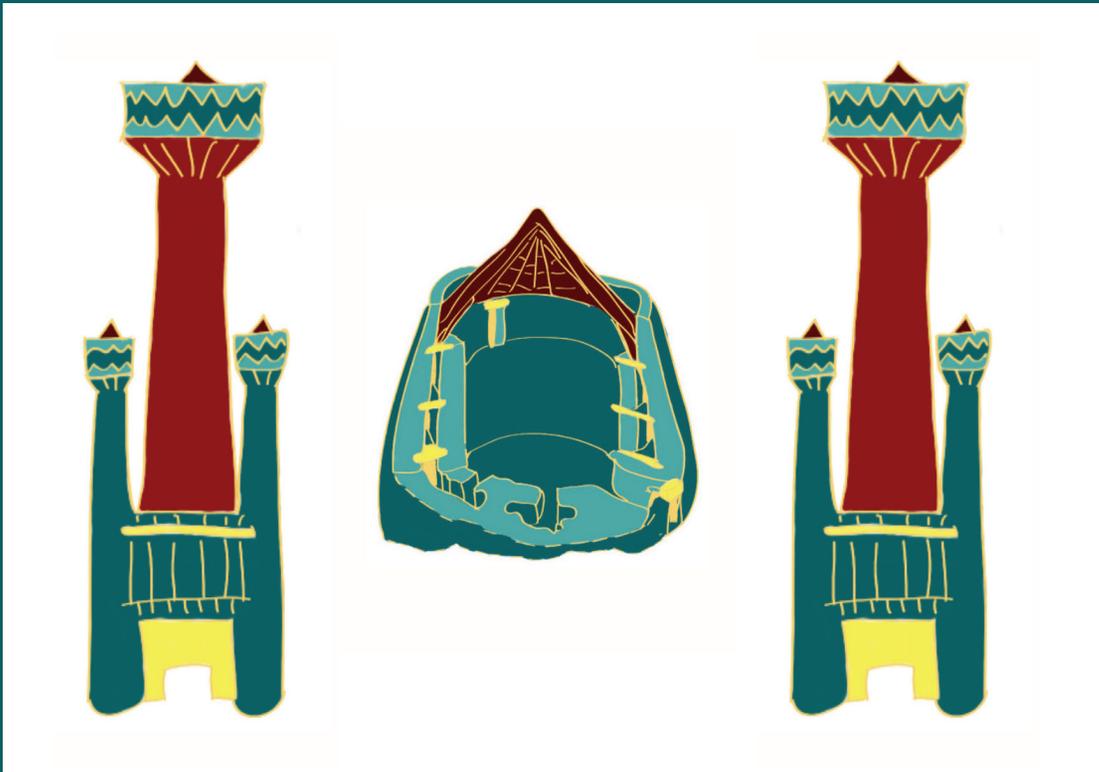




Gardening time

Monuments and landscape from
Sardinia, Scotland and Central Europe
in the very long Iron Age

Edited by Simon Stoddart, Ethan D. Aines
& Caroline Malone



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McDONALD INSTITUTE CONVERSATIONS

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& Caroline Malone

with contributions from

Ian Armit, John Barber, Lindsey Büster, Louisa Campbell, Giandaniele Castangia, Graeme Cavers, Anna Depalmas, Matthew Fitzjohn, Mary-Cate Garden, Andy Heald, Luca Lai, Robert Lenfert, Mary MacLeod Rivett, Hannah Malone, Phil Mason, Megan Meredith-Lobay, Mauro Perra, Ian Ralston, John Raven, David Redhouse, Tanja Romankiewicz, Niall Sharples, Alfonso Stiglitz, Dimitris Theodossopoulos, Carlo Tronchetti, Alessandro Usai, Alessandro Vanzetti, Peter Wells & Rebecca Younger

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On the cover: *Cut out reconstruction of a broch flanked by two reconstructed Nuraghi, reconsidered by Lottie Stoddart.*

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Simon Stoddart

A tribute in honour of Giovanni Lilliu (1914–2012)

Anna Depalmas

Remembering Giovanni Lilliu may seem an easy task. One might think that it is only necessary to list his rich scientific bibliography and to describe his great work over the course of nearly a century, as a university professor and archaeologist. However, a simple listing of his achievements would not transmit the true importance of his work. He not only illuminated the prehistoric archaeology of Sardinia, but also used it to establish the idea of a Sardinian epic which he connected to the modern world.

Prehistory was the choice of his field of study – rather than the predominant exaltation of the Roman era and classicism of the time –, and this had its origins in his study under Ugo Rellini at Rome. He graduated in 1938 and worked as Rellini's assistant until 1942, when he returned to Sardinia to take up the position of Professor of Historical Archaeology and Geography at the University of Cagliari. From 1942 to 1958, he taught various subjects – Paleoethnology, Geography and the History of Religion – and in the latter year became a Full Professor and was appointed to the Chair of Sardinian Antiquity at the University of Cagliari. From 1944 to 1955 he also worked for the Superintendency of Sardinian Antiquity.

He held many posts in his long academic career. He was for a long time, and on various occasions, dean of the Faculty of Letters, Director of the Institute of Archaeology and Arts, Director of the School of Specialization in Sardinian Studies and Editor of the Journal carrying the same name (*Studi Sardi*), and, in 1990, he was elected a fellow of the Academy of Lincei of Rome. In his later years, he remained a very active Professor Emeritus at Cagliari University.

In 1936, while he was still a student, he published his first work on Su Nuraxi di Barumini. This was his birthplace, and throughout his life he maintained a close and almost embodied connection with the village. This also led him to carry out his most important

archaeological work in the landscape of his birth. Indeed, between 1951 and 1956, he worked on excavating an artificial hill there, which was found to cover the nuragic complex of Su Nuraxi di Barumini. This was the first excavation conducted in Sardinia using a stratigraphic methodology to establish a time-line for the nuragic period, and it became a benchmark for later investigations and chronological research. His work at Barumini formed the basis for a series of fundamental papers on Sardinian proto-history, from *I nuraghi. Torri preistoriche di Sardegna* (The Nuraghi, prehistoric towers of Sardinia) in 1962 to *Civiltà nuragica* (Nuragic civilization) in 1982.

He was the first to study many of the themes that he investigated in depth during his long scientific career and many of these were only studied for the first time in the first half of the twentieth century. The chronology of proto-Sardinian civilization was one key field that he developed, modified and changed in the course of his long academic career. At the same time, Lilliu published a brief essay in which he attempted to identify certain constant factors in the history of Sardinian art, and this was developed in the catalogue for the exhibition of Sardinian bronzes in Venice in 1949. Following the theories of Ranuccio Bianchi Bandinelli on how to classify the art of the ancient world, Lilliu assessed the coexistence of the 'anti-naturalistic' art of the barbarian world and the 'naturalistic' art of the classical world within which he inserted Sardinia as a 'land of pure expression', and defined as anti-classical and barbaric. This line of thought became the nucleus of a theme which he studied from various angles and which helped him to define key concepts in his field of study.

At the beginning of the 1960s, he published his wide-ranging synthesis of Sardinia, *La civiltà dei Sardi dal Neolitico all'età dei nuraghi* (1963) (Sardinian Civilization from the Neolithic period to the nuragic

era). This work was later reprinted, expanded and revised in various editions until 1988. Apart from incorporating the results of later research, the later editions also allowed him to reassess some of his earlier observations with a critical eye, which was always one of his great strengths as a researcher and academic. The book proposed that a single unifying thread ran through Sardinian prehistory from the Neolithic period, even starting in the Palaeolithic period, until the Phoenician conquest. It established elements of the historiography of the island using data obtained from his work as an archaeologist. Many of the principal Sardinian monuments were described in an elegant style which alternated with detailed, creative and lyrical descriptions. The book was aimed at not only archaeologists and students, but also at a wider public, and indeed the book was dedicated to 'the shepherds of Barbagia'. Generations of archaeologists have studied the manual and found themselves cited in later editions, in agreement with Lilliu's global historiographical approach which aimed to unite past archaeological research with his experience of teaching Sardinian Antiquity in a university context. This book also gave birth to a national and popular history of prehistoric Sardinia, and expanded the work of archaeologists and their research from being only something studied in university lecture rooms and solely of interest to academics to its status as part of the common heritage of all Sardinians.

