THE MEGALITHIC ARCHITECTURES OF EUROPE

Edited by

Luc Laporte and Chris Scarre

The Megalithic Architectures of Europe

The Megalithic Architectures of Europe

edited by

Luc Laporte and Chris Scarre

Oxbow Books
Oxford & Philadelphia

Published in the United Kingdom in 2016 by
OXBOW BOOKS
10 Hythe Bridge Street, Oxford OX1 2EW

and in the United States by
OXBOW BOOKS
1950 Lawrence Road, Havertown, PA 19083

Hardback Edition: ISBN 978-1-78570-014-9
Digital Edition: ISBN 978-1-78570-015-6

A CIP record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Names: Laporte, Luc. | Scarre, Chris.
Title: The megalithic architectures of Europe / edited by Luc Laporte and Chris Scarre.
Description: Oxford : Oxbow Books, 2015. | Includes bibliographical references.
Identifiers: LCCN 2015033850| ISBN 9781785700149 (hardback) | ISBN 9781785700156 (digital)
Subjects: LCSH: Megalithic monuments--Europe. | Tombs--Europe. | Antiquities, Prehistoric--Europe. | Architecture, Prehistoric--Europe. | Neolithic period--Europe. | Europe--Antiquities. | Europe, Northern--Antiquities. | Europe, Western--Antiquities. | Excavations (Archaeology)--Europe, Northern. | Excavations (Archaeology)--Europe, Western.
Classification: LCC GN803 .M473 2015 | DDC 722--dc23 LC record available at http://lccn.loc.gov/2015033850

Typesetting and layout by Ray Davies

Printed in Wales by Gomer Press

For a complete list of Oxbow titles, please contact:

UNITED KINGDOM
Oxbow Books
Telephone (01865) 241249, Fax (01865) 794449
Email: oxbow@oxbowbooks.com
www.oxbowbooks.com

UNITED STATES OF AMERICA
Oxbow Books
Telephone (800) 791-9354, Fax (610) 853-9146
Email: queries@casemateacademic.com
www.casemateacademic.com/oxbow

Oxbow Books is part of the Casemate Group

Front cover: Chambered cairn of Cairnholy, Dumfries and Galloway, Scotland. Photo: Chris Scarre
Back cover: Dolmen angevin of La Roche-aux-Fées at Essé, Ille-et Vilaine, France. Photo: Chris Scarre

Contents

SECTION 3: CHRONOLOGIES AND CONTEXT

SECTION 4: CONCLUSIONS

Contributors

NIELS H. ANDERSEN
Moesgaard Museum, DK 8270 Højbjerg, Denmark

RODRIGO DE BALBÍN BEHRMANN
Area de Prehistoria, Universidad de Alcalá, Pza. San Diego, s/n - 28801, Alcalá de Henares, Madrid, Spain

ROSA BARROSO BERMEJO
Area de Prehistoria, Universidad de Alcalá, Pza. San Diego, s/n - 28801, Alcalá de Henares, Madrid, Spain

NOISETTE BEC DRELON
Université d'Aix-Marseille, CNRS-MCC, LAMPEA-UMR 7269, Aix-en-Provence, France

PRIMITIVA BUENO RAMÍREZ
Area de Prehistoria, Universidad de Alcalá, Pza. San Diego, s/n - 28801, Alcalá de Henares, Madrid, Spain

NICOLAS CAUWE
Musées royaux d'Art et d'Histoire, Parc du Cinquantenaire, 10, B-1000 Brussels, Belgium

MERCEDES IRIARTE CELA
Departamento de Ciencias y Técnicas Fisicoquímicas, Facultad de Ciencias, Universidad Nacional de Educación a Distancia (UNED), Paseo Senda de Rey 9, 28040 Madrid, Spain

FLORIAN COUSSEAU
Université de Rennes 1-CReAAH UMR6566, 263 Avenue du Général Leclerc, Campus de Beaulieu, 35042 RENNES CEDEX, France

VICKI CUMMINGS
School of Forensic and Investigative Science, University of Central Lancashire, Preston PR1 2HE, UK

TORBEN DEHN
Ancient Monuments, Danish Agency for Culture, H. C. Andersens Boulevard 2, DK 1553, København V, Denmark

PALLE ERIKSEN
Ringkøbing-Skjern Museum, Herningvej 4, 6950 Ringkøbing, Denmark

RAMÓN FÁBREGAS VALCARCE
Grupo de Estudos para a Prehistoria do NW Peninsular, Departamento de Historia I, Universidade de Santiago de Compostela, Facultade de Xeografía e Historia, Praza da Universidade, nº 1, 15782 Santiago de Compostela, Spain

LEONARDO GARCÍA SANJUÁN
Departamento de Prehistoria y Arqueología, Universidad de Sevilla, María de Padilla s/n, 41004, Sevilla, Spain

ANNE BIRGITTE GEBAUER
National Museum, Gammel Carlsbergvej 15, 1799 København V, Denmark

ANTONIO HERNANZ GISMERO
Departamento de Ciencias y Técnicas Fisicoquímicas, Facultad de Ciencias, Universidad Nacional de Educación a Distancia (UNED), Paseo Senda de Rey 9, 28040 Madrid, Spain

PHILIPPE GOUÉZIN
29 rue de La Fontaine, 56420 Plaudren, France

FRANZISKA HAGE
Institut für Ur- und Frühgeschichte Christian-Albrechts-Universität, Johanna-Mestorf-Str. 2-6, 24118 Kiel, Germany

MARTIN HINZ
Institut für Ur- und Frühgeschichte Christian-Albrechts-Universität, Johanna-Mestorf-Str. 2-6, 24118 Kiel, Germany

