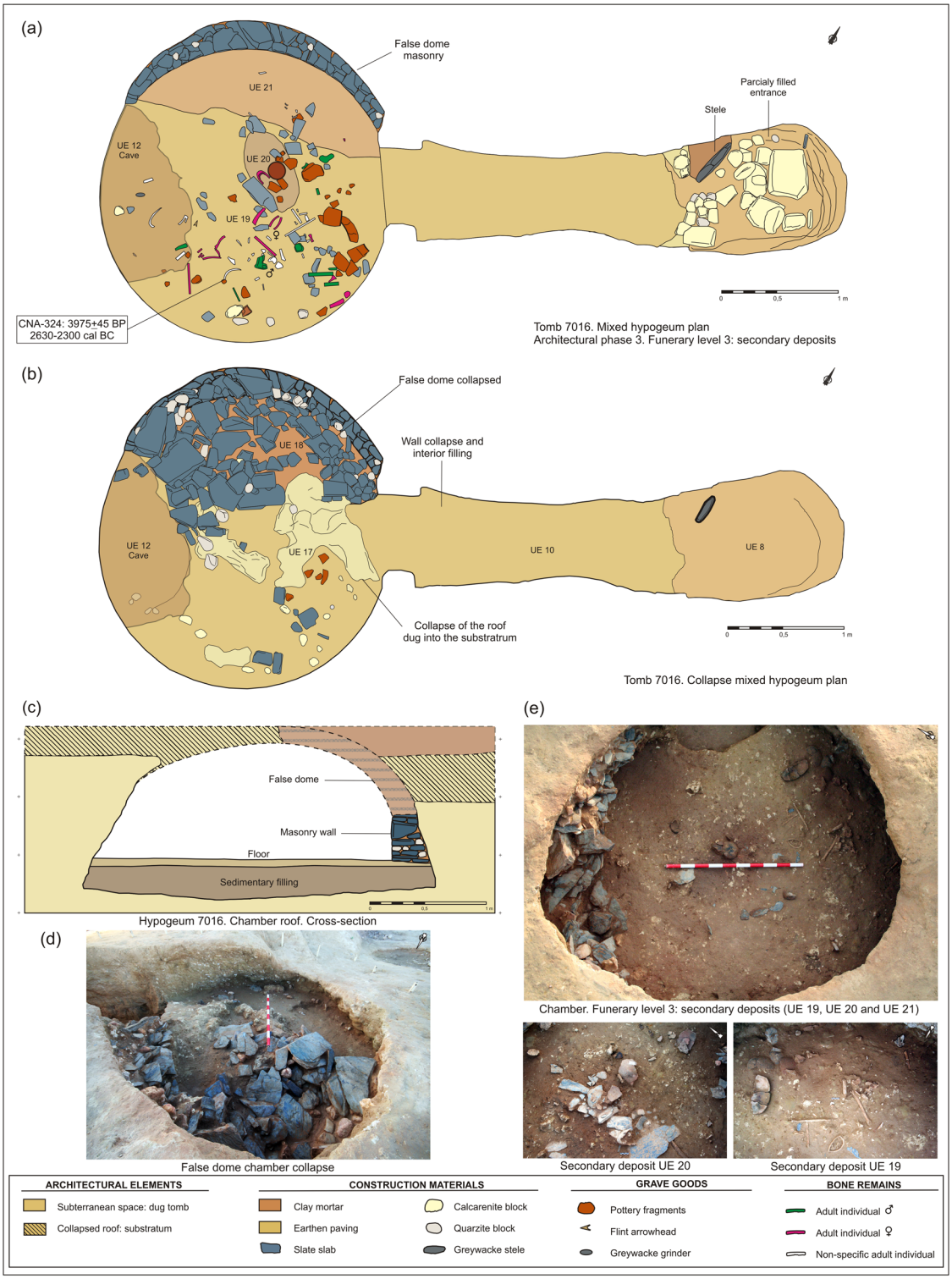

Figure 9: Mixed hypogeum 7016 of La Orden-Seminario: (a) architecture and funerary level; (b) collapse level of the chamber; (c) cross-section of the chamber; (d) view of the collapsed false dome; and (e) funerary level.

Subsequently, after the collapse and partial filling of the mixed hypogeum (Figure 9b and e) and after a time span of two centuries, the chamber was reused for two individual tombs in the Early Bronze Age (Table 1): (a) a subterranean cave (Phase 3), which contained the primary burial of an adult male provided with a

grave good assemblage in the "Bell Beaker tradition": two ceramic vessels (a hemispherical bowl and a truncated cone-shaped beaker placed inside it) and a copper point of arrow "Palmela type"; (b) a "cist" with a mound covering (Phase 4), which contained a secondary deposit of a mature adult male individual accompanied by scarce materials, two ceramic bowls, one hemispherical and the other with a mamelon near the rim, and two flint arrowheads, one with a concave base and the other with a peduncle (Linares-Catela, 2020).

4.3 Tomb 7055

Tomb 7055 was a small semi-subterranean *tholos* with a mound (Figure 10), built along a symmetrical axis running northeast to southwest and oriented 65° NE (Figure 11a). Its construction required an excavation of the substrate up to 90 cm deep, articulated in three levels of excavation: (a) the first delimited the outline of the tumular structure; (b) the second marked the levels of the foundation structures of the false-domed ceiling of the chamber and the lintelled cover of the passage; (c) the third shaped the negative space of the walls and the solid ground of the floor of the chamber, passage, and atrium.

The *tholos* had a stone lining made of blue slate slabs, 5 m long in total, in which two spaces can be distinguished, one open and external (atrium) and the other covered and internal (passage and chamber), which were transformed in the Early Bronze Age by the construction of a subterranean cave (Figure 11b).

The atrium had a stepped profile on three levels to facilitate access to the tomb. It was rectangular in shape with a curved front. Its steps were made of slate slabs and quartzite pebbles, bound together with clay mortar. Its base was made of beaten earth. It had a quadrangular slate slab attached to the two door jambs that flanked the access to the tomb. This closing/opening device fitted into a groove cut into the substrate. The passage, 2.20 m long, was narrow and slightly tapering from the access (0.40 m) to the connection with the chamber (0.35 m), with a progressive downward slope. At its extremities, it was segmented by symmetrical slabs arranged transversally. Two slate slabs flanked the access, while the transition to the chamber was delimited by two thin, carefully worked ornamental slabs of blue and purple slate. The walls of the passage were lined by five slabs on each side of unequal width, placed vertically in linear running trenches, protruding in elevation up to an average of 0.75–0.80 m. The lintelled ceiling was supported by side walls of slate masonry, bound with mud mortar. The chamber was circular in plan, with a variable diameter at the base of 1.70 m on the northeast-southwest axis and 1.55 m on the northwest-southeast axis, and a probable height of 1.55 m in the centre. It had two distinct structural elements in elevation with symmetrical heights: (a) a circular lining, forming a succession of neatly overlapping vertical cladding slabs arranged on a vertical axis with consecutive overlaps, and supported in running trenches and reinforced by means of packing slabs and earth fillings; (b) a dry-stone false dome, formed by a

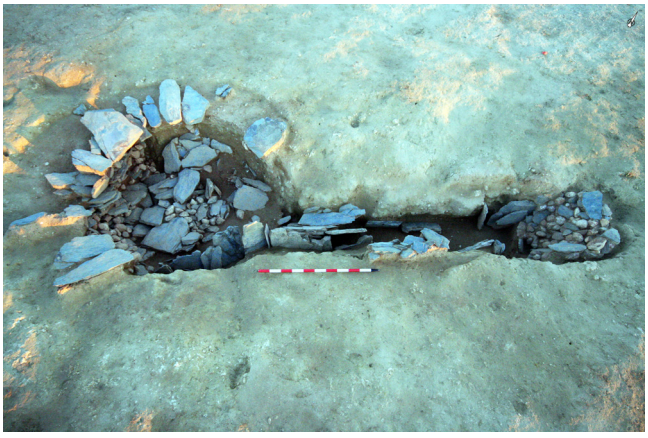

Figure 10: *Tholos* 7055 of La Orden-Seminario. View from the southeast.

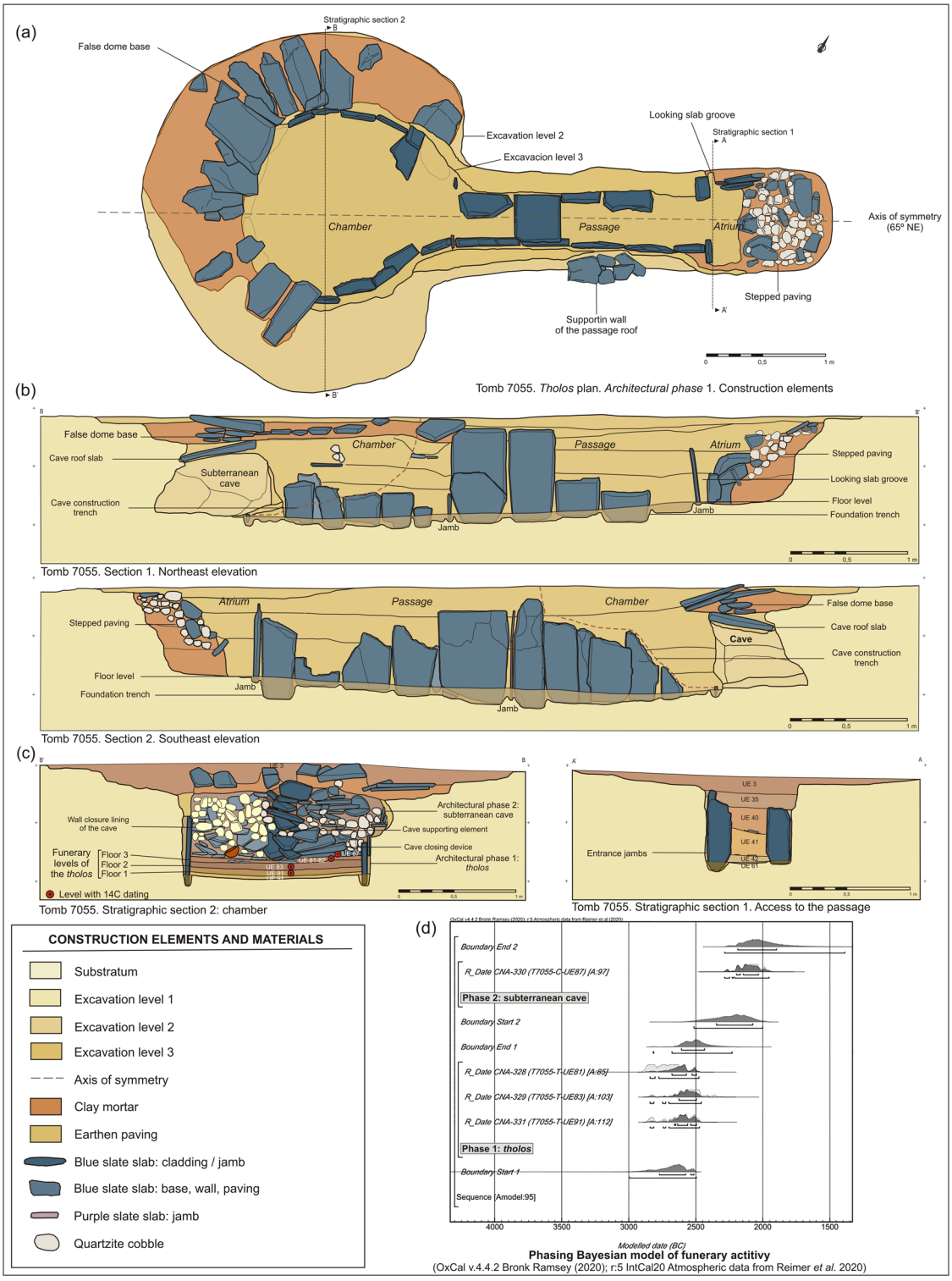

Figure 11: *Tholos* 7055 of La Orden-Seminario: (a) architecture; (b) elevations; (c) stratigraphy; and (d) Bayesian model of the radiocarbon dating.

concentric approximation of rows of thin slate slabs, bound with mud mortar, describing a hemispherical vault, which rested on a solid base surrounding the chamber, made up of medium and large slabs placed on a level of clay. The first floor of the tomb, cut into the substrate, displayed a slight dip from the perimeter edges towards the centre, reaching a surface area of 2.11 m^2.

