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Estratto

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THE TOPHET OF BITHIA – SU CARDOLINU (SOUTH SARDINIA).
A SYNTHESIS OF FIVE EXCAVATION SEASONS BY CA' FOSCARI
UNIVERSITY OF VENICE (2021-2025)

STEFANO FLORIS*, ALESSANDRA GILIBERT*

Abstract: This paper presents a synthesis of the results obtained by the Ca' Foscari University of Venice at the tophet of Bithia – Su Cardolinu during five excavation seasons (2021-2025). The renewed investigations allow a reassessment of the sanctuary after the limited explorations conducted by Ferruccio Barreca in 1964. Stratigraphic excavation, architectural survey, and interdisciplinary analyses show that Su Cardolinu was not a marginal or short-lived cult place, but a structured and long-lived ritual space. New data confirm the existence of an extensive urnfield and document its continuity from the late 7th century BCE to at least the 3rd/2nd centuries BCE. The discovery of two stone stelae and new evidence on depositional practices and spatial organization significantly strengthen the identification of the sacred area of Su Cardolinu as the tophet of Bithia.

Keywords: Bithia (Sardinia); Tophet; Cremation; Phoenicians; Archaeology of the Mediterranean.

1. INTRODUCTION¹

The Phoenician-Punic sanctuaries conventionally referred to as tophets are one of the most distinctive and debated religious institutions of the central Mediterranean during the 1st millennium BCE. Closely linked to the foundation and early phases of specific Phoenician colonial settlements, these sanctuaries were complex ritual spaces that included built features and open areas used for the deposition of cinerary urns containing cremated remains of newborns, lambs, or both. They have long stood, and still do, at the center of scholarly debates on ritual practice, identity, and colonial dynamics within Phoenician and Punic communities.²

Extensive excavations at the tophets of major sites such as Carthage,³ Motya,⁴ Sulky,⁵ Nora,⁶ and Tharros⁷ have played a central role in shaping modern interpretations. In contrast, the tophet of Bithia-Su Cardolinu, discovered in 1964,⁸ has remained marginal, due to the limited and fragmentary nature of its available archaeological evidence.

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¹ Author contribution statement. Stefano Floris & Alessandra Gilibert: Conceptualization, Methodology, Investigation; Stefano Floris: Data Curation, Writing – original draft preparation; Alessandra Gilibert: Supervision, Writing – review, editing & conclusions.

² See, most recently, González Wagner – Ruiz Cabrero 2002; 2007; Xella 2013; D'Andrea 2018; McCarty 2019; Garnand – Greene 2023.

³ Bénichou-Safar 2004.

⁴ Ciasca 1992; Orsingher 2018; Nigro 2020.

⁵ Bernardini 2005; 2008; Melchiorri *et al.* 2024.

⁶ Vivanet 1891; Floris – Amadasi Guzzo 2022.

⁷ Floris 2022.

⁸ Barreca 1965, pp. 145-152. See also Floris – Gilibert forthcoming.

In 2021, nearly sixty years after the site's discovery, Ca' Foscari University of Venice resumed archaeological investigations at Su Cardolinu. Over five campaigns (2021-2025), new stratigraphic, architectural, and material evidence have significantly expanded our understanding of the sacred area's internal organization and long-term development. Our findings demonstrate that Su Cardolinu was not a marginal or ephemeral cult place, but rather a complex, enduring, and evolving ritual place characterized by the continuous use of an extensive urnfield and a structured architectural setting.

In the following contribution, we reassess the archaeological evidence from Su Cardolinu in light of both earlier scholarship and the results of the five excavation campaigns carried out between 2021 and 2025. We begin by outlining the history of research at the site and the project's methodological framework, then turn to the topography and spatial organization of the sanctuary, considered within the wider landscape of Bithia. In the final part, we turn to depositional practices, focusing on the macro-stratigraphy of the urnfield and the diverse strategies employed for the burial of cinerary urns. On this basis, we propose a new interpretation of the ritual character and historical development of the site.

1.1. *Discovery and Early Interpretation of the Site*

The small rocky islet of Su Cardolinu (Chia, Domus de Maria) (Fig. 1) has been identified as a tophet by Ferruccio Barreca in 1964, in the framework of an extensive archaeological survey of the Sulcis coast (south-western Sardinia). Following a short test excavation, Barreca formulated his interpretation on the basis of cinerary urns and *oil bottles* dating to the late 7th-6th century BCE, deposited around a structure identified as an altar ("Building C").⁹ A boundary wall and two later cult buildings ("Building A" and "B"), both dated to a period not earlier than the 4th century BCE,¹⁰ were also recorded (Fig. 2). It is worth noting that Barreca's chronology was based on construction techniques, not on stratigraphic data.

Barreca's interpretation was generally accepted in subsequent scholarship, though not without reservations. Soon after, Gennaro Pesce observed that the small number of urns documented was insufficient to classify the site definitively as a tophet. At the same time, he suggested that future excavations might substantially increase the available evidence.¹¹ About a decade later, Sandro Filippo Bondì published a seminal study on Phoenician-Punic tophets¹² in which he drew attention to several anomalies in the evidence from Su Cardolinu when compared with other sanctuaries of the same type. Chief among these was the site's apparently short lifespan: it seemed to have been abandoned before the end of the 6th century BCE, unlike most tophets, which typically remained in use throughout the history of their respective Punic cities. On this basis, Bondì suggested that, if a tophet had indeed existed at Su Cardolinu, it had ceased to function at an early stage, and that the inhabitants of Bithia may subsequently have turned to other extra-urban sanctuaries, such as Nora. At the same time, he observed that the sacred character of the islet did not change with the construction of Buildings A and B; however, he also noted that the available evidence did not show that these buildings formed part of a tophet sanctuary.¹³

Bondì's interpretation introduced the hypothesis according to which the evidence uncovered by Barreca at Su Cardolinu should be understood as the result of two distinct phases: an "Archaic period tophet", established in the last quarter of the 7th century BCE and abandoned before the end of the 6th century BCE, and a subsequent "Late Punic sanctuary," founded no earlier than the 4th century BCE with the construction of Buildings A and B and no longer functioning as a tophet. This hypothesis has been embraced by

9 Barreca 1965, p. 151.

10 Barreca 1965, p. 152.

11 Pesce 1968, pp. 338-339.

12 Bondì 1979.

13 Bondì 1979, p. 142 and note 20.

later scholarship,¹⁴ particularly since the data from the necropolis of Bithia – Sa Colonia also seemed to indicate a phase of local economic and demographic contraction between the 5th and the mid-4th century BCE.¹⁵

1.2. *The “Tophet of Bithia” Archaeological Project (2021-Ongoing)*

The “Tophet of Bithia” Archaeological Project was initiated in 2021 by the authors of this paper on behalf of Ca’ Foscari University of Venice, with Alessandra Gilibert serving as scientific director and Stefano Floris as field director.¹⁶ The project was conceived to reassess the archaeological evidence from Su Cardolinu through renewed fieldwork and interdisciplinary analysis. Its principal aims are threefold: first, to verify the existence of a tophet sanctuary at the site; second, to define its spatial extent and internal organization; and third, to reconstruct the chronological limits of its use, its developmental phases, and its historical relationship to the settlement of Bithia. The fieldwork strategy integrates surface survey, stratigraphic excavation, and laboratory-based analyses. A reference grid of 5 × 5 m squares provides the spatial framework for systematic intensive survey and for the selection of excavation areas (Fig. 3).

The survey – conducted through iterative stages of observation and collection, both before and after vegeta-

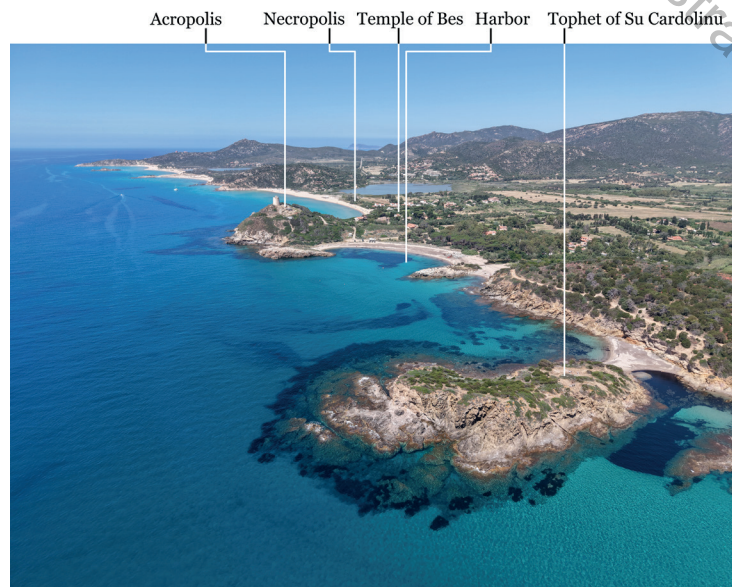


Fig. 1. Aerial view of Chia showing the main sectors of ancient Bithia (photo and elaboration by S. Floris).

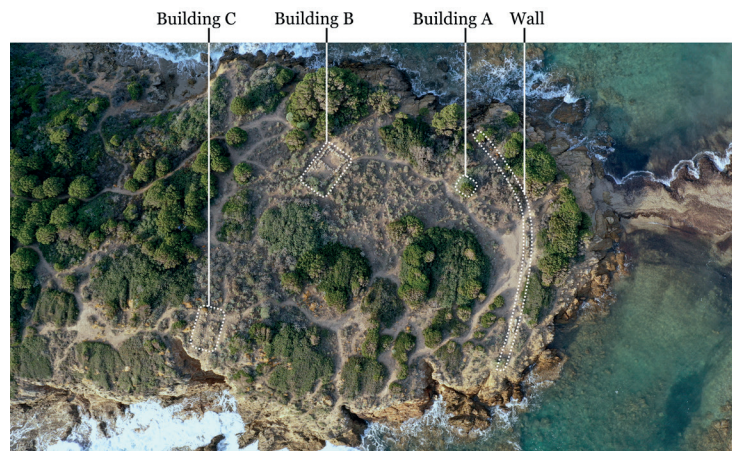


Fig. 2. Aerial view of the northern sector of the islet of Su Cardolinu in 2021, indicating the structures identified by Barreca in 1964. North is to the right (photo and elaboration by S. Floris).

14 See, e.g., Bartoloni 1997, p. 83; Bartoloni 2017a, p. 125; Garbati 2019, pp. 284-285. Even scholars dealing with tophet studies often stressed the hypothetical nature of the interpretation as a tophet of the sacred area of Su Cardolinu: see, e.g., Ciasca 2002, p. 122; Melchiorri 2016a, p. 272; D’Andrea 2018, p. 63.

15 Bartoloni 1996a.

16 Floris 2024a; 2024b; Floris – Gilibert 2024; forthcoming. The research is conducted under an excavation concession granted by the *Ministero della Cultura* and in agreement with the *Comune di Domus de Maria*. We wish to express our gratitude to the *Soprintendenza Archeologia, Belle Arti e Paesaggio per la città metropolitana di Cagliari e le province di Oristano e Sud Sardegna*, in particular to Chiara Pilo, Elena Romoli, and Marco Edoardo Minoja. We also thank the *Comune di Domus de Maria*, and especially Mayor Maria Concetta Spada and Councilor Roberto Serra, for their invaluable support.