This social dimension, this impact, can be clearly seen from Giovanni Lilliu's popularity, which came from having shone a light on the national history of Sardinia and giving life to a Sardinian historiographical tradition, i.e. one with a strong sense of identity. His fame led to him being consulted, even in the later years of his life, on current events in Sardinia not necessarily related to culture or archaeology and being seen as a kind of prophet or even as the 'father of his country'. One of the many lessons that he taught us, and in which he himself was an expert, was the importance of intellectuals being able to discuss, communicate and talk about complex historical themes in a way which was both comprehensible and of interest to laymen.

He showed a total but clear love for his land by taking on civic responsibilities, which he fulfilled in a way which was never dull but rather vigilant and acute, despite his soft tone. As a cultured man, he worked for the Regional Council of Sardinia, drafting the Special Statute of Autonomy. He was also involved in politics, first as a member of the Christian Democrats and later as a supporter of initiatives which promoted the independence of Sardinia and of progressive positions which were

close to the Centre-Left. In practice, he was active in actions which were designed to give greater value to Sardinian identity and culture.

The ideological basis for these activities were elaborated by Giovanni Lilliu at the start of his intellectual life, and were made completely clear in the 1970s when he developed the concept of 'constant Sardinian resistance'. At the beginning of the first prehistoric phase, the Sardinians were characterized by their resistance to foreign invaders and any attempts at acculturation. This characteristic did not disappear in ancient times, but has been a constant theme of Sardinian history and ethnicity, and is still present today. In this sense, Sardinian culture is not a fossil, but rather displays an extraordinary historical continuity with the past. This is an analysis which never became an idealization of aspects of Sardinian society and behaviour, but rather provided a clear and realistic picture through also identifying its negative aspects and its limitations. Nuragic civilization in particular became a symbol of a polycentric society, always in conflict with itself, the land and foreign invaders.

However, it is certainly limiting to supply a rigid definition of what Lilliu meant by nuragic civilization, given that he saw it as a dialectical relationship between its various dimensions, and worked on a reconstruction of it that was complex and multifaceted. He proposed an interpretation of nuragic civilization that saw it not as local but Mediterranean. In this, he was greatly influenced by his direct experience of excavations in the village of Ses Paisses in Majorca, where he found ethnic roots which were common to all the large islands of the West Mediterranean, the Balearics and Corsica, although there were also differences connected to the independent developments drawing on their insularity.

The fact that he found writing easy as can be seen from his some 330 publications. The last of these was in 2010, and was a detailed description of the excavation of the Giant's Tomb of Bidistili in Fonni. It is worth saying that many of the present arguments about certain elements and problems of prehistoric and proto-historic Sardinia were originally raised by him.

I would like to end this brief and partial memorial to Giovanni Lilliu by mentioning his work as a university professor of prehistoric and proto-historic Sardinia (and not only those subjects – with great versatility he also taught Geography and Christian archaeology). What I will personally remember is his little figure in jacket and pullover (he seldom, if ever, wore a tie), typewritten sheets in hand, and always punctual. He never postponed a lesson and was never

absent. As an examiner he was always courteous and understanding. But you had to be very well prepared for his exams. The end of the course every year was the moment that we all waited for. Then there were the one or two day excursions that he led us on to various parts of Sardinia. We students would present

our explanations of the monuments and he would listen with great attention as if it were his first visit, and then sometimes add some of his own memories, making it ever more clear how he was the creator of our view of prehistoric Sardinia.

He really was the memory of Sardinian history.

Tributes to Dr David Trump, FSA, UOM (1931–2016), and Dr Euan MacKie, FSA (1936–2020)

Caroline Malone & Simon Stoddart

David Trump was best known for his important work on the islands of Malta (Malone 2020), but his contribution to the prehistory of Sardinia is also worthy of record in the context of this volume.

David Hilary Trump took his first class BA in Arch and Anth at Pembroke College, Cambridge in 1955, and was a scholar of both the British School at Jerusalem, where he dug with Kathleen Kenyon, and the British School at Rome, where he excavated the key site of La Starza.

After Malta, Trump held the post of Staff Tutor in Archaeology at the University's Board of Extra-Mural Studies until retirement in 1997, when he was succeeded by Caroline Malone. He not only contributed to the teaching of Mediterranean Prehistory in the Department of Archaeology, but also had a large following in the wider, continuing education community, engaging mature students in all aspects of Archaeology in the region and beyond. It was during this period that he made a major contribution to the archaeology of Sardinia, uncovering once again unsuspected phases of prehistory at Grotta Filiestru (Trump 1983) and completing the survey of Bonu Ighinu. At Grotta Filiestru, he characteristically invested all the resources he could muster into constructing an effective chronology (Switsur & Trump 1983) and some of the first faunal studies undertaken in Sardinia (Levine 1983). This work was, in its way, as equally pioneering as his work on the island of Malta. The Grotta Filiestru produced a new scientifically dated sequence of Sardinian prehistory, identifying the fifth-millennium BC Filiestru Neolithic phase for the first time. In earlier fieldwork he also excavated the cave site of Sa 'ucca de su Tintirriòlu (Loria & Trump 1978). His work around Bonu Ighinu (Trump 1990) is, however, closest to the

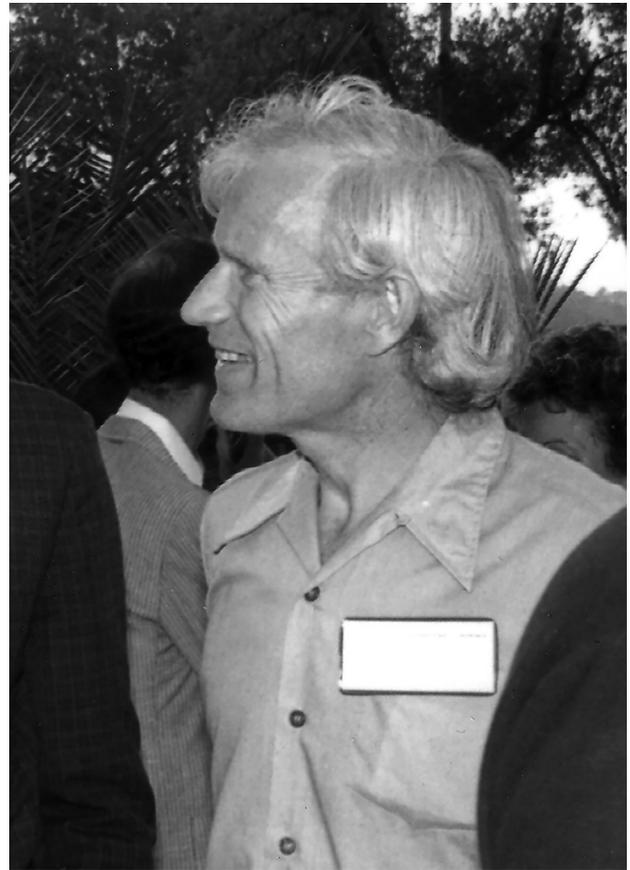


Figure 0.1. *David Trump.*

theme of this volume since, in typical energetic style, Trump also provided one of the earliest studies of a nuragic landscape, once again demonstrating a pioneering role, now followed by many others.

Euan MacKie was a central figure in the study of brochs, as is shown by the very high level of citation in this volume (Mackie 1965 ... 2008). In several ways the contribution of David Trump and Euan MacKie run in parallel, one journeying south, the other journeying north also from Cambridge beginnings, both Fellows of the Society of Antiquaries of London, engaged in seminal fieldwork, on a shoe string generally with volunteers, providing the first chronological foundations for monuments in the landscape and addressing synthesis of the results. Both were pioneers of their generation who retained their own intellectual independence in museums (both) and in continuing education (Trump), rather than a department of archaeology or a heritage organization.