This construction would have been covered by an oval-shaped mound, composed of various layers of earth, clay, and light-coloured quartzite pebbles, in accordance with the levels of filling documented in the final stratigraphy of the tomb.

Three superimposed collective funerary levels were documented in the chamber (Figure 11c). The floors were separated by stratigraphic discontinuities defined by thin fills of soil created for the purpose of levelling and reconditioning the chamber, as part of the necessary maintenance for the continued use of the monument. A total MNI of 18 of different sexes and ages were identified in the tomb (Tables 3 and 4; Table A3), 17 of which were located in the collective floors and 1 in the underground cave. From the Bayesian phase model of the dates, it is inferred that the collective funerary activity of the *tholos* developed in a sequence ca. 2780–2430 cal BC, at 68% probability, with a maximum duration of two or three centuries, between the twenty-eighth and twenty-sixth centuries cal BC (Tables 1 and 2; Figure 11d). The levels could have developed in short periods of time, containing the remains of an MNI of 17, belonging to up to ten different generations throughout its use as a collective burial (Linares-Catela & Vera-Rodríguez, 2021). After a hiatus, following the collapse and filling of the tomb, the monument was reused in the Early Bronze Age for the creation of an subterranean cave with a tumular cover, which contained the burial of a 7–8-year-old child with grave goods belonging to the Bell Beaker tradition (Linares-Catela, 2020).

Funerary level 1 (Figure 12a) was developed on the floor of the chamber, taking the form of a secondary deposit composed of partial and fragmented skeletal remains, with an MNI of 4. The hundred or so recorded skeletal remains were very fragmented, fractured, and dispersed. The bones did not show any anatomical connections, preserving only skeletal parts concentrated in some areas and with a certain tendency of positioning, orientation, and tilt from the edges of the chamber towards the centre. About 30 remains corresponded to individual 1 (a non-male adult of indeterminate age), including bones from the head (skull and teeth), upper limbs (humeri, ulnae, and phalanges of the hands), and lower limbs (tibiae, femurs, and phalanges of the feet), as well as other anatomical parts (coccyx, vertebrae, and indeterminate remains). The ten remains belonging to individual 2 (infant I, aged 2–3 years) were grouped in an east–west direction next to the south-west wall, where the child may have been buried, preserving fragments of the skull, teeth, long bones (left humerus and femur), right clavicle and phalanges of the hands. The remains of individual 3 (infant II, aged 7–8 years), located next to the middle section of the northwest wall and with a northwest-southeast orientation, amounted to just over a dozen long bone fragments (left humerus and fibula), parts of the skull, ribs, and several teeth. Individual 4 (infant II, 10 years old) concentrated its remains in the central space of the chamber, including two skull fragments, several long bone fragments, a humerus, two indeterminate remains, and part of the upper maxilla and mandible with premolar, molar, and lower and upper canine teeth.

The artefacts documented were a rim of a pottery jar, the wall of a hemispherical pottery bowl, a fragment of a volcanic rock blade, a fragment of a flint bladelet, a volcanic rock blade, five concave-base arrowheads with all-over retouch (three of volcanic rock and two of flint, one of them located behind the cladding slabs); located in the vicinity of the walls, as well as two singular products offered at the entrance behind the door jambs: a flint blade and a flat copper axe fragmented at its heel. The dated sample from this level has provided a date of 4060 ± 50 BP: 2870–2460 cal BC (CNA-331).

Funerary level 2 (Figure 12b) yielded the remains of an MNI of 6 (2 adults and 4 infants), contained in a secondary deposit. As in the previous level, the 100 or so documented remains of bones were scattered and highly fractured, with no anatomical connections, yet preserving specific skeletal parts: head (skull and teeth), trunk (clavicle, ribs, and coccyx), and upper (humerus, radius, and metacarpal phalanges) and lower extremities (femurs, tibia, and metatarsal phalanges), with a large predominance of the long bones of the lower and upper extremities. The two adult individuals of indeterminate age corresponded to a male (individual 1) and a female (individual 2). The four infant individuals were: individual 3 (infant I, aged 2–3 years), individual 4 (infant I, aged 3–4 years), individual 5 (infant II, aged 6–8 years), and individual 6 (infant II aged 7–8 years). The grave goods consisted of several fragments of pottery vessels (a cooking pot, a hemispherical bowl, and a small carinated form), three fragments of blades (two from the same flint tool and another in volcanic rock) and two arrowheads, one in volcanic rock with a concave base and the other in flint with a straight base manufactured on a fragment of blade. Radiocarbon dating of a sample from this level has provided a date of 4010 ± 60 BP: 2860–2340 cal BC (CNA-329).

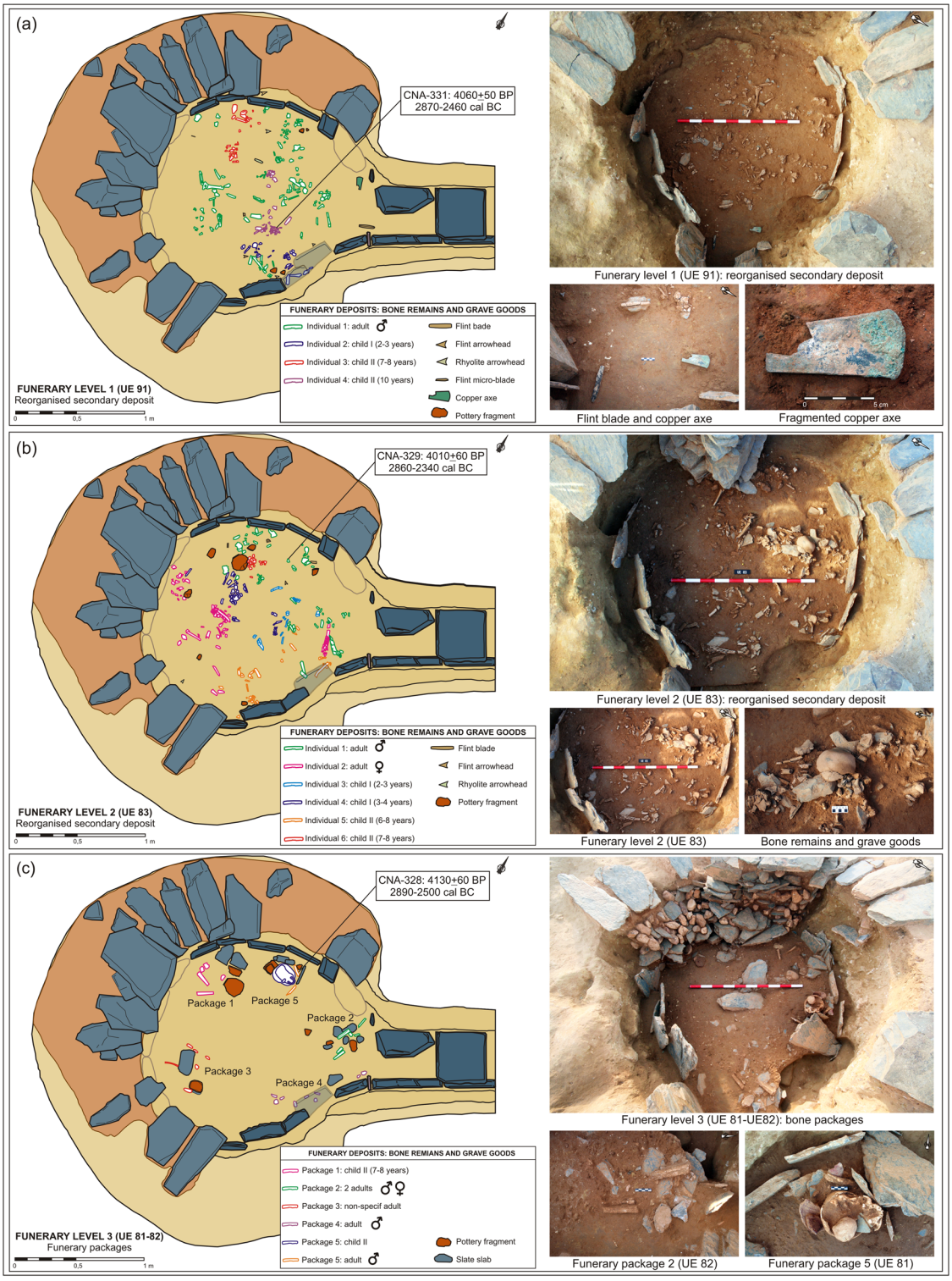

Figure 12: *Tholos* 7055 of La Orden-Seminario. Collective funerary levels, bone remains, and grave goods: (a) Level 1; (b) Level 2; (c) Level 3.

Funerary level 3 (Figure 12c) was developed on a 2–4 cm, flat, beaten earth floor. Five funerary packages preserved *in situ* were documented, in the locations in which they were originally placed, while some bones and materials were found slightly displaced or altered as a consequence of the gradual formation of the

successive deposits, the collapse of the false dome and the subsequent creation of the underground cave in the Early Bronze Age. The packages may have been formed and arranged in two distinct episodes, as evidenced by the stratigraphic sequence: episode 1 (UE 82), made up of the first four packages; and episode 2 (UE 81), which corresponds to package 5, developed and superimposed on the previous funerary floor level (Figure 12).

Four of the packages (UE 82) were placed against the walls of the chamber, displaying a radial distribution and symmetrical spatial organisation, with an equidistant separation of 50–60 cm. Two deposits were placed at the back of the chamber (packages 1 and 3), and two others were in the access section of the chamber (packages 2 and 4). Package 1 (individual 1) consisted of the skeletal remains of an infant of 7–8 years of age, preserving four fractured long bones (right ulna, right femur, right tibia, and an indeterminate fragment), a skull fragment and several teeth, associated with a piece of a pottery cooking pot, broken in two parts. These remains were arranged on several slate slabs placed horizontally as a tray. The long bones, less than 12 cm in length, and the other bone fragments may have been piled up in the concave internal space of a 15 cm pottery fragment placed upside down. Package 2 was composed of bones of two adult individuals, one male (individual 2) and one female (individual 3), concentrated in a small area with a north-south orientation. The deposit consisted of six fractured bone remains: four 10–12 cm fragments of long bones (right ulna of a male, femur of a female, tibia fragment, and indeterminate fragment of an adult) distributed in groups of pairs and two adult dental remains, which may have been collected inside a 10 cm fragment of pottery bowl, placed on a bed of four small slate slabs (less than 10 cm) placed horizontally on the clay floor. Deposits 3 and 4 were heavily disturbed and practically destroyed by the later reuse of the tomb in the Early Bronze Age. Package 3 (individual 4, indeterminate adult) was restricted to two fragments of long bones, two molars, a fragment of rib, and an indeterminate bone fragment. The skeletal remains were scattered around a slate slab placed horizontally on the ground and around a body fragment of a pottery vessel, displaced towards the southeast. It must originally have been a deposit similar to those described above. Package 4 was in very poor condition, with only a few fragmentary remains of different parts of the skeleton of an adult male individual (individual 5): scapula, a piece of skull, mandible, rib, a metacarpal phalanx, a metatarsal phalanx, and several indeterminate remains.