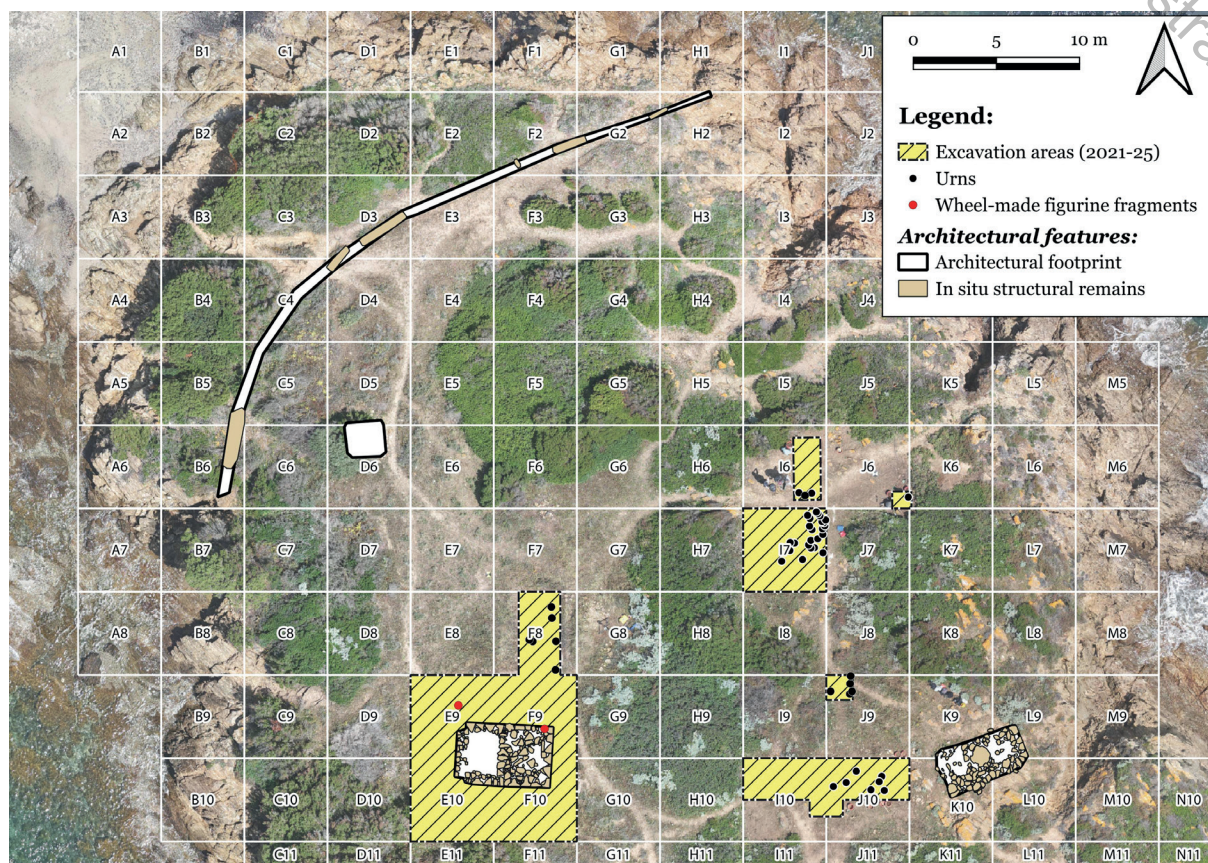


Fig. 3. Bithia, Su Cardolinu. Map showing the location of architectural features, excavation areas, and urns documented between 2021 and 2025 (elaboration by S. Floris).

tion clearing – has produced a first-order map of artefact densities and ceramic chronologies for the northern sector of the islet. This mapping distinguished two main zones. The first, located between Buildings A and B (Sq. E-F7-8), featured an exceptionally high concentration of highly fragmented Punic and Late Punic kitchen and tableware sherds. The second, comprising Sq. I-L6-10, yielded scarce surface material, primarily Archaic cooking pots.¹⁷ This latter pattern strongly indicated long-term use as an urnfield, aligning with Barreca's earlier discovery of urns predominantly made from handmade or wheel-made cooking pots.¹⁸

Based on these findings, stratigraphic excavations proceeded along two complementary lines: targeted investigation of the urnfield to document depositional practices and determine its true extent, and excavation around Building B, which included a test trench in the sherd-dense area of Sq. F8. In the urnfield, open-area excavations in Sq. I7 – where the survey had indicated potential *in situ* urns – uncovered 25 urns

17 We follow the tripartite periodization commonly adopted for Punic Carthage: Archaic (760-480 BCE), Middle (480-300 BCE), and Late Punic (300-146 BCE) (Maroufi Telmini *et al.* 2014, p. 117, table 7.1). It should be emphasized that, in the case of Sardinia, the Roman conquest of 238 BCE did not mark a break with Punic traditions. The first archaeologically visible transformations in settlement systems, urban organization, and architecture occurred from the 2nd century BCE onward, particularly during the 1st century BCE (Floris 2022, pp. 286-288). During these same centuries, the tophet phenomenon came to an end, whereas Punic cultural, linguistic, and religious traditions continued to thrive for a considerably longer period, as indicated by the Neo-Punic inscription from the Temple of Bes at Bithia (for the inscription see below, note 27).

18 Bartoloni 1996a, p. 39; Floris – Gilibert forthcoming.

dating from the 5th/4th to the 3rd/2nd centuries BCE. Subsequently, a trench in the northern half of Sq. J10 revealed six additional urns from the late 7th to 6th centuries BCE.

Initially, urns were systematically lifted *en bloc* to preserve their internal micro-stratigraphy for laboratory investigation. However, early *in situ* tests – necessitated by the fragile state of some urns that precluded lifting – revealed that several vessels were filled with intrusive sediment and lacked visible biological remains. This unexpected finding prompted a strategic revision toward a more interdisciplinary approach, integrating tomographic screening and geochemical sampling prior to laboratory micro-excavation.¹⁹ Although this adjustment slowed the detailed study of both the urn contents and their ceramic typology, it significantly enhanced the project’s interpretive potential by directly addressing the taphonomic and post-depositional formation processes of the site.

Our current working hypothesis is that, in some cases, the urns’ original contents have disappeared due to post-depositional processes, likely driven by soil acidity at Su Cardolinu. This hypothesis is indirectly supported by the recovery of bone remains identified during the most recent fieldwork campaign (May-June 2025) through the laboratory micro-excavation of a selection of urns originally covered by soil with pH values above the islet average. Although bioarchaeological analyses are still pending, this recent discovery represents a major development, significantly expanding the project’s research perspectives.

A commitment to continuous methodological and operational refinement led to additional strategic readjustments. Since 2025, in particular, our open-area excavation has been complemented by “key-hole” test trenches aimed at verifying the presence or absence of urns. These interventions also allow for broader soil sampling, which is essential to understanding the absence of biological remains within the urns. This approach led to the identification of 10 additional urns. Further six urns were uncovered during excavations in Sq. F8, originally opened to investigate an anomalously high surface density of ceramic fragments (Fig. 3).

Parallel to the urnfield investigations, excavations in and around Building B sought to clarify construction and reuse processes, examine the relationship between architectural monumentalization and urn deposition, and explain the dense concentration of pottery sherds in Sq. E-F7-8. Excavations targeted the Barreca excavation soil redeposited along the building’s perimeter as well as the building’s interior sections.

Before proceeding further, however, it is important to acknowledge a number of limitations that still complicate a balanced assessment of the site. First, the archaeological evidence is currently concentrated in the northern sector of the islet. The southern half preserves no visible structural remains, and surface ceramic material is virtually absent there. Yet no archaeological indicators – such as boundary features, walls, or other forms of demarcation – suggest that the islet was functionally divided in antiquity. For this reason, the hypothesis that the southern sector was not used cannot be taken for granted and will need to be tested through future excavation.

A second limitation concerns the ceramic assemblages, whose study has not yet reached a stage that permits precise chronological definition. This is due primarily to the poor state of preservation of the finds: the urns are generally highly fragmented and often lack their upper portions, lost through surface erosion. Since most vessels were lifted *en bloc*, their detailed ceramological study must await micro-excavation, restoration, and drawing.

19 Tomographic analyses of a sample of five urns were carried out at the *Centro Conservazione e Restauro “La Venaria Reale”* in Turin, in collaboration with the Department of Physics of the University of Turin and the National Institute for Nuclear Physics (INFN). Geochemical analyses of soil samples collected both inside and outside the urns were conducted by the Chair of Analytical Chemistry at Ca’ Foscari University of Venice within the framework of a BA thesis (Mauro 2024-2025):

2. THE TOPOGRAPHY OF SU CARDOLINU

The tophet of Bithia is not simply a “urnfield,” but an articulated architectural complex²⁰ occupying a deliberately structured position within a wider spatial system that includes the acropolis, the harbor, the coastal necropolis, and other cult places along the shoreline. Examining the geographical location of the islet and its topography is therefore a necessary step for understanding the spatial framework within which ritual practices developed at Su Cardolinu.

2.1. *Su Cardolinu within the Wider Landscape of Bithia*

Bithia is located on the southwestern coast of Sardinia, where the stretch of coastline between Sa Punta 'e Su Senzu and Monti Cogoni gives access to the plain of Chia (Fig. 1). This relatively narrow alluvial plain is enclosed inland by the mountain ranges of the southern Sulcis, a configuration that limits overland communication. The promontory of Torre Chia, where the earliest Phoenician settlement was likely established, dominates the plain and overlooks the maritime approaches, functioning as a landmark and focal point within the surrounding landscape.

Within this setting, Su Cardolinu (Sardinian “the Small Mushroom”), also known as S'Isula Manna (“the Big Island”), occupies the easternmost and relatively less accessible sector of Bithia's coastline. This part of the coast is marked by steep and rugged hills running parallel to the shore, between S'Isuledda (“the Small Island”) – which marks the eastern edge of the Bay of Su Portu, generally identified as the ancient harbor²¹ – and Sa Punta 'e Su Senzu (Fig. 4).

Su Cardolinu is a 160 × 85 m rocky islet, composed primarily of schist, connected to the mainland by an ephemeral sandy tombolo. Its highest point (14 m a.s.l.) lies at the southeastern end, with the surface sloping generally from east to west and south to north (Figs. 1; 4). Although approachable via a coastal road that may have been in use also during antiquity, direct access to the islet is currently arduous due to a steep, slippery cliff formed by the erosion of a fossil dune. However, this modern topography may not fully reflect the ancient landscape. In the Phoenician period, the aeolian sandstone outcrop likely extended closer to the site, forming a small promontory. The islet's current separation from the coast might even result from sandstone quarrying conducted in Late Punic and Roman times.²² Whatever its precise ancient geological configuration, access to the site was easily controlled.

