

## Chapter 9.

# New data on the absolute chronology of the Maltese Middle/Late Bronze Age

Davide Tanasi, Robert H. Tykot

### 1. Introduction

In the traditional sequence of Maltese prehistory, there is no placeholder for the Iron Age. There is instead an eight-century long Middle/Late Bronze Age (ca. 1500–750 BC) represented by the Borġ in-Nadur culture which in part *de facto* includes also the Maltese Iron Age. In the absence of substantial cultural changes, a progressive series of five pottery styles provides an internal chronological structure for this culture, which is not yet supported by absolute dates: Early, Classic and Late Borġ in-Nadur (EBN, CBN, LBN), Painted Ware, and Baħrija, whereas the Painted Ware and Baħrija styles partially overlap with the LBN style, elements of which linger until the eighth c. BC (Tanasi 2018).

The chronology of the internal sequence of the Borġ in-Nadur pottery production and the definition of the temporal extent of the Baħrija pottery production are two major issues in the research on the prehistory of the Archipelago on which several scholars have debated. The absence of radiocarbon data from guide sites as Borġ in-Nadur and Qlejgħa tal-Baħrija has left specialists arguing on pottery typology based on cross-dating with the also are no Sicilian cultures, for which, there are not absolute dates (Cazzella – Recchia 2008, pp. 381–389; Tanasi 2015, pp. 89–95). Such approach has also been supported by the rare but significant occurrence of artefacts highly suspected of being of Sicilian type in Maltese contexts, such as the examples of strainer spouted jugs from Qlejgħa tal-Baħrija (Vella *et al.* 2011) and the double spiral bronze fibula found at Tas-Silġ South (Recchia – Cazzella 2012).

### 2. Materials and Methods

In the frame of a long term research project aimed at reappraising the results of the excavations carried in the major Maltese Middle/Late Bronze Age sites (Borġ in-Nadur temple: Tanasi – Vella 2011; Borġ in-Nadur settlement: Tanasi – Vella 2015; Għar Mirdum: Tanasi 2014; In-Nuffara: Tanasi 2013) and redefining the sequence of pottery production, animal bone samples from the D. H. Trump's 1959 excavation at settlement at Borġ in-Nadur and from the D. H. Trump's 1959

excavations at Qlejgħa tal-Baħrija have been submitted for radiocarbon dating.

Two samples were selected namely from trench N/layer 8 and trench H/layer 2 from Borġ in-Nadur settlement (Tanasi 2015) (Figure 1) and one from the trench D, Layer 5 of Trump's excavation at Qlejgħa tal-Baħrija (Figure 2, see chapter 3, Figure 87a) (Table 1).

With respect to the samples from Borġ in-Nadur settlement, as clearly explained elsewhere (Tanasi 2015, p. 89), layer 8 of trench N was a pure Tarxien Cemetery stratum, while layer 2 of trench H, recognized as equal to layer 4 of trench O and layer 5 of trench P and corresponding to the level of use of the floor level of Hut 2, was assigned to a terminal stage of the Late Borġ in-Nadur phase at the transition with the subsequent period characterized by the full emergence of the typical Baħrija pottery. Regarding the sample from Qlejgħa tal-Baħrija, it comes from a context related to a second phase of occupation of the site, characterized at the stratigraphic level by a mixture of Late Borġ in-Nadur and Baħrija pottery (see chapters 1 and 3).

The bone samples were collected at the National Museum of Archaeology in Valletta in the Summer of 2017, then processed and prepared for further analyses at the Laboratory for Archaeological Science of the University of South Florida's Department of Anthropology. Subsequently, they were submitted to the University of Georgia's Center for Applied Isotope Studies for AMS radiocarbon dating. For the purpose of the analysis, the collagen samples were combusted at 575°C in evacuated/sealed ampoules in the presence of CuO. The resulting carbon dioxide was cryogenically purified from the other reaction products and catalytically converted to graphite using the method of Vogel *et al.* (1984). Graphite <sup>14</sup>C/<sup>13</sup>C ratios were measured using the CAIS 0.5 MeV accelerator mass spectrometer. The sample ratios were compared to the ratio measured from Oxalic Acid I (NBS SRM 4990). The sample <sup>13</sup>C/<sup>12</sup>C ratios were measured separately using a stable isotope ratio mass spectrometer and expressed as δ<sup>13</sup>C with respect to VPDB, with an error of less than 0.1‰. The quoted uncalibrated dates have been given