The last deposition corresponds to package 5, composed of the skeletal remains of two individuals of different sexes and ages: the long bones of an adult male and a skull of an infant, aged 7–8 years. The deposit was placed next to the northwest wall of the chamber, in its central section, between deposits 1 and 2, and was delimited by small slate slabs overlapping and set vertically into the floor pavement that included the base of a fragmented pottery cooking dish. Bones from selected skeletal parts of the two individuals were placed on top of this pottery receptacle: three fragmented long bones (right humerus, left tibia, and indeterminate remains) and several indeterminate remains of an adult individual and the left femur of the infant individual at the base, and the upside-down skull of the child, with the face towards the entrance to the chamber, in an easterly direction, on top of the previous remains. The radiocarbon dating carried out on one of the adult long bones from the last package has provided a chronology for this funerary package of 4130 ± 60 BP: 2890–2500 cal BC (CNA-328).

After a hiatus, following the collapse and filling of the tomb, the monument was reused in the Early Bronze Age (Table 1) for the construction of an subterranean cave with a tumular cover. This individual tomb contained the burial of a 7–8-year-old child with grave goods belonging to the "Bell Beaker tradition": two stacked pottery vessels (a bowl with a half-flange containing a truncated cone-shaped beaker in its interior), a rhomboid copper dagger, and a sandstone wrist-guard. This "warrior child" was buried with objects of high social prestige in the twenty-second to twenty-first centuries cal BC (Linares-Catela, 2020).

5 Results and Discussion

The necropolis of La Orden-Seminario provides several key insights into the chronology, architectures, funerary practices, and bioanthropology of the tombs of the third millennium BC. In general terms, the funerary activity in the collective tombs is characterised by a series of common elements:

- The concentration of funerary activity in each tomb over short periods of time, probably containing the remains of individuals belonging to only a few generations, or even a single generation.
- A planned pattern of organisation of the burial spaces around the axis of symmetry of the tombs, combining the architectural concept of the funerary space with the practices of arranging the deposits.
- The coexistence of several funerary deposits and mortuary practices within the same burial spaces.
- The diversity of mortuary practices, the homogeneity and fragmentation of the grave good assemblages and offerings.
- The low MNI, which can probably be correlated with the limited number of individuals of different sexes and ages buried in these collective tombs, with probable kinship relationships, either by biological or genetic links, in the case of descent, or for social reasons of cognatic kinship, in the case of links by affinity, alliance, or marriage (Fowler, 2022).

These same patterns must also have taken place in numerous monuments in the southwest of the Iberian Peninsula, a region that still requires an overview of research and comparative analyses to identify the general features of the small Chalcolithic collective tombs.

5.1 Chronology

Despite the limited burial area and the low MNI identified, these tombs are characterised by a funerary activity articulated in two phases that enables us to investigate the dynamics of their use as collective and individual houses of the dead (Table 5; Figure 13).

The first phase, ca. 3000–2400/2300 cal BC, corresponds to the period of use of the collective tombs, with a probable duration of three to seven centuries, with the greatest intensity between the twenty-seventh and twenty-fifth centuries cal BC, probably coinciding with the phase of greatest demographic density and assiduity in the occupation of the settlement. The chronological study shows that the three analysed tombs had a synchronous funerary activity, coexisting as collective burial places during much of their use-life. The Bayesian statistical models of hypogeum 1336 and *tholos* 7055 suggest that the funerary deposits were formed in limited temporal spans, with the episodes, levels, or collective floors lasting less than a century. Therefore, the funerary activity of each tomb could have been concentrated in a short period of time, and may have received the burials of people belonging to specific generations. In hypogeum 1336, it is likely that the episodes would have taken place over a short period of time: (a) Episode 1, with a maximum duration of 40 years (68% probability), or 110 years (95% probability), which contained at least three individuals from two to five different generations; (b) Episode 2, with an estimated maximum duration of 30 years (68% probability), or 80 years (95% probability), with the burials of at least three individuals from two to four generations, at most. In *tholos* 7055, the three collective levels developed over a period of 110 years (68% probability) or 270 years (95% probability), containing the remains of an MNI of 17, belong to five to ten different generations (Linares-Catela & Vera-Rodríguez, 2021).

The end of the collective burial activity is marked by the funerary disuse of the spaces and/or the structural collapse of the tombs, causing a hiatus of up to two centuries, of unequal temporality in the two necropolis: (a) in the southeast grouping, spanning the twenty-fifth and twenty-fourth centuries cal BC; (b) in the northwest grouping, during a specific interval in the twenty-fourth century BC.

This temporal range is similar to the chronological sequences of the hypogea of the necropolises of Valencina de la Concepción (García Sanjuán et al., 2018), Paraje de Monte Bajo (Lazarich et al., 2010, 2015), Los Algarbes (Castañeda Fernández, Costela Muñoz, & García Jiménez, 2022a; Castañeda Fernández, Costela Muñoz, Fernández de la Gala, García Jiménez, & López Sáez, 2022b), or Monte de Carrascal 2 (Neves & Silva, 2018a,b), as well as to *tholos*-tombs from the first half of the third millennium cal BC (Aranda Jiménez et al., 2021; Lozano Medina & Aranda Jiménez, 2017), such as the *tholoi* of Montelirio (Bayliss et al., 2016) and 10042-1049 of the PP4-Montelirio necropolis (García Sanjuán et al., 2018), the Perdigões tombs 1 and 2 (Valera et al., 2014a, p. 15), and the monument of Olival da Pega 2 (Gonçalves, 2016).

Table 5: Phasing Bayesian model of funerary activity in the necropolis of La Orden-Seminario, from Linares-Catela and Vera-Rodríguez (2021) (OxCal v.4.4 Bronk Ramsey, 2020; r:5 IntCal20 atmospheric data from Reimer et al., 2020)

Funerary activity	Tomb			Calibrated radiocarbon dating		Bayesian phase model with start/end boundaries		
						A_{model} = 151.4/$A_{overall}$ = 151.5		
Phases		Lab. code	^{14}C age (BP)	Calibrated date (68% confidence cal BC)	Calibrated date (95% confidence cal BC)		Posterior density estimated (68% probability cal BC)	Posterior density estimated (68% probability cal BC)
Phase 1						*Boundary start 1*	2980–2700	3060–2670
	T7016	CNA-325	4330 ± 60	3030–2890	3320–2770		2940–2690	3010–2660
	T1336	CNA-334	4155 ± 45	2880–2660	2890–2580		2880–2670	2890–2650
	T7055	CNA-328	4130 ± 60	2870–2620	2880–2500		2780–2640	2860–2620
	T1336	CNA-333	4130 ± 50	2870–2620	2880–2570		2740–2620	2820–2580
	T1336	CNA-336	4100 ± 50	2860–2570	2880–2490		2680–2590	2750–2570
	T7055	CNA-331	4060 ± 50	2840–2490	2870–2460		2630–2560	2680–2540
	T1336	CNA-332	4010 ± 50	2580–2460	2850–2340		2600–2540	2630–2510
Collective	T7055	CNA 329	4010 ± 60	2630–2460	2860–2340		2580–2520	2610–2480
tombs	T1336	CNA-338	3990 ± 45	2580–2460	2630–2340		2570–2490	2580–2470
	T7016	CNA-324	3975 ± 45	2580–2450	2630–2300		2550–2470	2570–2460
	T1336	CNA-623	3970 ± 45	2580–2400	2620–2300		2530–2460	2560–2430
	T7016	CNA-326	3960 ± 50	2570–2350	2620–2290		2500–2430	2550–2390
	T1336	CNA-335	3950 ± 60	2570–2340	2630–2200		2490–2400	2510–2340
	T1336	CNA-624	3910 ± 60	2470–2290	2570–2200		2470–2370	2490–2300
						Boundary end 1	2460–2330	2480–2250
Phase 2						*Boundary start 1*	2330–2150	2400–2060
	T7016	CNA-327	3796 ± 50	2340–2140	2460–2040		2260–2130	2300–2040
Individual	T7055	CNA-330	3700 ± 50	2200–1980	2280–1940		2150–2030	2210–1980
tombs	T7016	CNA-622	3600 ± 60	2120–1880	2140–1770		2140–1930	2200–1870
						Boundary end 2	2120–1860	2190–1570

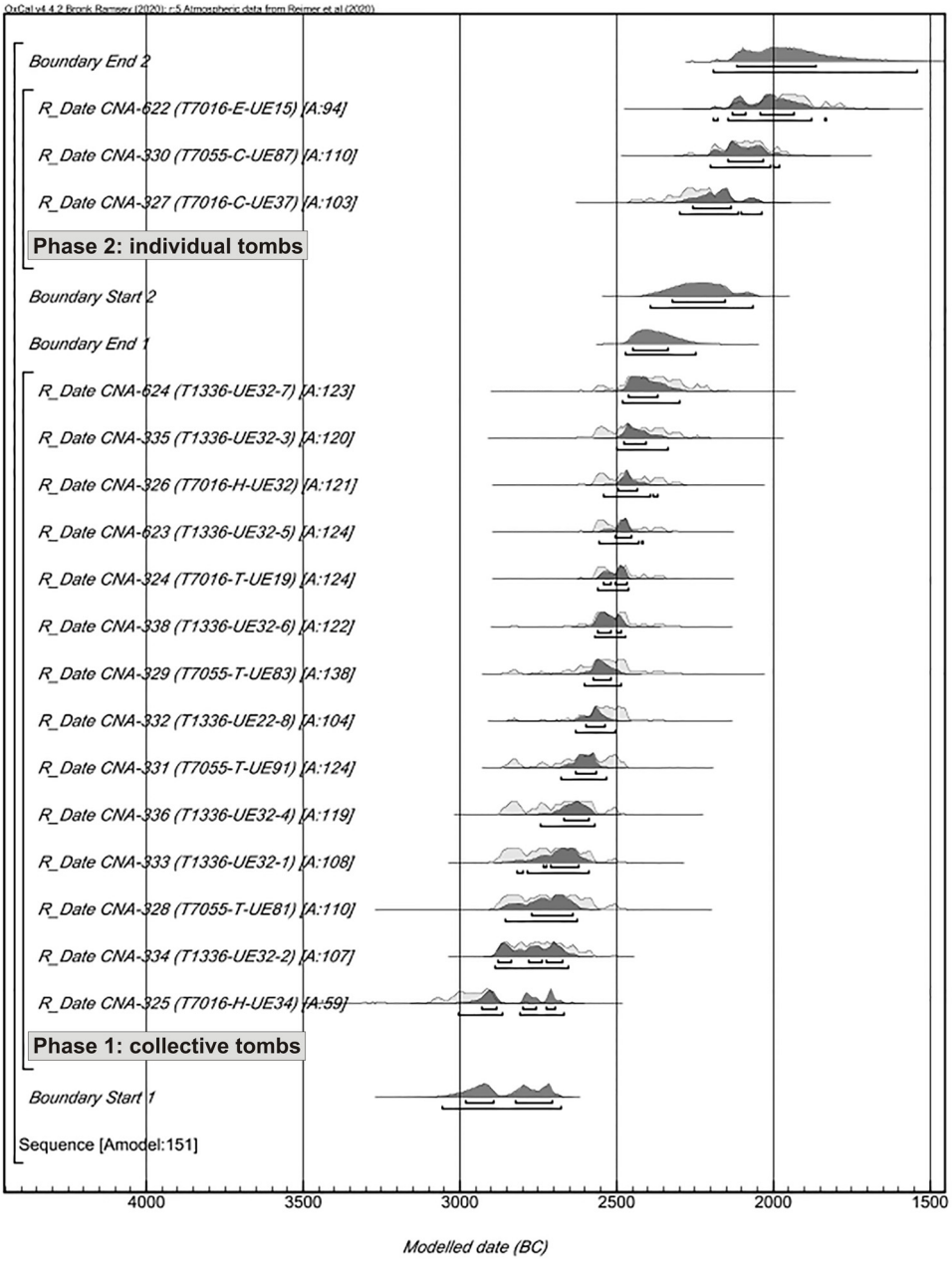

Figure 13: Phasing Bayesian model of the funerary activity at the La Orden-Seminario necropolis (OxCal v.4.4.2 Bronk Ramsey, 2020; r:5 IntCal20 atmospheric data from Reimer et al., 2020).