Its location placed the sanctuary of Su Cardolinu in a liminal position: physically separated from the urban core, yet closely integrated into Bithia's wider coastal and urban landscape. The tophet should therefore be understood as part of a deliberately structured sacred coastal landscape, characterized by strong maritime ties, a spatial differentiation of ritual functions, and controlled access to key cultic and funerary areas.

The necropolis, situated along the sandy shoreline of Sa Colonia beach on the opposite side of the Torre Chia promontory, formed an integral part of this sacred landscape from the earliest phases of the settlement (Fig. 1). The earliest contexts identified there date to the last quarter of the 7th century BCE. By that time, Bithia – first settled by Phoenicians at least a century earlier – was prospering through its integration into the major maritime routes linking Carthage with the Tyrrhenian coast of Etruria. It had also completed its transition from a trading post to a more structured settlement, a development further supported by the contemporaneous activation of the tophet.²³

20 For the tophet as a complex sacred area see Ciasca 2002.

21 Bartoloni 1996b.

22 Bartoloni 1996a, pp. 38-39.

23 Most recently, Botto 2024, pp. 141-142.

Another cult place, the so-called Temple of Bes,²⁴ lay close to the necropolis (Fig. 1). Its identification is based on the discovery of a large cult statue of the Egyptian god, probably Punic or Late Punic in date²⁵ (a Roman-period date has also been proposed).²⁶ The architectural configuration documented during the excavations of 1933 and 1953-1955 belongs to the temple's final phase of use, dated to the 3rd or 4th century CE. This layout resulted from a long sequence of transformations, including renovations recorded in a well-known Neo-Punic inscription of the second half of the 2nd century CE.²⁷ Earlier phases are documented by a votive deposit containing roughly two hundred wheel-made figurines of "suffering devotees," anatomical ex-votos, incense burners, amulets, and two hoards of Punic and Roman coins dating to the 3rd-1st centuries BCE.²⁸ The inclusion of a terracotta prow²⁹ and seashells further underscores the site's connection with the maritime sphere. The chronology of the temple's earliest phase remains uncertain, although a recent proposal suggests a date as early as the 6th or 5th century BCE.³⁰ If so, both the nature of the cult and the identity of its principal deity may have changed over time, together with the architectural complex itself.³¹

Although the Sa Colonia necropolis and the sacred area of Su Cardolinu share a close topographical relationship with the maritime environment, the necropolis' location west of the Torre Chia promontory prevents direct visual contact between the two sites. This configuration underscores a clear spatial differentiation between the ritual practices associated with the necropolis and the Temple of Bes, on the one hand, and those performed on Su Cardolinu, on the other – a distinction likely rooted in different ideological and religious functions.

A further element to consider in assessing Su Cardolinu's place within Bithia's sacred landscape is its visual connection with the acropolis on the Torre Chia promontory and its topographical proximity to the presumed harbor in the Bay of Su Portu. This configuration is likely significant, since visual connection and proximity to the harbor are also documented at other tophets, such as Carthage and Tharros.³² Ongoing archaeological investigations on the Torre Chia promontory are progressively revealing a structured sacred



Fig. 4. Aerial view of the islet of Su Cardolinu, with Sa Punta 'e Su Senzu visible in the background to the right (photo by S. Floris).

24 On the Temple of Bes see Garbati 2014; 2022, pp. 67-84; Chergia 2019; and, most recently, Chiarenza 2024.

25 See, among others, Barreca 1986, p. 132; Tore 1989, pp. 139-140; Spanò Giammellaro 1995, pp. 48-49; 2000, pp. 215-216; Pesce 2000, pp. 179-180, 184; Stiglitz 2012, pp. 142-143; Garbati 2022, p. 72; Chiarenza 2024, p. 426.

26 Agus 1983. This date is followed by, among others, Moscati 1986, pp. 232-233; and Bartoloni 2017a, p. 124.

27 ICO Sard, 8NP = KAI², 173. On the Neo-Punic inscription from Bithia, see most recently Ibba 2021, with previous bibliography.

28 Pesce 1965; 1968, pp. 331-338. See also, Chergia 2019 and Chiarenza 2024, pp. 422-426. On the "suffering devotees", see Pesce 1965; Aubet 1969; Uberti 1973; Ferron – Aubet 1974, nos. 50-103. See, also, Garbati 2008, pp. 26-30; 2010, pp. 166-170; 2014; 2022, pp. 67-84; Carboni 2012, pp. 33-40; López-Bertran 2017.

29 Pesce 1968, pp. 333-335. Lastly, Medas 2020.

30 Chiarenza 2024.

31 Garbati 2014, pp. 299-300; Chergia 2019, p. 295; Chiarenza 2024, p. 429.

32 Floris 2022, p. 219.

area, articulated through terraced architecture adapted to the steep natural slope.³³ A monumental staircase running up the eastern flank of the promontory leads to its summit, where the foundations of a substantial public structure – plausibly interpreted as a temple – have been identified.³⁴ Before reaching the summit, the same staircase also provides access to an east-facing cult terrace equipped with an altar and a small shrine, whose earliest phase dates to the 3rd-2nd centuries BCE and which shows evidence of continued use and restoration into the Middle Imperial period.³⁵

A preliminary analysis of the abundant coroplastic material recovered from this sacred area – mainly dating to the 1st century CE, but showing stylistic ties to Punic and Hellenistic models – points to ritual practices centered on female identity, fertility, and the protection of motherhood. Together with objects linked to maritime activities, this assemblage suggests the worship of an as yet unidentified female deity associated with both fertility and seafaring, tentatively identified as Astarte/Aphrodite/Venus.³⁶ Significantly, several major architectural features are oriented toward both the harbor and Su Cardolinu.

Ultimately, Bithia's coastal setting is essential to understanding the geographical context of the tophet. When the sanctuary was in use, the settlement developed within an environment structured by seaborne connectivity. Its location on a prominent coastal feature should therefore not be seen as the marginal placement of a peripheral cult site, but as part of the spatial logic of a city whose development and identity were closely tied to the maritime sphere.

2.2. *The Internal Organization of the Sacred Area and Its Architectural Sequence*

This section examines the architectural sequence and internal organization of the sacred area to clarify how ritual space was structured and transformed over time. We subdivide the evidence into phases for clarity. However, we stress that the absence of datable materials or features should not be taken as evidence of abandonment or interruption in ritual activity. Such gaps are more plausibly explained by post-depositional processes and, above all, by the current limits of archaeological investigation. The spatial and functional organization of the sanctuary was likely dynamic and non-uniform, with different areas experiencing different degrees of use, transformation, and visibility over time. The phases discussed below should therefore be understood as analytical constructs, leaving room for continuity, overlap, and gradual change that cannot yet be precisely resolved.

2.2.1. The Earliest Phase (Last Quarter of the 7th-6th century BCE)

The earliest phase of activity in the sacred area of Su Cardolinu is currently dated between the last quarter of the 7th century BCE and the first half of the 6th century BCE. This chronology is based on the ceramic analysis of the urns and associated pottery discovered by Barreca in the immediate vicinity of a structure known as Building C³⁷ (Figs. 5-7), located along the northeastern edge of the islet (Sq. K-L9-10 of our grid; Figs. 2-3).

Barreca described Building C as a rectangular platform measuring approximately 7 × 6 m, built of unworked stones and incorporating the natural bedrock outcrop.³⁸ The structure was associated with other

33 Lastly Pilo – Minoja 2024.

34 Pilo – Minoja 2024, pp. 5-6, 14.

35 Pilo – Minoja 2024, pp. 5-6.

36 Pilo – Minoja 2024, p. 13.

37 Barreca 1965, pp. 149-150.

38 Barreca 1965, p. 149; Perra 1998, p. 157, n. 3. We are deeply grateful to Professor Piero Bartoloni, who personally took the photographs reproduced in Figure 7 in 1964, for generously granting us access to the photographic material and for sharing valuable information concerning the discovery of the site.

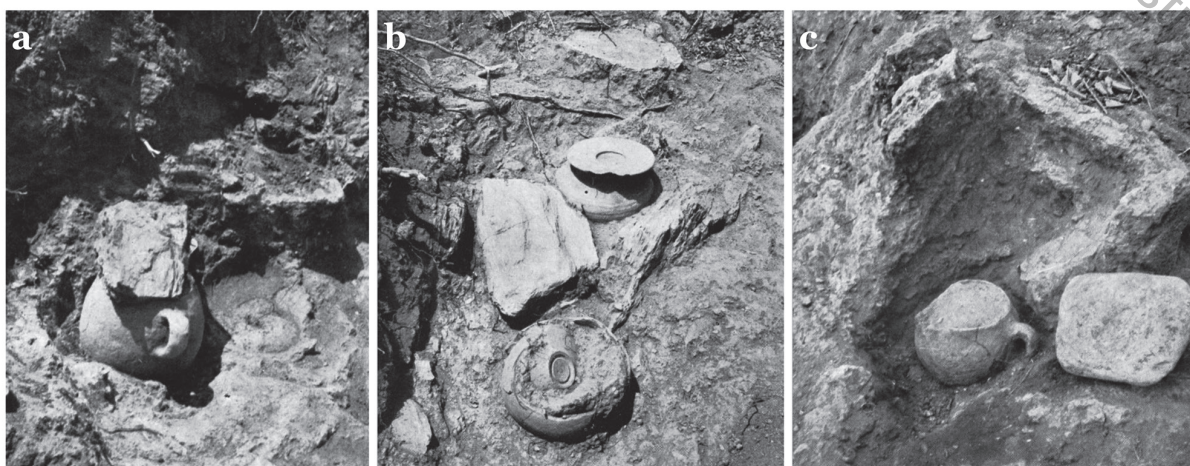


Fig. 5. Excavation 1964: a) Urn covered by a stone flake; b) Urns protected by stone slabs; c) Urn protected by stone slabs arranged to form a stone cist (after Barreca 1965).

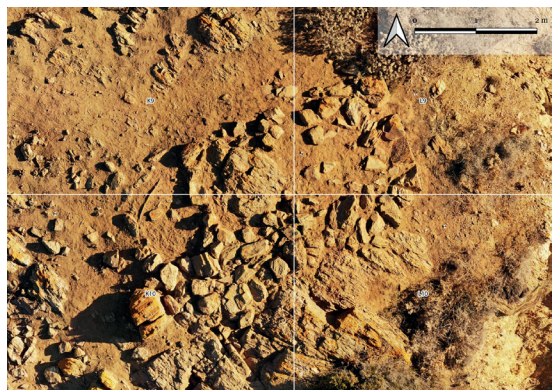


Fig. 6. Building C in 2024, orthomosaic (elaboration by S. Floris).