MacKie graduated in Archaeology and Anthropology from St. John's Cambridge in 1959 and took his PhD from the University of Glasgow in 1973, becoming, after a brief period at the British Museum, Keeper and Deputy Director (1986) of the University Hunterian Museum. As a graduate he took part in an expedition to British Honduras, directing the excavation of the Maya site of Xunantunich, leading to an interest in Mesoamerican archaeology throughout his life.

His excavation of brochs such as Dun Mor Vaul on Tiree, published in 1975, Dun Ardtreck on Skye published in 2000 and Leckie in Stirlingshire published in 2008, were fundamental in uncovering the sequence, material culture and chronology of these monuments. He gathered information for his important three-volume compendium on brochs from his own excavations and the investigations of others, undertaking research well into retirement (1998), publishing the final volume in 2007. These volumes are landmarks of data on the subject, a resource which provides a platform for all broch studies. His achievements were also celebrated in his Festschrift, *In the Shadow of the Brochs* (2002), showing the respect shown to him by younger generations.

He ventured far and wide in his more interpretative work. Some of his interpretations of broch builders and their monuments are no longer widely held and the chronologies are currently being reconsidered, but his stimulating approach to ideas endures. He



Figure 0.2. Euan MacKie on Mousa broch in the Shetlands in 2000 at the Tall Stories conference.

was passionate about many other subjects including his seminal work in prehistoric metrology and archaeoastronomy. The volume *Science and Society in Prehistoric Britain* (1977) was a central work for Glyn Daniel's teaching in Cambridge, and he made the valid point that the sophistication of prehistory is not to be underestimated. His interest in ethnography, no doubt drawing on his Arch and Anth undergraduate career at Cambridge, gave him a great respect for other ways of thinking and for the architectural and political achievements of prehistoric Britain, most notably for the builders of the brochs themselves in the Iron Age.

Chapter 14

Burial locations, memory and power in Bronze Age Sardinia

Luca Lai

This chapter has three main goals: to help bridge a communication gap between the traditionally archaeological domain and the bioarchaeological one in Sardinian prehistory, providing data that have not fully entered archaeological literature on Bronze Age burials; secondly, to draw a tentative outline of what this knowledge means for our understanding of the complexity of the funerary phenomenon in Bronze Age Sardinia; and lastly, to illustrate how several problems and questions arise from adding the cave burial component to the increasing data on ritual landscapes and social transitions so far related only to stone architecture, and how these can be used to inform future research with more theoretically orientated approaches.

Giants' tombs have traditionally been identified, in descriptive reconstructions of nuragic Sardinia's cultural landscapes, as the canonical burial place where the constructors of the *Nuraghi* lay their deceased members. In fact, in Lilliu's first synthesis *La civiltà nuragica* (1982), connecting human remains to nuragic diagnostic items did not lead to the possibility that caves could also be used for burial; this was conversely evaluated as a deviant special trait of Gallura, the northeastern region of Sardinia, which he often describes as economically poorer and culturally backwards in comparison with mainstream nuragic developments. In his sequence of periods, giants' tombs appear in the Early Bronze Age as competing solutions next to cave burials and less refined megalithic monuments (*allées couvertes*).

In Lilliu (1982; 2003), the progression through phases I, II and III (roughly parallel to Early-Middle, Middle-Recent, Recent-Final Bronze Ages in today's standard chronology, where Recent is used as a synonym of Late) corresponds to the golden age of architectural development, which is characterized by an earlier tomb type with upright stones and central stela (Bagella 2001a), and by a later type with more or

less regular and refined rows of masonry parallel to the *Nuraghi*, and sacred wells and springs. It seems, from such a narrative, that nuragic human groups were fundamentally buried in these monuments. Strangely, the paradox of hardly a few hundred such tombs then known in opposition to over 6,000 *Nuraghi* was not highlighted sufficiently. Conversely, the use of caves is mentioned concerning only one burial cave, Tani (or Su Cungiareddu 'e Serafini, Carbonia), where human remains were found in very unusual conditions associated with diagnostic material culture (discussed below: Ferrarese Ceruti & Fonzo 1995), and a few extraordinary ritual sites, inducing the reader to picture a lived landscape where caves were not a normal feature in the mature nuragic age from the end of the Middle Bronze Age (MBA).

As will be seen, despite the awareness of occasional finds of nuragic items in caves, this picture, which still permeates the reconstruction of the average nuragic community both among scholars and the general public, is inaccurate; evidence today is instead overwhelming in showing a continuous, or possibly intensified, use of caves during the later Bronze Age (RBA). Lilliu between the 1950s and 1970s was indeed constructing the 'nuragic civilization', which as such is to some degree the product of a remarkable cultural operation that had a crucial role in shaping present-day Sardinian identity, as critiqued and unveiled by recent work (Sirigu 2012; Sirigu 2006); possibly this effort, along with his classicist early education, is at the root of Lilliu's tendency to overlook features perceived as 'primitive' – as a familiarity with caves so well documented for Neolithic times – and to stress instead grand architecture, which would endow Sardinia with a dignity comparable with the classic 'civilizations' of historic antiquity. Even after Lilliu, most scholars, when attempting to synthesize data into general scenarios of nuragic social evolution, have given burial caves

Table 14.1. AMS dates from Sardinian MBA-EIA cave burial contexts. (*Date from Grotta del Marinaio: courtesy of the Museo Sardo di Antropologia ed Etnografia, Cagliari).

Site	Reference	Lab number	Raw date & error	68.2% probability cal BC	95.4% probability cal BC
Dana del Maccioni (Dana di lu Maccioni), Alghero	(Cosseddu <i>et al.</i> 1994; Sanna 2006)	Beta-37704	2720 BP ± 60	916–812	1000–799
		Beta-47023	2800 BP ± 60	1021–893 (61.0%) 874–850 (7.2%)	1116–824
Su Cungiareddu 'e Serafini/Tanì, Carbonia	(Cosseddu <i>et al.</i> 1994; Sanna 2006)	Beta-47025	3380 BP ± 70	1764–1607 (62.7%) 1582–1560 (5.5%)	1878–1838 (6.4%) 1830–1510 (89.0%)
Tueri, Perdasdefogu	(Cosseddu <i>et al.</i> 1994; Sanna 2006)	Beta-47024	2880 BP ± 60	1187–1183 (1.1%) 1156–1146 (2.9%) 1128–976 (62.2%) 952–945 (2.0%)	1228–906
		(Marcus <i>et al.</i> 2020)	MAMS-38280	2987 BP ± 23	1262–1194 (61.4%) 1142–1133 (6.8%)
	MAMS-38282	2996 BP ± 24	1270–1196 (65.0%) 1140–1134 (3.2%)	1370–1360 (1.8%) 1294–1154 (85.9%) 1148–1127 (7.7%)	
	MAMS-38283	3020 BP ± 23	1290–1221	1386–1340 (15.5%) 1309–1195 (79.6%) 1138–1135 (0.3%)	
	MAMS-38284	2974 BP ± 17	1226–1191 (39.6%) 1177–1161 (13.4%) 1144–1130 (15.2%)	1260–1240 (8.1%) 1236–1126 (87.3%)	
	MAMS-38285	2961 BP ± 23	1216–1128	1261–1110 (94.8%) 1096–1091 (0.6%)	
	MAMS-38286	2992 BP ± 23	1264–1195 (64.0%) 1140–1134 (4.2%)	1286–1126	
	MAMS-38287	2990 BP ± 24	1264–1194 (62.5%) 1142–1133 (5.7%)	1286–1125	
	MAMS-38288	2917 BP ± 24	1188–1181 (4.0%) 1158–1146 (7.3%) 1128–1052 (56.9%)	1208–1140 (28.9%) 1134–1026 (66.5%)	
Stampu Erdi, Seulo	(Cosseddu <i>et al.</i> 1994; Sanna 2006)	Beta-37705	3190 BP ± 80	1606–1583 (5.7%) 1558–1554 (1.1%) 1546–1391 (58.4%) 1336–1323 (3.0%)	1643–1263
Cannisoni & Gastea, Seulo	(Sanna <i>et al.</i> 1999; Sanna 2006)	Beta-50953	3470 BP ± 60	1880–1740 (62.4%) 1712–1698 (5.8%)	1936–1640
Capo Pecora, Arbus	(Sanna <i>et al.</i> 1999; Sanna 2006)	Beta-82327	2940 BP ± 70	1258–1246 (3.2%) 1233–1042 (65.0%)	1384–1340 (3.9%) 1308–971 (89.6%) 960–936 (1.9%)
Grotta del Marinaio, Orosei	(Unpublished)	Beta-101397*	2700 BP ± 40	894–866 (25.3%) 856–812 (42.9%)	920–801
Is Aruttas, Cabras	(Lai 2008)	AA-64824	3054 BP ± 55	1396–1258 (64.4%)	1433–1188 (91.2%) 1182–1158 (2.3%) 1146–1128 (2.0%)
	(Olivieri <i>et al.</i> 2017)	MAMS-26894	2952 BP ± 25	1244–1234 (3)	1256–1250 (1.0%) 1232–1056 (94.4%)
	MAMS-26896	2941 BP ± 27	1210–1114	1229–1047	

