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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with contributions from
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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
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
Sardinia and of progressive positions which were initiatives which promoted the independence of Christian Democrats and later as a supporter of also involved in politics, first as a member of the drafting the Special Statute of Autonomy. He was he worked for the Regional Council of Sardinia, and acute, despite his soft tone. As a cultured man, in a way which was never dull but rather vigilant taking on civic responsibilities, which he fulfilled in a way which was both comprehensible and 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 Mediterranea. 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 Baleares 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 ‘uca de su Tintirriòlu (Loria & Trump 1978). His work around Bonu Ighinu (Trump 1990) is, however, closest to the 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 shoestring 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 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 8

Revisiting Glenelg a century after Alexander O Curle: reconstructing brochs in treeless landscapes

Tanja Romankiewicz & Ian Ralston

In memoriam Euan W. MacKie

The Glenelg area in the northwestern Highlands of Scotland is an archaeologically rich landscape, including at least five brochs and related structures. In one of its glens, Glen Beag, a series of three brochs sits along the river valley. The two best-known ones, Dun Telve and Dun Troddan, are in sight of each other, with Dun Grugaig further east towards the head of the glen (Fig. 8.1). The description and interpretation of these three monuments and their particular setting deserve a full consideration; however, this chapter concentrates on a much more specific problem concerning Dun Troddan.

Dun Troddan has been of central significance for interpreting the use and layout of brochs and for informing reconstructions of these monuments. It owes its importance not simply to its good preservation, but to the excavation of the site in the 1920s; and the interpretations of these excavations have since shaped our understanding of brochs. Alexander O Curle’s discovery of the first post-ring within a broch interior – more than 90 years before the fieldwork reported here was undertaken – has now become part of our collective memory of this category of sites. While Curle’s conclusions follow logically from his evidence, field visits by the present authors in 2010 and 2012 questioned the reliability of what Curle reported regarding the primary characteristics of this broch (Romankiewicz & Ralston 2013).

Our research highlights the importance of the physical record which survives at this site as evidence of its own building history and the subsequent changes to it. It also underlines how carefully and sympathetically any subsequent alterations or similar works at such a monument should be planned, given their potential impact on the preservation and presentation of the monument. By extension such modifications impact on our collective understanding and memory of the site.

Curle’s excavations

In 1919, Alexander O Curle was the Director at the National Museum of Antiquities in Edinburgh. Workmen of the Ministry of Works were undertaking consolidation works, also intended to improve public access, at the Glenelg brochs, first at Dun Telve in 1914 and, until 1920, at Dun Troddan (National Archives of Scotland NAS MW1/573 and MW1/1136). By October 1914, Curle, in his capacity as the keeper of the national archaeological collection, had been told about the finds made at Dun Telve and claimed most of the artefacts for that collection (correspondence in NAS SC 22918/2A in MW1/573). He must have also been informed about the subsequent phase of works at Dun Troddan, but exactly why Curle visited the works there in their final stages remains unclear from the readily accessible documentation. In his 1921 publication, Curle records that he only visited the site when the scheme of works neared completion in the late summer of 1920 (Curle 1921, 84, 87).

On arrival at Dun Troddan, Curle was puzzled with the findings made by the workmen. Contemporary photographs, held in the National Collection (HES A 47978 to A 47981) and presumably taken by Curle himself, show that the workforce had fully excavated the entrance passage into the broch, and from there had seemingly chased the wall footings along the inner wall face, as was typical practice at the time (e.g. by Tress Barry in Caithness, Anderson 1901). The trench following the curvature of the inner wall was perhaps intended to test the character and stability of the lowest wall courses. This wall trench had already been backfilled with clean gravel prior to Curle’s arrival. The gravel band edging the inner wall faces can be clearly seen in the historic photographs and still survived in 2012, when the fieldwork reported here was undertaken.
Figure 8.1. Map of Scotland showing location of Glenelg (drawing by Tanja Romankiewicz).

