

Cercles, l'hàbitat protohistòric de l'illa de Menorca

Octavio Torres Gomariz
Amalia Pérez-Juez Gil
(coords.)



Cercles, l'hàbitat protohistòric de l'illa de Menorca

OCTAVIO TORRES GOMARIZ
AMALIA PÉREZ-JUEZ GIL
(coords.)

Cercles, l'hàbitat protohistòric de l'illa de Menorca

PETRACOS es una publicación de difusión y divulgación científica en el ámbito de la Arqueología y el Patrimonio Histórico, cuyo objetivo central es la promoción de los estudios efectuados desde el Instituto Universitario de Investigación en Arqueología y Patrimonio Histórico de la Universidad de Alicante –INAPH–. *Petracos* también pretende ser una herramienta para favorecer la transparencia y eficacia de la investigación arqueológica desarrollada, transfiriendo a la sociedad el conocimiento generado con la mayor rigurosidad posible. Esta serie asegura la calidad de los estudios publicados mediante un riguroso proceso de revisión de los manuscritos remitidos y el aval de informes externos de especialistas relacionados con la materia, aunque no se identifica necesariamente con el contenido de los trabajos publicados.

Dirección:

Lorenzo Abad Casal
Mauro S. Hernández Pérez

Consejo de redacción:

Lorenzo Abad Casal
Mauro S. Hernández Pérez
Sonia Gutiérrez Lloret
Francisco Javier Jover Maestre, secretario
Jaime Molina Vidal
Alberto J. Lorrio Alvarado

© del texto e imágenes: los autores y autoras

Edita: Instituto Universitario de Investigación en Arqueología,
Patrimonio Histórico (INAPH) y Publicacions Universitat d'Alacant

Imagen de cubierta:

Andreu Torres Bagur

Financia:

Consell Insular de Menorca

ISBN: 978-84-1302-281-9

Depósito legal: A 488-2024

Diseño y maquetación: Marten Kwinkelenberg

Imprime: Imprenta de la UA

Impreso en España

Índice

- 9** **1. Introducción: de la mesa redonda a la publicación**
Octavio Torres Gomariz & Amalia Pérez-Juez Gil
- 19** **2. Un recorregut circular: una breu història de la investigació dels cercles menorquins**
Octavio Torres Gomariz & Amalia Pérez-Juez Gil
- 33** **3. Els habitatges del talaiòtic final de Biniaiet Vell des del punt de vista historiogràfic**
Cristina Rita Larrucea
- 59** **4. La casa 3 de Trepucó**
Jordi Hernández-Gasch & Míriam Castrillo Villa
- 87** **5. La casa 1 de Biniparratx Petit**
Míriam Castrillo Villa & Jordi Hernández-Gasch
- 115** **6. Indicadores materiales para una reflexión colonial: los cercles menorquines en el marco del Mediterráneo púnico**
Octavio Torres Gomariz
- 133** **7. Els patis de davant les cases de Torre d'en Galmés a l'ocàs de la prehistòria de Menorca**
Borja Corral & Carlos de Salort
- 151** **8. Simbología y espacios sacralizados en las casas del postalayótico de Menorca**
Sonia Carbonell Pastor, José Simón Gornés Hachero & María Calderón Díaz
- 175** **9. Circular Reasoning: Post-Talayotic Houses and the Construction of Difference**
Alexander Smith

- 189** 10. El Cercle 6 y sala hipóstila de Torre d'en Galmés (alaïor):
los materiales recuperados en las intervenciones de 2004 y 2005
Borja Corral García & Carlos de Salort Giménez
- 209** 11. Los círculos postalayóticos en época andalusí
Amalia Pérez-Juez & Alexander Smith
- 225** 12. Murder Mystery Resolved: red clay deposits in Talayotic structures
Paul Goldberg & Amalia Pérez-Juez
- 245** 13. Projectes de difusió cultural i educativa dels cercles mitjançant
realitat virtual
Borja Corral García, Andreu Florit Moll & Rafel Rafi Rovirosa
- 253** 14. Els cercles del talaiòtic final de la Menorca Talaiòtica Patrimoni
Mundial
Joaquín Pons Machado

12. Murder Mystery Resolved: red clay deposits in Talayotic structures

Paul Goldberg (Institut für Naturwissenschaftliche Archäologie
(INA), University of Tübingen, Institut Menorquí d'Estudis)
Amalia Pérez-Juez (Boston University, Institut Menorquí d'Estudis)

Abstract

The literary genre of the “locked room” appeared in the 19th century and soon became a fashionable fiction in which the reader was presented with all the clues to solve a crime that seemed impossible: how could an intruder have entered or left a closed room, meanwhile succeeding to do away with the victim? This paper presents a modern locked-room mystery facing a complex question to answer – where do the archaeological deposits that fill the *Postalayotic Cercles* come from? The story revolves around a patterning of deposits we noticed in many Talayotic structures on the Island of Menorca (taulas included), particularly at the site of Torre d'en Galmés. As in the novels of this genre, there is an apparent impossibility of their having gotten there, while at the same time, we have all the clues to decipher the mystery within the same deposits that we excavate.