little attention, because of the scarce evidence in this respect. Webster for instance, notes that ‘many of the natural caves previously used as seasonal shepherd camps and burial sites have scant evidence of Middle Bronze Age visits. Cave use also declined with the spread of *Nuraghi* and megalithic tombs during the MBA into the extreme southwest of the island, in the Iglesiente-Sulcitano regions’ (Webster 1996, 91). As an exception, he does not overlook the presence of burial caves, but precisely in the southwestern region, thus fitting the pattern of a southwards replacement of caves by megalithic graves; such caves, furthermore, mostly pertain to the pre-nuragic Bonnanaro B/ Sa Turracula phase today commonly labelled as MBA1 (Ferrarese Ceruti 1981b). The following MBA2 and MBA3 phases were not represented by any finds of materials, with the exclusion of the cave at Tanì mentioned above. He does, however, suggest, based on the average number of individuals retrieved at giants’ tombs, perceived as too low for population estimates, that caves could be a burial for lower-status groups (Webster 1996, 143–5).

Perra (1997a; 2009), in his reconstruction of social dynamics in the nuragic age, while featuring prominently the role of megalithic tombs as arenas for collective ritual and opposition to aspiring elites, does not mention caves, as does not Blake (2001; 2002), who restates what Lilliu perceived decades earlier: that ‘apart from a small number of burials in natural granite crevices called *tafoni* and the sporadic reuse of earlier burial sites (in particular, rock-cut tombs), the giants’ tombs are the only known nuragic form of burial’ (Blake 2002, 121). However, several questions that she sets forth can receive light from considering caves as burials, as is argued here; the most evident is the mentioned problem of the overall low ratio of chambered tombs vs *Nuraghi* (Blake 2002, 121; Webster 1996, 104), which cannot be explained assuming that groups from several *Nuraghi* buried in the same tomb.

¹⁴C-based evidence for the use of natural caves for burial

Table 14.1 shows radiocarbon dates available from caves at sites with a calibrated time span at least partially corresponding to the Middle Bronze Age (MBA) to Early Iron Age (EIA). All dates were calibrated with OxCal v4.3.2, IntCal13 curve (Reimer *et al.* 2013), and the chronological schemes used here as a reference are in Perra (1997a) and Tykot (1994), which differ in several respects (in the former, there is a more refined articulation of material culture-based phases and the anticipation of the beginning of the Recent Bronze Age (RBA), Final Bronze Age (FBA) and Early Iron Age (EIA) by between ~50 to over ~150 cal. years) (Table 14.2).

Table 14.2. Chronological table comparing Perra (1997) and Tykot (1994) schemes (all dates cal. bc).

Perra 1997		Tykot 1994	
S. Iroxi	EBA2	MBA	Bonnanaro B
Sa Turracula	MBA1		Nuragic I
Zone-impressed ware; S. Cosimo; comb-impressed ware	MBA2		
	MBA3		
Comb-impressed ware; emipsheric bowls; storage and collared jars; gray ware	LBA	LBA	Nuragic II
Nuragic FBA 1-2; pre-geometric pottery; gray ware	FBA1	FBA	Nuragic III
	FBA2		
	FBA3		
Nuragic EIA	EIA	EIA	Nuragic IV geometric
			Nuragic IV orientalizing
			Nuragic IV archaic

A brief description of the contexts will help explain why caves have been so far overlooked by archaeologists when drawing general pictures of landscape and spatial organization. The cave Dana di lu Maccioni/Dana del Maccioni (Maxia & Fenu 1962) was located near the coast just south of the city of Alghero, northwestern Sardinia; it was destroyed during road construction in 1954, when human bones and material remains were recovered. These remains, however, did not include anything diagnostic, except scarce and coarse pottery, assigned to the Ozieri tradition (Contu in Germanà 1995, 54). Based on this scanty evidence, the context was attributed to the Late Neolithic, and so were the data generated from studying the abundant human remains, until



Figure 14.1. Map of Sardinia with natural caves mentioned in text that yielded AMS dates MBA-EIA. Filled circles: cave burials; empty circles: ritual sites.

radiocarbon dating (Cosseddu *et al.* 1994) showed that the chronology ranges from the twelfth to the eighth centuries cal. BC (95.4 per cent probability), centred around the FBA3-EIA. In the absence of any stratigraphy, such AMS radiocarbon determinations do not necessarily apply to the whole skeletal assemblage, but they do mark a date for at least one instance of its use for burial.

The cave near the hamlet of Tani, southwestern Sardinia, named Su Cungiareddu 'e Serafini (or Baiedus de sa Sedderenciu), was excavated between 1958 and 1960 (Ferrarese Ceruti & Fonzo 1995), and yielded evidence for use in several phases, including the Late Copper Age (Monte Claro culture), the EBA and the MBA (animal bone beads), with nuragic diagnostic pottery found mainly near the entrance, not inside the cave with the skeletal remains. The only radiocarbon determination fits this phase, between the nineteenth and sixteenth centuries cal. BC (95.4 per

cent probability), centred around the MBA1. Again, it is uncertain whether this date may be extended to the whole bone collection. Among the cultural materials are bone tubular beads that find comparisons with MBA3 and RBA contexts (Usai A. in Atzeni *et al.* 2012) and support the evidence from potsherds and, to a degree, AMS dating.

The cave of Tueri (Perdasdefogu), in central-eastern Sardinia, is also located near a *Nuraghe*, which is also the reason why its burial use was already attributed to the nuragic period, despite the lack of any cultural marker (Maxia 1964). It consists of a long natural corridor, found in the 1960s covered with human bones, quantified visually in over 50 individuals, which were collected without any contextual record, since the main purpose was acquiring specimens for anthropometric research. The easy access enabled frequent looting, despite recent attempts by the local municipality to close the entrance with a metal gate, until in 2014 at least the visible specimens were salvaged by volunteers supervised by the Soprintendenza. One AMS determination, carried out in the 1990s on human bones, recorded usage between the thirteenth and tenth centuries cal. BC (2σ), centred around the FBA1-EIA time span. After several years, in the context of an ancient DNA project involving several collections across the island, eight more dates were obtained (Marcus *et al.* 2020), all from different individuals, and with a much smaller error. These extend the probability that some of the individuals were slightly earlier (late fourteenth century cal. BC), whereas virtually none of them extends beyond the twelfth century cal. BC (except for one, with 0.6 per cent probability), suggesting that the older determination had a wider range simply due to greater error and a less pronounced slope in the calibration curve. Most recorded burials at Tueri can thus be placed in the RBA-FBA phase, dating to the thirteenth to twelfth centuries cal. BC. Interestingly, although peripheral to the topic at hand, one additional date witnesses burial use in the fourth to third centuries cal. BC at the end of what is the Punic phase on the coast.