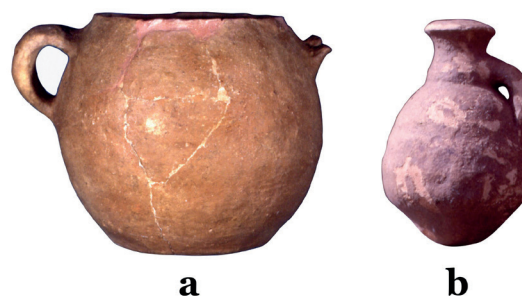


Fig. 7. Excavation 1964: a) Handmade urn with double “false spout”; b) *Oil bottle* (photo by P. Bartoloni).

minor architectural features that were difficult to interpret even at the time of discovery. Known for decades only through Barreca’s written reports, these features were tentatively interpreted as a “vestibule-like” space.³⁹ Today, several originally recorded building stones are missing, and the feature lies on the edge of a precipitous erosion scarp that prevents safe fieldwork. Nevertheless, a rectangular basement with a northeast-southwest orientation remains visible on the ground, encompassing the vestibule-like space (Fig. 6).⁴⁰ Including this compartment (or step), Building C currently presents a rectangular plan measuring 5.25×2.5 m, largely corroborating Barreca’s initial report.

³⁹ These include, on the one hand, a series of low steps arranged along the northeastern side of Building C, built with irregular stones, parallel to one another, and measuring between 0.90 and 1.10 m in width. A wall delimiting the outermost of these steps was preserved for at least 2 m toward the northwest. Barreca did not exclude the presence of similar features on the southwestern side of the structure (Barreca 1965, p. 149).

⁴⁰ The only inconsistency concerns the fact that Barreca located these features on the northeastern side of Building C. A possible explanation for this discrepancy may tentatively be found in an unnoticed inversion of the northeastern and southwestern short sides of the basement of Building C during the compilation of his excavation report (Barreca 1965, p. 149).



Fig. 8. Urns under excavation: a) Urn 32; b) Urn 33 (photo by S. Floris).

Barreca identified the structure as a large open-air altar, or *bāmāh*, explicitly invoking biblical sources.⁴¹ This interpretation as a ritual burning place remains plausible, given its exposed location on the leeward side of the prevailing northwesterly winds, making it well-suited for activities involving open flames. While archaeological verification remains difficult, our geochemical soil analyses have documented anomalously elevated pH values within the islet's otherwise acidic pedological background – a pattern consistent with the presence of ash deposits.⁴²

Test trenches in Sq. J6 and J10 documented additional urn depositions provisionally dated to the same chronological range as those uncovered by Barreca. Notably, Urn 32 (Fig. 8.a), recovered roughly 7 m west of Building C and attributable to the earliest phase of the tophet, likely marks the western boundary of the urnfield (Fig. 3). In the northern half of Sq. I10, where no urns were recorded, the bedrock typically used to embed urns lies deeper than usual. The availability of exposed rock outcrops may therefore have been a deciding factor in selecting depositional locations for the tophet's earliest urns, a practice also documented in comparable sanctuaries.⁴³ To the north, Urn 33 (Fig. 8.b), recovered approximately 15 m northwest of Building C in Sq. J6, represents the northernmost urn attributable to this phase (Fig. 3), though future research will need to confirm or revise this assessment.

The use of Sq. I6-7 during the sanctuary's earliest phase remains uncertain, as the urns found there are tentatively dated between the 5th/4th and the 3rd/2nd centuries BCE.⁴⁴ A similar chronological uncertainty applies to six urns excavated in Sq. F8, preliminarily ascribed to the Middle or Late Punic period. However, early use of the northwestern sector is strongly suggested by early materials found in secondary contexts. These include fragments of terracotta wheel-made “orant” figurines collected on the surface of Sq. E9⁴⁵ (Figs. 3; 9.a) and within the fill of a robbing trench – dug after the abandonment of Building B to remove the sandstone blocks of its northern wall foundation⁴⁶ (Figs. 3; 9.b). Despite their highly fragmentary state, both pieces can be attributed to type A of the Aubet and Ferron classification, tentatively dated to the 6th-5th centuries BCE.⁴⁷ Such objects are common in tophets, documented either in primary depositional

41 Barreca 1965, pp. 148-151.

42 Mauro 2024-2025.

43 See Ciasca 2002, pp. 125-126; Floris 2022, pp. 218-219, 274 and note 1575.

44 See below, § 3.2.

45 Floris 2024b, pp. 426, 428-432, figs. 3, 5-6, fr. no. 1.

46 Floris 2024b, pp. 426, 433-434, figs. 3-4, 10-11, fr. no. 2.

47 Floris 2024b.

contexts within the urnfield (Carthage, Motya, and Nora) or in secondary positions during the excavation of cult buildings (Motya and Monte Sirai).⁴⁸ Thus, the area around Building B was likely involved in cultic activities associated with the tophet as early as the 6th and 5th centuries BCE. Furthermore, comparisons with the tophets of Motya⁴⁹ – and possibly Tharros⁵⁰ – where cultic buildings date back to the sanctuaries' earliest phases, suggest that Building B may have been constructed over a pre-existing structure, a hypothesis awaiting future testing.

Two stone stelae found reused in the foundations of Building B – to date, the only stelae found at Su Cardolinu – present a different case. They are datable, on typological and iconographic grounds, to the late 7th-6th centuries BCE.⁵¹ Both are parallelepipedal in shape and represent divine images. Stele no. 1 depicts a baetyl and has many comparisons in other tophets⁵² (Fig. 10). Stele no. 2 portrays an armed figure in profile bearing a fenestrated axe within an arched niche. This Levantine divine iconography – commonly associated with the god Melqart based on the Breġ stele⁵³ – represents a unique case within the extensive iconographic repertoire of tophet votive stelae⁵⁴ (Fig. 11).

Finally, Barreca proposed that a delimiting wall running along the northern edge of the islet belonged to the sanctuary's earliest phase.⁵⁵ Although its chronological attribution rests solely on construction technique (described by Barreca as “pseudo-telaio” masonry)⁵⁶ and awaits stratigraphic confirmation, its presence indicates an early intention to define the sacred space and control its access, a feature documented in other tophet sanctuaries.⁵⁷

Taken as a whole, the available evidence suggests that the earliest phase of activity at Su Cardolinu already involved a delimited and articulated sacred area. Its internal organization appears to have depend-

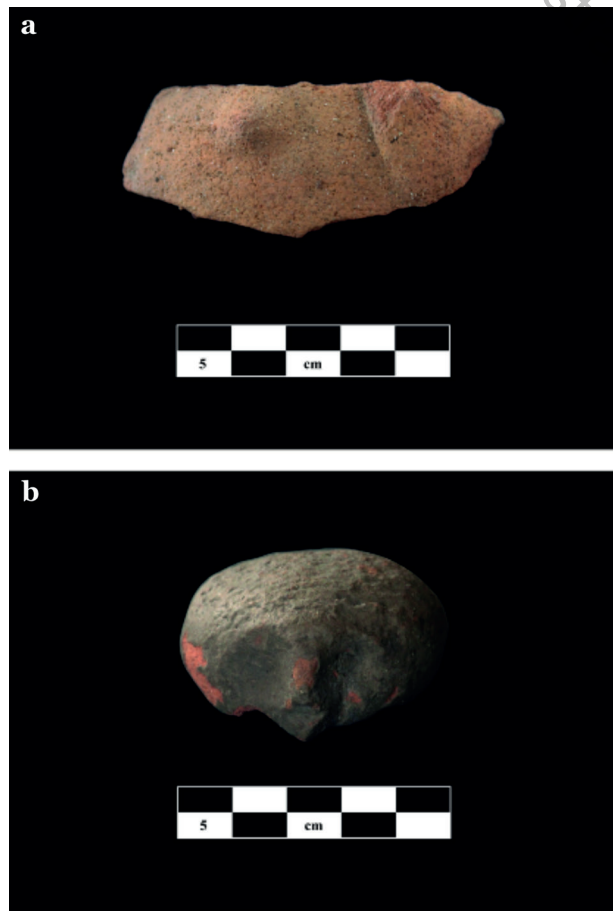


Fig. 9. Wheel-made figurine fragments: a) torso fragment; b) head (photo by S. Floris).

48 See Floris 2024b, pp. 426-428, with bibliography.

49 Ciasca 1992; Ciasca 2002, pp. 130-131; Nigro 2009, pp. 253-254; Nigro 2020, p. 122-134.

50 Floris 2022, pp. 243-255, 261-262, 275-276.

51 Floris 2024a.

52 Floris 2024a, pp. 77-81, no. 1.

53 Oggiano 2021, pp. 63-68, with previous bibliography.

54 Floris 2024a, pp. 81-85, no. 2.

55 Barreca 1965, p. 152.

56 Barreca 1965, p. 146.

57 Ciasca 2002, pp. 127-128.

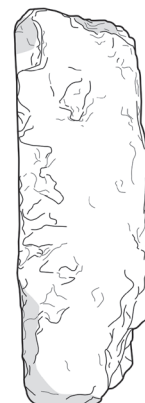
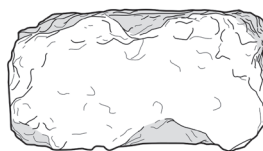
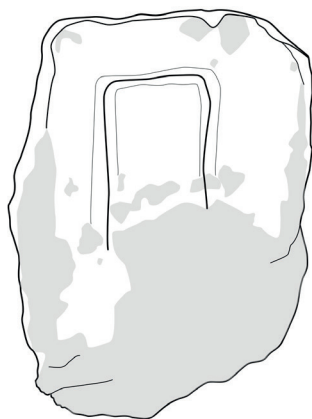


Fig. 10. Orthomosaic and drawing of Stele no. 1. Areas shaded in gray indicate breaks and abrasions (elaboration and drawing by S. Floris).

Fig. 11. Drawing of Stele no. 2. Areas shaded in gray indicate areas where plaster removal has exposed the stone surface (elaboration and drawing by S. Floris).

ed less on formal architectural boundaries than on a limited number of focal points combining built and natural features, including Building C, the surrounding rocky outcrops used for cremation rituals and urn deposition, and possibly the boundary wall. Although the precise limits of the urnfield remain only partially definable, the distribution of the earliest urns in the higher, rockier northern sector of the islet suggests that depositional space was deliberately selected and structured in close relation to the local topography.

2.2.2. A Lost Century? (5th century BCE)

As discussed above, the small number of urns identified by Barreca in the area of Building C, and the absence among them of deposits securely attributable to phases later than the late 7th-6th centuries BCE, long suggested that the tophet had been abandoned before the end of the 6th century BCE. At the current state of research, this picture has changed.

Despite the lack of materials bridging the gap between the late 6th century BCE and the 4th century BCE – with the only exception of the wheel-made figurine fragments mentioned above, tentatively dated to the 6th-5th centuries BCE⁵⁸ (Fig. 9.a-b) –, the renewed excavations have shown that the urnfield continued to expand and remained intensively used for centuries after the end of the 6th century BCE. This is particularly clear in Sq. I7, where a sector of the urnfield contiguous with those in use during the 7th-6th centuries BCE has yielded a high density of urns, with use continuing at least into the 3rd/2nd centuries BCE (Fig. 3). Some urns, such as Urn 7 (Fig. 19), may tentatively be dated between the 5th century BCE

and the Hellenistic period, although the current state of documentation does not allow greater chronological precision.⁵⁹

A similar conclusion is suggested, on different and more fragmentary grounds, by a test trench in the northwestern corner of Sq. J9 (Fig. 3). This trench revealed five urn depositions, heavily damaged by erosion because of the high elevation of the bedrock on which they had originally been placed. Although their poor preservation prevents any reliable chronological attribution, both their density and their location – intermediate between the southern sector of the earliest urnfield and Sq. I7, where the latest depositions have so far been identified – are consistent with continued use and difficult to reconcile with the hypothesis of abandonment.