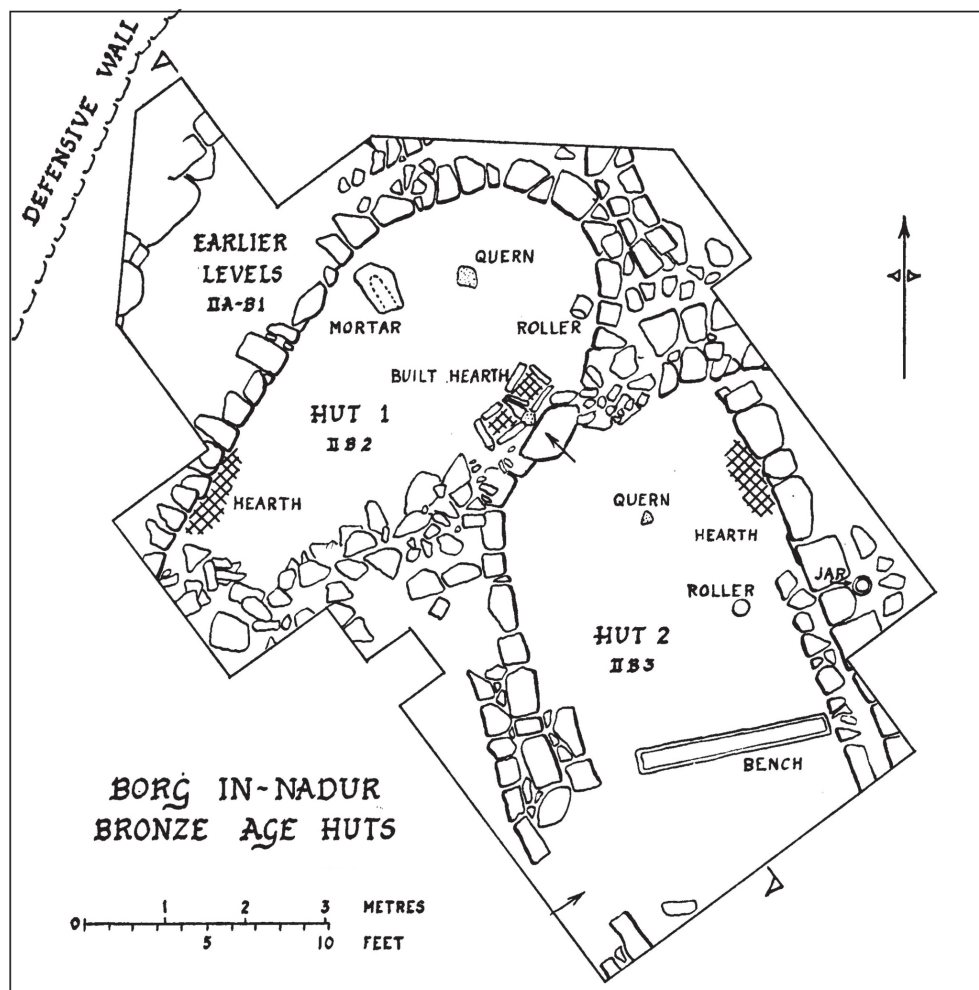
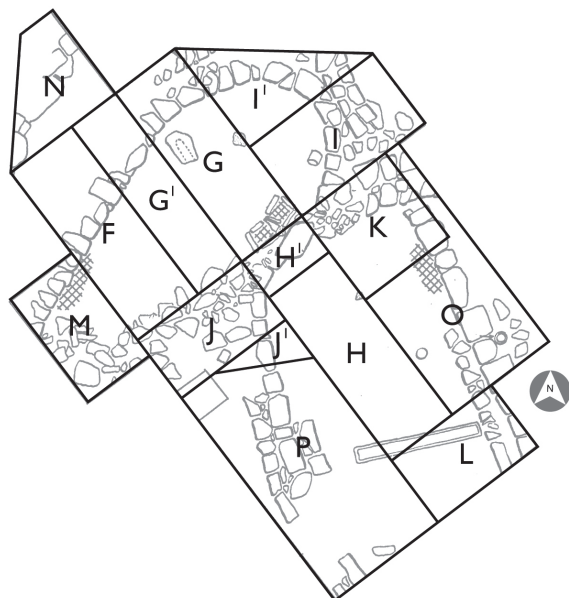