Keywords: cercles; red deposits; micromorphology; Talayotic structures

Resumen

El género literario de la “habitación cerrada” apareció en el siglo XIX y pronto se convirtió en una ficción de moda en la que se presentaban al lector todas las pistas para resolver un crimen que parecía imposible: ¿cómo podía un intruso haber entrado o salido de una habitación cerrada, consiguiendo mientras tanto acabar con la víctima? Este artículo presenta un misterio moderno de habitación cerrada que se enfrenta a una pregunta compleja de responder: ¿de dónde proceden los depósitos arqueológicos que llenan los círculos postalayóticos? La historia gira en torno a un patrón de depósitos que observamos en muchas estructuras talayóticas de la isla de Menorca –taulas incluidas–, particularmente en el yacimiento de Torre d'en Galmés. Como en las novelas de este género, existe una aparente imposibilidad de que hayan llegado hasta allí, al tiempo que tenemos todas las pistas para descifrar el misterio dentro de los mismos yacimientos que excavamos.

Palabras clave: cercles; depósitos rojos; micromorfología; estructuras talayóticas

12.1. Introduction

Boston University Study Abroad and the Archaeology Department conducted a field school for undergraduate students from 2002 through 2017 (Elia *et al.*, 2019). The excavations focused on a number of buildings (Casa 1 and Casa 2), as well as areas of non-architectural space that were investigated from trenches and test pits. These two houses were built in the postalayotic era (550-123 B.C.), occupied through the Roman period, and later used during the Muslim medieval times (902-1287) (Pérez-Juez *et al.*, 2007, Pérez-Juez and Goldberg, 2018; Pérez-Juez *et al.*, 2021). At the time of the excavations, both authors were faculty members of the Archaeology Department (now an Archaeology Program) at Boston University; PG (henceforth referred to as ‘Geo’) retired in 2014 and APJ (henceforth referred to as ‘Histarch’) continues as a member of the Program, as well as in the History Department. Histarch from the outset was Director and later Geo became Co-Director of the Field School, along with other BU faculty members as well as specialists from outside of BU. Their academic subjects include History, Archaeology (APJ) and Geoarchaeology (PG). All this background is needed to explain what comes next.

In 2003, on the first day Geo had come to Casa 2, he came across an undergraduate student excavating a small area and asked her, ‘Hi, what are you digging?’ She answered politely, something to the effect, ‘This is red soil; over there it’s darker’ (figure 12.1). Being a geologist, Geo was intrigued by this answer and its ramifications for several reasons. His mission as geoarchaeologist at the field school excavation became clear. It was crucial that he:

- a) explain the difference between a soil and a sediment
- b) acquaint the students with what they were digging
- c) clarify what ‘red vs. black’ sediment might actually mean at the site
- d) help place these deposits and Casa 2 into a wider context of the Torre d’en Galmés site complex

In fact, Geo said to himself, “hmm ... I need to investigate this ...”:

- a) What actually are these different deposits?
- b) Where did these fills originally come from?
- c) How did they end up in the walled space of Casa 2 and in almost all structures at Torre d’en Galmés? (see below)
- d) This is surely not a one-off situation”

They were simple questions, and ones that a geologist would routinely ask of itself, almost robotically. Yet, some of these queries were actually quite puzzling because:

- Casa 2 is at the bottom of a south-facing sloping that originates in the Taula precinct at the north end of Torre d'en Galmés,
- its entrance is at the south end of the house and faces southward; there is no possibility of material washing into it, especially from upslope, and
- deposits seemed overall to be thickest closest to the outer walls of the entire structure and became thinner toward the center of the building.

Over the years, we continually thought about these issues and questions, hoping to come up with some plausible solutions. During many discussions over *pomadas* (the local gin and tonic – lemonade version), the idea surfaced that this situation closely resembled a so-called “Locked Room” mystery (figure 12.2). As mentioned in the abstract, the literary genre of the “locked room” appeared in the 19th century and soon became a fashionable fiction in which the reader was presented with all the clues to decipher a crime that seemed impossible to solve: how could an intruder have entered or left a closed room, meanwhile succeeding to do away with the victim? As in the novels of this genre, we are facing a complex question to answer – where do the archaeological deposits that fill the Talayotic circles come from?



Figure 12.1. a. Puzzled observations of the field school students about the filling of the building; b. Aerial view of Casa 2 in 2008; so much of the fill is absent due to the excavation of the site. Nevertheless, some remains of reddish fill (silty clay) still remains in the upper right-hand (NE) part of the photograph; c. View of Casa 2 to the north looking (upslope) near the entrance toward the interior of the building with its reddish infilling

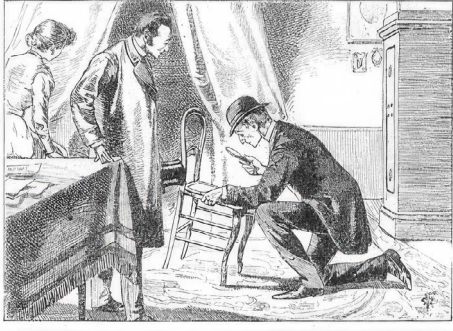


Figure 12.2. Left: a portrayal of the classic locked room mystery, here being investigated by Sherlock Homes. Public domain. Right: deposits being investigated at the site by Geo

Our proposal is both epistemological and methodological: we have all the clues to decode the mystery within the same deposits that we excavate.

This paper presents the results of research carried out over the last decade in domestic spaces of the site of Torre d'en Galmés, Alaior, Menorca (figures 12.3, 12.4, 12.5) to determine the origin and nature of the archaeological deposits within the many Talayotic circles. We will focus, above all, on the reddish ones that fill the rooms of the building –primarily the back one– and which are the most widespread



b.

a.