This topographical and ritual continuity suggests that the tophet of Su Cardolinu remained in use without major interruption, and that the present lack of urns securely datable to the 5th century BCE reflects poor archaeological visibility, the limits of excavation so far, and the still preliminary state of documentation, rather than a genuine break in ritual activity. It is therefore plausible that ongoing excavation, together with the completion of laboratory analyses of urn contents and the subsequent restoration and ceramic study of the vessels, will progressively reduce these apparent gaps.

2.2.3. A Monumentalized Space (4th-3rd/2nd century BCE)

According to the periodization originally proposed by Barreca, the subsequent phase is marked by the construction of two cult buildings in the northwestern sector of the islet, conventionally designated as Buildings A and B (Figs. 2-3). On the basis of construction technique, Barreca attributed both structures to a period no earlier than the 4th century BCE.

The smaller of the two, Building A, was constructed on a square foundation of flat stones measuring 3.10 m per side and consists of a small square building with sides of about 1.70 m. Other features include a beaten-earth floor and the base of walls built of small polygonal sandstone blocks approximately 45 cm thick and preserved to a height of up to 25 cm⁶⁰ (Fig. 12). On the basis of comparison with a small Egyptianizing structure with a similar foundation, excavated by Gennaro Pesce in the sanctuary of Sa Punta 'e Su Coloru at Nora,⁶¹ Barreca interpreted Building A as an *aedicula*, that is, a small shrine intended to house a cult image.⁶² At present, the structure remains hidden beneath dense vegetation⁶³ and has not yet been investigated.

The larger structure, Building B, has a rectangular plan measuring 5.75 × 3.70 m. The foundations of its walls, approximately 50 cm thick and preserved to a maximum height of 25 cm, are built of polygonal blocks and small irregular sandstone stones bonded with mud mortar. The building is divided into two spaces of comparable size by a step formed of large irregular stones, interpreted by Barreca as the base of an internal wall. The western side is open, and access to the interior probably took place from this side through a threshold approximately 70 cm deep. According to this reconstruction, the entrance led into a front room with a beaten-earth floor, while in the rear room a small altar base (c. 80 × 50 cm) was identified along the longitudinal axis of the building, approximately 5 cm from the back wall, which at the time still preserved traces of plaster. Barreca interpreted Building B as a small shrine, or *sacellum*.⁶⁴

59 See below, § 3.2.

60 Barreca 1965, pp. 147, 151-152, pl. LXVI; Perra 1998, p. 159, no. 4.

61 Pesce 1952-1954; Oggiano 2005, pp. 1034-1038.

62 Barreca 1986, p. 295; Bartoloni 1996a, pp. 39-40; Perra 1998, p. 159.

63 See also Perra 1998, p. 159; Cilla 2015, p. 274.

64 Barreca 1965, pp. 147-148, 151-152, pl. LXVI; 1986, p. 295; Perra 1998, pp. 161-162, no. 5. Building B presents similar features to a submerged structure in the lagoon of Sant'Antioco, interpreted as a small cult building in use between the Punic and late Republican ages (Guirguis 2011).



Fig. 12. Building A (after Barreca 1965).

and sizes (Fig. 13). This layer probably represents the preparation for a floor now lost, together with the altar described by Barreca. The hardcore (SU1013) appears to consist largely of reused material, including vaguely triangular blocks and others resembling the T-shaped ashlar used in the walls.

Partial excavation of this hardcore revealed two reused stelae.⁶⁶ Stele 1 was haphazardly reused alongside stones of comparable size and was recovered in poor condition, broken in two and set obliquely. By contrast, Stele no. 2 was carefully arranged horizontally with its carved face pointing upward (Figs. 13-14). Rather than being casually incorporated into the rubble fill, it was deliberately bedded within a homogeneous layer of sandstone rubble (SU1014) that had been carefully packed around it to interlock with the stele (Fig. 14). This deliberate arrangement suggests an intentional deposit made during a specific phase of Building B's construction or refurbishment.⁶⁷

At present, excavation has not yet produced sufficient evidence to date the construction phase that gave Building B its final documented layout. One possible clue lies in the use of several triangular⁶⁸ and T-shaped blocks. These may derive from an earlier nearby Nuragic structure.⁶⁹ Alternatively, they may reflect the persistence of a Nuragic building tradition. Another clue may be provided by the reused stelae. If their reuse is contemporary with the creation of the hardcore, and if the hardcore is itself contemporary with the construction of the building, then the proposed dating of the stelae to the late 7th-6th centuries BCE would provide a *terminus post quem* for Building B. For the moment, however, this remains only a working hypothesis.

⁶⁵ Barreca 1965, p. 148.

⁶⁶ Floris 2024a. The discovery of stelae in secondary recurs in most tophet sanctuaries. See e.g. Ciasca 2002, p. 132; Floris 2022, pp. 223-258; Floris – Amadasi Guzzo 2022.

⁶⁷ Floris 2024a, pp. 77, 81-85, no. 2.

⁶⁸ A quarry front with traces of extraction of triangular sandstone ashlar has been recently discovered in the area of the Phoenician necropolis of Nora. It predates the establishment of the funerary area, in the first half of the 7th century BCE (Bonetto *et al.* 2022, p. 267, fig. 18.b).

⁶⁹ This structure may hypothetically be recognized in the Nuragic building reported at Punta 'e Su Senzu, about 300 m northeast of the islet of Su Cardolinu. In 1964, in the framework of the same territorial survey that led to the discovery of the sacred area of Su Cardolinu, Barreca discovered several stone blocks on Punta 'e Su Senzu, some of which were "T-shaped" and were interpreted as baetyls (Barreca 1965, p. 145, pls. LX-LXI). However, these blocks should probably be considered as construction elements of a Nuragic structure (Lilliu *apud* Moscati 1968, p. 137; for the report of a Nuragic tower at Punta 'e Su Senzu, Bartoloni 1996a, p. 38; see, also, Cilla 2015, pp. 280-281; Minoja – Bassoli – Nieddu 2016, p. 126).



Fig. 13. Plan of Building B (elaboration by S. Floris).

Excavations at Sq. I7 indicate that the urnfield was still in use between the 4th and the 3rd/2nd centuries BCE (Fig. 15). Moreover, excavations in Sq. F8 point to a spatial continuity between the urnfield and Building B, following a pattern documented also at other tophets, such as Tharros, Nora, and Monte Sirai.⁷⁰ On this basis, the construction of Buildings A and B should not be understood as evidence for a transformation of the sanctuary into a non-tophet cult place. Rather, it points to a process of monumentalization accompanied by a reorganization of activities within a framework of continuity rather than rupture. At the same time, the northern sector of the islet continued to function as an urnfield, suggesting that there was no strict spatial separation between areas devoted primarily to deposition and areas associated with cult buildings. Instead, the evidence points to an internal reconfiguration of ritual space, in which new architectural features were inserted into a sacred landscape that retained strong continuities with the past.



Fig. 14. Stele no. 2 under excavation (photo by S. Floris).

⁷⁰ See, Bondi 1995 (Monte Sirai); Floris 2022 (Tharros); Floris – Amadasi Guzzo 2022 (Nora).

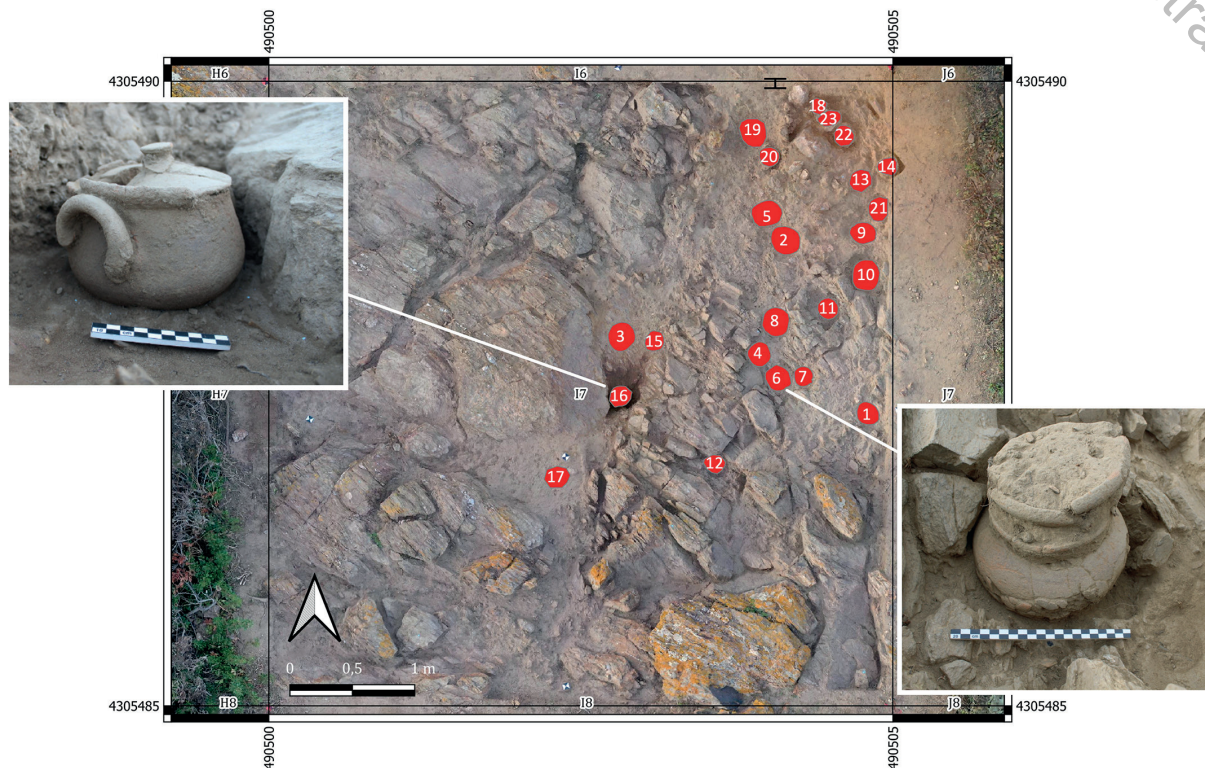


Fig. 15. Orthomosaic of Sq. I7 showing the location of urns discovered between 2021 and 2023. Insets show photographs of Urns 6 to the right and Urn 16 to the left (photos and elaboration by S. Floris).

In this phase, the wall running along the northern edge of the islet was almost certainly in use. Even if its initial construction predates the period, its role in delimiting the sacred area and regulating access becomes particularly significant when permanent cult buildings exist. The same may tentatively be proposed for Building C, since no other fire-related installations were identified.