The central area of the broch interior, however, had been left untouched and an area ‘measuring some 9 feet by 7 feet’ (Curle 1921, 88) stood proud. Curle noted that this ‘accumulated mass’ survived ‘about 4 feet deep’ (1921, 87) and he offered further details:

Immediately to the north of this, and between it and the entrance to the stair, there had been laid bare on the very bottom, on the gravel subsoil, a well-formed rectangular oblong hearth measuring 4 feet 6 inches by 3 feet, paved and neatly surrounded by kerb-stones (Curle 1921, 88).

Curle’s impromptu investigations of the workmen’s discoveries revealed two further and stratigraphically later hearths in this area, and a series of overlying deposits and rubble. The stratigraphic sequence outlined in 1921 suggests successive phases of occupation and collapse in this central area (see Fig. 8.2: schematically drawn section on the basis of Curle’s description in 1921, 88–90). Below these deposits, Curle uncovered the first of a series of pits, lined with stone slabs:

In order to settle a question regarding the original levels at the inner end of the entrance passage, I had the inch or two of discoloured soil removed which was covering the top of the gravel subsoil within the court. In the course of this operation I observed, as the gravel surface was cleared, [...] a small pit with a diameter of about 2 feet, lined with four slabs and filled with wet discoloured silt. [...] on the bottom, 1 foot 9 inches below the surface, lay other two slabs, one on the top of the other. These lay on a clean gravel bed 2 feet 1 inch below the surface (Curle 1921, 90).
Although puzzled by this at first, Curle then described an eureka moment ‘after a night’s reflection’ (Curle 1921, 90; cf. Ralston 2003, 12):

I returned to the broch, found the centre, took a radius from there to the pit, and drew out a circle […]. On this line, […] we located ten others [pits]. […] in one hole, No. 6, which had been sealed on the surface by a large stone, the remains of decayed wood, recognisable [sic] by its fibrous character, were still visible. (Curle 1921, 90).

Curle had found a ring of post holes within the broch, at a time when such earthfast, negative features, although long known from Roman sites, were not yet the recurrent feature of Iron Age field archaeology they were subsequently to become. This post-ring was roughly concentric with the inner wall face of the broch, but the individual posts were not truly aligned along the circumference of a circle and were not very regularly spaced. However, Curle was clear in his description that the post-ring had been cut into natural subsoil and sat within the lowest occupation level within the broch. For him, the post-ring was thus part of the original configuration of the broch. In his further interpretation of the evidence, Curle did not go so far as to reconstruct Dun Troddan as a fully roofed structure, but suggested a lean-to timber arrangement supported against the inner wall face, with a possible upper walkway surrounding a central open courtyard (Romankiewicz 2011a, 124–5, illus. 164, drawing by Elizabeth Mulqueeney).

Curle’s excavation report (1921) and his seminal paper in Antiquity (1927) inspired a new generation of scholars. When, for example, Gordon Childe and Wallace Thorneycroft (1938) identified two posts and charred timbers at Rahoy, a small vitrified broch-like structure in Morvern on Scotland’s west coast, Childe (1946, 88–9) subsequently interpreted this also as a possible post-ring, or the rafters from a conical roof. It is from such ideas that our shared reconstructions of brochs have developed – as very much elaborated multi-storey versions of timber roundhouses, the typical domestic structures of British prehistory, in the case of the brochs set within a thick drystone wall (Romankiewicz 2011a, 125, illus. 166, drawing by Alan Braby).

The translation of the post-ring typical of timber roundhouses into broch architecture implies the provision of the necessary quantities of structural timber. The wider consequences of reconstructions of brochs founded on Curle’s insight become apparent through the results from environmental analyses: by the Iron Age, many of the landscapes of Scotland were essentially treeless, in particular in those parts along the Atlantic coastline where brochs were built in abundance (Tipping 1994, 24–5). Scholars have since struggled to explain from where the broch builders would have obtained the substantial timbers required for such reconstructions (summary in Romankiewicz 2011a, 142–3; cf. Fojut 2005). In fact, the use of large quantities of timber in landscapes largely denuded of trees has been presented as one aspect of what is extraordinary about broch architecture: the apparently conspicuous consumption of a scarce resource (Armit & Ralston 2002, 49): the erection of a broch, seen as a symbol of status, required not only large quantities of suitable stone and skilled labour to construct the outer wall, but also substantial timbers for the structural woodwork, including the post-ring, the upper floor (or floors) and the roof.