Figure 12.3. Torre d'en Galmés. a. Aerial view of site showing circular Talayot in the upper left and Casa 2 (Bldg. 2) downslope, in the lower part of the photo; b. Panoramic view of Casa 2 at right (entrance indicated with an arrow) looking upslope toward the top of the hill and site where the Talayot (T) is located



a.



b.

Figure 12.4. Torre d'en Galmés. a. Looking east at red fill at the back room of Casa 2 (SPU5) in 2007; b. Excavated central area of the Cartailhac house situated ~60 m west of Casa 2. Although there are no deposits left, one can see the red staining on the walls indicating the top of the red fill. Note that the staining is higher (thicker) at the right (eastern) wall here and becomes lower (thinner) to the left (toward the west). In other views, the staining throughout the entire structure can be seen to be highest against the walls and lowest in the center (Goldberg and Perez-Juez, 2023)

during the Postalayotic period. We put forward a methodological proposal – with special emphasis on soil micromorphology, but not only – for the investigation of architecture, the supply of raw materials, and the use of space, issues that determine aspects such as group dynamics or the transmission of knowledge. The clues that we have to help solve the crime are locked up in the nature (composition, texture) and distribution of the deposits at the site. We have also read old excavation reports to verify whether these red deposits were present in other buildings at the site.

12.2. Post-Talayotic houses: the so-called *Círculos*

The word *Círculo* or *Cercle* describes a specific dwelling built in Menorca between 550 B.C. and 123 B.C. (Pons, 2016; Torres, 2021; Torres y De Nicolás, 2020). It consists of a circular construction surrounded by a larger enclosure for activities such as storing grain, penning animals or doing other domestic activities. Cercles have been excavated since the early 20th century. However, it was the excavation of the site of Alcaldús, with its multiple rooms around an open courtyard that provided the clue of a standardized construction. Although the basis of these dwellings was defined by Maria Lluïsa Serra (Serra 1961) only recently and with the excavations of houses at Torre d'en Galmés, that other features have been exposed: outside patios, cisterns, and rooms for different activities (Pérez-Juez, 2011; Sintes e Isbert, 2009; Corral *et al.*, 2020). There is a major consensus about the shape of the



Figure 12.5. Círculos in the southern part of Torre d'en Galmés: C1 = Casa 1, C2 = Casa 2, C6 = Círculo 6, C7 = Círculo 7 and CRT = Círculo Cartailhac

house, but researchers have been debating about the roofing and interior finishing of the structures. The idea of a central patio seems the most plausible way of leaving the center space open and covering the rooms around it. For this purpose, círculos have large pillars and buttresses along the internal face of the building. Around the central patio, there are other pillars and columns, one of which mostly facing east, suggesting a possible symbolic meaning (Gornés, 1997; 2022).

12.3. Inside the Locked Door Room(s)

In walking around the site of Torre d'en Galmés, one is first struck by the quantity of quarried stones as standing and collapsed walls, and the overall red Talayotic/post-Talayotic fillings of the buildings, whether taula, houses, or courtyards. However, it's really not like that, and the situation is much more nuanced. All the circles (and taulas) display evidence of centimeter to decimeter-thick reddish deposits, which can be found mixed with rubblely fill in unexcavated structures or inferred from the outline of red-stained walls or uprights from excavated ones (figure 12.6). Many earlier excavations of such buildings on the island overlooked the details of these fillings until very recently, becoming clear to us mostly during our excavation of Casa 2 (figure 12.7).

All this evidence is even more clear in figure 12.7. The photograph was taken from a crane in 2007, when Casa 2 was only partially excavated. The archaeological



Figure 12.6. Stones and fillings of various Talayotic structures at Torre d'en Galmés. a. Aerial view Círculos 6 and 7 house complexes in 2008 showing partially excavated red deposits in the house at right. b. Views of excavated Círculo Cartailhac showing red staining on walls indicating the former level of infilling. c. Círculo 7 with red marks on the walls d. Histarch standing in Círculo 6. Note the red staining on the wall behind her and on the uprights in the center of the structure to her left; in the latter case note that the staining is at a considerably lower height than that next to the walls

fills of the different areas (spatial units – SPU) differed as can be seen by their color and contents. The fill in SPU 3/4 (figure 12.7b) is a dry, granular dark yellow brown sandy silt, which exhibited two dark grey patches (~10 in diameter) that turned out to contain burned dung. On the other hand, the deposits in SPU 5 (figure 12.7c) consist of bright reddish silty clay with occupational debris (see figure 12.9 for details).