Figure 1. The Borg in-Nadur settlement. Top: Plan of the excavation area of huts 1 and 2 with indication of the trenches F-P (Vella 2015); bottom: Detailed plan of huts 1 and 2 (Trump 1961).

in radiocarbon years before 1950 (years BP), using the <sup>14</sup>C half-life of 5568 years. The error is quoted as one standard deviation and reflects both statistical and experimental errors. The dates have been corrected for isotope fractionation (Table 2).

The dates below were calibrated using the Calib Radiocarbon Calibration Program Rev. 7.0.4, using 2 sigma probability ranges obtaining the following results: 100121, 1774-1680 cal BC (93.4%); 100122, 939-837 cal BC (94.5%); 100065A, 860-807 cal BC (78.0%) (Figure 3).

Figure 2. Close-up of the central sector of Qlejgħa tal-Baħrija with indication in red of Trump's trenches (see chapter 1, Figure 2).

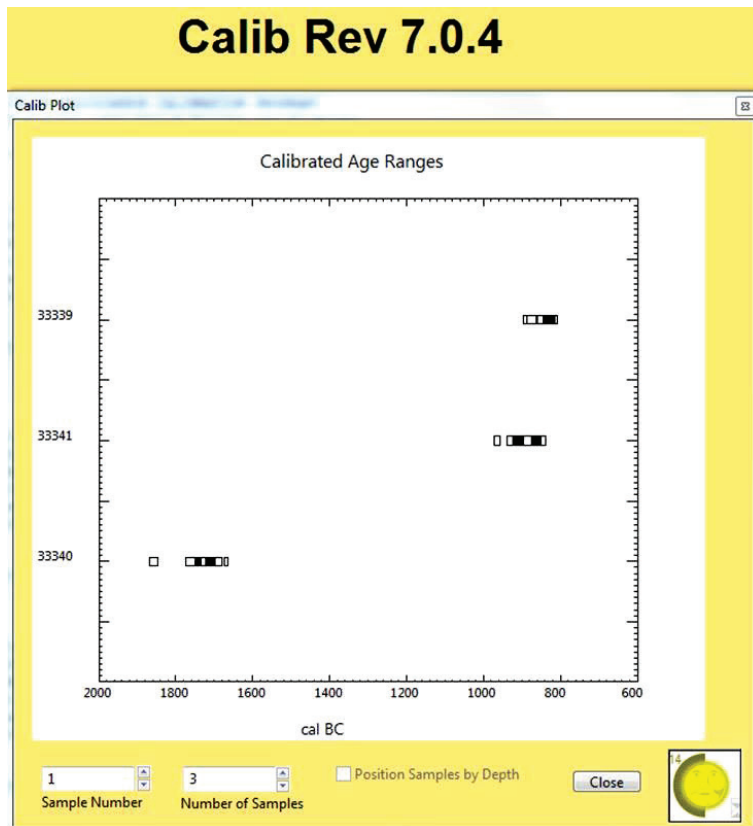


Figure 3. 2-sigma radiocarbon calibration graph for the three samples tested.