No contextual information is known for the human bone assemblage from the cave Stampu Erdi (Maxia 1963), near Seulo, central Sardinia. It yielded an AMS date (Sanna *et al.* 1999) between the seventeenth and the thirteenth centuries cal. BC (95.4 per cent probability), or more narrowly between the sixteenth and fourteenth centuries cal. BC (68.2 per cent probability), corresponding mainly to the MBA2-MBA3 range. Another date comes from bones collected in the 1930s from several caves in the same area (su Cannisoni, which includes what is now identified as Is Bituleris cave, and Gastea), unfortunately

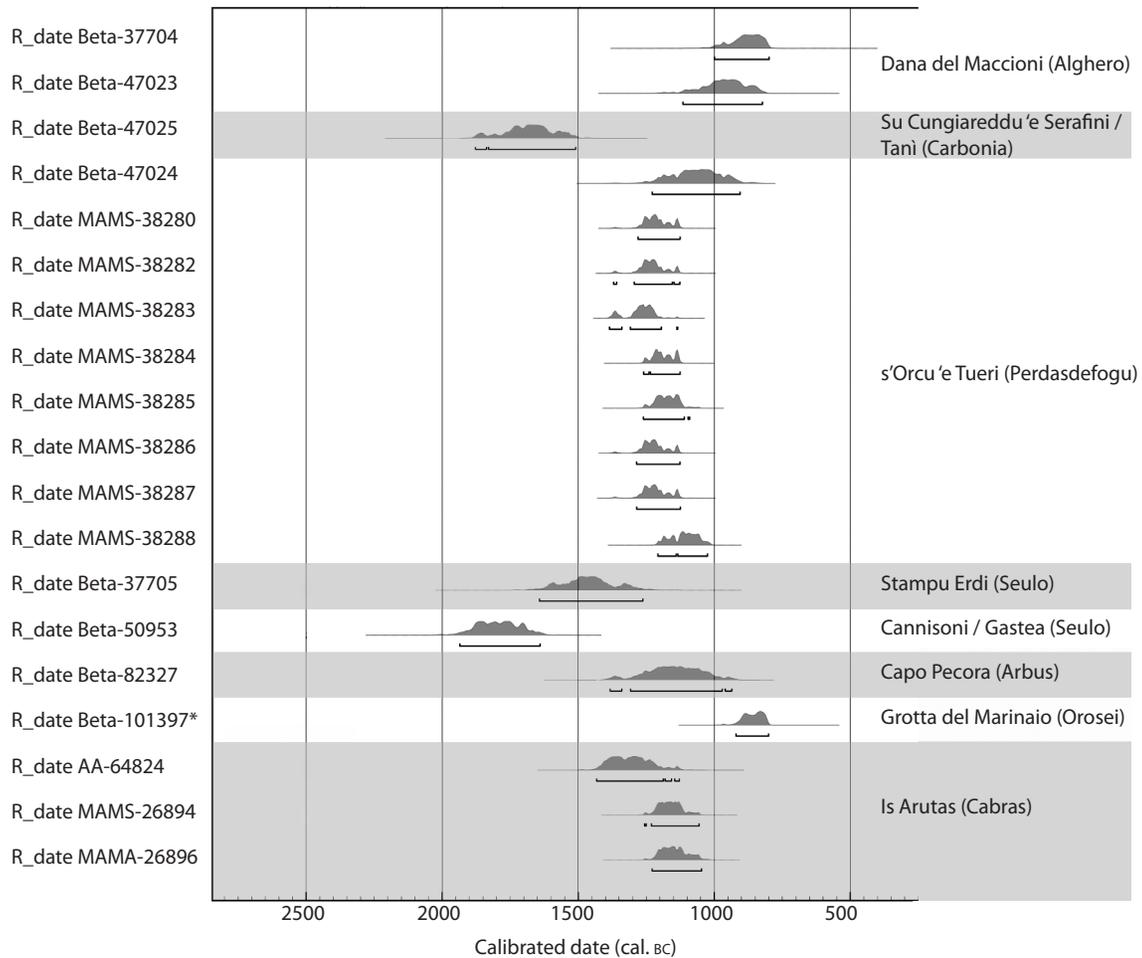


Figure 14.2. Chart of calibrated range of dates for Sardinian MBA-EIA cave burial contexts. OxCal v4.3.2 Bronk Ramsey (2017); r:5 IntCal13 atmospheric curve (Reimer et al. 2013).

without any distinction between caves: from this date, the range is from the twentieth to the seventeenth centuries cal. BC (95.4 per cent probability).

Fifteen radiocarbon dates from the Seulo Cave Project area (Skeates *et al.* 2013) have recently extended and strengthened the record of cave burial utilization, which stretches from the EBA1 through the MBA2-3, with a notable gap between the fourteenth and twelfth centuries cal. BC and only one later FBA date.

Capo Pecora cave (Arbus), near the southwestern coast, close to the municipal border with Fluminimaggiore, yielded skeletal remains that were associated with some pottery interpreted as nuragic (Maxia *et al.* 1973), although some materials apparently date back to earlier phases. The attribution was confirmed by AMS dating, which provided a range between the fourteenth and tenth centuries cal. BC (95.4 per cent probability), centred in the RBA-FBA3 phases, to be extended back to the EBA2.

Is Aruttas cave, although never properly published, was described as a small natural cave accessible by means of two modified entrances, located a few hundred metres from the seashore and a few miles from the brackish water Cabras Lagoon, in western Sardinia. The context was looted and attributed to the Late Neolithic based on the scarce cultural materials recovered with the skeletal remains of at least 25 individuals (Germanà 1980; Germanà 1982). This collection features in all Germanà's publications through the mid-2000s as the second-largest collection of Neolithic human remains from Sardinia (Germanà 1995, 61), but the deposit was clearly disturbed: cranium 10 from Is Aruttas later yielded a date (Table 14.1) which makes this collection unsuitable for studying Neolithic populations, but provides evidence for the burial use of the cave in the Bronze Age, marking a time span between fifteenth and twelfth centuries cal. BC (95.4 per cent probability), centred around

the MBA3-RBA (Lai 2009). Two additional dates carried out contextually with ancient DNA analyses (see above for S'Orcu 'e Tueri; Olivieri *et al.* 2017), on different individuals and with a much smaller error, partially confirmed but narrowed this attribution to the thirteenth to eleventh centuries cal. bc, recording depositions in the cave in the RBA-FBA3.

Finally, an unpublished nuragic date from human bones comes from Grotta del Marinaio (Orosei), on the eastern coast, explored by Carlo Maxia in the mid-1950s. No osteological examination of these remains, located at the Museo Sardo di Antropologia ed Etnografia, at the University of Cagliari, Monserrato, has been reported. The chronological range would translate into between tenth and ninth centuries cal. bc (95.4 per cent probability), virtually corresponding to the EIA.

It is out of the scope of this chapter to review the large amount of evidence for the chronology of the megalithic monuments known as giants' tombs; based on stratigraphy, associations, and scholarship dating back at least one century, they are generally attributed to the nuragic peak of architectural complexity, which was also a time of demographic growth. It is worth highlighting that the first giants' tombs possibly pre-date the *Nuraghi* themselves. Melis (2007b) examines in detail the associations of ceramic types and architectural types: whereas no giants' tomb is found to yield cultural materials unambiguously older than MBA1/MBA2 (see also Perra 2009), there are a few cases of possible association with some EBA2/MBA1 ceramic materials. Conversely, there would be no *Nuraghi* demonstrably datable before the MBA2 (Perra 1997a; Perra 2009). In one case, there is clear evidence that the mimetic rock-carving of a giants' tomb associated with MBA1 pottery damaged a Neolithic reused rock-carved tomb that contained EBA2 potsherds (Melis 2007b). With these premises underlining the chronology of megalithic tombs, it is clear that use of caves, including earlier rock-cut tombs, fully overlaps with them.