WIEBKE KIRLEIS
Institut für Ur- und Frühgeschichte Christian-Albrechts-Universität, Johanna-Mestorf-Str. 2-6, 24118 Kiel, Germany

LUC LAPORTE
CNRS Laboratoire Archéosciences, Université de Rennes 1-CReAAH UMR6566, 263 Avenue du Général Leclerc, Campus de Beaulieu, 35042 RENNES CEDEX, France

JEAN-MARC LARGE
Archéologue associé à l'UMR 6566 CReAHH, Université de Rennes 1, Campus de Beaulieu, 35042 Rennes, France

JOSÉ ANTONIO LINARES CATELA
Cota Cero Gestión del Patrimonio Histórico S.L.,
Calle Antonio Machado, 2, local 2A
21007, Huelva, Spain

JOSÉ ANTONIO LOZANO RODRÍGUEZ
Instituto Andaluz de Ciencias de la Tierra, Consejo Superior de Investigaciones Cientificas, Universidad de Granada, Avenida de la Palmeras, 4, 18100 Armilla, Granada, Spain

EMMANUEL MENS
Archeo Atlantica, 19 rue du Vieux Moulin
44740 Batz-sur-Mer, France

COLIN RICHARDS
School of Arts, Languages and Cultures, University of Manchester, Manchester M13 9PL, UK

LEONOR ROCHA
Centre de História da Arte e Investigação Artística,
Universide da Évora, Palácio do Vimioso,
Largo Marquês de Marialva 8, 7000-809 Évora Portugal

CHRIS SCARRE
Department of Archaeology, Durham University, South Road, Durham DH1 3LE, UK

GEORG SCHAFFERER
Römisch-Germanische Kommission, Palmengartenstraße 10–12, 0325 Frankfurt am Main, Germany

XOSÉ IGNACIO VILASECO VÁZQUEZ
Grupo de Estudos para a Prehistoria do NW Peninsular, Departamento de Historia I, Universidade de Santiago de Compostela, Facultade de Xeografía e Historia, Praza da Universidade, nº 1, 15782 Santiago de Compostela, Spain

JØRGEN WESTPHAL
Ancient Monuments, Danish Agency for Culture, H.C. Andersens Boulevard 2, DK 1553 København V, Denmark

Preface

Luc Laporte and Chris Scarre

Megalithic monuments are defined essentially by the unusually large stones employed in their construction. The impressive dimensions have led to recurrent speculation as to how they were built. Popular histories and beliefs frequently attributed them to giants or other mythical beings. Dutch antiquarian Johan Picardt illustrated his *Antiquiteten* of Drenthe in 1660 with engravings showing giants engaged in the construction of one of the *hunebedden* of the northern Netherlands (Bakker 2010, 40–46). Later scholars, more soberly attributing them to human action, have nonetheless speculated on the precise methods used in their construction by societies lacking modern engineering equipment. Such speculation has concerned both the erection of the monuments – the raising upright of a menhir or orthostat, the building of a burial chamber or the addition of a mound – and the transport of the stones. The general consensus over the years has envisaged large teams of humans pulling on ropes aided by timber trackways, rollers or scaffolds, although waterborne transport has also been invoked on occasion (for the Stonehenge bluestones, or the Grand Menhir Brisé: Atkinson 1979; Le Roux 1997). Winter transport of megalithic blocks over ice or frozen ground has also been suggested for the monuments of northern Europe.

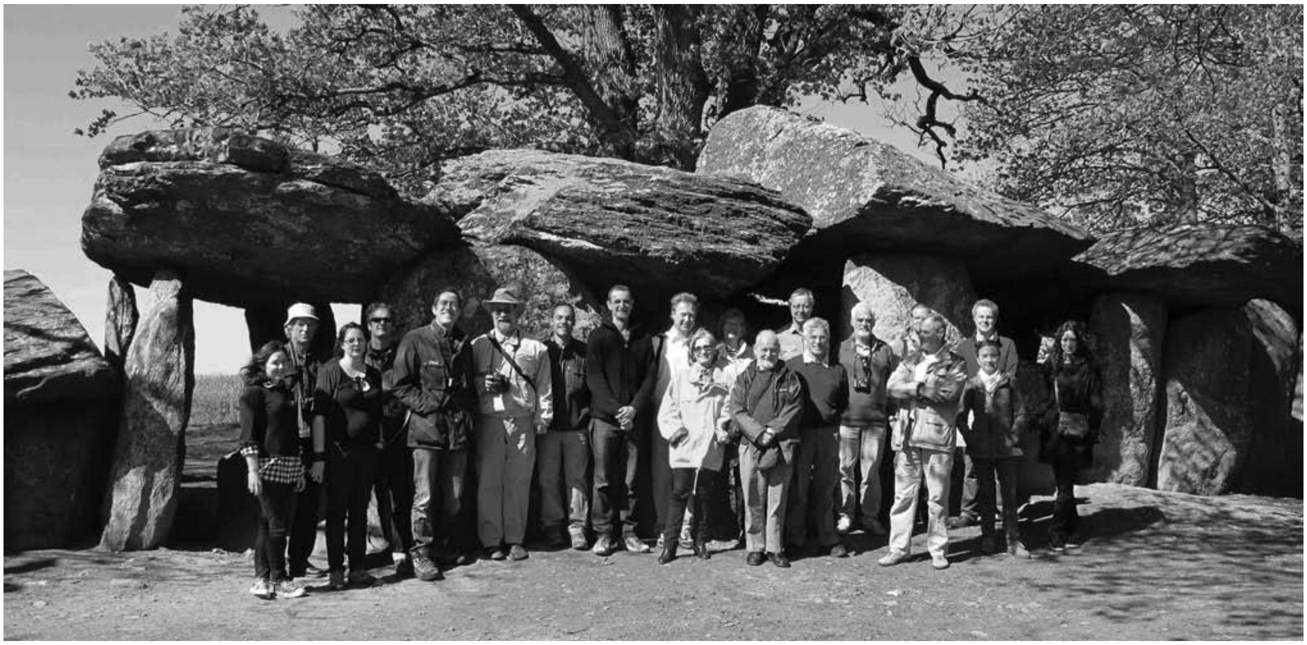
While speculation will continue to govern some elements of this debate, recent decades have seen new attention devoted to the direct evidence of constructional techniques afforded by the monuments themselves. This has included detailed observations of the surface of the megalithic blocks and the manner in which the raw materials were deployed. It has also extended to the sources of the stones and the quarries from which the blocks were extracted. A series of separate studies from the Portuguese Alentejo to Denmark and Sweden have revealed new evidence for the ways in which the materials were quarried and used (e.g. Dehn *et al.* 1991; Mens 2008; Martinez Torres *et al.* 2014; Richards *et al.* 2013). The incorporation of recycled elements has drawn attention to the multi-phase nature of many of these monuments, products of successive episodes of remodelling, extension and occasionally destruction. Hence despite the durability and scale of the materials used in megalithic monuments, they are increasingly understood as dynamic structures, continually in flux throughout their use-lives, with biographies furthermore that extend up to the present day.