The archaeological evidence for post holes within brochs reconsidered

It is worth revisiting Curle’s discoveries and interpretation of the Glenelg evidence because we consider that these laid the bases for such hypotheses as detailed above. Dun Troddan thus retains both a general archaeological significance, and a specific significance for the history and memory of our discipline.

The evidence from the site, although now grassed over, appears to be still preserved more or less in the same condition as when Curle left in 1920. The excavation photographs and his account of the works can be easily compared with the general condition of the site when the fieldwork reported here was undertaken in 2012 (Romankiewicz & Ralston 2013). These works, comprising a field visit in 2010, and a site survey by the authors in 2012, revealed small-scale differences in the topography across the site that complicate any reading of Curle’s interpretation. There was, notably, a significant difference between the ground level within the entrance passage in 2012, the lowest point of the broch, and the apparent altitude of the post holes Curle encountered and which were set within the higher ground still present within the monument. This difference is emphasized by the modern retaining planking at the inner margin of the entrance, present at the time of our survey. As a result, we can question whether the investigations Curle recorded had reached primary levels over the broch interior. Re-reading Curle’s 1921 account confirms that he realized this discrepancy between these heights, but no further explanation was offered. Curle described ‘some special circumstances [that] controlled the arrangements of the posts in the neighbourhood of the entrance’ (Curle 1921, 91), which appears to correspond to an arrangement leading from
the entrance into a lower vestibule (cf. MacKie 2007b, 857, 860) and into a corridor that opens into the central area. It might be postulated that this height difference was negotiated by a short flight of steps up from the entrance passage. Although Curle describes this as a possible arrangement satisfactorily to account for the height differences at the inner end of the entrance passage, investigations at other sites have shown such stairs to be a highly unusual feature in original broch architecture.

A reconsideration of the stratification of the mass of soil in the interior of the broch, as described by Curle (Fig. 8.2), in relation to the lower altitude of the entrance passage leads to the conclusion that he encountered the internal post holes at a level stratigraphically higher than that of the original floor in the entrance. Survey in 2012 demonstrated this difference to be about 0.85 m, as measured between the still exposed hearth stone in the centre of the broch visible on Curle’s photographs, and the level of the inner end of the entrance passage as then visible – assumed to have been excavated to the original ground level (Romankiewicz & Ralston 2013). The 2012 profile recorded across these features, when superimposed onto Curle’s section (Fig. 8.3), illustrates the order of magnitude of the difference in height between Curle’s internal post-ring and the level of the entrance passage. Although Curle claimed that the lowest hearth to which the post holes were related was built at the level of the natural gravel subsoil, it seems more likely that the hearth and post holes visible in 1920, and shown on the contemporary photographs, were in fact set into substantial deposits that must already have accumulated above the original floor during use of the site. The conclusion from our new observations is that the post holes identified by Curle could not have been a primary feature of the broch; however, only an invasive investigation could now clarify this.

A comparison between photographs taken in 1920 and 2012 highlights the problem of the height difference between the level of the entrance passage (where the workman was standing in 1920) and the position of the central hearth described as lying ‘on the gravel subsoil’ (Curle 1921, 88; Fig. 8.4). Whilst the monument was constructed on a natural hill-slope, this seems far from sufficient to explain the difference in height that is apparent. This 1920 photograph was not published in Curle’s 1921 account; had it been, others may already have questioned Curle’s interpretation. The tops of the post holes as they survived are visible