Short outline of Bronze Age burial site types by phase

The evidence above confirms therefore a trend of continuous use of caves as burial grounds starting at least from the third millennium bc. During the Copper Age Monte Claro phase, the use of caves for burial is widespread, and evident more than the Bronze Age presence also because of a more distinctive pottery (Ferrarese Ceruti 1989). Such use is maintained in the Bell Beaker/EBA1, with several finds that are in large portion associated with human remains;

apparently, the use of caves was one of the many options possibly constrained by availability; in fact, artificial caves (rock-cut tombs dating to Neolithic times) were also used extensively, as shown by Ferrarese Ceruti's work on Su Crucifissu Mannu, tomb 16, which is the best documented example (Ferrarese Ceruti 1974), but countless instances are known (Ferrarese Ceruti 1981a; Ferrarese Ceruti 1981b; Moravetti 2009), and especially evident in the Sardinian northwest, where an enormous volume of underground space was created by means of carving between the late fifth and the mid-third millennia bc, providing excellent, easily accessible, and often readily visible receptacles for burial. In other cases, perhaps where no underground space was available, then pits were dug, and possibly covered with architectural elements of perishable materials, as can be hypothesized for the site of Iscalitas (Manunza 2000; Manunza 2005), following a tradition that goes back to Bell Beaker customs (Padru Jossu: Ugas 1982; Bingia 'e Monti, Atzeni 2001; Fugazzola Delpino & Pellegrini 1999).

The same options based on availability remained viable in the EBA2, as shown by material culture items and AMS dating of human remains: natural caves as su Cannisoni, Seulo (Skeates *et al.* 2013), possibly Capo Pecora, Arbus, and many more; reused artificial caves (e.g. among many: Sa Figu, tomb 4: Melis 2010); open pits, in some cases resulting from the collapse or degradation of previous structures (as S. Iroxi, Ugas 1990a; Bingia 'e Monti, Perra & Lai 2020, Perra in Lo Schiavo *et al.* 2009, 266–7). Possibly, in the northeast, some experiments in manufacturing above-ground built structures, so-called *allées couvertes*, were setting the foundations for the later standardized megalithic tombs, although as already mentioned there is no clear evidence for this (Castaldi 1969; Antona 2008).

In the MBA1 (defined by Sa Turracula style pottery), some new options were added to the old. Natural caves were still utilized; for instance, the known example of single burial at Sa Oche/ Sisaia, Oliena (Ferrarese Ceruti & Germana' 1978), the remains that yielded a MBA1 date from Su Cungiareddu 'e Serafini, Carbonia (Cosseddu *et al.* 1994; Sanna 2006), and several more (Ferrarese Ceruti 1981b). Rock-carved tombs were also still reused, as evident at several sites as, for instance, at Sa Figu (Melis 2011), where different tombs yielded items pertinent to different Bronze Age phases, in some cases with human remains. At this burial site the visual template of giants' tombs is behind the transformation of earlier Neolithic tombs into nuragic ones (Melis 2007a; Castaldi 1969). If the *allées couvertes* recorded in northeastern Sardinia actually date to this phase, then their development into canonical giants'

tombs must have occurred fairly rapidly, since some megalithic tombs already show their standardized elements (chamber, semicircular forecourt, facade with upright slabs and monumental stela) associated with MBA1 pottery.

The MBA2 phase (characterized by San Cosimo/*metopale* pottery) marks the success of the giants' tomb model in central-northern Sardinia. It is unclear to which degree at this point the giants' tomb was associated with the *Nuraghe* (Blake 2001), since according to Perra (1997a) there are no reliable stratigraphic contexts linking MBA2 material culture and architectural features. It definitely appears that during this phase radiocarbon evidence for burial use of natural caves perhaps starts dwindling, since only one date, except for the Seulo caves (Skeates *et al.* 2013, 104–5), falls around 1600–1500 cal. BC (Beta-37705, Stampu Erdi: Sanna 2006). MBA2 pottery seems present, but rare, also at the necropolis of Sa Figù (Melis 2010), and the only two radiocarbon dates from reused Neolithic rock-cut tombs come from southwestern sites (Sa Serra Masi, room 1, Martella *et al.* 2014; Montessu, t.10, AA-64836, Lai 2009), therefore located in what probably was the last region to be reached by the new above-ground templates. This apparently corresponds to the time when normative codes regarding mortuary rituals virtually excluded grave goods, limiting severely both the presence of artefacts with the dead (as accompaniment or offerings), and proportionally also the archaeologist's ability to infer use from material remains. Additional phenomena could be suggested: if the MBA2 preceded a sharp demographic increase (Webster 1996), we will expect to find less evidence of human remains dating to this period compared to the following; also, the normative power of above-ground chambered tombs might have reached its peak at this time, before caves were used again more intensely. Only further AMS dates in the future will help us understand if this is a real gap in natural caves' burial usage, or only a random artefact of insufficient research coverage.

While *Nuraghi* proliferated all over the island (Perra 2009), the MBA3 phase, the first that can no doubt be defined 'nuragic' from a monumental standpoint, showed continuity in the trends concerning burial practices and locations. The diffusion of giants' tombs reached the south of the island. Overall evidence for burial use of caves is scarce; one of three radiocarbon dates from Is Aruttas (Table 14.1) is the most likely record of use during the MBA3. Giants' tombs could become in this phase the normative grave for newly established settlements, coupled with the *Nuraghe* (Blake 2001), an impression that the Seulo cave cluster record seems to corroborate, with a gap in

dates between the fourteenth and twelfth centuries BC after a solid body of 14 dates for the preceding eight hundred years (Skeates *et al.* 2013). An increasingly well documented phenomenon is that of clusters of giants' tombs (Perra 1997b; Zaru 2011; Castoldi 2010, among many), some of which apparently dating to the MBA, some likely to the RBA.

Next to the previously built giants' tombs, some seem to be newly constructed in the RBA; these tend to show distinct features: lack of semicircular forecourt, use of smaller stones, in one case even a lateral instead of frontal entrance (Ugas 1993; Ugas 1990b; Lai 1992; Contu 1957). Besides giants' tombs, found in different densities but virtually on the whole island, in the RBA Neolithic rock-cut tombs and natural caves are still being reused: human remains from a number of sites yielded AMS dates likely corresponding to this phase (s'Iscia 'e sas Piras, Usini, date unpublished; Table 14.1 for caves).

Finally, there is clearly continuous use of giants' tombs in the FBA or even EIA, at least at some locations, as shown by material culture (Sa Sedda 'e sa Caudela, Atzeni *et al.* 2012), and a few AMS dates (Motrox'e Bois, Usellus: Sanna 2006; Ingurtosu Mannu, Donori: Martella *et al.* 2014, Olivieri *et al.* 2017), although this was probably less intense or even sporadic. Whereas burial reuse of rock-cut tombs is documented by material culture (Melis 2011; Melis 2010), use of natural caves, besides other ritual activities, is documented by AMS dates at several sites (see Table 14.1).

Power, memory and burial locations

As presented in the introduction of this chapter, the starting point for discussion is the observation that despite some piecemeal evidence being available for a long time, a persistent view remains in analyses of social organization, landscape patterning and narrative syntheses, that chambered tombs were the canonical burial place for nuragic communities. However, sporadic finds of cultural materials in caves previously, and the first dataset of radiocarbon evidence presented here make it clear that a large portion of the Sardinian population in the Bronze and Early Iron Ages was not actually laid to rest in such tombs. Such dates from human bones recovered in natural caves are an indication of burials *continuing into and/or possibly beginning after* the MBA, when giants' tombs appear to be widespread all over the island. The problem that this evidence opens up is then manifold: how to reconcile the different types of burials? How to explain the perceived meaning/function of different burial locations and different

types? What was their charge of memory and identity for the burying/buried community, their role as social settings for single, collective agents and/or as secondary agents themselves (as discussed in Robb 2010; Dobres & Robb 2005). Finally, can we associate varying social contexts and dynamics with varying uses of different types, if any?