12.4. Micromorphology: a few words about the technique

Micromorphology is a technique adapted from soil science, which in turn has its roots in sedimentary petrography, dating back to the middle part of the nineteenth century (Folk, 1965; Kubiëna, 1938; Stoops, 2003); it later became part of the geoarchaeological toolkit in the 1970s and 1980s (Courty and Fedoroff, 1982; Courty, Goldberg, and Macphail, 1989; Goldberg, 1979; 1980; 1983; Macphail, 1983). The basic idea is that in order to understand and interpret sediments and understand their context and association with archaeological objects and architectural elements, for example, we need a technique that allows us to look at and directly into the deposits. Many geoarchaeology approaches to sediment analysis of (e.g., grain size or general geochemical characterization) involve the use of sediment samples collected into a plastic bag. These bulk samples essentially represent average values

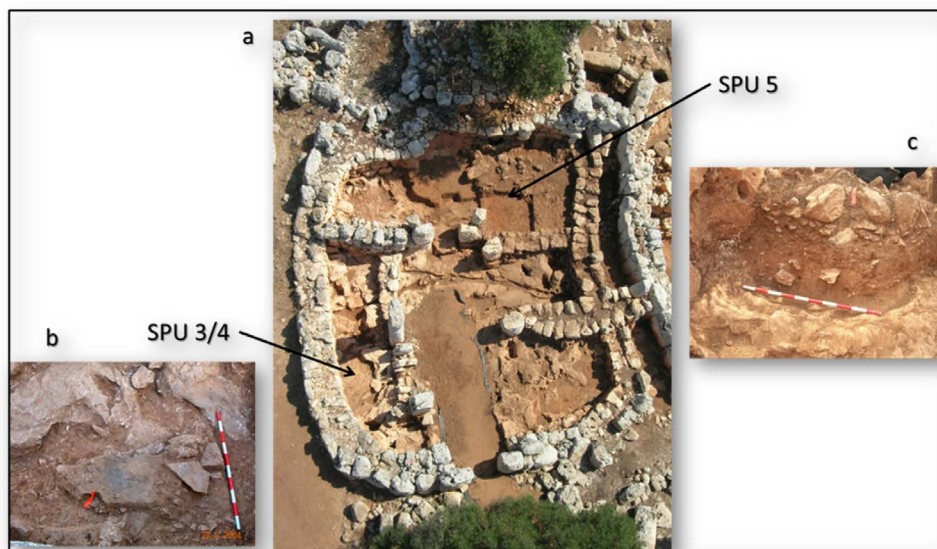


Figure 12.7. Architecture and filling of Casa 2. a. Aerial view showing various spatial units (SPUs) in 2007. Most of the house was excavated by this time, except for SPU 5 in the upper right-hand corner. b. Two small combustion features in SPU 3/4 with burned dung as fuel (Goldberg and Pérez-Juez, 2018). c. Partially excavated remains of a reddish silty clay fill shown in (a) and described more completely in figure 12.9

of whatever is being analyzed, since the loose material has been homogenized in the bag. To avoid this issue of bulk samples, micromorphology employs undisturbed/intact blocks of sediment or soils so that the position of the original constituents (grains, void spaces, bedding) is conserved. This approach allows us to unravel both depositional and post-depositional processes that are tied to both natural and human-related processes (Courty, Goldberg, and Macphail, 1989; Goldberg and Berna, 2010; Karkanas and Goldberg, 2018; 2020; Macphail, 2013; Macphail and Goldberg, 2018).

The micromorphological endeavor begins with:

- removing a block from a profile or elsewhere in the site (Goldberg and Macphail, 2003) (figure 12.8)
- stabilizing it by
 - wrapping it tightly with paper towel and packaging tape, or
 - encasing it in plaster of Paris bandages
 - collecting it in a core or segment of drainpipe
- drying the sample in an oven
- imbedding and hardening the sediment in epoxy or polyester resin, essentially transforming it into a rock
- slicing and trimming the indurated block



Figure 12.8. Histarch taking a sample from one of the Círculos at Torre d'en Galmés

- producing the thin section by mounting the block on a glass slide and grinding the sediment/soil, etc. to a thickness of 30 μm (figure 12.9)
 - The resulting thin section is then observed and described under the petrographic microscope using plane-polarized (PPL) and cross-polarized (XPL) light (Stoops 2021), with the aid of a wealth of older and more recently published texts that also include archaeological deposits [e.g., (Courty, Goldberg, and Macphail, 1989; FitzPatrick, 1993; Karkanas and Goldberg, 2018; Nicosia and Stoops, 2017; Stoops, Marcelino, and Mees 2018; Verrecchia and Trombino, 2021)].

12.5. Thin sections from the red deposits

The back room of the Círculos has traditionally been interpreted as a bedroom although there are newer proposals that explain why it was most likely used for gatherings and other public activities (Torres, 2022). Post-depositional processes make of this room a challenging lock room mystery. In order to solve the question, we took samples from different stratigraphic units of the back room of Casa 2, as well as from other rooms and control soil samples, in order to analyze their composition and structure and, finally compare them. These are the clues that will take us to the final conclusion. In Casa 2, the different spatial units were denominated SPU, and numbered clockwise. The back room –SPU 5– presented a thick deposit of red



Figure 12.9. Detailed microstratigraphic composite of profile in SPU 5 with thin section scans and photomicrographs superposed on the profile, a fuller version of which is shown in the upper left-hand corner. All thin sections come from the profile except at the upper right, which is a photomicrograph of a modern soil sample collected at the surface from the southern limit of the site. a. Thin section scan from *use level* at base of the profile exhibiting stony reddish brown silty clay. b and c. are photomicrographs of (a) showing limestone clasts (*ls*), bone (*b*), pottery (*p*), and charcoal (*cc*) in a crumbly silty clayey matrix with some quartz sand; plane-polarized light (PPL); scale is 2 mm. d, e, f, g. Thin section scans of reddish brown deposits overlying the use level sediments. Note how these sediments differ markedly from the use level ones, being well sorted, compact sandy, silty clay, with little cultural material, except for pottery (*p*) in (g). h. Photomicrograph of (g) illustrating the compact nature of the well-sorted compact sandy, silty clay, PPL; scale is 2 mm. i. Photomicrograph of modern soil comprising a mixture of quartz and limestone sand, quartz silt and clay. Note the overall similarity of this material to that in (d-g); PPL, scale bar is 2 mm

sandy silty clay that followed a use level. In turn, this use level had been built on top of a very uneven and cavernous bedrock surface that was filled in to create an even one (Pérez-Juez *et al.*, 2011). Three samples were taken from the profile, one from the use level and two from the red deposit to produce thin sections of 50x75 mm. The results showed the difference between them as well as with the control sample as noted below.