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**Figure 8.2.** Stratigraphy of the accumulated ‘mass in the interior’ that ‘was at least 4 feet deep’ – reconstructed after Curle’s description (1921, 87–90) (drawing by Tanja Romankiewicz).
Revisiting Glenelg a century after Alexander O Curle: reconstructing brochs in treeless landscapes

in Curle’s pictures. The likelihood is that they were cut down from an unknown point above. Given that the recorded depth of the post holes was 0.5–0.6 m, and given the difference in altitude between them and entrance passage, it is clear that the bases of these stone-lined post holes regarded by Curle as a primary feature of the broch and lying ‘on a clean gravel bed 2 feet 1 inch below the surface’ (Curle, 1921, 90), are floating approximately 0.3 m above the level of the entrance passage, as projected into the broch interior. A post-ring for a substantial timber construction – even if only for a lean-to structure as Curle suggested – cut into gravel fills and adjacent to a sunken vestibule towards the entrance, appears to the writers to be an unsound structural arrangement to have acted as a foundation for substantial timber fitments. Interpreting these post holes as primary features supporting one or more upper floors and the roof is thus problematic in structural terms; and we are of the opinion that it is highly unlikely that these post holes were part of the original broch construction.

If this key example of a primary post-ring within a broch is now in doubt, what of other sites of the class? In fact, evidence for other post-rings within brochs is rare, in part because excavation may rarely have attained the primary floor level within such sites. In an analysis of 148 brochs that retain appropriate details of architectural complexity, only four sites could be put forward as preserving evidence for a concentric post-ring contemporary with their primary occupation: these are Tor A’ Chor Cain at Langwell and Rhiroy, both in Sutherland, Leckie in Stirlingshire and Scalloway on Shetland (Romankiewicz 2011a, 125). Two of these, Tor A’ Chor Cain and Rhiroy, would not even be included as brochs if strict criteria for this monument category are applied (cf. MacKie 2007b, 617, 766). The evidence for vertical posts at Scalloway was interpreted by the excavator as internal partitioning, being considered too insubstantial to have supported a roof (Sharples 1998, 39), but they may have been sufficient to hold up some form of an upper floor. Evidence for post holes within brochs and cognate structures elsewhere is more ambivalent. At Hurly Hawkin in Angus for example, the post holes did not form a circle concentric with the inner face of the enclosing wall; others were placed immediately along this inner face and were interpreted as indications of a series of huts built against the inner wall. Their integrity with the original use of the broch itself is unclear (Taylor 1983, 220). Other possible examples of post-rings include Ousdale and Carn Liath, both in the northern Highlands, Buchlyvie (Stirlingshire) phase 2, as well as Clickimin on Shetland, although the post-rings in the latter three in particular seem to have been associated with either earlier – and thus pre-broch – or later secondary occupations (Romankiewicz 2011a, 125). Of the 148 investigated brochs considered by Romankiewicz (2011a & b), a total of 68 have seen some form of intrusive investigation, but of course not all were excavated down to primary levels (Romankiewicz 2011b). Many of these were also examined before

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**Figure 8.3.** Profile of the interior of Dun Troddan, field survey by Romankiewicz & Ralston September 2012 (drawing by Tanja Romankiewicz).
Curle’s identification of the Troddan post-ring, and thus their investigators would have been unaware of the possible presence of an internal post-ring (e.g. at Ousdale, Caithness; MacKay 1892, 354). We therefore emphatically do not discount that further evidence for primary post-rings may come to light in new or ongoing investigations of brochs, but note that for the time being confirmed examples in Atlantic Scotland remain remarkably infrequent.

If then we assume, as present evidence suggests, that very few brochs included a primary timber post-ring, we would need to put forward other carpentry techniques to reconstruct the relatively complex roof and floor constructions often envisaged within brochs, but note that for the time being confirmed examples in Atlantic Scotland remain remarkably infrequent.