Considering that natural caves fulfilled the role of burial grounds of choice for about 500 years after the virtual demise of tomb rock-carving by ~2300 cal. bc and before the first experiments with above-ground constructed graves between 1900 and 1600 cal. bc (EBA2-MBA1), it is possible to set out already as a working hypothesis, that giants' tombs were actually analogues to artificial caves. We can presume that, in conditions where local lithology and geomorphology did not offer natural caves, nor previous human groups had prepared carved tombs amenable for reuse, with or without modification, there was then a need for alternatives. It may not be coincidental that earliest evidence for such chamber tombs is recorded in Gallura, a predominantly granitic area poor in large natural caves compared to other areas of the island and especially to the limestone plateaus between the Barbagie and Ogliastra. As we have seen, burial might not be the right term, since there is good evidence that what we call burials were not interments but true rooms, where remains were not covered with soil, but to some degree exposed and at least periodically available for manipulation (Manunza 2000; Ugas 1982). That this role of artificial cave was important is also indicated by how the earlier type of giants' tomb, unlike those built in regular masonry in the centre-south, were covered by a mound, or tumulus, so that the tomb as seen from the back was probably similar to a low hill. Possibly only later (MBA3-RBA?), when a canonical locale *Nuraghe* + tomb (as in Blake 2001) was established, giants' tombs were possibly preferred, but always within the range of choices available at a specific site when establishing new settlements.

We can then reflect on what fundamentally was a giants' tomb in the eyes of a member of a nuragic community, and what features seem to be in common among all types of tombs: physically, a) it is a structure with a hollow space inside; b) it has an entrance that remains open or can be periodically opened; c) it is covered by a certain volume of soil and/or stone which renders the inside space functionally underground; d) it is spacious enough for the bodies, or bodily remains, of several individuals to lay inside at the same time; e) it has an adjacent space large enough for communal gatherings/events. All these elements are to be considered canonical,

and are actually recordable and recorded for many tombs, especially the few that were not devastated and reused in historic time. Virtually all of these points apply as well to natural caves, except perhaps for the variability of the space available for corpses and more or less skeletonized bodies, and possibly for the outside space available for communal events; conversely, it is possible that this space was not as relevant in the latest graves dating to the RBA-FBA, many of which do not show evidence marking the semicircular forecourt. Other features cannot be surely extended to all tombs as part of the required elements: one is the circular shape of the forecourt (in one case added to the pre-existing tomb so as to border the liminal space in front of the tomb: Ugas 1999); another is the presence of the three betyls and their slots sculpted in stone on top of the tomb's facade (Bagella 2007; Castoldi 2010; Bittichesu 1998).

Mentally and emotionally, we can identify the tomb/forecourt as a liminal space, at the interface between the dimension of the living and the dimension of the dead; a resting place for the remains of the ancestors, however they may have been intended and understood: the space for celebrating ancestors, community values, continuity of life, and possibly to have some form of communication with such ancestors, in order to ask intervention in the lives of the survivors or conversely to request them to give up their involvement. It could be seen, additionally, as a political arena (Perra 2009), the place where everyone is confirmed as equal in one's collective connection with the ancestors, whose remains from individually identifiable become progressively commingled. This bodily transformation and unification practically and ideologically worked as an opposing force to rising inequality in wealth and authority. Such inequality, coupled with intensification of production, has been explained as the effect of a deliberate aggrandizing strategy developed through contact with complex societies of the Eastern Mediterranean (Perra 1997a). However, the fact that individuals or groups arrived in positions of authority or prestige could be as likely the unintended gradual outcome of daily practices, and may have not been consistent at the intra-community level, as evidence of tiered hierarchy appears to rest mainly on inter-settlement differentiation (Araque Gonzalez 2014).

The role of memory in these practices was fundamental, as the giants' tomb's forecourt, and possibly the open space in front of burial caves, became the place where cosmology and cosmogony was told and retold, taught as a collective intangible patrimony of a kin or tribal group. Likely, besides stories of mythical past, most tombs/caves were linked with memories

of the founding of the village/settlement and to the 'domestication' of a whole landscape, the community's little universe (most tombs and *Nuraghi* date to between 1500–1200 cal. BC, fairly little time relative to the power of oral history). It was also a place tied more closely to the memory of individual burials of family members, women and men, parents, siblings, children, spouses, relatives, with their charge of life memories, feelings of loss or detachment. Memory is therefore also inextricably intertwined with social relations and power, and so is the burial location and burial-related performances as physical and social fields of action, as the place where the community reproduces itself, shapes and negotiates among its members ideology and social constructs (Chesson 2001); it appears as a physical and behavioural field of action, an interface providing a contact opportunity for different agents and a source of identity for both human individuals and collective bodies (Gillespie 2001), with the addition of material things as secondary agents (Robb 2004). This materiality can first be identified in the burial type's features, and in properties of such natural/artificial burial caves: shape, colour, appearance, sound effects, olfactory experiences related to ritual, feasting, and at least occasionally the handling of decaying human remains.

Including caves in the potential number of sites appropriate for burial in the MBA-FBA, as anticipated above, modifies strongly our view of the problem, touched by many but not yet faced systematically, of the numeric ratio between tombs and *Nuraghi*. Bagella (2007), based on a database of about 800 tombs, calculates a rough [$n_{\text{tomb}} : n_{\text{nuraghe}}$] island-wide ratio of 1:10. However, the ratios by municipality reported in the literature vary remarkably: anywhere between 2:1 in Esterzili, where more tombs are documented than *Nuraghi*, to Sedilo (Bagella 2007), with a 1:1.5 ratio, the closest to reflecting a ritually bifocal tomb + *Nuraghe* locale, and up to an exceptional 1:33 in areas of central-western Sardinia (Usai 2003), with various ratios in between (Webster 1996; Navarra 1997; Bagella 2007; Crispu *et al.* 2011). Whereas the general scarcity of tombs relative to *Nuraghi* can largely be attributed to differential preservation, because of their location at lower elevations on soils more susceptible for agricultural exploitation and therefore ploughing, I argue that a sizable portion of such gap, at least in some areas, can be because of the usage of natural caves or Neolithic rock-cut tombs instead of megalithic tombs.

Overall consideration of the nuragic population and the issue whether the whole community or sections of it were buried in giants' tombs deserves some reflection. Whereas the general collective nature of nuragic burial ritual is not in question, a few aspects

call for some reconsideration. Based on extant evidence, there is no indication suggesting the clearing out of human remains from the tomb. The argument that Minimum Number of Individuals recorded would be incompatible with fully inclusive collective burials (Blake 2002, 121) might have been overemphasized, despite it being largely based on longer time estimates of use than actually demonstrable and on visual head counts upon recovery: in fact, giants' tombs were used perhaps as little as three centuries in some areas – especially in the southwest, if we consider the direction of diffusion. More importantly, the potential for quick reduction of the space required by a decomposed body should not be underestimated. In a similar situation of collective burial in a relatively confined space from previous prehistory, one of the few analyses of teeth has shown that an MNI based on these durable skeletal elements can be over 10 times higher than an MNI based on bone only (Vargiu *et al.* 2009), not even considering the comparison with counts based only on visually identifiable cranial remains. If we take the bone only-based MNI of one of the few collections analysed according to modern standards, the comparatively late and small tomb of Su Fraigu (Ugas 1993; Spina 2005), we could easily project some 3,000 depositions within about 300 years. The inclusive nature of burial in nuragic times, therefore, needs not be ruled out, and comprehensive consideration in the future should include the cave record.