Sample no.	Sample type	Site	Context	Pottery type found in the context
100121	Proximal phalanx (Bos Taurus)	Borġ in-Nadur settlement	Trench N, layer 8	Tarxien Cemetery
100122	Metapodium (Bos Taurus)	Borġ in-Nadur settlement	Trench H, layer 2	Late Borġ in-Nadur/Qlejgħa tal-Baħrija
100065A	Horn (Ovis vel Capra)	Qlejgħa tal-Baħrija	(Trench D, Layer 5)	Late Borġ in-Nadur/Qlejgħa tal-Baħrija

Table 1. List of the samples submitted to radiocarbon dating.

Specimen	$\delta^{13}\text{C}$ , ‰	$\delta^{15}\text{N}$ , ‰	C/N	$^{14}\text{C}$ , years BP	±	pMC	±
100121	-20.6	7.3	3.3	3430	20	65.26	0.18
100122	-20.9	5.8	3.3	2760	20	70.93	0.19
100065A	-21.6	5.2	3.4	2690	20	71.52	0.2

Table 2. AMS radiocarbon dating results for samples 100121, 100122, 100065A.

### 3. Discussion

With respect to the date obtained for the pure Tarxien Cemetery stratum from trench N, layer 8 of the Borġ in-Nadur settlement, it appears perfectly compatible with other absolute dates obtained for this period on samples from the cemetery of Tarxien and from Xagħra Circle (Recchia – Fiorentino 2015) (Figure 4).

The novelty is instead represented by the other two dates, imperative to chronologically define the pottery production of Borġ in-Nadur and Baħrija. That the two pottery productions belonged to two separate and progressive periods was already known (Cazzella – Recchia 2012, p. 34, Tanasi 2015a) and the absolute dates confirm it while pointing to a possible and perfectly expectable moment of overlap. This new data, however, disproves the traditional interpretation that the end of the Borġ in-Nadur pottery production and, therefore, of the Late Borġ in-Nadur style, occurred at the end of the 12th c. BC (Recchia and Cazzella 2011). Even unlikely seems the hypothesis that the Late Borġ in-Nadur style developed in the second half of the 13th c. BC (Tanasi 2015a) as there are too many typological gaps to infer that the style evolved throughout four centuries. At the same time, the idea that the Baħrija period started already in the 11th c. BC (Recchia – Cazzella 2011; Tanasi 2015a) has to be dropped. In the light of these new data, the chronological definition for the latest production of Borġ in-Nadur pottery and the emergence of the Baħrija style offered by D. H. Trump (II B3/IIC period) to 950-750 BC seems definitely closer to the absolute dates obtained (Trump 1961).

Another major contribution offered by these data is related to the comparative chronology between Sicily and Malta. All the Borġ in-Nadur pottery found in sites of Middle Bronze Age Sicily (Tanasi 2008; 2011; 2015b) can be clearly interpreted as related to the Classic Borġ in-Nadur phase. In the Early Iron Age layers of the settlement of Thapsos (Cassibile *facies* 1050-850 BC) examples of Late Borġ in-Nadur pottery were instead found in a good number (Vella *et al.* 2011). The alleged presence of Baħrija pottery in those same layers was never confirmed and this information derives by a mis-interpretation of the Late Borġ in-Nadur materials, totally understandable considering the limited data available at that time (Voza 1973; 1980-1981; see chapter 10). But the possible contemporaneous relationship between the Baħrija period with the Cassibile *facies* is testified by the discovery of some sherds of plumed painted pottery and one double spiral bronze fibula both related to the Sicilian Cassibile culture, which were found together in a layer dated to Baħrija period in Apse IVC of Tas-Silġ North (Cazzella – Recchia 2012). The absolute dates obtained definitely confirm the contemporaneity between the Late Borġ in-Nadur phase and Baħrija period with the Cassibile culture and even partly, with the subsequent Pantalica South culture in Sicily.