Taken together, the evidence suggests that during the Late Punic period the sanctuary was characterized by the coexistence of an established urnfield and a set of cult buildings, as commonly documented in other tophets. These included covered structures intended to house cult images (Building A) and to accommodate rituals and ceremonies (Building B), together with open-air installations used to delimit sacred space (the wall) and to support the fires essential to tophet ritual (Building C) (Figs. 2-3). This configuration does not imply a rupture with the earlier arrangement documented at Su Cardolinu, but rather a transformation of ritual space into more monumentalized forms.

2.2.4. Continuity in Roman Period, Abandonment and Spoliation

Currently, the only evidence for the continued use of Su Cardolinu during the Roman period is the restoration of the northern boundary wall with lime mortar.⁷¹ It is generally established that Sardinian tophets remained active at least until the Roman conquest in 238 BCE, after which they gradually lost their vitality

⁷¹ Barreca 1965, p. 152.

and were abandoned between the late 3rd and 1st centuries BCE.⁷² However, the specific fate of Su Cardolinu during the Roman period remains an open question for future research.

As for the subsequent history, the only documented episode of architectural spoliation was the robbing trench at Building B mentioned above, within which a fragment of a wheel-made terracotta figurine was recovered. Although no material suitable for dating this spoliation event was found, it plausibly occurred well after the sacred area had been definitively abandoned.

3. FROM FIRE TO ROCK: DEPOSITIONAL PRACTICES AT THE TOPHET OF SU CARDOLINU

3.1. *Inside the Urns: Urn Contents and the Rite of Cremation*

Fire and the rite of cremation constitute the ritual and ideological core around which the functioning of tophets revolves, an element that is never abandoned throughout the long lifespan of these sanctuaries.⁷³ This stands in contrast to funerary contexts, where inhumation and cremation alternate repeatedly throughout the history of the Phoenician and Punic Mediterranean, sometimes even coexisting within the same context.⁷⁴ In other tophets, interdisciplinary analyses of urn contents have provided significant data regarding the cremated individuals, ritual practices, pyre management, cremation intensity, and the seasonality of the rites.⁷⁵

Currently, limited data are available regarding the contents of the urns from Su Cardolinu. Brief reports by Barreca and Pesce suggest the urns excavated in 1964 contained cremated remains comparable to those from other tophets (typically newborns and/or lambs), although this is not explicitly detailed.⁷⁶ Evidence that some urns were opened and examined is found in Pesce's reference to "remains of sacrifice" and Barreca's mention of "ashes" and "fragments of burnt textile" within one vessel.⁷⁷ Assuming the accuracy of Barreca's observation, the deceased may have been wrapped in cloth prior to cremation. A similar practice has been inferred at the tophet of Carthage based on the recovery of textile fragments, clasps, and pins.⁷⁸

Stratigraphic evidence confirms that the urns were not deposited empty. During the *in situ* micro-excavation of Urn 5 (Sq. 17), a bowl originally functioning as a lid was documented at approximately mid-height inside the urn, having collapsed inward (Fig. 16). Additionally, a blue glass-paste bead was recovered from the lowest micro-layer.⁷⁹ Ongoing geochemical analyses on soil samples collected from both inside and outside the urns provide further hints of the original presence of bone remains inside the urns and show a correlation between their disappearance and soil acidity.⁸⁰ Most importantly, bone remains have been retrieved during laboratory micro-excavation of a selection of vessels originally covered by soil with high-

72 See e.g. McCarty 2019, p. 321.

73 Melchiorri 2016b, p. 159.

74 On Phoenician and Punic funerary customs in Bithia and in Sardinia, see, among others, Bartoloni 1996a, pp. 49-65; Bernardini 2004; Guirguis 2019. More broadly, for funerary rituals in the Phoenician and Punic Mediterranean, see López-Bertran 2019.

75 See, e.g., the seminal contribution from Tharros (Fedele – Foster 1988; see also Floris 2022, pp. 170-183) and the ongoing research at Carthage (Duday *et al.* 2025). On the interdisciplinary research on tophet urn contents see, among others, Melchiorri 2013; D'Andrea 2018, pp. 17-22; Cerezo-Román *et al.* 2025, p. 47-48, with previous bibliography.

76 Barreca 1965, pp. 149-150, 152; Pesce 1968, pp. 323-325, 337-340.

77 Barreca 1965, p. 152.

78 Bénichou-Safar 2004, pp. 55, 155. For the identification of calcined wool textiles inside tophet urns see also Muller *et al.* 1952, p. 170.

79 For artifacts recovered from tophet urns, see D'Andrea 2018, p. 12.

80 Mauro 2024-2025.

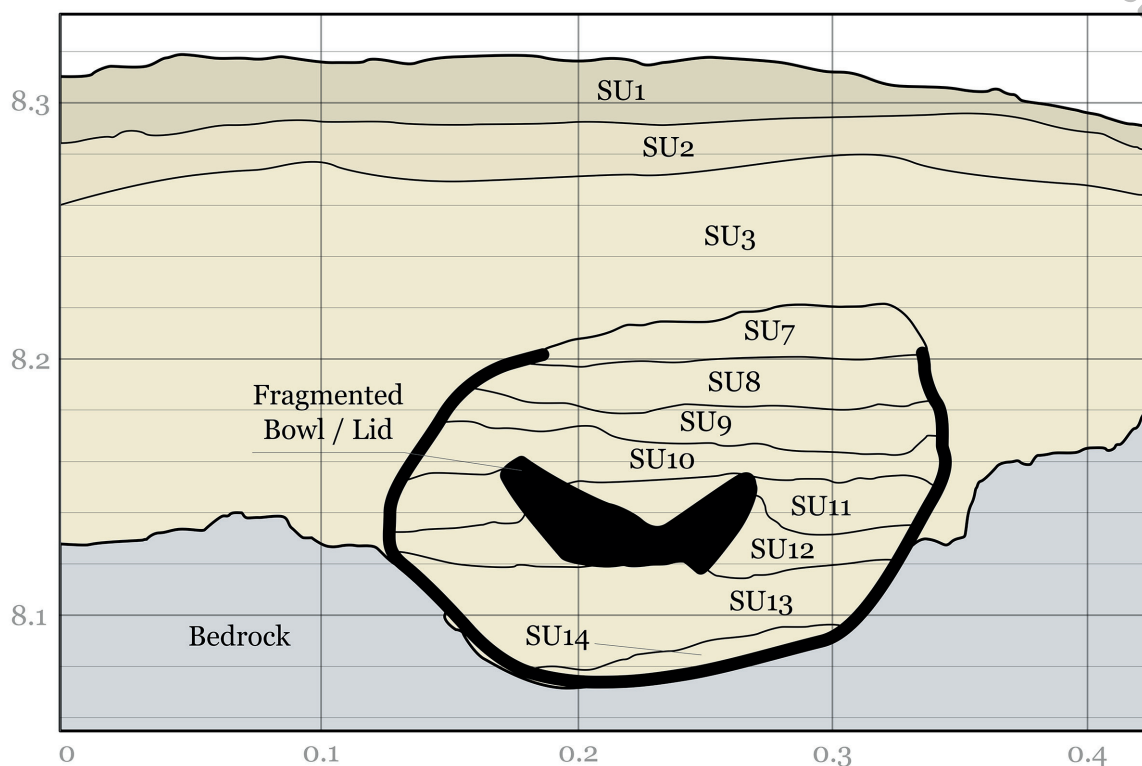


Fig. 16. Micro-stratigraphic profile of Urn 5 (elaboration by S. Floris).

er-than-average pH values. This discovery clearly represents a finding of exceptional importance, opening up new perspectives that will be at the center of our future research.

3.2. After the Cremation Rite: Ceramic Containers and Lids

In tophet sanctuaries, the collection of cremated remains within ceramic containers is as fundamental an element as the cremation rite itself. At Su Cardolinu, once the pyre was extinguished, the remains were placed inside ceramic vessels and sealed with custom lids, repurposed open forms (plates and bowls), or schist slabs.

Although our study of the pottery is not yet at an advanced stage, the available information on the Barreca urns, combined with our preliminary laboratory observations, already provides a robust general framework. Barreca's urns remain largely unpublished, but their morphology can be reconstructed from his 1965 photographs and subsequent data provided by Piero Bartoloni.⁸¹ These vessels consist primarily of cooking pots, mostly handmade and occasionally wheel-made (Fig. 5.a-c). Bartoloni describes the wheel-made examples as “archaic-period cooking pots with almond-shaped oblique rims and a single handle.”⁸² The handmade variants share this general profile but typically feature double “false spouts” – or more accurately, double grip knob⁸³ – opposite the handle (Fig. 7.a). This shape belongs to a broader class typically

81 Bartoloni 1996a, p. 39.

82 Bartoloni 1996a, p. 39. The cooking pots recovered at Su Cardolinu are comparable to Form 40 in Bartoloni's study of the pottery assemblage from the necropolis of Bithia (Bartoloni 1996a, p. 39, form 40). For this form, see also Campanella 2009, pp. 299-303; Secci 2019, pp. 187-188.

83 See Bartoloni 2017b, pp. 18-19.

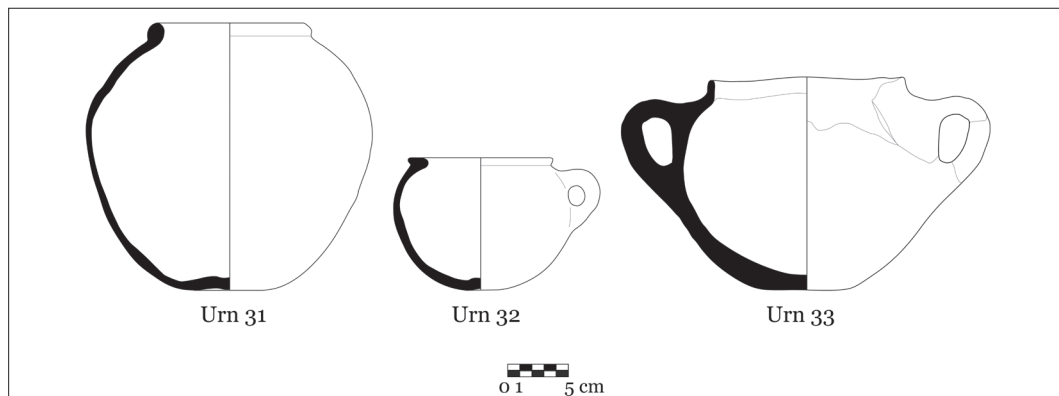


Fig. 17. Urns 31, 32, and 33 (drawings by S. Floris).

characterized by a single knob,⁸⁴ reflecting a “variegated repertoire of hybrid productions resulting from the interaction between eastern and indigenous components.”⁸⁵

Information regarding the 1964 urn covers is limited. Based on Barreca’s reports and photographs, some urns were sealed with schist slabs⁸⁶ (Fig. 5.a, c), while others utilized plates⁸⁷ (Fig. 5.b), including at least one with a “flat suspended umbo at the base.”⁸⁸ Barreca dated this initial group of urns and the sanctuary’s foundation to the 7th-6th centuries BCE. His chronology relied on the associated Building C’s construction technique, a protective stone cist surrounding Urn no. 2 (Fig. 5.c), and an *oil bottle* (dated no later than the 6th century BCE) found near Urn no. 10 (Fig. 7.b).⁸⁹ This dating remains broadly valid and is now more precisely attributed to the last quarter of the 7th century BCE,⁹⁰ coinciding with Bithia’s urban foundation.