Along with new interest in the constructional techniques has gone a new awareness of the social context in which these monuments were created. A number of scholars have emphasised the contingent and sometimes haphazard nature of the megalithic building project, arguing that the undertaking itself may have been more important than the finished product. At the same time, excavation evidence and structural analysis have revealed the level of skill required to build a megalithic tomb, and the repetitive features of the work that suggest regionally embedded traditions of knowledge, and perhaps expert builders.

The megalithic monuments of western Europe comprise tombs, stone settings and individual standing stones or menhirs. The study of megalithic tombs focused for many years on the funerary space, but enquiry has subsequently extended to the entirety of the monumental structure, including the mound ot cairn, and to its physical, chronological and human setting. In the light of new information acquired over the past 20 years it is timely to revisit the notion of the architectural project. In analysing the intentions that can be attributed to the Neolithic builders we must consider what evidence can be drawn from the construction process, and therefore from the building site. We must also ask what can be learned from the evidence of constructional sequences, and from the additions and modifications through which each generation reappropriated the unique significance of a specific site.

These "primitive" architectures may appear to be the outcome of a construction project as rudimentary, and a construction process as opportunistic, as the large slabs that they employed. That is clearly not the case. Each building project was unique. Detailed study can assess the architectural function or the manipulation of each element, and the reuse, secondary reworking and other successive modifications to which they were subjected. Along with the manner in which the materials were used, this reveals a store of knowledge that sometimes differed considerably from one structure to another, even between those of the same period within a single region. Reconstructing the building processes allows a better understanding, first, of the nature of these architectural projects, and second, of the purposes and uses for which they were intended.

What kinds of evidence and what tell-tale signs can document the progress and operation of megalithic building sites? What we can learn of the sequence or series of phases within each construction project and the intentions that lay behind it? Were these long-term building projects, undertaken



Participants in the "Megalithic architectures" conference visiting the megalithic tomb known as La Roche-aux-Fées at Essé (Ille-et-Vilaine) in May 2012.

by a small group of people during the slack season, or were they co-ordinated and continuous? If continuous, were shelters provided to accommodate the whole of the work force during the work? Or should we instead envisage periodic assemblies of people, enhancing the cohesion of the group through a collective undertaking that tied the individual into the wider community? The organisation of work at the building site must indirectly reflect the social organisation of the groups involved just as does the number of people whose bodies were deposited within the burial chambers, or whose bones were arranged and stored there. Speculative discussions have explored a wide range of possibilities, but material evidence that might allow more specific insights in individual cases remains relatively rare.

It was to address these issues that a conference on the theme of "Megalithic Architectures" was held at the Musée de Bretagne at Rennes, from 10 to 12 May 2012. The first two days were devoted to conference presentations in the Champs Libres auditorium at the museum. Each presentation was recorded as an audio track, using the equipment and personnel that were kindly placed at our disposal. That was then synchronized with the corresponding Powerpoint slide show. The processing was undertaken by the company Mstream and made available on-line at the site http://emsg-rennes.jimdo.com/ The third and final day of the meeting was occupied by an excursion to sites in the region around Rennes including the *dolmen angevin* of La Roche-aux-Fées at Essé, the menhirs of Champ Dolent at Dol and La Tremblaye at Saint-Samson-sur-Rance, and the *allée couverte* of La Maison des Feins at Tressé. The papers in the present volume derive from those originally presented at this meeting.

The aim was to bring together speakers from as many of the relevant countries as possible, and to bridge the different national traditions of research. The resulting volume is organised in three sections that correspond to the major themes of the conference. The first presents a series of case studies from individual sites that reveal details of constructional techniques and also provide insight into the organisation of the building projects and the intentions of the builders. The second section broadens the spatial envelope to consider groups of sites and regional traditions; while the third section addresses chronological questions and special issues concerning the construction of these monuments. A fourth and final section brings together a famous non-European example and two summary papers reviewing the west European megalithic phenomenon as a whole from a northern and a southern perspective.