Such revolutionary chronological redefinition of the last stage of the Borġ in-Nadur period and the Baħrija period seems to put an end to the controversy about the end of prehistory in Malta and the beginning of the Phoenician era. The majority of scholars are inclined to assign the first contact between the Maltese natives and the Phoenicians travelers to the the second half of the 8th c. BC, on the basis of the chronology offered by

Lab.-no.	Site	Culture	Context	Material	Conventional radiocarbon age BP	Calibrated years BC (1 $\sigma$ range)	Calibrated years BC (2 $\sigma$ range)
BM-141	Tarxien (Malta)	Tarxien Cemetery	Cinerary urn south temple	Beans	3880±150 BP	2580–2130	2870–1940
BM-711	Tarxien (Malta)	Tarxien Cemetery	Cinerary urn south temple	Barley	3354±76 BP	1740–1530	1880–1490
BM-710	Tarxien (Malta)	Tarxien Cemetery	Cinerary urn south temple	Beans	3286±72 BP	1660–1460	1740–1420
OxA-3750	Xagħra (Gozo)	Tarxien Cemetery	Tarxien Cemetery deposit, northern edge of the site	Animal bone	3580±75 BP	2040–1770	2140–1700

Figure 4. Radiocarbon dates for the Tarxien Cemetery period (Recchia – Fiorentino 2015).

Greek pottery imports found in the earliest Phoenician tombs (Vella 2005). Claudia Sagona, a specialist on Phoenician/Punic Malta, however, has not embraced this interpretation, inferring instead that that first contact already had happened around 1000 BC (Sagona 2011). The foundation of her interpretative angle relies on a very problematic context, a rock-cut pit at Mtarfa, where a bell-shaped Bronze Age pit (Trump 1961; Evans 1971) containing a deposit of ceramics was excavated in 1939 by J. B. Ward-Perkins, and erroneously interpreted as a tomb. The deposit, clearly defined by the excavator himself as being ‘evidently rifled in antiquity’, was essentially comprised of a homogenous group of Borġ in-Nadur pottery of a later style and in the lowest level, a Phoenician double-nozzled lamp. Underplaying the fact that the deposit was disturbed and without further supporting evidence, Sagona has incorporated this rather weak evidence into her entire chrono-typological system in which the repertoire of Mtarfa represents a phase in which Phoenicians and Borġ in-Nadur communities already co-existed in the Archipelago (Melita I Archaic 1000-750 BC), *de facto* anticipating by 250 years the arrival of the early Phoenician travelers (Vella 2005). To not have found any Phoenician material in layer 2 of trench H at the Borġ in-Nadur settlement (Tanasi 2015a) and in layer 5 of the trench D at Qlejġha tal-Baħrija (Tanasi in press) seems to corroborate the hypothesis of the arrival of the first Phoenicians in the archipelago not earlier than the second half of the 8th c. BC.

#### 4. Conclusions

These long awaited absolute AMS radiocarbon dates have provided extremely significant data to address a previously unanswered research question shedding light on critical subjects such as the transition between the Late Borġ in-Nadur phase and the Baħrija period, the relationship between Sicily and Malta at the crossroads between the Bronze and Iron Ages, and most importantly the chronological term for the end of Prehistory and the beginning of the Phoenician era in Malta.

Waiting for the publication of new radiocarbon dates obtained on samples analyzed from several Bronze Age locations in the Archipelago in the frame of the Fragsus Project (Caroline Malone, personal communication) and on samples from the excavation of the Italian Archaeological Mission at Tas-Silġ North (Giulia Recchia, personal communication), the data obtained for the sites of Borġ in-Nadur and Qlejġha tal-Baħrija finally offer the necessary chronological frame for the hard work of reappraisal already concluded (Tanasi – Vella 2011; Tanasi – Vella 2015; see Introduction).