Environmental evidence datable to the last quarter millennium BC indeed indicates a substantial reduction in woodland cover in the Southern Uplands of Scotland, notably around the Bowmont Valley (Tipping 2010, 182–3). A similar ‘abrupt and near complete woodland destruction’ of late Iron Age but pre-Romano-British date, has now been demonstrated for many sites in northern England and southern and central Scotland (Tipping 2010, 183). Tipping associated these clearances with the expansion of farmland in response to changes in demand for agricultural products; he also demonstrated that clearances for local building projects could not have had such a devastating impact (2010, 184, 186–7). As the trees were felled not burnt down, this might indicate the retention of timber as surplus, possibly to facilitate its exchange beyond the immediate locality; this, however, with the caveat that available technologies for transporting timber overland would have been very limited. A hypothesis advancing the possibility of timber imports...
from beyond Scotland seems very difficult to sustain, as there is no other evidence for exchange of aspects of material culture with for example Norway at that time (Crone 1998, 162, contra Foujit 2005, 198–9).

Results from pollen analyses have demonstrated that it was possible to manage hardwood trees, for example oak, in sheltered pockets, even in the harsh and unforgiving climate of northern Scotland from about the third century AD (Tipping et al. 2006, 38–9). Research into Holocene palaeoclimatic conditions based on records of peatland surface wetness might help to clarify the environmental circumstances for Iron Age Scotland. For example, water tables as reconstructed from proxy records (testate amoebae) have been analyzed in a multi-proxy approach of ‘stacking’ and scientifically ‘tuning’ detrended records ‘to identify clear correlative events’ (Charman et al. 2006, 336). Based on the recognition of such events and their fixing by independent age markers, such records can be compiled and reconciled to allow finer chronological precision (Charman et al. 2006, 336–7, 339). By compiling proxy records from 12 different profiles in this way, large-scale, non-localized long-term climate signals can be identified ‘while minimising [sic] uncertainties associated with individual records and imprecision in the chronologies’ (Charman et al. 2006, 343, 345).

Results of this work indicate that for northern Britain ‘the most consistent and significant wet shifts begin at ca [...] amongst others] 2760 [...] cal yr BP’ (Charman et al. 2006, 345), very broadly at the time when the earliest architecture cognate with brochs started to appear (Romankiewicz 2011a, 19). The results from fine-tuning the relevant palaeoenvironmental records within regions also ‘support the hypothesis that hydrological variability in northwest Europe is driven by solar variability manifested as changes in the location and strength of westerly storm tracks’ (Charman et al. 2006, 348). This can be read to imply a general and widespread trend towards the emergence of wetter and colder summers starting at around 750 BC.

From such palaeoclimatic research, a striking picture emerges of an environmental decline that would have broadly coincided with the emergence of massive-walled stone roundhouses such as Bu, Pierowall and St Boniface, all on Orkney, and generally identified as the early developmental stages of monumental broch architecture (overview in Romankiewicz 2009). This climatic decline must have resulted in trees growing under increasing environmental stresses, and in other factors hindering the re-establishment of woods after felling episodes. Such broad-scale phenomena would have been tempered by physical properties such as local topography, aspect and drainage, and indeed issues of ownership, unknown in Iron Age circumstances, of surviving woodland. To argue, however, for the local development of an architectural style that is apparently characterized by the deliberate consumption of quantities of substantial timbers at a time of environmental stress seems at first sight difficult to sustain. Even if the earlier massive-walled roundhouses required fewer major timbers than the fully developed brochs, such as Old Scatness in Shetland, which dates to around the fourth century BC (Dockrill et al. 2006), it seems counter-intuitive to argue that a more complex architecture requiring substantial posts, rafters and other pieces of structural timber would have flourished at a time when these key woodland resources were becoming more and more difficult to sustain locally. The regional composite records for northern Scotland indicate that this period of high water tables lasted well into the third century BC, with an onset of drier summers seemingly not occurring before 250 BC (Charman et al. 2006, Fig. 4). Given that trees would take a further generation to grow to a usable size, it seems unlikely that substantial new-growth timbers could have been obtained in quantity and locally for any major set of broch building projects before approximately 200 BC. One related aspect in this context is also the sheer number of brochs present in Scotland, currently estimated at over 500 (Strat Halliday pers. comm.). While we may expect poor conditions for tree growth to have existed in the exposed northern and western fringes of Atlantic Scotland for much of the period when these structures were being erected, this environmental research also indicates comparably wet conditions for central Scotland and the Borders (Charman et al. 2006, Fig. 4). Their data for the composite water table for the Borders do not fall until the first century BC, while the record for central Scotland points towards a wet period continuing into the first millennium AD.