The editors are grateful first and foremost to the sponsors who provided financial and material support for the Rennes meeting: the Ministère de la Culture, the Région Bretagne, the Délégation régionale of the Centre National de la Recherche Scientifique, the Observatoire de Rennes, the Université de Rennes 1, the Musée de Bretagne, the Maison des Sciences de l'Homme de Bretagne and Rennes Métropole. Thanks are also due to Florian Cousseau, Catherine Bizien-Jaglin and Catherine Louazel for their assistance with the organisation of the conference, and to the members of the UMR 6566 research team, and students, for their help during the meeting itself: Catherine Le Gall, Annie-Claude

Granger, Francis Bertin, Laurent Quesnel, Manon Quillivic, Noisette Bec-Drelon, Aymeline Fonvieille, Hélène Pioffet and Adrien Delvoye. The editors also express their thanks to all those who have assisted in the preparation of this volume: Kate Sharpe, Emma Cunliffe, Miquel Molist and the late Magdalena Midgley. The volume is dedicated to the memory of Magdalena Midgley, whose premature death in July 2014 robbed European megalithic studies of one of its leading exponents.

References

Atkinson, R. J. C. 1979. *Stonehenge.* Penguin Books: Harmondsworth.

Bakker, J. A. 2010. *Megalithic Research in the Netherlands, 1547–1911. From "Giant's Beds" and "Pillars of Hercules" to accurate investigations.* Sidestone Press: Leiden.

Dehn, W., Kalb, P. and Vortisch, W. 1991. Geologisch-Petrographische Untersuchungen an Megalithgräbern Portugals. *Madrider Mitteilungen* 32, pp. 1–28.

Le Roux, C.-T. 1997. Et voguent les menhirs? *Bulletin d'Information de l'Association Manche-Atlantique pour la Recherche Archéologique dans les Iles* 10, pp. 5–18.

Martínez-Torres, L. M., Fernández-Eraso, J., Mujika-Alustiza, J. Á., Rodrígeuz-Miranda, A. and Valle-Melón, J. M. 2014. Geoarchaeology and construction of the La Chabola de la Hechicera megalithic tomb, Elvillar, northern Spain. *Geoarchaeology* 29, pp. 300–311.

Mens, E. 2008. Refitting megaliths in western France. *Antiquity* 82, pp. 25–36.

Richards, C., Brown, J., Jones, S., Hall, A. and Muir, T. 2013. Monumental risk: megalithic quarrying at Staneyhill and Vestra Fiold, Mainland, Orkney. In: richards, C. *Building the Great Stone Circles of the North.* Windgather Press: Oxford, pp. 119–148.

Nicolas, E., Marchand, G., Henaff, X., Juhel, L., Pailler, Y., Darboux, J.-R. and Errera, M. 2013. Le Néolithique ancien à l'ouest de la Bretagne: nouvelles découvertes à Pen Hoat Salaun (Pleuven, Finistère). *L'Anthropologie* 30, pp. 1–43.

Section 1

The megalith-builders

1

Menga (Andalusia, Spain): biography of an exceptional megalithic monument

Leonardo García Sanjuán and José Antonio Lozano Rodríguez

Abstract
Menga was discovered for modern science in the 1840s, when Rafael Mitjana carried out excavations that he reported in his *Memoria*. The booklet soon circulated internationally, giving this great megalith an early fame. Yet, as written accounts dating to the 16th through 18th centuries AD and other pieces of evidence attest, Menga had never been really 'forgotten'. Archaeological excavations carried out in the late 20th and early 21st centuries have provided evidence suggesting that, since its construction in the Neolithic period, and during later prehistory, Antiquity and the Middle Ages, Menga was used as a sacred building and burial ground. This paper brings together, for the first time, some of the evidence available in order to understand Menga's outstanding biography, spanning almost 6000 years. The archaeological data currently available is fragmentary and largely unpublished, but taken together, it tells a remarkable story about the inception, design, and long life of what possibly is the most fascinating megalithic monument of Iberia.

Keywords: Neolithic, Copper Age, Bronze Age, Antiquity, Middle Ages, megalith, burial, landscape

Introduction

Located in the plain of Antequera (Málaga), on the northern side of the Baetic mountain range, Menga is possibly the most famous megalithic monument in Iberia. As Sánchez-Cuenca López (2012) showed in his historiographic review, following its discovery for archaeology as a scientific discipline by Mitjana (1847), Menga became a reference for the study of the megalithic phenomenon worldwide throughout the 19th century. There is no doubt that its exceptional size and architectural features played a major part in its early fame within contemporary archaeological knowledge (Figs 1.1 and 1.2).

Writing a biography of Menga is a very complex task. Firstly, it has been the target of a significant number of interventions since it was first discovered, the more recent and extensive of which remain largely unpublished (Fig. 1.3).[1] Secondly, numerous indications suggest that Menga has been visited, frequented and used, on a practically continuous basis since it was first built. It was never buried underground, away from human interest and curiosity, as so many other prehistoric monuments were. In addition, the history of Menga is inherently linked to the other two large monuments that form the megalithic complex of Antequera – Viera and El Romeral – as well as other important prehistoric sites in the surrounding area, the most noteworthy being La Peña de los Enamorados. Combined, these factors make its biography a fascinating, albeit particularly difficult, case study.

This paper is a condensed English version of a larger work dedicated to the biography of Menga, to be published in Spanish, and is based on a thorough examination of published data, various unpublished reports and information obtained directly from excavators (García Sanjuán and Lozano Rodríguez, forthcoming).

Before Menga

Excavations conducted over the last three decades found evidence suggesting prior occupation on the hill on which Menga and Viera are located. Details of what this activity consisted of are not known, as the first task the builders of Menga undertook was the levelling of the entire construction area (Ferrer Palma *et al.* 2004, 187–189). There are three pieces of evidence for this occupation: (i) the lithic and ceramic artefacts found within the fill used for the Viera and Menga tumuli, which came from deposits of a previously existing settlement (Marqués Merelo *et al.* 2004a, 184); (ii) the negative structures detected outside Menga (Carrión Méndez *et al.* 2006a, 23); and (iii) the single inhumation found in the south-western quadrant of Menga's mound (Carrión Méndez *et al.* 2006a, 22–23). Unfortunately, attempts to radiocarbon date the very poorly preserved human remains of this single inhumation have been fruitless due to a lack of collagen.