From the above, we can see what some of the fills are made. However, as equally important as mentioned above is their spatial distribution and arrangement within structures. As shown below, the red filling decreases in thickness from the walls toward the interior of the structures (shown semi-schematically for Casa 2 in figure 12.10) toward the central Patio areas. A common dictum in geology is that sediments are thicker closer to the source and become thinner away from it. Applying that here suggests/indicates that the source of the red clay is in the direction of the

walls, and not, as just an example something having to collapse of a roof that might have been covered with red sediment.

12.6. Hints of the Locked Room Mystery: Where is the Smoking Gun?

So, we have the victim, but what about the suspect? By way of summary, to apprehend the guilty we have to think about the following:

- What is the composition of the red sediment? Is it sand, silt, clay or stony, or a mix of all of these components? Such information points to possible sources, such as soil material (in this area mostly sandy silty clay), perhaps mixed intentionally – or not – with fine gravel.
- How is the red sediment organized internally? In other words, is it a massive accumulation or does it show bedding/stratification? If it is layered, are the layers horizontal or inclined? These data may provide indications of how the material was transported or deposited, e.g., by water, gravity, or by people (e.g., dumping).
- How does the thickness of the deposit change laterally? Does it thicken or thicken in a preferred direction? As illustrated above, thickness of the deposits changes systematically from the area of the walls to that of the patio, providing an indication of the source near the walls.
- Is the surface of the deposit flat, or inclined? Such evidence can inform us about directionality of the accumulation. A sloping surface points to the likely upslope source of the material, as shown above, in almost all cases (except for the red deposits in SPU 5) the surface of the red deposits is inclined from the walls toward the central area of the buildings, the patio area.

In light of the above evidence, we find that the likely guilty parties are ultimately the builders of the house, both directly and indirectly. The red deposits are originally construction material and thus anthropogenic. Furthermore, they got into the rooms/building at the time when they were built: because they are entirely encapsulated with the structures, they are not haphazard deposits that accumulated from the outside once the house was abandoned. In other words, they clearly relate to some phenomena that occurred within the confines of the constructed spaces of the rooms and the buildings as a whole.

There are several options that might explain what these deposits are and how they got there. One scenario is that they are derived from the roof in which the red material originally covered a roof (composed of either stone or organic material – e.g. branches/thatch). On collapse or decay of the roof, the sediment accumulated within the building. This picture, however, does not appear likely, as we do not find

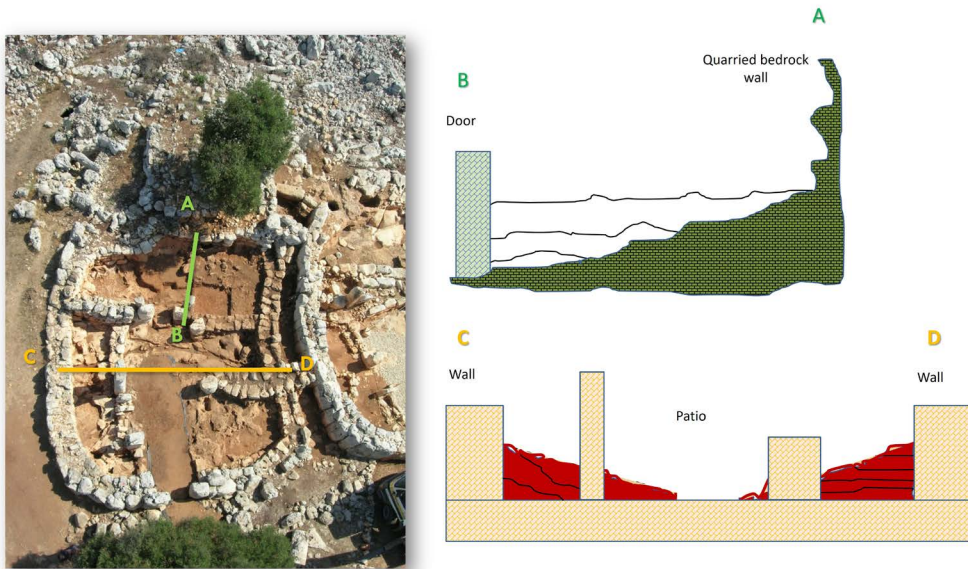


Figure 12.10. Distribution of red deposits in Casa 2 shown in two *semi-schematic* cross-sections, one north-south (A-B) and one east-west (C-D). Section A-B is located in SPU 5 and the deposits are generally flatlying and fill in the entire rear room in the house [the left part has been excavated to bedrock] with a thickness of about 50 cm. Section C-D through the middle of the house from east to west walls, shows the thinning of the red deposits away from the walls toward the patio area