The 2021-2025 Ca’ Foscari campaigns confirmed this early chronological framework while significantly expanding the known ceramic repertoire. Urn 32 (Sq. J10) is a wheel-made globular cooking pot with a triangular flat-topped rim, an indistinct concave base, and a subcircular handle set between the shoulder and belly already documented during Barreca’s excavation⁹¹ (Figs. 8.a; 17). These traits align with vessels dating from the late 7th century BCE onwards,⁹² with the flat everted rim persisting until the 5th century

84 This form is also documented in the necropolis of Bithia (Pesce 1968, p. 326, fig. 19, center; Bartoloni 1996a, p. 39, 112, form 37), as well as in domestic, funerary, and tophet contexts at other sites in Sardinia and across the central Mediterranean (Bartoloni 2017b, pp. 18-19, with earlier bibliography). For a specimen featuring multiple knobs, arranged not only opposite the handle but also laterally, see Perra 2019, p. 201, fig. 164.1.

85 Botto – Dessena – Finocchi 2014, p. 103. For Nuragic and Nuragic-tradition material documentation in the territory of Bithia, see Minoja – Bassoli – Nieddu 2016.

86 Barreca 1965, pl. LXXI and, perhaps, pl. LXX (Urn no. 2).

87 It is certain that at least two of Barreca’s urns were covered with plates: Urn 1, for which Barreca describes the cover as «piatto rosso» (Barreca 1965, p. 150, pl. LXXII), and another urn illustrated in the same plate (pl. LXXII). On the basis of Barreca’s description, the use of a plate as a cover may also be hypothesized for Urns 3 and 4 (Barreca 1965, p. 150).

88 Barreca 1965, p. 150, pl. LXXII. With regard to this morphological feature, which is characteristic of early Punic ceramic production and regarded by some scholars as reflecting «una capillare azione acculturatrice di Cartagine a partire dalla fine del VII – inizi VI secolo a.C.», see Secci 2008, p. 147.

89 Barreca 1965, pp. 151-152.

90 Ciccone 2001, p. 37, note 33, with previous bibliography.

91 See above, note 82.

92 Cfr. Guirguis 2004, p. 99.



Fig. 18. Urn 27 under excavation (photo by S. Floris).

BCE.⁹³ Urn 33 (Sq. J6) features a globular body and a short, thinned vertical rim, marking the first documented appearance at the tophet of Bithia of a handmade cooking pot variant with two vertical handles⁹⁴ (Figs. 8.b; 17). Similar forms are attested at the Sulky tophet between the late 7th and 6th centuries BCE.⁹⁵ Urn 31 (Sq. J10) belongs to this same chronological horizon (Fig. 17). This large, neckless, and handleless olla is well-attested in the Bithia necropolis from the late 7th to the first half of the 6th century BCE, whose rim closely resembles contemporary transport amphorae.⁹⁶ Although originally designed as a container for liquids, its exclusive use as a cinerary urn at Bithia suggests a conceptual link between the sphere of death and wine consumption. This connection is reinforced by other banquet-related vessels recovered at the necropolis of Bithia, such as kraters⁹⁷ and stamnoid ollae.⁹⁸

For the remaining urns, pending finalized micro-excavation and restoration, only preliminary observations are possible. Urn 27, though poorly preserved, mimics the transport amphora type (Fig. 18). Similar amphorae served as urns at Carthage, Motya, Sulky, and Tharros predominantly between the late 8th and

93 Secci 2006, pp. 182-183.

94 Perra 2019, p. 199, fig. 161.1, but featuring a sloping rim.

95 See Montis 2004, pp. 60-63, pl. II, nos. 5 and 6 (which, however, feature an applied knob and are dated between the last quarter of the 7th and the 6th centuries BCE, also on the basis of their associated lids).

96 Bartoloni 1996a, pp. 110-111, Form 35. In the case of Urn 31, the swollen, rounded vertical rim specifically recalls Bartoloni's type B7, commonly attested in southern Sardinia, at Sulky and Bithia (Bartoloni 1988, p. 38).

97 Bartoloni 1996a, pp. 109-110, form 33.

98 Bartoloni 1996a, pp. 111-112, form 36.



Fig. 19. Urns 4, 6, 7, and 8 under excavation (photo by S. Floris).

6th centuries BCE,⁹⁹ further emphasizing the funerary symbolism of wine consumption.¹⁰⁰ Urn 7, fragmented in its upper portion, is identifiable as a single-handled cooking pot with the handle rising above an everted rim (Fig. 19). A small knob opposite the handle connects it typologically to the double-spouted pots from Barreca's excavations. This vessel likely represents a Punic evolution of the archaic cooking pot influenced by the Greek chytra, generally dated between the 5th century BCE and the Hellenistic period,¹⁰¹ with parallels at Carthage and Motya.¹⁰²

Urn 6 (Figs. 15; 19), 10, 11 (Fig. 20.a-b), and 20 (and potentially even Urns 8, 9, and 19) are handleless *ollae* with everted necks and concave bases. Preliminary parallels from the Bithia necropolis date these to the 4th-2nd centuries BCE.¹⁰³ Urns 5, 11, and 20 were sealed by bowls placed in their functional upright position. When visible, their visible thinned, vertical, or slightly inward-curving rims resemble bowls from early 4th-century BCE funerary contexts at Bithia.¹⁰⁴

99 Bartoloni 2019, pp. 72-73, with previous bibliography.

100 On this topic, see also Bartoloni 2019, pp. 70-74.

101 See e.g. Vegas 1999, p. 192, form 60.2; Del Vais 2013, pp. 31-32; Bartoloni 2016, p. 23.

102 Vegas 1999, p. 192.

103 Bartoloni 1996a, form 38.

104 Bartoloni 1996a, form 9.

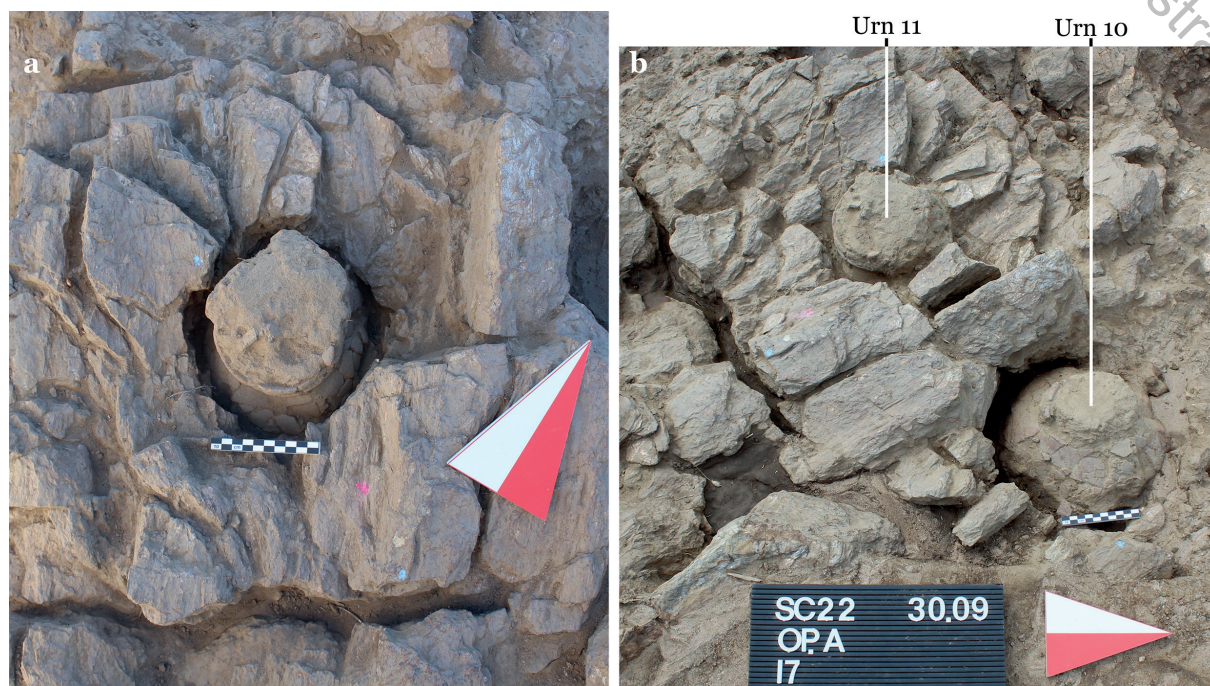


Fig. 20. a) Urn 11 under excavation; b) Urns 10 and 11 under excavation (photo by S. Floris).

Finally, Urn 16 introduces another cooking pot variant featuring a flaring rim with an internal ledge for a lid, a deep body with near-vertical walls, and a grooved convex base (Fig. 15). Two horizontal handles are attached to the upper wall, and its original lid with a truncated conical knob was found *in situ*. This type was widespread in the Punic world during the 3rd and 2nd centuries BCE¹⁰⁵ and served as an urn also at the tophets of Nora¹⁰⁶ and Monte Sirai.¹⁰⁷

Overall, the Su Cardolinu ceramic assemblage is dominated by cooking and food storage vessels, with wine-related forms appearing only secondarily. This preference for cooking ware aligns with a sub-regional pattern observed in southwestern Sardinia (Sulky, Monte Sirai, Nora), contrasting with the wine-oriented forms (jugs and domestic amphorae) preferred at Carthage, Tharros, and Motya.¹⁰⁸ This deliberate selection suggests a strong symbolic association between the tophet ritual and the concepts of transformation and regeneration inherent in cooking and banqueting.

3.3. *In the Urnfield: Macro-Stratigraphy and Depositional Strategies at Su Cardolinu*

The urnfield at Su Cardolinu exhibits a predominantly horizontal stratigraphy. Urns are generally deposited in direct contact with the bedrock¹⁰⁹ and sealed by a single, homogeneous clayey layer with no anthropo-

105 Del Vais 2013, p. 33.

106 Patroni 1904, coll. 157-161, pl. XIX-XX, 1; Chiera 1978, pp. 155-156, pl. XXV, 4.

107 Bartoloni 2017b, p. 23, fig. 122 (stratum A: second quarter of the 3rd to mid-2nd century BCE).

108 Melchiorri 2016b, pp. 162-165.

109 This situation must also have been observed by Barreca in 1964. Although he does not dwell on this specific aspect, it is plausible that – unless otherwise specified – the urns were deposited in direct contact with the bedrock, either left in its natural state or intentionally leveled (Bartoloni 1996a, p. 39; 2017a, p. 125).

genic inclusions¹¹⁰ (Fig. 16). The original use surface has been lost to post-depositional erosion, which also stripped away most of the original protective coverings and, in some cases, the upper portions of the urns themselves. This sterile deposit seals all urns equally – regardless of their current state of erosion – and we interpret it as a natural formation accumulated long after the sanctuary’s abandonment, when many urns had already been severely affected by erosive processes.