The second phase, ca. 2300–1900 cal BC, with a probable duration of one to four centuries, corresponds to individual tombs placed within the collapsed chambers of the hypogea and *tholoi*, testifying to the existence of a peculiar form of funerary monumentality based on the reuse of ancestral spaces for the construction of different models of tombs (underground caves, pits, burials under mound, and "cists" with tumular covers) in which certain patterns of the megalithic tradition were perpetuated and coexisted with the new funerary practices of the inegalitarian societies of the Early Bronze Age. These burials were created for persons of different ages who were buried according to four mortuary rituals, perhaps corresponding to the different social statuses of the individuals. Moreover, the appropriation of the old necropolises, the link with the ancestral funerary spaces, and the restricted use of the old tombs by certain individuals may have been mechanisms aimed at creating a genealogical discourse for the legitimisation and privileged social

positioning of certain groups within the community (Linares-Catela, 2020). These behaviours and the social meaning of the reuse of burial spaces have been observed in other tombs in the southwest of the Iberian Peninsula, in which individual tombs were integrated from the end of the third millennium BC, such as Las Canteras (Hurtado & Amores, 1984), Monte Velha I (Monge Soares, 2008; Silva, Ferreira, & Cunha, 2008), Centirã 2 (Robles et al., 2013), Cardim 6 (Valera et al., 2019), Perdigões 4 (Valera, 2020), among others. All of this supports the permanence of megalithism as a form of architectural monumentality after the 4.2 ky BP event, despite the social transformations and the cultural collapse of the Chalcolithic societies (Blanco-González, Lillios, López-Sáez, & Drake, 2018; Lull, Micó, Rihuete, & Risch, 2015; Valera, 2015).

5.2 Architectures

The necropolis of La Orden-Seminario has two models of funerary monument: the hypogeum and the *tholos*. These tombs share similar architectural features and constructive elements: slightly asymmetrical floor plans, orientation, layout, dimensions and volumes, spatial composition, function of the sectors, materials, intentions, symbolism, etc. In the case of the southeast necropolis, it is noteworthy that four of the five collective tombs were oriented 65° NE. This orientation may reflect a ritual relationship between the tombs and the summer solstice and possibly the moment at which they were built and/or the seasonal periods of occupation of the settlement.

The hypogea are subterranean structures with a circular vaulted chamber and a longitudinal passage built at the same level, with access by means of an open atrium. The size of these tombs is relatively small, ranging between 4.5 and 6.5 m in total length, with three spatial sectors with different functions: (a) the atrium with an access equipped with a closing/opening mechanism; (b) a longitudinal passage for transit and the arrangement of offerings or burials; and (c) a burial chamber, where the main funerary activities and deposits were carried out.

Hypogeum 7016 displays two relevant elements that confirm the architectural and technical variability of the Chalcolithic tombs of the southwest of the Iberian Peninsula. On the one hand, the presence of the greywacke stele at the entrance reveals the application of spatial, formal, and symbolic patterns analogous to those of the megalithic tombs (dolmens and *tholoi*), in which the arrangement of vertical stone elements at the entrances is frequent (Bueno Ramírez et al., 2015), as has been documented in the *tholoi* of Palacio III (Bueno Ramírez, Balbín Berhmann, & Barroso Bermejo, 2013; García Sanjuán et al., 2019b) and Cardim 6 (Valera et al., 2019, p. 16) or the dolmens of Soto (Bueno Ramírez, Linares-Catela, Balbín Behrmann, & Barroso Bermejo, 2018), and El Pozuelo 4 (Linares-Catela, 2016, 2022). These stelae may have had multiple functions: signalling and monumentalising the entrance, creating an apotropaic reference and playing a role as guardian of the access, a mnemonic resource for the promotion of a collective memory, and representation of the ancestors. On the other hand, the reconstruction of the tomb after the structural collapse of the roof could be one of the possible ways of forming the architectural model of the mixed constructions. Its conversion into a mixed hypogeum confirms that subterranean, mixed (semi-artificial or semi-hypogean) and semi-subterranean (false-domed) constructions share similar architectural and spatial principles in this necropolis.

The hypogea of La Orden-Seminario show formal similarities with necropolis in several regions of the southwest of the Iberian Peninsula, such as São Pedro do Estoril, Alapraia, Carenque and Quinta do Anjo in the Tagus Estuary (Gonçalves, 2003a; Leisner, 1965; Leisner & Leisner, 1956; Soares, 2003), Paraje de Monte Bajo in the Sierra of Cadiz (Lazarich et al., 2010, 2015), PP4-Montelirio in the Guadalquivir Valley (García Sanjuán et al., 2019a; Mora Molina et al., 2013), and La Pijotilla in the Guadiana Basin (Hurtado, 1986, 1991; Hurtado et al., 2002).

Tholoi 7055 are characterised as semi-subterranean architecture of small dimension. They are slightly asymmetrical in plan, with the chambers misaligned with respect to the passage. The walls are lined with slate slabs. The lintelled passages are narrow, relatively short, and slightly trapezoidal. The circular chamber was covered by hemispherical dry-stone vaults made of slate with clay mortar. On the outside,

they would have been covered by quartzite pebbles and clay. Small false-domed tombs of this same construction model, with chambers less than 2.50 m in diameter, are widely represented in the southwest of the Iberian Peninsula, with evidence of their presence not only in the area around the estuary of the Tinto-Odiel rivers, such as the tombs of El Moro (Garrido Roiz & Orta García, 1967) and El Tejar (Belén Deamos & Amo de la Hera, 1985); in the necropolises of the Guadalquivir Valley, mainly in the mega-site of Valencia de la Concepción: Los Cabezuelo funerary area (Arteaga & Cruz Auñón, 1999a, pp. 594–595; 1999b), PP4-Montelirio (Mora Molina et al., 2013, p. 266), and two tombs from Señorío de Guzmán (López Aldana, Pajuelo, Mejías García, & Cruz Auñón, 2015), but also in the *tholos* of Las Canteras of the El Gandul group (Hurtado & Amores, 1984); in the western Sierra Morena, in the case of the *tholos* of Palacio III (García Sanjuán et al., 2019b); and in the Portuguese Alentejo (Sousa, 2016), with the noteworthy mention of the *tholos* of Centirã 2 (Robles et al., 2013).

The durability and the funerary activities in the collective burials over a period of several centuries conditioned a number of aspects of the La Orden-Seminario necropolis:

- The periodic assembly and disassembly of the closing/opening devices of the tombs, in accordance with their use as collective burials. Two types of mechanisms have been documented: (a) slate slabs, either embedded in clay (hypogeum 1336) or in a groove (*tholos* 7055) and (b) a masonry wall (hypogeum 7016).
- The operations of reorganisation and maintenance of the funerary spaces. In this particular case, in tombs 7016 and 7055, superimposed floor levels were created in the chambers, separating and sealing the successive burial levels. In the same way, these earth levels mark probable hiatuses in the funerary activities.
- The remodelling of spaces and sectors of the tombs. Of particular note are the works carried out in the hypogeum 7016 (Phase 1B), consisting of a new beaten earth floor in the atrium and the passage and the placing of the greywacke stele as a monumental element at the entrance.
- The architectural reformulation of the tombs after the structural collapse of the roofs. Tomb 7016 was converted into a mixed hypogeum in order to continue the collective funerary activity. This probably involved the complete dismantling and reuse of the stone slabs of the *tholos* 7049. This tomb, 4.30 m long, with the passage and chamber (2 m in diameter) built at different levels, was intentionally destroyed. Some fragments of the broken slabs in the foundation trenches and the quartzite pebble pavement of the passage are the only preserved parts of the excavated hollow in the substratum.
- The end of the collective funerary activity following the collapse of the roofs of tombs.
- The transformation and alteration of the internal spaces as a consequence of the creation of Early Bronze Age tombs in the chambers, creating structures with a tumular cover.

5.3 Funerary Deposits and Gestures

The osteological deposits as well as part of the grave goods are characterised by high fragmentation, incompleteness, and low representativeness of the parts, as is often common in collective burials. This is due to the combination of taphonomic processes and funerary management practices, which together determine the conditions of formation, preservation, and organisation.

On the one hand, it has been observed that in all the tombs, the decomposition of the bodies took place entirely in aerobic environments or empty spaces. This led to the development of natural and anthropic processes of alteration that contributed to the poor state of preservation of the anthropological remains and, in some cases, to the partial destruction and/or disappearance of a large part of the small and fragile bones. The unfavourable physical-chemical conditions of the substrate, characterised by sandy clays, caused the disintegration and even the destruction of part of the bones. Thus, most of the remains have a white-beige colour, and a fragile and brittle condition, with little preservation of the spongy tissue and evidence of a range of natural alterations in the external cortex (whitening, longitudinal and transversal cracks, and striations), which explain the low collagen content. This poor preservation of the osteological remains was

aggravated by the anthropic actions of trampling and repeated passage through these spaces during subsequent funerary activities, leading to the fracturing and fragmentation of the bones.

On the other hand, it has been found that the repeated use of the tombs conditioned the alteration, remobilisation, and manipulation of the funerary deposits. Manoeuvrability and mobility must have been limited inside the internal funerary spaces, given the reduced surface area and the low height of the passages and chambers for the burials and maintenance of the sepulchral space, forcing to squatting and crouching inside these narrow and dark structures. The internal transit and the multiple operations in these reduced spaces must have entailed several alterations to the deposits: lateral displacements, fragmentation, fracturation, etc.

In the funerary levels of the three analysed tombs (the two hypogea and the *tholos*), three types of deposits have been recorded that coexisted spatially and temporally:

- Primary burials, preserving skeletal elements with anatomical connections and partial skeletal remains, some of them manipulated and remobilised.
- Rearranged secondary deposits in the form of remobilised bone assemblages of several individuals with no evidence of connections or articulations between the skeletal elements. The remains appear scattered in an apparently chaotic manner over the depositional floors. Their formation is due to the combination of diverse natural taphonomic processes and, fundamentally, to the anthropic operations of manipulation and cleaning of the deposits.
- Funerary packages in the form of secondary deposits generated by an intentional concatenated process of several treatments of the skeletal remains: reduction, selection, and grouped repositioning of bones. The packages form discrete piles of selected skeletal remains, consisting of long bones from the lower and/or upper limbs and parts of the skull, generally of one individual, although they are also composed of the remains of two individuals of different sexes and/or ages. These deposits are placed directly on the floor or on fragmented pottery receptacles with trays of slate slabs, occupying small areas, no more than 50 cm on each side, around which the objects that made up the funerary offerings were sometimes placed, as has been described in hypogeum 1336.

The funerary deposits were formed by a succession of burials, while the funerary activities were governed by practices of organisation and conditioning necessary for the maintenance and use of the tombs as collective burial spaces. Thus, the succession of deposits involved two recurrent funerary gestures:

- The body reduction *in situ*, which involved the cleaning, removal, and partial emptying of skeletons (Duday, 2005). It is also likely that the reduction of skeletons was carried out in the external spaces of the tombs, given the greater presence of selected bones and the absence of some teeth in a high proportion of the individuals.
- The selection, displacement, remobilisation, and relocation of part of the skeletal remains within the same burial space, including their grouping as packages.