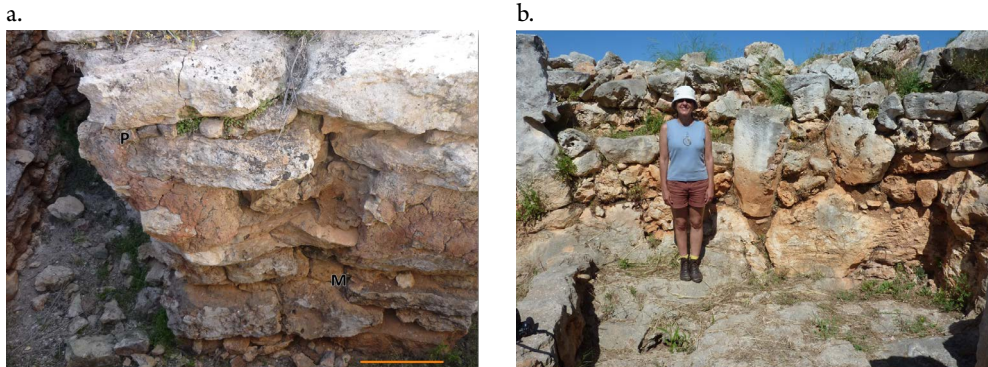


Figure 12.11. Examples of red silty clay mud plaster and mortaring on and between limestone construction blocks. a. Burnt silty clay mud plaster (P) and mortar (M) between limestone blocks from the Iron Age site of Capocorb Vell, Mallorca; scale bar is 25 cm. b. Mud mortar remains between blocks in wall from Círculo 6 adjacent to line of red staining

stonry remains of what would have been the roof underneath the red sediment. One could argue that the roof was not stone covered but organic in nature and evidence of this roofing would have long-since decayed. However, we do not observe any traces of such decayed organic matter (e.g., voids leftover after the organic matter decayed) in any of the thin sections collected from the red fill, in any of the buildings

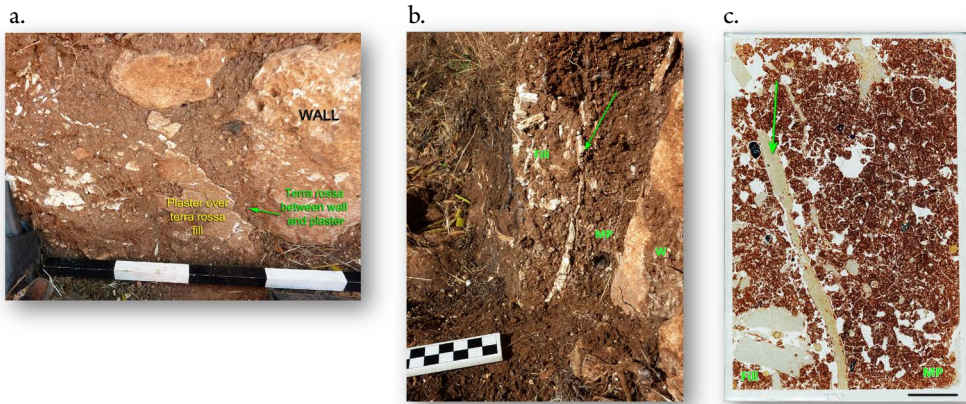


Figure 12.12. Muslim kitchen of SPU 8 at Torre d'en Galmés. a. Photo of west limestone wall covered with mud plaster and then a layer of lime plaster. b. Profile view of (c) showing limestone wall (W), mud plaster adhering to the wall (MP), a white lime plaster coat on the red mud plaster (green arrow), and unexcavated building fill at the left (Fill); scale is in cm. c. Thin section scan of wall/plaster sequence shown in (a) and (b); scale bar at lower right is 1 cm. The mud plaster is at the right (MP) and characterized as a porous mixture of sandy silty clay with some inclusions of yellowish lime plaster fragments; the arrow points to the lime plaster coating on the mud plaster. At left is the fill of the house, which is the same material as the mud plaster and is derived from it; note the two pieces of lime plaster in the lower left, pointing to incorporation of decayed lime plaster into the deposits that fill the house

(e.g. Casa 2, Cartailhac, Círculo 7). Also, the preferential sediment accumulation close to the walls and not in the patio area, does not fit with a scenario roof-collapse and decay of red sediment covering the roof.

Another possibility is that the red material comes from the walls and represents 'mud plaster', daub, or mud mortar that filled in the spaces between limestone blocks and covered at least the lower interior surfaces of the limestone walls (figure 12.10). In fact, remnants of mud plaster can be observed on some walls at the site of Capocorb Vell in Mallorca, where their preservation appears to have been fostered by an episode of burning in the structure, thus baking the mortar onto the rock surface and within cracks between rocks (figure 12.11a). At Torre d'en Galmés, remains of mud mortar are all that appears to be left in between the limestone blocks in certain cases (figure 12.11b).

A possible analog to the Talayotic mud plaster occurs in a Muslim house that adjoins Casa 2 at Torre d'en Galmés. Although a construction of a totally different time period (12-13th centuries AD), it serves to demonstrate the point we are trying to make. Here, we can observe a lateral sequence starting from the limestone wall inward toward the house interior. The analogy is not complete since no lime plaster occurs in the Talayotic layers. Nevertheless, the resemblance – stone walls filled in and covered with similar reddish sediment – is striking.