From these results it might be postulated that an excessive consumption of substantial timbers for broch building in Atlantic Scotland could not have been readily sustained, either by sourcing locally grown timbers, or through large-scale imports from areas further south. The environmental evidence pointing to lack of woodland is, however, only problematic if large quantities of timber for posts and beams to support upper floors and roofs were indeed required for Iron Age broch construction. Of course, individual pockets of better land and particular woodland management strategies may have been successful, up to a point, in furnishing the major constructional timbers that could have been required. It appears, however, to be more likely that the timbers envisaged by today’s archaeologists to be required for the elaborate broch reconstructions containing post-rings, upper timber
floors and substantial roof constructions, would simply have not been widely available across Atlantic Scotland and, where they were, their incorporation into broch architecture would indeed have represented the conspicuous consumption of this resource. It therefore seems difficult to argue a priori for the development of an architectural type which necessarily consumed large amounts of substantial timber at a time of environmental decline, when woodland growth would have been restricted. To say this is not to disallow the possibility that some brochs did indeed need substantial quantities of major timbers in their interiors, but to allow the contrary possibility – that some brochs did not.

**Alternative reconstructions**

An analysis of key broch dimensions suggests regional variation, which may correlate with the less-than-regular availability of structural timbers in different parts of the country. In regions where it is suggested that large trees would have been difficult to obtain, such as Caithness, Shetland or the Western Isles, the internal diameters of brochs are comparatively small. Minimizing individual structural spans may thus have been an adaptation to the availability of only smaller individual timbers there. Where such trees cannot have flourished even under managed conditions, we may have to consider the use of alternative roofing methods such as grid shells rather than the typical rafter and purlin arrangements – and perhaps abandon the dominant perception of what a broch should have looked like (Romankiewicz 2011a, 163–5, also here Fig. 8.5). Such a grid shell would only have required small trees less than 0.1 m in diameter in its assembly, and would have eliminated the need for a supporting post-ring for the roof set into the underlying ground surface. Trees of the diameters necessary to build such grid shells could have been produced in sheltered locations in most of Atlantic Scotland and managed as part of a coppicing regime; here they would have flourished much more readily than major timber trees.

If we accept that at least some brochs could have been satisfactorily roofed by grid shells or similar methods, it therefore seems difficult to argue a priori for the development of an architectural type which necessarily consumed large amounts of substantial timber at a time of environmental decline, when woodland growth would have been restricted. To say this is not to disallow the possibility that some brochs did indeed need substantial quantities of major timbers in their interiors, but to allow the contrary possibility – that some brochs did not.

**Figure 8.5.** Upper floor and grid shell roof reconstructions for Culswick, Shetland, and Ness broch, Caithness (upper right detail) after Romankiewicz 2011b, 12, 147 (drawing by Tanja Romankiewicz).
constructions using slimmer-diameter wood, in such cases shorter substantial timbers would only have been required as upright posts to support an upper floor. Without the additional need to support the roof weight or to extend up to rafter height, these posts could have been constructed using timber of much smaller dimensions than previously estimated (cf. Romankiewicz 2011a, A-90-5 for calculations of timber dimensions for traditional and alternative constructions).

In the case of the smaller broch interiors, a post-ring would not even have been required to support an upper floor. For example, to construct a floor across the 8 m of internal diameter within the broch at Culswick, Shetland, would have required only five large beams laid parallel across the structure. The longest would have needed to be 8 m, but because of the circular geometry the rest would have been shorter – a total of well under 40 linear metres of timber. In the reconstruction proposed here these elements were laid tangentially, and supported on the inner scarcement ledge which is ubiquitous in these buildings (Romankiewicz 2011a, A-90, compare here Fig. 8.5).