The conspicuous absence of bones in many tombs does not only seem to be due to natural taphonomic conditions of preservation, but rather to the joint development of two management operations, such are: (a) the practice of cleaning, removal, and emptying of the deposits, including the possible removal of skeletons and bones to the outside or their reintegration in the same or other funerary contexts/deposits; and (b) the intentional grouping of selected bones from previous deposits, made inside and/or outside the burial space.

These funerary practices of removing and reintroducing bones into the tomb would imply the formation of new secondary deposits (packages and rearranged) with selected and intentionally represented human remains. This would explain the lack of some skeletal parts and dental pieces in the commingled deposits, unlike the pattern documented in the Panoría necropolis, where the teeth were preserved in the funerary assemblage (Aranda Jiménez, Díaz-Zorita Bonilla, Hamilton, Milesi, & Sánchez Romero, 2020).

In the analysed tombs, there is a greater predominance of levels with reorganised secondary deposits and funerary packages, with limited grave goods and offerings, as in the case of tombs 7016 and 7055. This allows us to suggest that the practice of reduction of the remains, manipulation of the skeletal elements and

piling up of selected bones was recurrent, and constituted a common place behaviour in accordance with the continuous reconditioning of the burial spaces. Only in hypogeum 1336 were there three preserved primary burials, which have also been partially manipulated. These gestures are characteristic of the funerary collectivism developed at the site since the Late Neolithic, with communal tombs being found from the mid of fourth millennium BC onwards, although the greatest diversity and multiplicity of funerary practices took place in the Copper Age burials.

5.4 Mortuary Practices and Grave Goods

Each collective tomb at La Orden-Seminario had its own funerary activity. In hypogeum 1336, the architectural parameters of dual symmetry may have conditioned the organisation, formation, and placement of the funerary deposits. Indeed, the probable sequence of the burials of the four funerary episodes shows that the deposits were arranged in an alternating order with respect to the longitudinal axis of the tomb. Two types of funerary deposits and mortuary practices have been documented in these tombs: primary and packages. On the one hand, the individuals in the primary burials (8, 6, and 7) were buried according to the standardised funerary practices, as shown by the regular positioning of the bodies, the presence of the same grave goods, and the chronological proximity between episodes 2, 3, and 4, limited to the twenty-sixth and twenty-fifth centuries cal BC (Linares-Catela & Vera-Rodríguez, 2021). It is possible to identify two different mortuary practices. The individual 8 (adult male, episode 2) was buried in the passage, accompanied by a small assemblage of grave goods. The individuals 6 (adult male, episode 2) and 7 (adult female, episode 4) were buried in the central space in the chamber, their bodies placed back-to-back in a southwest-northeast direction with their heads close to the continuous bench against the wall, accompanied by similar grave goods placed on the bench: two pottery vessels, one open (bowl or cooking dish) and one closed (cooking pot), and a flint blade. On the other hand, the funerary packages (individuals 1–5) were made up of selected skeletal remains and artefacts, forming piles of less than 50 cm on each side. The formation of the packages is due to the practices of reduction in skeletons from previous primary burials and the selection of long bones from the lower (femurs and tibiae) and upper (humeri and radii) extremities, which were collected and possibly tied together in bundles with fibres or cord.

In this tomb, it is worth noting the uniformity of the composition of the grave goods of individuals 5, 6, 7, and 9 from episodes 2–4. These individuals were buried with similar artefacts: two pottery vessels, one open (dish, bowl) and the other closed (cooking pot, jar) and one or more lithic elements: flint blades, from the Baetic mountain ranges of Malaga or Granada, and/or rhyolite, from quarries in the Andévalo region of Huelva, placed next to and/or inside the pottery; flint or volcanic rock arrowheads; and rock crystal bladelets associated with individuals 5 and 8 from episode 2. This cultural pattern in the sphere of death may respond to a marked socio-cultural identity and to the social cohesion of the members buried in this hypogeum.

The chamber of tomb 7016 was the object of continuous reorganisation and conditioning practices in accordance with its long use-life, involving the periodic manipulation, selection, and cleaning of the funerary deposits. In this case, the grave goods cannot be correlated to the individual burials. The deposits in the entrance and passage are noteworthy in this tomb, consisting of seven polished microgabbro axes and a broken pottery dish, located in the areas of segmentation and transition between the internal spaces: access, behind the door jambs, and on the thresholds. These offerings probably reflect various rituals of commemoration, worship or veneration of the ancestors buried in the first two levels of the hypogeum. Likewise, the axe hidden behind the atrium's greywacke stele may be interpreted as a symbolic element, considering its contextual association and that the axe is one of the elements recurrently represented in the stelae of the south of the Iberian Peninsula (Bueno Ramírez, Balbín Berhmann, & Barroso Bermejo, 2013; Bueno Ramírez et al., 2015). It is very likely that the placement of the stele and the arrangement of these materials were carried out simultaneously during an episode of enclosing or closure of the tomb. In this sense, the spatial, technological, and symbolic relationship between the ancient sharpener/polisher and

the axes stands out, as it may have been the support where these macrolithic objects were sharpened and polished before being deposited as ritual offerings of the dead (Martínez-Sevilla & Linares-Catela, 2023).

The presence of grouped deposits is common in collective burials, with two types of offerings: (a) associations of polished axes and pottery (Guilaine, 2012), as found in tomb 7016 and the dolmen 4 of the Los Gabrieles complex (Linares-Catela, 2010); (b) complex structured assemblages of grave goods, anthropomorphic figurines, and votive artefacts on floors, altars, or niches, documented in the dolmens of Trincones 1 or La Lagunita (Bueno Ramírez, Barroso Bermejo, & Balbín Berhmann, 2010), *tholos* of Montelirio (Bueno Ramírez, Balbín Berhmann, Barroso Bermejo, Carrera Ramírez, & Hunt Ortíz, 2016, pp. 380–381; Fernández Flores & García Sanjuán, 2016, pp. 98–100), *tholos* of Paimogo and Correio Mor cave (Gonçalves, 2003a, pp. 163, 172, 194), among other sites.

In the *tholos* 7055, two types of secondary deposits have been documented. Levels 1 and 2 are reorganised secondary deposits, characterised by the high dispersion of the partial skeletal remains throughout the small chamber and by the high fragmentation of the grave goods, which together prevent the identification of associations between individuals and objects. The presence of a flat copper axe in the entrance of the chamber is truly unique, and corresponds to a product of notable social prestige in a collective funerary context dated to the central centuries of the third millennium, ca. 2870–2460 cal BC. This object stands out as an exceptional grave good, since there are few known collective burials in the southwest of the Iberian Peninsula in which copper axes have been found, namely, the *tholos* of Cabezo del Tesoro (Cerdán Márquez et al., 1952, pp. 110–112), tomb 1 of El Roquetito at Valencina mega-site (Murillo Díaz, Cruz-Auñón Briones, & Hurtado Pérez, 1990), hypogeum 14 of Los Algarbes (Castañeda et al., 2022a, pp. 79–80; 2022b, p. 54), and *tholos* of Alcalar 3, where an extraordinary deposit of copper objects consisting of five daggers, two awls, two chisels, and a adze (Veiga, 1889, pp. 157–183) was recovered. Level 3 contained five funerary packages, composed of the skeletal remains of one individual (deposits 1, 3, and 4) or two individuals of different sex and/or age (deposits 2 and 5). The first four were arranged symmetrically on both sides of the central axis, and were probably staggered over time, thus compartmentalising the burial space. These packages consisted of selected and fractured long bones, collected inside fragmented pottery receptacles resting on trays of slate slabs or even delimited by small upright slabs creating receptacles. Package 5 from level 3 was composed of bones from two individuals of different ages (right humerus, left tibia, indeterminate long bone of an adult male; left femur and skull of a 7–8-year-old child) and, probably, of different chronology. The adult male may plausibly have been a common ancestor, yielding the oldest date of the three levels of the tomb. This bone assemblage is evidence of an intentional practice of incorporating the remains of an ancestor in a funerary package, in which these bones or relics may be attributed a special symbolic value and significance as the remains of a family member or even a progenitor.

Patterns analogous to the packages of *tholos* 7055 have been observed in monument 9 of the necropolis of Alcalar, documenting in the passage a secondary deposit consisting of the skull and several long bones of an adult male individual contained inside two pottery vessels accompanied by a cylindrical "idol" of the Moncarapacho type, several "callais" necklace beads, and one phalanx of *Equus hydruntinus* (Morán & Parreira, 2007, p. 70; Morán, 2015, p. 537).

Another characteristic is the presence of fragmentary objects from the funerary chambers and offerings in the passages of the tombs. Thus, in hypogeum 7016 and in *tholos* 7055, the pottery and lithic objects were mostly fragmented, and incomplete. This is not only explained as a consequence of the cleaning operations of the burial spaces, but this recurrent pattern may also be due to intentional behaviours of fragmentation and representation of the materials. Thus, the pottery, the blades, the polished axes, and even the copper axe must have been fractured prior to or at the time of placing the votive deposits, with parts of them entering the house of the dead and other portions, plausibly, remaining in the world of the living, possibly belonging to individuals with family affiliations or kinship ties with the deceased. These behaviours could respond to a ritual practice aiming to nurture social cohesion within the community of the living and as a social levelling mechanism in the sphere of death, favouring the sharing of "prestige goods" and material inheritance among the buried individuals. The fragmentation of objects in collective tombs was a common practice in the Neolithic and Copper Age societies of the southern Iberian Peninsula (Valera, 2019), possibly serving to regulate conflicts or social tensions between individuals in relation to the possession and

accumulation of certain objects (Chapman, 2000; Chapman & Gaydarska, 2007). Consequently, this ritual practice of sharing fragmented objects could promote balanced relationships in terms of the ownership, possession, and identity of certain products among the individuals of the groups or family units of the La Orden-Seminario community.

5.5 Bioanthropology and Social Inferences

The MNI of the three collective burials studied at La Orden-Seminario is low, having identified the skeletal remains attributable to only 35 individuals (Table 6). There is no proportional relationship between the surface area of the chambers and the number of individuals.

Remains belonging to two age groups have been documented: 26 adults (74%) and 9 non-adults (26%). With regard to the sex distribution in the adult population, there was a greater predominance of male, with 16 individuals (45%), compared to 8 female (23%). In addition, the remains of two adults of indeterminate sex (6%) have been identified (Figure 14). The adult individuals displayed a normalised height and had a gracile build in accordance with the metric patterns of the Copper Age populations of the southern Iberian Peninsula. The male individuals were taller than the females. Individual 8 from hypogeum 1336, an adult male, was approximately 1.67 m ± 6.96 cm in height. The stature of the adult female deposited in level 3 of the mixed hypogeum 7016 was approximately 1.44 m ± 7.70 cm.

The non-adult individuals of indeterminate sex are documented exclusively in *tholos* 7055. Two age groups are present: three infant I individuals (17.65%) from 2 to 4 years old, and six infant II individuals (35.29%) from 6 to 10 years old.

The diversity of the distribution patterns by sex and age may be a response to the dynamics of use and, particularly, to the conditions of access to these funerary spaces by the deceased. The observation for each tomb of the specific behaviours by sex and age, the grave goods accompanying each individual and the pathologies suffered, enables a number of inferences of a social nature, as reflected in the sphere of death.