When was Menga built? There are currently three radiocarbon dates for this monument that fall within the late prehistoric period (Table 1.1), all obtained from charred material. Two were obtained from samples collected inside a pit located in the monument's atrium that contained carbon remains and three fragments of handmade pottery, including a rim (Navarrete Pendón 2005, 16–17). The dates were 3790–3690 cal BC and 3760–3530 cal BC (all calibrated dates quoted to 2σ) (Table 1.1). The third radiocarbon date was obtained from a sample retrieved from the base of the tumulus in Sector D of the excavation undertaken by the University of Granada in 2005–2006. The age of this sample

Fig. 1.1: Menga from the northeast. Photo: Leonardo García Sanjuán.

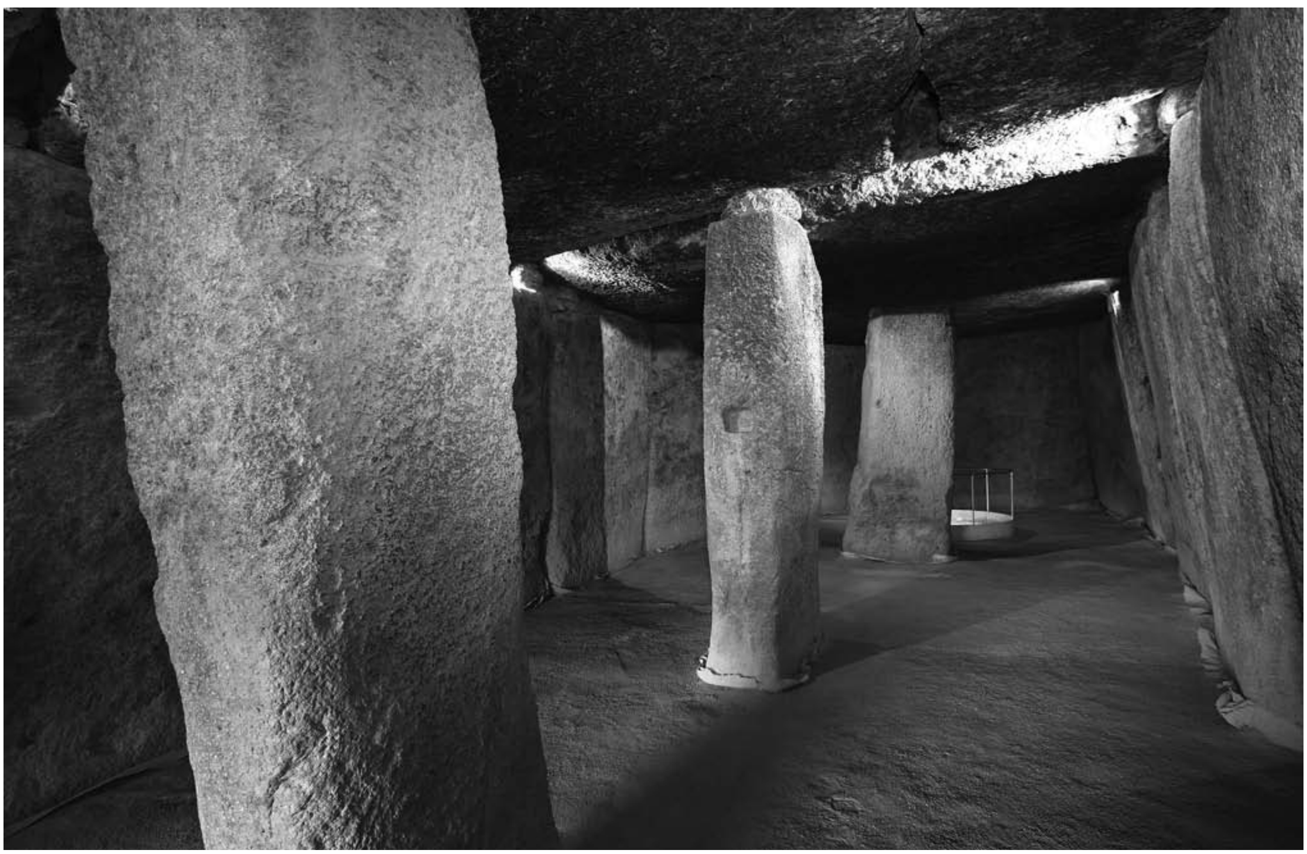


Fig. 1.2: Interior of Menga, looking inwards from the entrance. Photo: Miguel Ángel Blanco de la Rubia.

Context	*BP*	*Lab. ref.*	*Sample*	*BCE/CE (1 σ)*	*BCE/CE (2 σ)*	*Ref.*
Menga (negative feature at atrium)	4935±40	Ua-24582	Charred material	3760–3650 BCE	3790–3690 BCE	1
Menga (negative feature at atrium)	4865±40	Ua-24583	Charred material	3700–3635 BCE	3760–3530 BCE	1
Menga (base of mound)	4760±30	Ua-36216	Charred material	3634–3522 BCE	3639–3384 BCE	1
Viera	4090 ± 30	Beta-353820	Animal bone	2836-2577	2860-2498	5
Viera	3580 ± 30	Beta-353822	Animal bone	1964-1889	2020-1880	5
Viera (filling of mound)	4550±140	GrN-16067	Charred material	3510–3020 BCE	3650–2900 BCE	2
Menga (individual no. 2 inhumation at atrium)	1250±35	CNA-1174	Human bone	686–805 CE	676–871 CE	3
Menga (individual No. 1 inhumation at atrium)	1100±45	CNA-1173	Human bone	894–998 CE	783–1022 CE	3
Menga (upper filling of shaft)	120±30	Beta-322311	Animal bone (*Bos taurus*)	1685–1927 CE	1679–1940 CE	4
Menga (upper filling of shaft)	150±30	Beta-322312	Animal bone (*Canis familiaris*)	1670–1943 CE	1667–1951 CE	4

Refs: 1: García Sanjuán and Jiménez Lozano 2014; 2: Ferrer Palma 1997; 3: Díaz-Zorita Bonilla and García Sanjuán 2012; 4: Riquelme Cantal 2012; 5: Aranda Jiménez et al. 2013

Table 1.1: Radiocarbon dates available for Menga and Viera

is 3639–3384 cal BC (Table 1.1): it is broadly contemporary with the two other samples.