In other cases, examination of architectural details suggests that the insertion of upper floors into particular brochs would have been problematic, and contrasts with the general level of accomplishment indicated by other aspects of these remarkable buildings. For example, at some brochs, the threshold of one of the upper openings in the inner wall face (believed to have permitted egress onto the upper floor) sits at the same level as the scarcement ledge (believed to have supported the said upper floor). Given the thickness of any floor construction, a step up onto the floor supported on the scarcement would have been required in these cases. At other brochs, the scarcement is set well below the upper opening, and a floor of considerable thickness would have had to be raised from the scarcement – or steps down provided – to negotiate such a large height difference (Romankiewicz 2011a, 151). These structural oddities, taken together with the postulated shortages of constructional timbers in some areas, might encourage us to abandon the concept of the insertion of upper floors altogether, in the case of some brochs at least, and the function of the scarcement could have been unrelated to upper floor constructions. Without the requirement for an upper floor, for instance, only some 100 pieces of wood each about 3–3.5 m in length would have been needed to construct a gridshell roof for Dun Torcuill (North Uist; Romankiewicz 2011a, A-94). If regularly coppiced trees each produced three or four stems of such a size, it would only need the product of 25–30 such coppiced trees to roof a broch.

The overall land-take for such woodland would be very modest and the success of growing such trees in sheltered pockets seems likely, even in generally harsh environmental conditions.

Local woodland management, often small-scale and protected in sheltered niches, might therefore offer the best-fit hypothesis to answer the questions regarding timber provision for broch construction. Such small-scale endeavours may be difficult to detect in environmental studies reliant on the catchment of particular sample sites. Archaeological evidence of pine and willow grown under stress survives from Dun Bharabhat and Dun Vulan, both in the Western Isles, and seemingly confirms that only roundwood of relatively small dimensions was available there (Romankiewicz 2011a, 143; cf Church 2002, 72; Taylor 1999, 190).

**From timber sources to models of social organization**

If we accept the arguments brought forward that locally managed woodland provided the most likely source for the timbers required in broch construction, this would mean that woodland pockets must have been created, maintained and managed over generations. Wood, of course, would have been required for a range of other purposes from the hafts of tools to fuel for heating and cooking. In terms of the growing of timber for architectural purposes, however, there would have been a need to look after woodlands intended for the construction projects of future generations, which may imply that some longer-term security over land tenure was expected at the time. Such a conclusion suggests that patterns of inheritance existed, implying in turn that any given generation was looking after woodland resources earmarked for future architectural projects (for related aspects of inheritance cf. Armit 2005). Were these broch builders anticipating the need for future repairs to their recently built structure or might we even argue that they expected the succeeding generation to build another broch nearby? Or was there no such long-term management against future requirements, thus every broch project would have first involved growing the required timber before building works could start? These alternative strategies have deep implications for the management of resources and prehistoric concepts of time and memory.

It is in this context that questions concerning the timber resources consumed in broch construction might provide one route by which to investigate the social organization of broch-builders, as well as their patterns of inheritance and ultimately their
geographical and political stability (see Romankiewicz 2016). If we accept that locally grown and managed timber resources underpinned each broch project, this might suggest the existence of much more stable and enduring societies than the defensive character often read into the external appearance of brochs, and hence the prevalence of unsettled times, may lead us to believe. Societies which invested considerable labour and material resources in such substantial domestic building projects were arguably seeking to construct a physical memory within, and perhaps upon, a wider landscape (cf. Hingley 1992, 14, 17; Sharples 1984, 119–21). Adding the importance of the creation of memory to the nexus of factors involved in the construction of brochs that have been discussed elsewhere (Romankiewicz 2011a, 195–207) seems a profitable way to help our understanding of the erection of these remarkable structures in Iron Age landscapes.

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The fieldwork underpinning this chapter was undertaken in 2012, shortly before the ‘Gardening time’ conference was held. Since then, HES has undertaken minor improvements and interpretive work within Dun Troddan, but these do not materially impact on the hypothesis advanced here.
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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