#### References

- Cazzella, A., Recchia, G. 2012. Tas-Silġ: the Late Neolithic megalithic sanctuary and its re-use during the Bronze Age and Early Iron Age, *Scienze dell’Antichità* 18, pp. 15-38.
- Evans, J. D. 1971. *The Prehistoric Antiquities of the Maltese Islands. A Survey*. London: The Athlone Press.
- Peet, T. E. 1910. Contributions to the study of the Prehistoric Period in Malta, *Papers of the British School at Rome* 5, pp. 141-163.
- Recchia, G., Fiorentino, G. 2015. Archipelagos adjacent to Sicily around 2200 BC: attractive environments or suitable geo-economic locations?, in H. H. Meller, H. W. Arz, R. Jung, R. Risch (eds), *2200 BC. A climatic breakdown as a cause for the collapse of the old works?*, Tagungen des Landesmuseums für Vorgeschichte Halle Band 12/I, pp. 305-319.
- Recchia, G., Cazzella, A. 2011. Maltese late Prehistoric ceramic sequence and chronology: on-going problems, in C. Sagona (ed.), *Ceramics of the Phoenician-Punic world: collected essays*. Leuven: Peeters, pp. 373-395.
- Sagona, C. 2011. Observations on the Late Bronze Age and Phoenician-Punic pottery in Malta, in *Ceramics of the Phoenician-Punic World: Collected Essays*, (ed.) C. Sagona. (Ancient Near Eastern Studies Supplement 36). Louvain: Peeters, pp. 397-432.
- Tanasi, D. 2008. *La Sicilia e l’arcipelago maltese nell’età del Bronzo Medio*. Palermo: Officina Studi Medievali.
- Tanasi, D. 2011. Living and dying in a foreign country. Maltese immigrants in Middle Bronze Age Sicily, in Tanasi, D., Vella, N. C. (eds), *Site, Artefacts, Landscape: Prehistoric Borġ in-Nadur, Malta*. Monza: Polimetrica, pp. 283-337.
- Tanasi, D. 2013. Prehistoric Painted Pottery in Malta: One century later, *Malta Archaeological Review*, pp. 5-13.
- Tanasi, D. 2014. Lighting up the dark. The role of Għar Mir dum in Maltese prehistory, in Gullì, D. (ed.) – *From Cave to Dolmen. Ritual and symbolic aspects in the prehistory between Sciacca, Sicily and the central Mediterranean*. Oxford: Archaeopress, pp. 287-308.
- Tanasi, D. 2015a. The pottery from the excavation campaign of David H. Trump (1959) at the settlement of Borġ in-Nadur, in Tanasi, D., Vella, N. C. (eds), *The late prehistory of Malta: essays on Borġ in-Nadur and other sites*. Oxford: Archaeopress, pp. 35-98.
- Tanasi, D. 2015b. Borġ in-Nadur pottery abroad: a report from the Sicilian necropoleis of Thapsos and Matrensa, in Tanasi, D., Vella, N. C. (eds), *The late prehistory of Malta: essays on Borġ in-Nadur and other sites*. Oxford: Archaeopress, pp. 173-784.
- Tanasi, D., Vella, N. C. 2011. *Site, Artefacts, Landscape: Prehistoric Borġ in-Nadur, Malta*. Monza: Polimetrica.
- Tanasi, D., Vella, N. C. 2015. *The late prehistory of Malta: essays on Borġ in-Nadur and other sites*. Oxford: Archaeopress.

- Trump, D. H. 1961. The Later Prehistory of Malta, *Proceedings of Prehistoric Society* 27, pp. 253-262.
- Vella, N. C. 2005. Phoenician and Punic Malta. *Journal of Roman Archaeology* 18, pp. 436-450.
- Vella, N. C., Tanasi, D., Anastasi, M. 2011. Mobility and transitions: the south central Mediterranean on the eve of history, in Tanasi, D., Vella, N. C. (eds), *Site, Artefacts, Landscape: Prehistoric Borġ in-Nadur, Malta*. Monza: Polimetrica, pp. 251-282.
- Vogel, J. S., Southon, J. R., Nelson, D. E., Brown, T. E. 1984. Performance of catalytically condensed carbon for use in accelerator mass spectrometry, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* 5.2, pp. 289-293.
- Voza, G. 1973. Thapsos: resoconto sulle campagne di scavo del 1970-71, *Atti della XV Riunione Scientifica*, Verona e Trento, 27-29 ottobre 1970. Firenze: Parenti, pp. 133-157.
- Voza, G. 1980-1981. L'attività della Soprintendenza alle Antichità della Sicilia Orientale. Thapsos, *Kokalos* 26-27, II,1, pp. 675-680.