In tomb 1336, an MNI of 9 was established, with six adult males, two adult females, and an adult individual of indeterminate sex. The predominance of adult males in this tomb is not correlated with a greater possession or accumulation of objects, as both sexes uniformly shared the same grave goods, whether in the primary burials or in the funerary packages. Thus, in episodes 2, 3, and 4, a regular pattern of grave goods belonging to each individual is evident: two pottery vessels (one open and one closed) together with one or two blades made of Sub-Baetic flint and/or rhyolite from the Andévalo. Two individuals displayed dental pathologies as a result of poor dietary and hygienic habits, such as the *ante mortem* loss of teeth and wear of the teeth preserved in individual 8 (adult male) and individual 9 (indeterminate adult), or the receding alveolar ridge of individual 5 (adult male).

In tomb 7016, the skeletal remains of a MNI of 9 adults were recorded, despite being the tomb with the largest chamber surface area and longest use-life. The sex distribution is equitable, with the remains of five males and four females. The individuals buried in the hypogeum during its initial phase may have had a relevant social role within the community, as appears to be indicated by the deposition of offerings of polished microgabbro axes and the presence of the greywacke stele in the atrium. However, these individuals were not exempted from carrying out daily tasks of continuous effort and/or repeated postural habits, as is attested by the pathologies observed in the skeletal remains of both sexes. Thus, from level 2, several bones from a male and a female showed traces of squatting facets in the tibiae, and another male individual suffered from a traumatic pathology to the calcaneal-astragalar facet caused by the fracture of the calcaneus (Azra, Prabhu, & Balachandra, 2018; Boulle, 2001). The squatting facet is formed by prolonged activity in particular postures (cooking, milling, pottery making, weaving, etc.) and/or by periodic efforts of the lower limbs, in the case of agricultural work, livestock herding, harvesting, or hunting, and other tasks that would involve movement with a high level of biomechanical stress (Dewar & Pfeiffer, 2004). Arthritis was another common osteoarticular pathology, suffered by one of the male individuals from the funerary level of the mixed hypogeum.

Table 6: Collective tombs from the Copper Age of La Orden-Seminario. Sepulchral spaces, funerary deposits, and distribution of individuals by sex and age

Tomb	Necropolis	Archit.	Chamber dimensions length × width × depth (area)	Levels	Funerary deposits	MNI	Sex	%	Sex and age
T1336	Northwest	Hypogeum	2.20 m × 2 m × 1.15 m (3.46 m^2)	4	Primary burials and funerary packages	9	6 ♂	63	▪ 6 NS adult males
							2 ♀	22	▪ 2 NS adult females
							1 NS	11	▪ 1 NS adult
T7016	Southeast	Hypogeum	3 m × 2.60 m × 1.20 m (6.16 m^2)	2	Secondary reorganised deposit	7	4 ♂	57	▪ 4 NS adult males
							3 ♀	43	▪ 3 NS adult females
T7016	Southeast	Mixed hypogeum	2.50 m × 2.50 m × 1 m (4.91 m^2)	1	Secondary reorganised deposit	2	1 ♂	50	▪ 1 NS adult male
							1 ♀	50	▪ 1 NS adult female
T7055	Southeast	*Tholos*	1.70 m × 1.55 m × 1.55 m (2.11 m^2)	3	Secondary reorganised deposit and funerary packages	17	5 ♂	29	▪ 4 NS adult males
							2 ♀	11	▪ 2 NS adult females
							10 NS	59	▪ Children (52, 94%)
									– 3 children I (18%)
									– 6 children II (35%)
									▪ 1 NS adult (6%)
Total MNI in collective burials of the third millennium BC						**35**	**16** ♂	46	▪ 16 adult males
							8 ♀	23	▪ 8 adult females
							11 NS	31	▪ 9 children
									▪ 2 NS adults

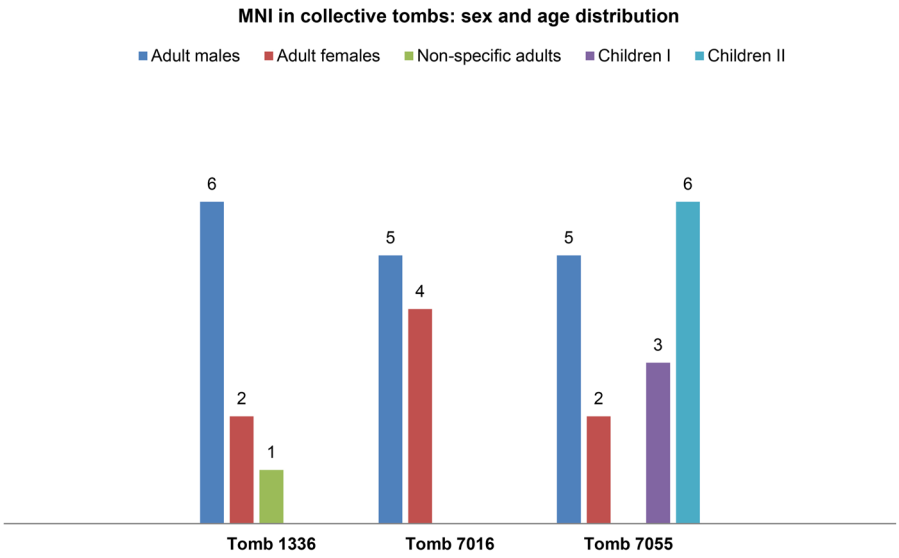

Figure 14: Distribution by sex and age of the individuals in the collective tombs of La Orden-Seminario.

In *tholos* 7055, remains attributed to an MNI of 17 were documented, with a greater predominance of non-adult (*n*: 9) over adults (*n*: 8; 5 males, 2 females, and 1 indeterminate). The nine children were of different ages: three infant I and six infant II individuals. The greater representation of children in this tomb may signify three issues: (a) the probable high mortality of infants, concentrated in ages 2–4 years and 6–10 years; (b) the right of these non-adult members to be buried together with the adults, receiving identical mortuary treatments; and (c) the high social status of these individuals by birthright, despite not possessing outstanding personal belongings. The predominance of children over adults in this tomb is noteworthy for two further reasons. On the one hand, it was the most technically sophisticated funerary structure and required the greatest investment of labour in the necropolis, as it was built with slate slabs from a distance of over 10 km from the site. On the other hand, the uniqueness of the copper axe in funerary level 1 stands out as a rare product of great social prestige. Although this object offered at the entrance to the chamber cannot be attributed to any individual in particular, it may testify to the high social status of the individuals deposited in this tomb. Indeed, it is the only metal element documented in all the collective burials in the necropolis prior to the Early Bronze Age, a period in which copper products (Palmela type points and rhomboidal daggers) were commonly included in the individual tombs (underground caves) in connection with the emergence of inegalitarian societies.

Another aspect to consider is that the individuals buried in *tholos* 7055 may have belonged to the same family units. The possible kinship relations between the members of this tomb are attested by two observations. On the one hand, the hereditary dental morphological features of the children buried in levels 1 and 2, with upper left lateral incisors with a hyperplastic cingulum on the palatal face or bifid roots of the premolars, as has been discussed in other studies (Alt & Vach, 1995; Martín-González et al., 2012). On the other hand, the formation of funerary packages with bones of two people in level 3, in the case of deposits 2 (adult male and female) and 5 (child of 7–8 years of age and an adult male). Funerary package 5 is very significant, as the remains of the male individual have yielded the earliest date for this tomb. The association of the infant with a possible ancestor would carry great symbolic significance, and could be the material expression of a genetic affiliation and the legitimisation of the child's social status in the sphere of death.

The low MNI identified in the three analysed tombs of the necropolis of La Orden-Seminario may suggest a possible restricted use of these collective funerary structures, and that the right to be buried may have been reserved or limited to certain people for different social and/or identity reasons. Bone remains of individuals belonging to two age groups have been found: 26 adults and 9 children.

On the one hand, among the adult population, there were 16 males, 8 females, and 2 individuals whose sex could not be identified. These figures reflect a certain prevalence and greater representation of male

individuals in terms of their access to the houses of the dead. However, the greater presence of adult male in proportion to adult female and children does not seem to respond to a pattern of gender inequality, since both sexes share the same burial spaces, identical funerary practices, and similar grave goods. In this sense, the uniformity of funerary gestures and the equitable tendency in the possession and degree of accumulation of grave goods among the individuals of different sexes buried in hypogeum 1336 are noteworthy, probably reflecting group cohesion or equality. This egalitarian pattern in the sphere of death is common in Late Neolithic and Copper Age societies of the southern Iberian Peninsula (Cintas Peña, 2020; Cintas Peña & García Sanjuán, 2019; Cintas Peña, García Sanjuán, Díaz-Zorita, Herrero Corral, & Robles Carrasco, 2018; Díaz-Zorita, 2017; García Sanjuán et al., 2019a). Indeed, marked sex differences in the sphere of death do not appear until the end of the third millennium BC, when inegalitarian societies with dissymmetrical funerary behaviours emerged, as we have corroborated at the same site (Martínez Fernández & Vera Rodríguez, 2014; Linares-Catela, 2020).

On the other hand, the number of non-adult individuals in *tholos* 7055 must be highlighted. The notable presence of nine children under 10 years of age and the predominance of children over adults may testify to the prominent position of the children buried in this tomb. Similar patterns have been identified in several sites in the Portuguese Extremadura during the Late Neolithic (Waterman & Thomas, 2011), in the interior of the peninsula, some of them of Bell Beaker chronology (Herrero-Corral, 2015; Herrero-Corral, Garrido Pena, & Flores Fernández, 2019; Soriano, Herrero-Corral, Garrido-Pena, & Majó, 2021), in Marroquíes Bajos (Beck, 2016), and in the necropolis of Valencina de la Concepción (Cintas Peña et al., 2018), where the presence of children in the collective tombs has suggested their high social status despite the absence of prestigious grave goods or metallic objects. In La Orden-Seminario, a probable high social status must have been acquired by birth, given the young age at death of these individuals, sophisticated architecture, and presence of a copper axe in the *tholos* 7055. It is, therefore, likely that the individuals buried in the collective tombs at La Orden-Seminario belonged to specific family units or groups with kinship affiliations, as evidenced by the existence of certain hereditary traits in the skeletal remains of *tholos* 7055. In this respect, it is more than likely that the children and adults buried in *tholos* 7055 were linked by family ties, and that all the individuals buried must have shared kinship relationships. The prolonged activity in this tomb and the finding of three collective levels with a majority presence of children over adults may reflect the funerary dynamics of a specific family lineage in the community over two or three centuries. Thus, children may have been buried in this tomb together with their parents and/or other ancestors. Future genetic studies will allow us to test this hypothesis. It would also be necessary to verify whether the "warrior child" buried in the Early Bronze Age could be a descendant of the deceased buried there. If so, access to this ancient burial space would be the result of a practice of social legitimisation of this non-adult individual, who would have had a high social status from birth.

Each tomb may have been reserved for a small number of members of specific family groups or lineages. This would partly explain the low number of individuals buried, their differential distribution by sex and age, and the apparent lack of social dissymmetries reflected in the sphere of death.

The funerary activity of the La Orden-Seminario necropolis shares similar features with other Chalcolithic tombs in the southwest of the Iberian Peninsula, both among those with a high number of remains, case of Monte Carrascal 2 (Neves, 2019; Neves & Silva, 2018a,b), and those with a lower MNI (Figure 15). In tombs with a small number of individuals, it is worth mentioning the hypogea of the Valencina de la Concepción mega-site, at which these small subterranean architectures with a chamber and passage are frequent, sometimes with accesses flanked by paired slate door jambs, as in the case of La Huera, with an MNI of 22 (Méndez, 2013), the hypogea of C/Trabajadores with an MNI of 12, or structure 10.080 of PP4-Montelirio which contained the remains of only two individuals (Cintas Peña et al., 2018). In tomb E-4 of the Paraje de Monte Bajo necropolis, the skeletal remains of eight individuals were deposited during two phases. In the first phase (ca. 2900–2670 cal BC), secondary deposits corresponding to seven individuals were found together with several sets of grave goods. The second phase corresponds to the reuse of the tomb ca. 2000–1800 BC, with the construction of a secondary chamber for the secondary deposition of an adult male individual (Lazarich et al., 2010, 2015). The hypogeum 14 of the Los Algarbes necropolis has two chambers with a total MNI of 13 deposited in a planned two-phase sequencing: the first in the main chamber (MNI: 8), ca. 2870–2500 cal BC; the second in the secondary chamber (MNI: 5), ca.