The biological nature of the dated carbonised organic matter has not been established in any of the three cases. If they are wood, the samples could be older than the contexts or events supposedly dated. Nevertheless, the chronology of these dates quite consistently places them in the second quarter of the 4th millennium cal BC (*c.* 3800–3400 cal BC), within what could be considered an early stage of megalith construction in southern Spain. All three dates (especially that from the tumulus) constitute *post quem* chronological evidence for the building of Menga. Given that samples taken from the trenches or foundation pits of the orthostats or pillars have not been dated, there is no direct data that would enable us to establish when construction started, or how long it lasted (if this was a process that extended over time).

Indirect evidence regarding the date of construction of Menga comes from one of the three currently available C14 dates for Viera (GrN-16067). The tumulus of the latter lies adjacent to that of Menga and gave a calibrated age of 3650–2900 cal BC (Table 1.1). According to the excavators, this sample dates a surface that existed before the construction of the mound: therefore, again, the date only has a *post quem* value in relation to the construction of Viera (Ferrer Palma 1997a, 135). Moreover, in this particular case, the value of the date for interpreting the construction of the monument is limited by its high standard deviation. What seems clear is that this date points to a later chronological horizon than that reflected by Menga's three dates. This is consistent with the observation that, from a mechanical standpoint, the space occupied by Viera was needed to construct Menga, as it is the natural entry point from the quarry area for its stone blocks (Lozano Rodríguez *et al.* 2014). Collectively, this suggests that Menga was built before Viera.

The radiocarbon data currently available are of little help with regard to how long the construction process of Menga took. However, architectural analysis yields three interesting indications: (i) the orthostats are supported one on top of another, with an identical angle of around 4°; (ii) the capstones overlap one another; and (iii) the tumulus does not show any lateral

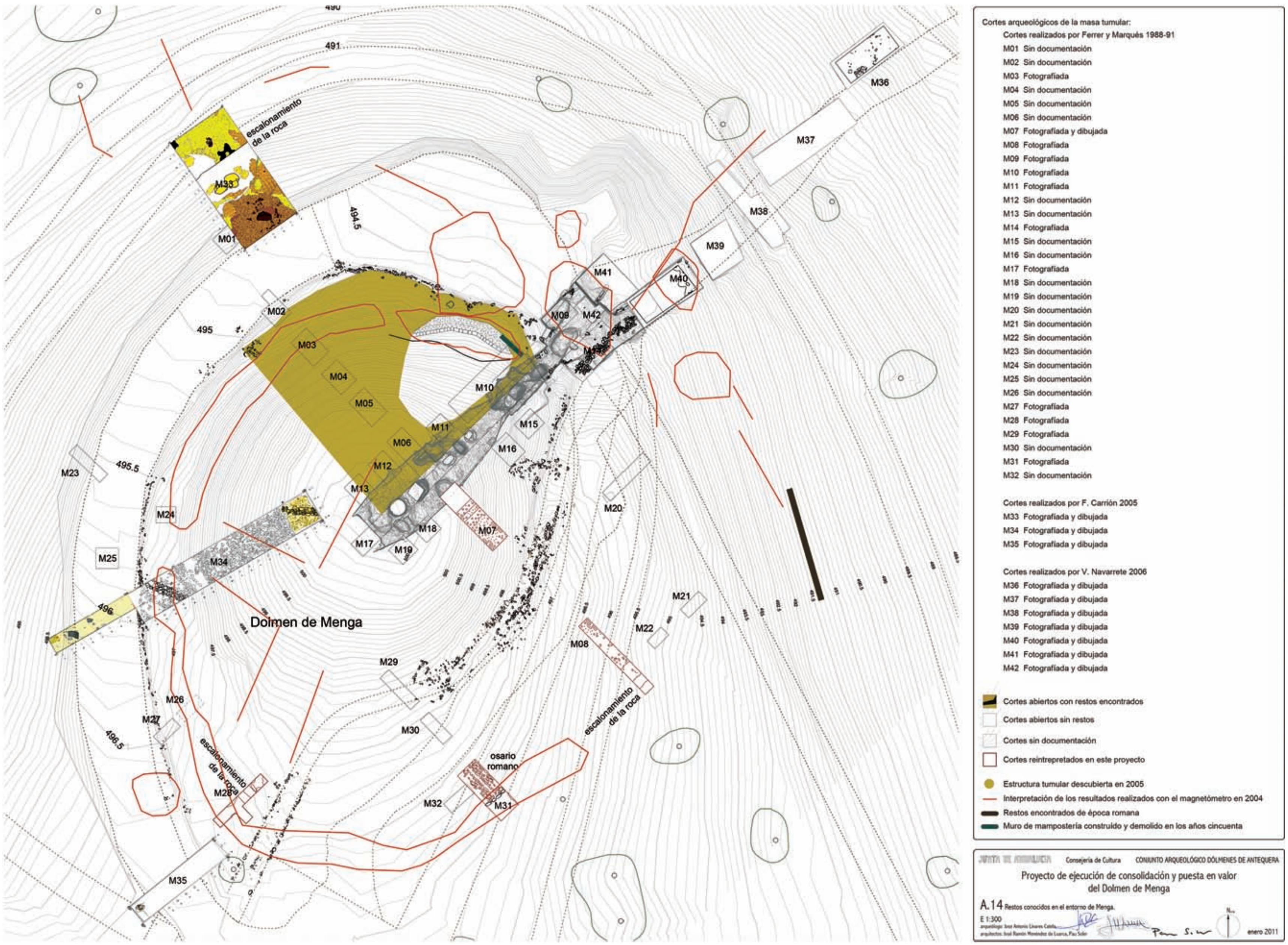


Fig. 1.3: General plan of Menga and its mound showing excavations by the University of Málaga (1988-1991), V. Navarrete Pendón (Spring 2005) and University of Granada (2005-2006). Source: Courtesy of José Ramón Menéndez de Luarca and Pau Soler