Another avenue of research not frequently touched upon is the investigation of traces of ritual activity in the forecourts of giant's tombs – and similarly in the areas before entering burial caves. For instance, in one case to be verified *in situ*, pottery appeared to be placed not with the dead, but at the entrance of the burial cave, possibly reflecting a ritual preference parallel to what observed in megalithic tombs (Ferrarese Ceruti & Fonzo 1995). Whereas the tendency for preferential accumulation of sherds on the right side of the forecourt, despite some exceptions, has been firmly established, other traces of ritual have been described but are not well understood (Bagella 2001b): the possibility of reburial rituals could be at the root of small cists and pits occasionally found on the pavement of the forecourt (Tanda 2003; Lilliu 2003); in one case, it involved infant remains (Atzeni *et al.* 2012). Besides the moving of remains that would simply have fulfilled the purpose of freeing up space for new corpses, another sign of ritual performance is the treatment of skulls, with their placement in prominent position, as documented already in the Neolithic (Maxia & Atzeni 1964), but also in the Bell Beaker/EBA (Ugas 1982; Ferrarese Ceruti 1974; Atzeni 2001), and still in

the MBA-FBA (Atzeni *et al.* 2012). In addition to these, the presence and location of betyls and various kinds of architectural details (Bagella 2001b) are all features that besides being worth investigating *per se* beyond typology, would also provide a key for testing the hypothesis that similar activities were performed in functionally parallel locations of burial caves.

Conclusion

In the interaction among different elements of a nuragic constructed landscape and their role in politics and power relations, architectural elements have been extensively discussed. *Nuraghi*, especially the complex ones, whether or not they were symbols or symptoms of class differentiation (Perra 2009) show some features that could have factually limited social participation and selectively granted access: a doorway, a narrow staircase to reach upper floors, and a courtyard that provides additional inside space but doubles access limitation. Whereas the general role of giants' tombs' forecourt as collective, open gathering areas has already been suggested, how should we read 'deviant' situations where such forecourt is absent, or unmarked? How should we interpret the variables related to multiple tombs? Since the ritual focus definitely shifted, in the FBA, to water cult-related sites, both natural (springs, wells) and artificial (round temples, megaron temples), it is here suggested that giants' tombs and water-related sites may have filled a similar niche in the meaning system and cosmological patterns. What role did caves play in these changing relationships among agents and locations? Some spatial patterning actually appears to be common to many types of structure: the recurring presence of offerings residues on the right side of giants' tombs' forecourt seems to match the niche consistently placed to the right in the entrance corridor at a large number of *Nuraghi*; this also matches the floor paved area immediately to the right upon entering many stone houses in several nuragic villages (for example: Bruncu Maduli, Gesturi; San Salvatore, Tortoli; and can be compared with the massive amounts of pottery remains on the right side at the monumental spring of Mitza Pidighi: Usai 1988). The whole meaning system behind the many signs of ritual patterns listed above, with a possible *Nuraghe*-tomb dualism related to cosmic opposites (male-female, light-dark, sky-earth, sun-moon, high-low, meteoric water-underground water...), is mostly unknown; in the framework of such potential binary system, natural caves must also have played a role: was it fully parallel and equal to megalithic tombs? Or was it instead analogous and therefore some way competing with

the megalithic tombs? Were these alternative options based on social standing (megalithic tombs for elites, as suggested by some: see Lilliu 2003; Webster 1996; Blake 2002). In this respect, there is evidence that in some instances both types were used in the same phase (Antona 2005; Skeates *et al.* 2013: 109–10) – as far as such phase can be culturally identifiable; this is another point that needs further investigation, to verify if its scarce evidence represents a local trait or is the fruit of differential preservation and/or research coverage. Among the many features in common between natural caves and giants' tombs there is a lower potential for ritual manipulation by limiting access, compared with both *Nuraghi* and later 'temples' of different kinds; this less controllable nature is particularly strong for caves. In an effort to find a collective identification with a location and egalitarian values, both, at different degrees, could have met the needs of a community attempting to contrast groups that were threatening, or attempting, as an intended or unintended outcome, to break such values. Controlling the place where the most important ritual activity is performed was surely a way to affect or control the construction and maintenance of collective memory, the intangible locus where the naturalization of power inequality must be rooted in order to become stable. At some point around the FBA, collective memory for some reason began losing its link with giants' tombs; possibly ancestral cults were replaced by water cults, or they were bound to water cults, which changed practical expressions, or the memory of the ancestors was manipulated as to make them selectively the ancestors of only a select group. Whichever the interpretation of these phenomena, consideration of the role of natural caves in these dynamics cannot be overlooked any longer for a full understanding of social transformations in Sardinian society at the end of the Bronze Age. As a research agenda for the future, therefore, some directions are suggested: the systematic recording of the coexistence of caves and tombs as burial sites, and their use history; the investigation of the relationship between multiple tombs and/or caves and main features (such as size) of nearby settlements and/or *Nuraghi*; the identification of potential presence of ritual markers at burial natural caves to assess their functional analogy relative to megalithic tombs; the integration of potsherds' distribution with other methods of investigation (e.g. chemical analyses of soil) to detect ritual activities; extensive osteological work on the abundant skeletal materials available, with substantial AMS dating of human bones from both caves and giants' tombs. This should help progressively unravel the unfolding of the social birth and death of nuragic Sardinia.

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Gardening time

Gardening may seem worlds away from *Nuraghi* and brochs, but tending a garden is a long process involving patience, accretion and memory. Scholars argue that memories are also cultured, developed and regained. The monuments in Scotland and Sardinia are testament to the importance of memory and its role in maintaining social relations.

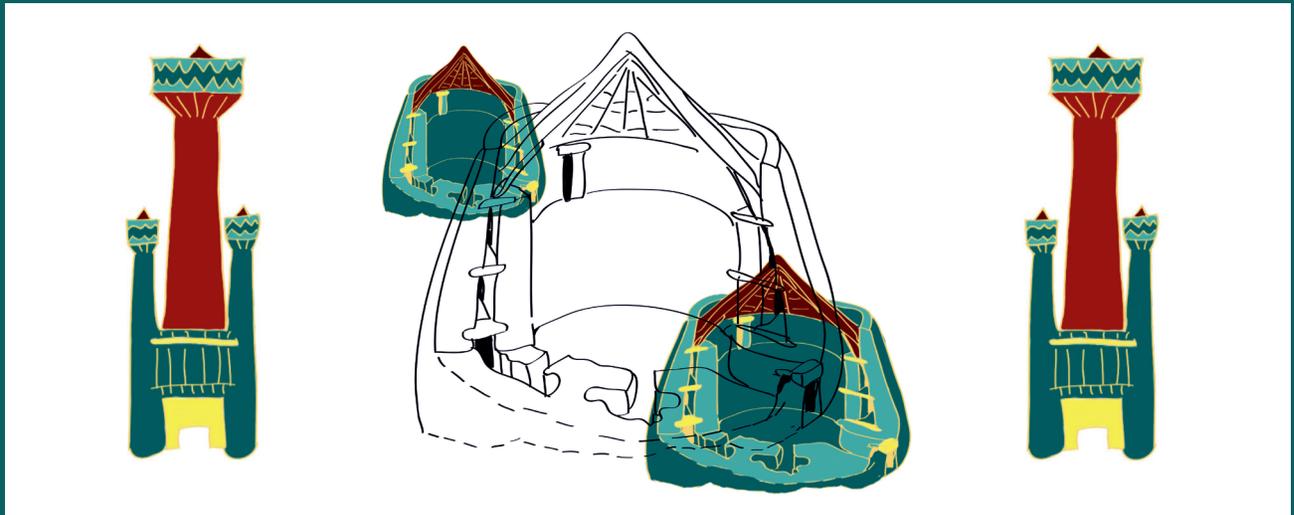
This collection of twenty-one papers addresses the theme of memory anchored to the enduring presence of monuments, mainly from Scotland and Sardinia, but also from Central Europe and the Balkans.

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