In specific areas, however, this horizontal development is combined with vertical stratification. Both Barreca’s excavations¹¹¹ and our investigations in Sq. I7 documented “basins” with multi-level depositions. Here, the deepest urns rest directly on the bedrock and are covered by a 10-20 cm thick leveling layer composed of schist flakes bound with clay (Fig. 21). By filling the rock’s natural fissures, this layer created a new surface suitable for subsequent depositions (Fig. 22). Due to its composition, this deposit is extremely compact and physically resembles the underlying schist bedrock, making stratigraphic differentiation during excavation particularly challenging.

As for depositional strategies, excavations at Su Cardolinu have so far documented the following types of deposition:

- *Simple depositions.* Urns placed within natural bedrock fissures or small cavities intentionally cut into either the bedrock or the artificial clay-and-schist leveling layer. The vessels are typically wedged with small schist fragments to prevent movement and are covered by the post-abandonment clayey soil or, in deeper levels, by the artificial leveling layer. These depositions can be in direct contact with the bedrock (Figs. 8.b; 23) or resting on the artificial rock-like layer of schist flakes (Fig. 22). Both variants are attested throughout the sanctuary’s lifespan.



Fig. 21. Urn 16 covered by the artificial leveling layer during excavation (photo by S. Floris).

110 This situation too was recorded by Barreca, who described the urns uncovered in 1964 as «affossate nella terra argillosa» (Barreca 1965, pp. 149-150).

111 Barreca 1965, pp. 148-150. See also Floris – Gilbert forthcoming. More specifically, multi-level depositions were documented in two instances. The first is represented by Urn no. 3, «affossata nell’argilla locale» and «sottoposta ai frammenti di un’altra non recuperabile», the latter not assigned a number (Barreca 1965, p. 150, no. 3). An even more complex situation, characterized by three distinct depositional levels, was documented in the case of Urns nos. 5-7 (Barreca 1965, p. 150). The uppermost deposition was Urn no. 5, recovered in a fragmented state. This was separated from a second depositional level – to which Urn no. 6 and another adjacent urn, not assigned a number, belong – by a 10 cm thick layer of «argilla e pietre schistose». The third depositional level is represented by Urn no. 7, found beneath Urn no. 6 and described as «protetta superiormente da uno strato di schegge litiche, alto m. 0,20» (Barreca 1965, p. 150).

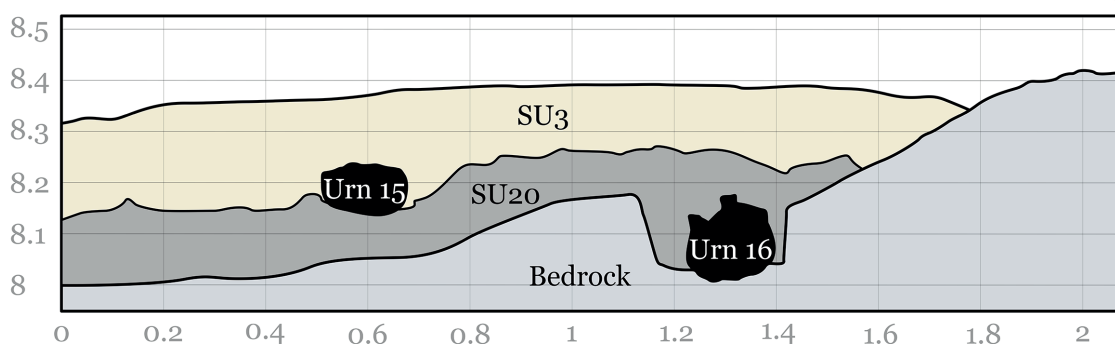


Fig. 22. Sq. I7: stratigraphic section showing Urns 16 and 15 *in situ* (survey and elaboration by S. Floris).



Fig. 23. Urn 12 under excavation (photo by S. Floris).

- *Depositions protected by stone alignments or low walls.* Urns protected on one or more sides by alignments or low walls of schist flakes, often integrating natural bedrock features (Fig. 5.b; 8.a; 19). In some instances, the urns are capped by horizontally laid, progressively overhanging schist slabs (Fig. 20).¹¹²
- *Depositions within stone cists.* Urns enclosed within stone boxes constructed entirely of schist slabs (walls and cover). To date, this type is documented only once (Fig. 5.c).¹¹³

Spatially, the urns occur both as isolated deposits (Figs. 5.c; 8.a-b; 18; 21; 23) and in groups¹¹⁴ (Figs. 15; 19; 20.b). Shallow de-

pressions were cut into the bedrock to accommodate the urn base, frequently closely spaced. This deliberate proximity suggests that the urns either remained visible or that their positions were marked. Comparisons with analogous sanctuaries – where urns were marked by pebbles or roughly worked stelae – combined with the discovery of late 7th to early 6th century BCE stelae within Building B (Figs. 10-11), suggest that unworked or semi-worked stones functioned as depositional markers at Su Cardolinu.

Clear evidence of grouped deposition is observed with Urns 10 and 11 in Sq. I7 (Fig. 20.b). Separated by only 40 cm (center-to-center), they utilize identical ceramic forms for both container and lid and share the same depositional strategy. Both exploit adjacent fissures along a single bedrock ridge, which serves as a

112 The combination of bedrock and stone slabs arranged at various angles makes these installations comparable to the «édicules tabulaires» and the «cairns» of Hélène Bénichou-Safar's 1ère époque of the tophet of Carthage (Bénichou-Safar 2004, pp. 38-40, pls. XXVIII-XXIX), from which they differ, respectively, in having a cover composed of multiple stone slabs and in displaying a more orderly and solid construction. Rather than a "dolmen-like structure" – a term used by the excavators of the Carthage tophet to describe the tabular édicules – the Bithia installations are more reminiscent of a "pseudo-tholos".

113 Barreca 1965, p. 150, Urn no. 2.

114 This situation also finds confirmation in Barreca's report. Of the at least 12 urns uncovered in 1964, nine were clustered to the northeast of Building C (Barreca 1965, p. 150, Urns nos. 1-7, to which two additional urns mentioned in the excavation report but not assigned numbers must be added), while the remaining three were found in isolation: one near the northwestern side, another near the western corner, and the third beneath the eastern corner of the same structure (Barreca 1965, p. 150, Urns nos. 8-10).

shared protective element. A comparable arrangement occurs in Sq. I7 with Urns 4, 6, 7, and possibly 8 (Fig. 19). These urns were placed in immediately adjacent pits, separated solely by schist slab alignments. Urns 4 and 6 share not only a dividing alignment but also a western protective wall built from three notably larger schist blocks. Furthermore, Urns 4, 6, and 8 likely utilized the same ceramic container form, though the loss of the upper portions of Urns 4 and 8 precludes definitive confirmation.

Ultimately, the depositional strategies at Su Cardolinu highlight the ideological significance of the natural topography. The persistent requirement that urns be placed in direct contact with minimally worked bedrock appears to have dictated the sanctuary's spatial development from its inception through its final phases.

3.4. *Outside the Urns*

Material evidence indicates that ritual practices within the urnfield extended beyond the primary acts of cremation and urn deposition. During the 1964 excavations, a double-nozzle lamp with vertical handle was found immediately adjacent to the western side of the stone cist protecting Urn no. 2.¹¹⁵ Similarly, an *oil bottle* (Fig. 7.b) was recovered near Urn no. 10, adjacent to the northeastern rock step of Building B.¹¹⁶ These artefacts likely correlate with complementary ritual practices, such as the offering of precious oils or divinatory acts performed at the time of deposition or in other circumstances.¹¹⁷ While the Ca' Foscari investigations have not yet documented *in situ* materials deposited outside the urns, it is highly probable that complex accessory rituals occurred. The fragments of wheel-made terracotta figurines recovered from the area of Building B were likely originally employed in offerings or ritual practices near the urns, paralleling behaviors documented in the urnfields of Carthage, Motya, and Nora.

4. CONCLUSIONS

The resumption of archaeological investigations at Su Cardolinu has significantly revised the understanding of the site, confirming its identification as the tophet of Bithia and illuminating its long-term development. Far from being a marginal or ephemeral cult place, the sanctuary represents a complex and enduring ritual landscape, active from the initial urban development of Bithia in the late-7th century BCE until at least the Roman conquest. Its location on a prominent rocky islet underscores a deliberate spatial integration within Bithia's broader coastal sacred topography, reflecting a settlement whose religious and urban identity was deeply anchored in the maritime domain.

The spatial organization and depositional strategies documented at Su Cardolinu highlight the profound ideological significance of the natural topography. Throughout the sanctuary's lifespan, the unworked schist bedrock dictated the arrangement of the urnfield. The persistent requirement that urns be placed in direct contact with the rock – whether within natural fissures or protected by stone alignments and cists – demonstrates a strong continuity in ritual behavior. Furthermore, the selection of ceramic containers, predominantly cooking, food-storage and wine-drinking vessels, suggests a deliberate symbolic association between the tophet ritual and the concepts of transformation inherent in banqueting and food preparation.

Stratigraphic and architectural analyses refute the “two-phase” hypothesis of an early tophet followed by a late, non-tophet sanctuary. Instead, the construction of Buildings A and B during the Late Punic period

115 Barreca 1965, p. 150. In Sardinia, double-nozzle lamps with vertical handle are attested, e.g., at Bithia (Bartoloni 1996a, p. 212, no. 351, tomb 83, fig. 32; pl. XLIV, 3), Tharros (Gaudina 1995, pp. 67-70; 1996, pp. 53-55), Sulky (Tronchetti 2002, p. 148) and Nora (Botto – Campanella 2009, p. 508).

116 Barreca 1965, p. 152. On Phoenician *oil bottles*, see Ramón Torres 1982; Botto – Campanella 2009, pp. 518-519; Orsinger 2010; 2019.

117 On divination practices in tophet sanctuaries, Bénichou-Safar 2008. See also, Floris 2022, pp. 215-216.

reflects a process of monumentalization that occurred alongside the continued use of the northern sector as an urnfield. This architectural development indicates an internal reconfiguration of the ritual space, accommodating new ceremonial needs while maintaining strict functional continuity with the site's archaic origins.

The project's interdisciplinary methodology has resolved a major taphonomic challenge regarding the apparent absence of cremated remains. The integration of tomographic screening, geochemical soil analysis, and laboratory micro-excavation suggests that the urns were not deposited empty, but rather suffered severe degradation, likely due to highly acidic local soils. The subsequent targeted recovery of preserved osteological remains during the 2025 campaign represents a critical milestone, whose consequences will shape our future research strategy.

Ultimately, the ongoing research at Su Cardolinu has brought the site out of its previous marginality in scholarly debate. The application of advanced interdisciplinary protocols to both newly excavated and legacy data now positions the tophet of Bithia as an important context for investigating Phoenician and Punic ritual practices and colonial dynamics in the central Mediterranean.

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