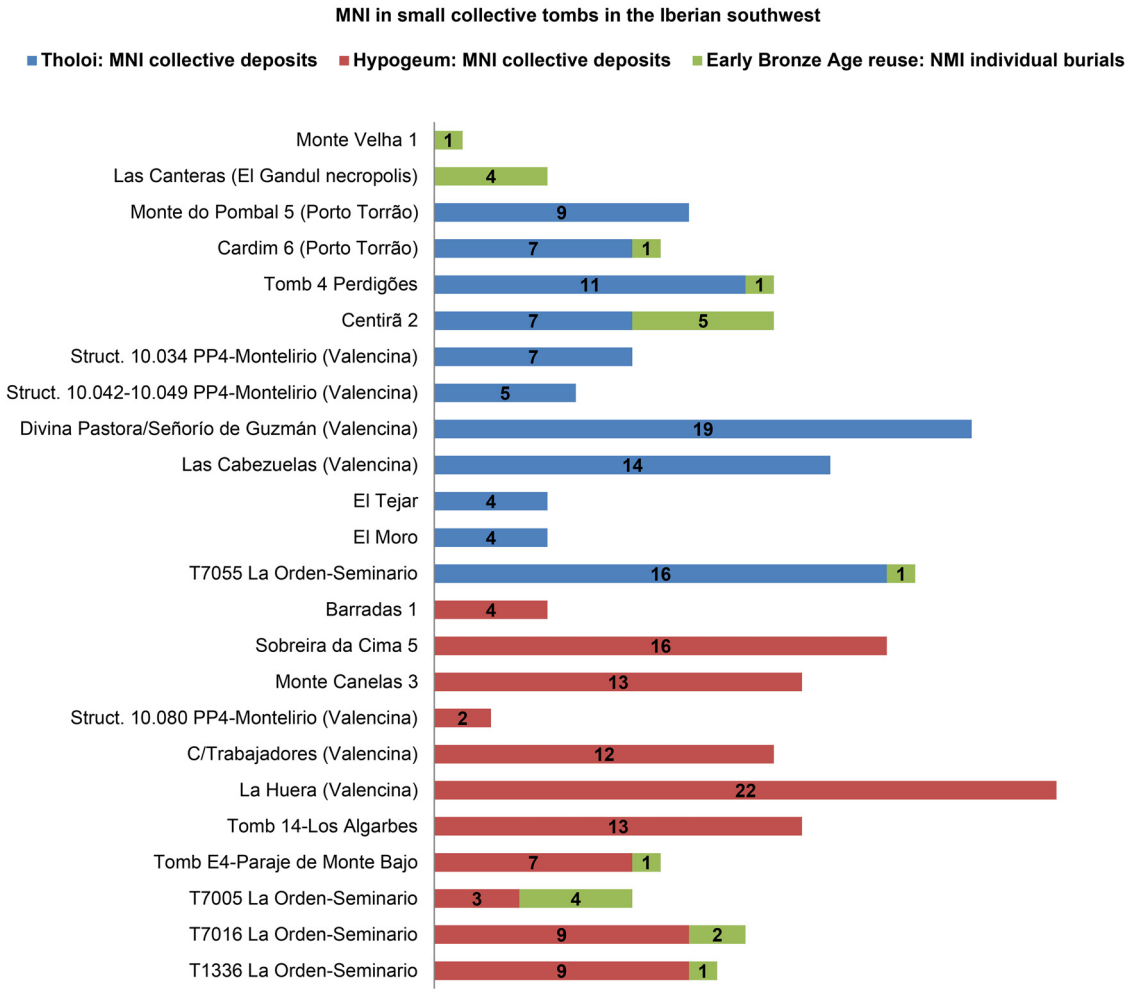

Figure 15: MNI in small collective tombs in the Iberian southwest: hypogea and *tholoi*.

2580–2340 cal BC (Castañeda et al., 2022a,b). In the Algarve, there are also hypogea from the last third of the IV millennium BC with a limited number of burials, in the case of Monte Canelas III, with an MNI of 13 (Neves, 2019; Neves & Silva, 2018a), or Barradas, with an MNI of 4 (Barradas, Silvério, Silva, & Santos, 2013; Odriozola, García-Cordero, Santos, Barradas, & Sousa, 2020). In Lower Alentejo, we find a similar situation during the first half of the third millennium cal BC, as evidenced by tomb 5 of the Sobreira da Cima necropolis, with an MNI of 16 in the collective deposit, where two burials were documented with anatomical connections, five reductions, and several packages of elongated bones (Valera, 2013, p. 35).

In the paleoestuary of the Tinto-Odiel rivers, *tholos*-tombs similar to those of La Orden-Seminario have been excavated. In the *tholos* of El Moro, secondary funerary deposits were documented, piled up against the walls of the chamber, with a diameter of 2.20 m. Partial skeletal remains of four individuals and several objects were identified: pottery (plates, dishes, cooking dishes, bowls, jars, and tri-lobed receptacle), lithics (14 knives, 4 arrowheads, and 2 halberds), three polished stone axes, and a spherical granite element (Garrido Roiz & Orta García, 1967). In the *tholos* of El Tejar, the skeletal remains of four individuals were recorded, remobilised and placed against the walls of the chamber, with each individual possessing an assemblage consisting of two pottery vessels and one or two flint blades placed inside the pots (Belén Deamos & Amo de la Hera, 1985). The strong similarity between the funerary patterns of these tombs located in the nearby territory and those of the La Orden-Seminario tombs is noteworthy, especially with tomb 1336, which is probably a reflection of a widespread and generalised collective ritual in this area in the central centuries of the third millennium BC, which developed synchronously in hypogea and *tholoi*.

The identification of a low MNI is also frequent in other similar *tholoi* in the Alentejo region, with several cases showing a sequence of funerary activity structured in several phases of use and reuse during the second half of the third millennium BC and/or during the "Ferradeira Horizon" or Early Bronze Age. The *tholos* of Centirã 2 contained the remains of 12 individuals. Of these, the remains of seven individuals were located in the collective levels of the second half of the third millennium BC, and constituted four primary burials and three secondary deposits. The remains of five individuals were identified as secondary deposits made in the funerary level developed over the level of collapse of the dome and filling of the passage in the third to second millennia BC (Robles et al., 2013, pp. 347–352). These tombs have also been found within ditched enclosures, as in the case of Porto Torrão or Perdigões, where tombs of greater architectural monumentality have been documented, built using different construction techniques. From Porto Torrão, the tombs of Monte do Pombal 5, with nine identified individuals (Shaw Evangelista & Godinho, 2020, p. 596), and Cardim 6, containing the remains of eight individuals, are of interest. In the latter, seven individuals were deposited in the collective levels and one was placed above the collapse of the structure, dated to the last quarter of the third millennium cal BC (Valera et al., 2019). In tomb 4 of Perdigões, 12 individuals were recorded, 11 of them were documented in two collective levels developed during the second half of the third millennium cal BC. The remains of a secondary deposit of an individual were recovered inside a small clay crypt built within the chamber and covered by an earth mound, dated to the last two centuries of the third millennium BC (Shaw Evangelista & Godinho, 2020; Valera, 2020).

Small *tholoi* and funerary deposits with limited MNI are also present in the mega-site of Valencina de la Concepción, in tombs such as Las Cabezuelas, with the remains of 14 individuals (Arteaga & Cruz Auñón, 1999a, p. 596), Divina Pastora/Señorío de Guzmán, with 19 identified individuals (Lacalle Rodríguez, Guijo Mauri, & Cruz-Auñón Briones, 2000), or 10.034 from PP4-Montelirio, containing seven individuals (Robles Carrasco & Díaz-Zorita, 2013, p. 371). At this same site, and on a monumental constructive scale and with burials of individuals in tombs that display a very different pattern of possession and accumulation of exotic objects, the structural complex 10.042–10.049 of the funerary group of PP4-Montelirio is a singular example in which only five individuals were buried during the third millennium BC, deposited in a primary position and accompanied by exclusive and exceptional grave goods in accordance with a high social status (García Sanjuán et al., 2019a).

Even the funerary activity *of tholoi* and hypogea is similar to small dolmens during the Chalcolithic, as has been demonstrated in the megalithic necropolis of Panoría. In these tombs, the small number of buried individuals and the combination of three rituals have been observed: primary inhumations, selective extraction of bones, and the manipulation and rearrangement of specific bones (Vílchez Suárez et al., 2023). In Tomb 10, the dating of a group of teeth has revealed the existence of a phase of funerary activity prior to the skeletal remains assemblage, testifying that the practice of removal of the remains was greater than anatomical parts representation preserved in the commingled deposit (Aranda Jiménez et al., 2020).

In summary, the Chalcolithic tombs with limited MNI present a funerary activity with a variable number of individuals of different sexes and ages. In the same burial spaces, collective and individual funerary deposits coexist, in which different treatments of the bodies, mortuary practices, and grave goods can be observed. However, these collective funerary contexts should not be interpreted as an exclusive sign of communalism or of a lack of individualism in the realm of death in Iberian Chalcolithic communities. First, because there is frequent identification and differentiation of individual burials in the collective tombs, some of them with significant grave goods. Second, because the funerary practices represent a ritualised dimension of social organisation, and it is very complex and controversial to identify reliable patterns that reflect egalitarian or unequal social behaviour in the sphere of death in these tombs.

6 Conclusion

Mortuary collectivism is one of the common expressions of funerary monumentality in European Late Prehistory. The methodology of this study is useful for understanding the architecture, burial space, and

funerary practices in collective tombs. The application of the archaeotanatological approach to the study of commingled collective deposits allows us to explore and identify one dimension of the complex mortuary practices, conception, and functioning dynamics of the small houses of the dead in Iberian Chalcolithic societies.

Hypogea and *tholos*-tombs are the most widespread and representative funerary constructions among the collective burials in the south of the Iberian Peninsula during the Copper Age. These tombs are characterised by intense funerary activity, as evidenced by the frequency of use, the succession of burials, and the diversity of mortuary practices. Within this general scheme, and in view of the enormous variety of expressions of funerary megalithism both on a regional scale in the southwest of the Iberian Peninsula, one of the problems raised is the presence of small collective burials, in which there is a tendency to gather a restricted number of individuals, as can be deduced from the low MNI identified in the deposits.

In this sense, the necropolis of La Orden-Seminario is representative of the functional dynamics of tombs with small chambers throughout the southwest of the Iberian Peninsula, where the coexistence of hypogea and *tholoi* is a common feature of polynuclear necropolises. Thus, this site exemplifies the common patterns of the sphere of death in complex societies and a particular form of expression of megalithic monumentality during the Copper Age. The hypogea and *tholoi* have similar shapes, sectors, and constructive elements, thus sharing architectural parameters, spatial conceptions, and functionalities. The prolonged durability of their use as collective burial places conditioned the practice of structural remodelling works, as in the case of tomb 7016, with the monumentalisation of the atrium through the placement of a stele and its subsequent architectural reformulation as a mixed hypogeum.