change of construction phases. Taken together, these indications suggest that Menga was the result of a single architectural project, carried out over a period of time that we are currently unable to determine. However, as part of its long biography, it is possible that some external orthostats, corresponding to the atrium, were removed at some unspecified point in time (García Sanjuán and Lozano Rodríguez, forthcoming). The architectural remains found in the atrium, particularly the wall that projects the southern hemisphere of the monument several metres to the east, could indicate the existence of "additions" to the original project but, unfortunately, the data currently available do not enable us to be more specific.

An extraordinary design

Menga stands out as an exceptional megalithic monument in both the scale of its construction and its design. It is basically the largest and heaviest megalithic monument on the Iberian Peninsula, comparable only to Anta Grande de Zambujeiro (Évora, Portugal). Its dimensions are remarkable, with a total length of the inner space plus atrium of 27.5m, a height that rises from 2.7m at the entrance to 3.5m at the top, and a width of 6m at its widest point inside (Marqués Merelo *et al.* 2004, 174; Márquez Romero and Fernández Ruiz 2009, 139). Menga's mound is almost 50m across and contains approximately 3000m^3 of earth and stones, carefully placed in alternating layers (Ferrer Palma 1997b, 359).

But what makes Menga extraordinary is the size and weight of its stones, including 24 orthostats, three pillars and five capstones. The total combined weight of orthostats, pillars and capstones is 835.7 tonnes, with the capstones weighing 44, 51, 68, 87 and 149 tonnes (Carrión Méndez *et al.* 2006b, 132). Although this type of estimate is virtually non-existent for other Iberian megaliths, capstone 5 of Menga with its dimensions of 6.05m wide, 7.20m long and 1.72m at its thickest, and weighing at least 150 metric tonnes, is possibly the largest and heaviest stone ever moved in later prehistoric Iberia within the context of the megalithic phenomenon.

Another exceptional element of Menga's architecture is the shaft discovered at the back of the chamber in 2005. However, in light of the difficulties in establishing its chronology, for now it is impossible to know whether this element was designed and built as part of the original construction plan of Menga or whether it was added at a later date. Given the complexity of the discussion needed to evaluate the different sources of indirect evidence that could help to establish its chronology, the Menga shaft is not dealt with in this work – a detailed discussion is available in García Sanjuán and Lozano Rodríguez (forthcoming).

Altogether, it appears that the creators of Menga set out to make a special and enduring work that would live on in the memory of generations to come. In its dimensions and scale, it was conceived as a monument that would surpass all that was previously known. Its culmination must have been a memorable event, not only socially and ideologically, but technically and architecturally, too. Menga surely left a recognisable mark on the collective imagination of the Neolithic inhabitants of the region, and perhaps further afield. In this regard, the aim of those who built Menga, to create something unrepeatable and famous, is so obvious that it seems difficult to avoid the explanation that the Antequera plains already had an earlier special significance. This leads us to the implications of Menga's landscape setting.

An extraordinary event?

Interesting indications in relation to the genesis of Menga can be drawn from another of its architectural features: its axial orientation. Menga was not oriented to sunrise, as is the case with 95% of the megalithic monuments in southern Iberia (Hoskin 2001, 92–93). Rather it is slightly to the north of the summer solstice (specifically at 45°), towards La Peña de los Enamorados, a mountain that stands out in the Antequera plain. Survey work has demonstrated that Menga's axial orientation is specifically directed to the north face of La Peña de los Enamorados, where there is a cliff with an almost perfectly vertical drop of almost 100m. At the foot of this impressive cliff there was a noteworthy area of activity at the end of the Neolithic. This included the small shelter of Matacabras, with schematic-style rock art, and the Piedras Blancas I activity area, associated with a scatter of microliths (García Sanjuán and Wheatley 2009; 2010; García Sanjuán *et al.* 2011b). Although the functional nature and chronology of this sector of La Peña de los Enamorados still needs to be established more accurately, as yet unpublished studies suggest that the site of Piedras Blancas I may have been monumentalised during the Neolithic period (Fig. 1.4).

It seems implausible that a feature with such a powerful symbolic weight – the orientation – was left to chance: therefore in orienting Menga towards the Piedras Blancas I and Matacabras sector of La Peña de los Enamorados, the architects commemorated a site that already had a very special ideological and symbolic significance before the dolmen was built. Such significance prevailed over the solar orientation usually applied to megalithic monuments in Neolithic Iberia. Menga was therefore configured as a compass that not only pointed towards space but also to time, to a place with an ancestral importance for those who built it. In this regard, the physical design of Menga itself has a mnemonic purpose, suggesting that its biography started long before its construction (García Sanjuán and Wheatley 2010, 27–31). This can also be connected with the data regarding the previous occupation of the hill on which it was built, discussed above. It is possible that one of the reasons for Menga's exceptional design was that there was an older tradition that made the Antequera region, or some specific site within it (perhaps La Peña de los Enamorados), a well-known social and ideological focus whose importance and fame needed to be matched. We must also consider the fact that the Antequera plain was (as

Fig. 1.4: Monolith at Piedras Blancas I, at the foot of the northern cliff of La Peña de los Enamorados, showing (left) Leonor Rocha and (right) the late Pedro Alvim, University of Évora (Portugal), March 2009. Photo: Leonardo García Sanjuán.

it is today) a strategic transit point or crossroads in southern Iberia, between the Mediterranean and the Atlantic, between the Guadalquivir river basin and the heart of the Baetic mountain range. Today, Antequera is the midpoint between Sevilla and Granada and between Málaga and Córdoba.