12.7. Conclusions: Were they covered? Were they plastered? Or both?

We have come a long way since our first involvements at the site when we oversaw the excavation of ‘red stuff’ by the participants of the Boston University Field school. What started out for both of us as a ‘routine’ excavation of room/house fill turned out to be much more interesting and intriguing. Like all excavations, we must always ask ourselves, ‘where does all the sediment come from and how did it get to the place where we are digging it?’ So, not only do the deposits serve as ‘glue’ for the objects (pottery, roof tiles, metal ornaments, and plant and animal remains recovered from it) but they tell us about the history of the building and how it got to be the way we observe it.

In this case, after the structures were abandoned during or after the Roman period, the mud plaster decayed and sloughed off the walls and began to fill the empty spaces of both rooms and the patio area. The sedimentation seems to have been mostly gravity induced, at least in SPUS, since the sediments are not laminated. In cases of mud brick decay – although not strictly comparable but nevertheless similar – wedge-shaped bodies of accumulated sediments occur at the base of decaying walls (Friesem *et al.*, 2014).

As a final remark, we want to acknowledge “the old ones” and what has been investigated, discussed and written before us. In 1942, during the excavation of the taula precinct at Torre d'en Galmés, Joan Flaquer wrote: “... la gran cantidad de pedrusco que se ha extraído lo cual no nos sorprendió en los más mínimo..., pero sí extrañó bastante el enorme montón de tierra que, a fuerza de repetidas y múltiples espuestas, fue despejado el recinto” (Flaquer 1942: 132).

The importance of looking at deposits at any archaeological site encompasses both a methodological and an epistemological question that we hope has been demonstrated in this chapter. We want to emphasize the importance of these deposits, since removing the red sediment is the same as destroying the evidence to solve the mystery.

12.8. References

- Corral, B., de Salort, C., Pérez-Juez, A., Goldberg, P. y Van Strydonck, M. (2020): Nuevos datos sobre el patio delantero del Círculo 6 de Torre d'en Galmés (Alaior, Menorca): Análisis micromorfológico de algunos suelos y dataciones 14 C). En *VIII Jornades d'Arqueologia de les Illes Balears*, 147-158.
- Courty, M.-A., and N. Fedoroff (1982); Micromorphology of a Holocene dwelling. *Pact*, 7: 257-277.
- Courty, M.-A., P. Goldberg, and R. I. Macphail (1989): *Soils and Micromorphology in Archaeology*. Cambridge University Press, Cambridge.
- Elia, R., Pérez-Juez, A. and Langlitz, M. (2019): Teaching heritage in the field: an example from Menorca, Spain. In Bender, S.J. and Messinger, P.M. (eds.):

- Pedagogy and Practice in Heritage Studies*. University Press of Florida: 94-111. Gainesville.
- FitzPatrick, E. A. (1993): *Soil Microscopy and Micromorphology*. John Wiley & Sons, Chichester.
- Folk, R. L. (1965): Henry Clifton Sorby (1826-1908), the founder of petrography. *Journal of Geological Education*, 13 (2): 43-47.
- Friesem, D.; Boaretto, E., Eliyahu-Behar, A., and Shahack-Gross, R. (2011): Degradation of Mud Brick Houses in an Arid Environment: A Geoarchaeological Model. *Journal of Archaeological Science*, 38 (5): 1135-1147.
- Friesem, D., Tsartsidou, G., Karkanas, P., Shahack-Gross, R. (2014): Where Are the Roofs? A Geo-Ethnoarchaeological Study of Mud Brick Structures and Their Collapse Processes, Focusing on the Identification of Roofs. *Archaeological and Anthropological Sciences*, 6: 73-92.
- Goldberg, P. (1979): Micromorphology of Pech-de-l'Azé II sediments. *Journal of Archaeological Science*, 6: 1-31.
- Goldberg, P. (1980): Micromorphology in archaeology and prehistory. *Paleorient*, 6: 159-164.
- Goldberg, P. (1983): Applications of micromorphology in archaeology. In *Soil Micromorphology*, eds. P. Bullock and C. P. Murphy, 139-150. Berkhamsted: A B Academic Publishers.
- Goldberg, P., and F. Berna (2010): Micromorphology and context. *Quaternary International*, 214 (1-2): 56-62.
- Goldberg, P., and R. I. Macphail (2003): Strategies and techniques in collecting micromorphology samples. *Geoarchaeology*, 18 (5): 571-578.
- Goldberg, P. and Pérez-Juez, A. (2018): The hidden record at Torre d'en Galmés, Menorca. Accounts from soil micromorphological analysis. *PYRENAE*, 49 (1), 71-97.
- Goldberg, P. and Pérez-Juez, A. (2023). The fabric of Torre d'en Galmés, Menorca, Spain. *Geoarchaeology*, 1-18.
- Gornés, J. S. (1997). Reflexiones en torno al simbolismo tauomorfo en la prehistoria de Menorca. *Meloussa*, 4: 57-64.
- Gornés, J. S. (2022). Talayots y taulas. La evolución de la arquitectura simbólica en la Prehistoria de Menorca entre los siglos XI al II cal ANE. *Trabajos de Prehistoria*, 79 (1): 99-114.
- Karkanas, P., and P. Goldberg (2018): *Reconstructing Archaeological Sites: Understanding the Geoarchaeological Matrix*. Wiley-Blackwell, Oxford.
- Karkanas, P., and P. Goldberg (2020): Soil Micromorphology. In A. S. Gilbert, P. Goldberg, R. D. Mandel and V. Aldeias (eds): *Encyclopedia of Geoarchaeology*. Springer International Publishing: 1-13. Cham.
- Kubiëna, W. L. (1938): *Micropedology*. Collegiate Press, Iowa.