This site has revealed the existence of a multiplicity of mortuary practices developed synchronously, confirming the complexity of proposing firm interpretations of the funerary activities carried out in Chalcolithic burials. Moreover, each tomb presents a specific funerary biography. In the tombs, superimposed funerary levels have been documented, formed by burials staggered over time and by the periodic preparation of the burial spaces (floor cleaning, emptying, and levelling) and reorganisation of the deposits (manipulation and repositioning). Three types of osteological deposits have been identified on the floors of the chambers: primary burials, reorganised secondary deposits, and funerary packages, which coexisted temporally and spatially. Within the wide variety of practices found, three mortuary gestures appear to have been recurrent: (a) the manipulation of primary burials; (b) the remobilisation and displacement of skeletal remains; and (c) the body reduction process, selection, and grouping of bones in funerary packages. As a result, most of the accompanying grave goods had been repositioned, fractured, fragmented, and even partially eliminated during the management of the spaces.

All of the tombs yielded a small MNI. In the three analysed tombs, the remains of a total of 35 individuals were identified: 26 adults and 9 non-adults. Of the adults, 16 males predominate in proportion, twice as many as the 8 females. However, the greater presence of males compared to females does not appear to respond to a pattern of gender inequality, since identical bodily treatments and material possessions have been documented for both sexes. Likewise, the nine children from *tholos* 7055 shared the same burial spaces and mortuary practices as the adults, and may have been individuals who had enjoyed a prominent social place by birthright and/or genealogical kinship to one or more ancestors.

The combined examination of funerary practices and bioanthropological indicators does not enable us to identify dissymmetrical behaviour in the sphere of death among the individuals buried, nor any signs of social inequality in the mortuary rituals by sex and/or age prior to the introduction of individual tombs in the necropolis during the Early Bronze Age. It is likely that the members of La Orden-Seminario buried in the tombs belonged to the same family units or lineages, and could contain groups of individuals with certain kinship ties. This would partly explain the recurrence of certain funerary gestures, the uniformity in the composition of the grave goods in the case of hypogeum 1336 or the regular fragmentation of the objects in tombs 7016 and 7055, revealing a deep-rooted cultural identity, group cohesion, and a collective memory surrounding the houses of the dead. However, this apparent intergroup social equality between the individuals buried in each tomb may reflect only part of the social relationships at work within the community, given the limited number of people who were given burial in these tombs over their period of use. In this sense, access to the tombs may have been restricted to specific individuals within the group, who had a

privileged social status probably acquired by birth through genealogical affiliation, in accordance with the communal hierarchical schemes of tribal societies structured in family lineages during the Copper Age.

Acknowledgements: To Diego González Batanero and José Manuel Beltrán Pinzón, directors of the interventions in which the tombs of La Orden-Seminario were located, who made it possible for us to excavate and investigate them, and to Inmaculada López Flores, for the use of the data from the anthropological study, which was carried out within the framework of a Research Contract signed between the University of Huelva (coordinated by JCVR) and Ánfora GIP. To Primitiva Bueno Ramírez and Francisco Martínez Sevilla, from the University of Alcalá, for their assistance in the formal and technological analysis of the stele from tomb 7016. We are grateful for the valuable comments of the anonymous reviewers, as their suggestions and assessments have improved the work.

Funding information: This study was funded by the ERDF Operational Programme and the Consejería de Economía y Conocimeinto of the Junta de Andalucía (2014–2020), and has been developed within the R + D + i Project "MEGA-LITHOS. Geo-archaeological study methods for the investigation of the Huelva megalithisms" (UHU-1263153), University of Huelva.

Author contributions: J.A.L.C.: funding acquisition, archaeological excavation and study, conceptualisation, methodology, data collection, material analysis, illustrations, figures, and writing (original draft, review, and editing). J.C.V.R.: funding acquisition, supervision, and writing (review). Both authors have read and approved the final manuscript.

Conflict of interest: The authors state no conflict of interest.

Data availability statement: All datasets generated or analysed during this study are included in this published article and its appendix.

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Appendix

Table A1: Bone remains documented in Tomb 1336, La Orden-Seminario. Anthropological identification and quantification by individuals

Anatomical part	Skeletal part	Bone	Individuals								
			1 ♂	**2** ♂	**3** ♂	**4** ♀	**5** ♂	**6** ♂	**7** ♀	**8** ♂	**9 (non-specific; NS)**
Cranium	Neurocranium	Frontal					1	1	1	1	1
		Occipital					1	1	1	1	1
		Parietal					1	1	1	1	
		Ethmoid								1	
		Sphenoid								1	
		Temporal								1	
	Splacnocranium	Palatino-maxillary						1	1	1	1
		Nasal								1	
		Unguis								1	
		Malar								1	
		Shell								1	
		Vomer								1	
		Jaw					1	1	1	1	
Spine and thorax	Vertebrae	Hyoid bone									
		Cervical									
		Dorsal or thoracic									
		Lumbar									
		Sacrococcygeal									
	Thorax	Ribs					1	3		10	
		False ribs									
		Floating ribs									
		Sternum									
Upper extremities	Scapular girdle	Scapula							1	2	1
		Clavicle						1	1	2	
	Arm	Humerus				1	2	2	2	2	
		Ulna			1	1	2	2	2	2	
		Radius			1	1		2	2	2	
		Forearm indeterminate			1	1					
	Hand	Carpal								2	
		Metacarpus								2	
		1st phalanges						2	2	20	
		2nd phalanges								20	
		3rd phalanges									
Upper or lower pelvis	Pelvic girdle	Coxal								1	
		Pelvis				1			1	2	
	Leg	Femur		1		1	2	2	2	2	
		Kneecap									
		Tibia	2	1	2	2	1	2	2	1	2
		Fibula		1			1	1		1	
	Foot	Tarsus									
		Astragalus									
		Calcaneus									
		Scaphoid									
		Metatarsian									
		1st phalanges									
		2nd phalanges									
		3rd phalanges									
		Sesamoid bones									
Indeterminate/NS		Indeterminate	1	2			1	1	1	1	1
Total skeletal remains			**3**	**5**	**5**	**8**	**14**	**23**	**21**	**85**	**7**

Table A2: Bone remains documented in Tomb 7016, La Orden-Seminario. Anthropological identification and quantification by individuals

Anatomical part	Skeletal part	Bone	Individuals										
			Level 1 – UE34			Level 2 – UE32			Level 3 – UE19			UE 37	UE 15
			2 Ad♂	2 Ad ♀	Ad NS	2 Ad♂	1 Ad ♀	Ad NS	1 Ad♂	1 Ad♀	Ad NS	1 Ad♂	1 Ad♂
Cranium	Neurocranium	Frontal	1										1
		Occipital											
		Parietal											
		Ethmoid											
		Sphenoid											
		Temporal											
		Neurocranium NS			10		1	7		1	6	5	1
	Splacnocranium	Palatino-maxillary											
		Nasal											
		Unguis											
		Malar											
		Shell											
		Vomer											
		Jaw	1					1		1	1		1
Spine and thorax	Vertebrae	Hyoid bone											
		Cervical	1					1			2		
		Dorsal or thoracic		1	2						1		
		Lumbar											1
		Sacro-coccygeal		1						2			
		Vertebrae NS			3			2				3	
	Thorax	Ribs		1	1			3	2		8		4
		False ribs											
		Floating ribs											
		Sternum											
Upper extremities	Scapular girdle	Scapula									1		1
		Clavicle			2								1
	Arm	Humerus	1		4	2	2	2	1	2	3	1	1
		Ulna	1	2	1		4	2	2	1		1	
		Radius		1				1			1	1	
	Hand	Carpal											
		Metacarpus			1						2		
		1st phalanges			2			2			3		1
		2nd phalanges											

(*Continued*)

Table A2: *Continued*

Anatomical part	Skeletal part	Bone	Individuals										
			Level 1 – UE34			Level 2 – UE32			Level 3 – UE19			UE 37	UE 15
			2 Ad♂	2 Ad ♀	Ad NS	2 Ad♂	1 Ad ♀	Ad NS	1 Ad♂	1 Ad♀	Ad NS	1 Ad♂	1 Ad♂
		3rd phalanges											
Upper or lower pelvis	Pelvic girdle	Coxal		1	3	1		3	2				
		Pelvis						2				2	2
	Leg	Femur	2	3	3	2	2	2	2	1		2	1
		Kneecap							1	2	1	2	
		Tibia	2	1	2	1	3	2				2	1
		Fibula		1	2	4		1	1	1	2		
	Foot	Tarsus			1			1				2	
		Astragalus											
		Calcaneus		2				1				1	
		Scaphoid											
		Metatarsian			1	1		2		1	1	2	
		1st phalanges						1			2		
		2nd phalanges											
		3rd phalanges											
		Sesamoid bones											
Indeterminate/NS		Long bone n-s			15			10			7		
		Indeterminate			46			6			4		3
Total skeletal remains			**9**	**14**	**99**	**11**	**12**	**52**	**11**	**12**	**44**	**24**	**19**

Table A3: Bone remains documented in Tomb 7055, La Orden-Seminario. Anthropological identification and quantification by individuals

Anatomical part	Skeletal part	Bone	Level 1 – UE91				Level 2 – UE83					Level 3 – UE81-82						UE87
			1 Ad ♂	2 Child I	3–4 Child II	NS	1 Ad ♂	2 Ad ♀	3–4 Child I	5–6 Child II	NS	1 Child II	2–3 2 Ad ♂♀	4 NS	5 NS	6 Child II	7 Ad ♂	ChildII
Cranium	Neurocranium	Frontal														1		1
		Occipital														1		1
		Parietal														1		1
		Ethmoid														1		1
		Sphenoid														1		1
		Temporal	2													1		1
		Neurocranium NS	4	6	6	8			3	3	7	1	2		1			
	Splacnocranium	Palatino-maxillary	1		1				2	1						1		1
		Nasal														1		1
		Unguis														1		1
		Malar																
		Shell																
		Vomer																
		Jaw	1	1	2				2	2		1		1				1
Spine and thorax	Vertebrae	Hyoid bone																
		Cervical																
		Dorsal or thoracic																
		Lumbar																
		Sacro-coccygeal																
		Vertebrae NS			2	1	1	1										
	Thorax	Ribs	2	1		2					2			1				
		False ribs																
		Floating ribs																
		Sternum																
Upper extremities	Scapular girdle	Scapula				1									1			
		Clavicle	2	2	2				3									
	Arm	Humerus	2	2	1		1	1	2	1		1	1					1
		Ulna	2				1		1	1							1	2
		Radius			2		2		3	1								2
	Hand	Carpal																
		Metacarpus																

(*Continued*)

Table A3: *Continued*

Anatomical part	Skeletal part	Bone	Level 1 – UE91				Level 2 – UE83					Level 3 – UE81-82						UE87
			1 Ad ♂	2 Child I	3–4 Child II	NS	1 Ad ♂	2 Ad ♀	3–4 Child I	5–6 Child II	NS	1 Child II	2–3 2 Ad ♂♀	4 NS	5 NS	6 Child II	7 Ad ♂	ChildII
		1st phalanges	3	2			2								1			
		2nd phalanges																
		3rd phalanges																
Upper or lower pelvis	Pelvic girdle	Coxal			2	1	1											
		Pelvis						1	2									
	Leg	Femur		1			2	1				1	1		1	1	1	1
		Kneecap																
		Tibia	2				1					1	1					2
		Fibula							1									2
	Foot	Tarsus	1				1											
		Astragalus																
		Calcaneus																
		Scaphoid																
		Metatarsian	1				1	1	1									
		1st phalanges																
		2nd phalanges																
		3rd phalanges																
		Sesamoid bones																
Indeterminate/NS		Long bone NS	2	2	2	9	4	3			12			1				
		Indeterminate	6			9			4		2	1	1	2	1		3	5
Total skeletal remains			**31**	**17**	**20**	**31**	**17**	**8**	**24**	**9**	**23**	**6**	**6**	**5**	**6**	**10**	**5**	**25**