- Macphail, R. I. (1983): The micromorphology of Dark Earth from Gloucester, London and Norwich: an analysis of urban anthropogenic deposits from the late Roman to early Medieval periods in England. *Soil micromorphology*, 1: 245-252.
- Macphail, R. I. (2013): Archaeological Soil Micromorphology. In Smith, A. (eds.): *Encyclopedia of Global Archaeology*. Springer: 356-364. New York.
- Macphail, R. I., and P. Goldberg (2018): *Applied Soils and Micromorphology in Archaeology*. Cambridge University Press, Cambridge.
- McIntosh, R. J. (2010): Archaeology and Mud Wall Decay in a West African Village.” *World Archaeology* 6 (2): 154-76.
- Nicosia, C., and G. Stoops (eds.) (2017): *Archaeological Soil and Sediment Micromorphology*. John Wiley & Sons, Oxford.
- Pérez-Juez, A., Goldberg, P. and Cabanes, D. (2011): Estudio interdisciplinar del hábitat post-talayótico: bioarqueología, geoarqueología y registro arqueológico para la revisión metodológica de la arqueología en Menorca. En *ArqueoMediterrània 12/2011. Economia agropecuària i canvi social a partir de les restes bioarqueològiques. El primer mil·lenni aC a la Mediterrània occidental*. Universitat de Barcelona: 139-149. Calafell.
- Pérez-Juez, A., Smith, A. and Planas, M. (2021): La reocupación andalusí de Torre den Galmés, Alaior, Menorca. *Pyrenae*, 52 (1): 227-252.
- Pérez-Juez, A. and Sintès, E. (2022): Manurqa: Islamic Medieval Archaeology in the Balearic Island of Menorca, Spain. Is it condemned to *damnatio memoriae*? En Duckworth C. y Govantes-Edwards, D. (eds.) *Archaeology, Politics and Islamicate Cultural Heritage in Europe*. Equinox Publishing Ltd: 99-108. Sheffield
- Pérez-Juez, A. and Goldberg, P. (2018): Evidence of Quarrying at the Iron Age Site of Torre d'en Galmés, Menorca, Spain. *Boletín Geológico y Minero*, 129 (1/2): 353-370.
- Pérez-Juez, A. (2011): Excavaciones en la Casa 2 del yacimiento de Torre d'en Galmés, Alaior: propuestas para el hábitat talayótico. In Gual, J. (eds.): *III Jornadas d'Arqueologia de les Illes Balears*. Consell Insular de Menorca: 119-130. Mahón.
- Pérez-Juez, A., Wiseman, J., Goldberg, P., Hansen, J., Mullen, K., Ostovich, M., Payne, C., Gornés, S., Cabanes, D., Euba, I., Morales, J.V., Morín, J. and López, F. (2007): El uso del espacio doméstico de una estructura del Talayótica final: excavación de la Casa 2 del yacimiento de Torre d'en Galmès, Alayor 2003-2006. En *L'arqueologia a Menorca: eina per al coneixement del passat*. Consell Insular de Menorca: 53-73. Mahón.
- Pons Machado, J. (2016): *Caracterització de l'espai de l'hàbitat protohistòric de l'illa de Menorca: les cases de planta circular talaiòtiques*. Tesis doctoral. Universitat Autònoma de Barcelona. <http://hdl.handle.net/10803/399295>
- Serra Belabre, ML. (1961): De arqueología menorquina: círculos. *Revista de Menorca*, Octubre-Diciembre: 65-74.

- Sintes, E., and Isbert, F. (2009): Investigación arqueológica y puesta en valor del Recinto Cartailhac. Una unidad doméstica del siglo II ANE en el poblado o talayótico de Torre d'en Galmés. *Patrimonio Cultural de España*, 1, 251-260.
- Stoops, G. (2003): Achievements in micromorphology. *Catena*, 54 (3): 317-318.
- Stoops, G. (2021): *Guidelines for Analysis and Description of Soil and Regolith Thin Sections*. John Wiley & Sons, Hoboken.
- Stoops, G., V. Marcelino, and F. Mees (eds.) (2018): *Interpretation of Micromorphological Features of Soils and Regoliths, 2nd Edition*. Elsevier, Amsterdam.
- Torres Gomariz, O. (2022): Architecture to explore interactions in the Protohistoric Mediterranean: an approach to punic architectural culture as a case of study. *Tabona: revista de prehistoria y arqueología*, 22: 151-174.
- Torres Gomariz, O. (2021): *La sociedad postalayótica bajo la órbita púnica: viviendas y grupos domésticos en el archipiélago balear (VI-II a.C.)*. Tesis doctoral. Universidad de Alicante.
- Torres, O. y de Nicolás, J.C. (2020): La casa de l'aeroport: una vivienda paradigmática de la Menorca protohistórica y romana (ss. IV a.n.e – II n.e). *Cuadernos de Prehistoria y Arqueología de la Universidad de Granada*, 30: 459-478.
- Verrecchia, E. P., and L. Trombino (2021): *A Visual Atlas for Soil Micromorphologists*. Springer Nature, Cham.