It is therefore possible to take a fresh look at recent geological research, which indicates that a massive earthquake may have hit the Málaga region between the late 5th and early 4th millennia cal BC. Evidence of this event has been found in the speleothem records of the El Aguadero sinkhole (Periana, Málaga), located 50km to the east of Antequera (Clavero Toledo 2010). Specifically, the radiocarbon date obtained from a stalactite (Beta-222473) places this earthquake in or shortly after 5110±70 BP, i.e. 4045–3713 cal BC (Clavero Toledo 2010, 136). The chronology of this earthquake is interesting when related to the radiocarbon dates of Menga and Viera, and particularly in relation to the Neolithic occupation of El Toro cave, which, lying just 8km to the south of Menga, is one of the oldest Neolithic settlements in southern Iberia (Fig. 1.5).

Of the 29 radiocarbon dates published for El Toro cave, the oldest 24 are chronologically compact. They represent its probably uninterrupted occupation from the mid-6th to the very end of the 5th, or start of the 4th millennium cal BC. Of the five remaining dates, the standard deviation of one is too large while the other four fall within the mid-4th, 3rd, and 2nd millennia BC, clearly representing a very different – more sporadic – usage pattern from that seen in the Neolithic period. This radiocarbon series seems to demonstrate a discontinuity in the very late 5th or early 4th millennium, precisely when the above-mentioned earthquake may have occurred. In addition, the excavators of El Toro cave noted a dramatic change in the topographic conditions and habitability of the cave, including the lasting blockage of the main entrance to the cavity, and attributed it to an earthquake (Cámalich Massieu *et al.* 2004, 297). The precise date of the collapse and blocking of the entrance to El Toro is, however, unknown. Since no absolute date for the earthquake was available when the results of the excavation were published by Camalich Massieu *et al.* (2004), the excavators suggested that the earthquake that caused the blocking could have occurred in the 3rd millennium BC. It was only later that the publication of the El Aguadero sinkhole date and its comparison with the El Toro C14 sequence led us to suggest that the date of that event may in fact have been considerably earlier.

If the apparent match between the discontinuity in the use of El Toro seen in the C14 dates and the possible date of the El Aguadero earthquake holds true, it could have some bearing on Menga's biography. A catastrophic event of such magnitude must have had a severe impact on the community occupying El Toro cave, and maybe other Neolithic communities in the region, leading to changes in their living conditions and land occupation strategies – perhaps also affecting the Piedras Blancas I area of activity at La Peña de los Enamorados.

Later prehistory

As Menga seems to have been an "open" monument throughout its entire life history, the vestiges of its use during the Neolithic, the Chalcolithic, and the Bronze Age seem to have been almost completely erased by the actions of subsequent visitors and users. In his *Memoria*, Mitjana reported that, contrary to his expectations, there were no

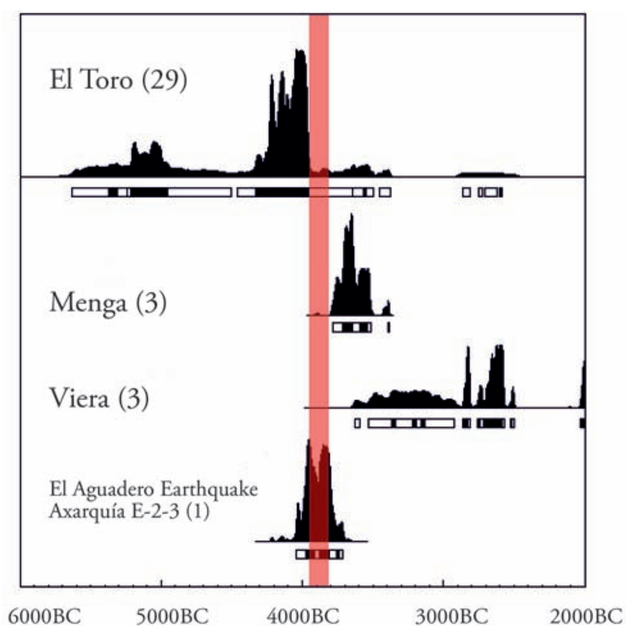


Fig. 1.5: Summed distributions of the radiocarbon dates available for Cueva del Toro, Menga and Viera. Total number of dates in brackets. In red: distribution of date Beta-222473 from one stalactite in the El Aguadero sinkhole. Diagram by David W. Wheatley and Leonardo García Sanjuán.

Fig. 1.6: Artefacts attributed to Menga in the Málaga museum. Photo: Leonardo García Sanjuán.

remains of "cadavers" or "urns" (Mitjana 1847, 19) suggesting that he saw no evidence of prehistoric funerary activity at Menga. The excavations undertaken by the University of Málaga at the end of the 20th century led to the same conclusion (Marqués Merelo *et al.* 2004a, 181–182).

The only prehistoric materials officially attributed to Menga are now in the Málaga museum, donated by Manuel Gómez Moreno in 1945. These consist of a polished axe-head, three blades, and two retouched flint flakes (Figs 1.6 and 1.7). Georg and Vera Leisner (1943, pl. 58) attributed a polished adze and axe-head to Menga, although, due to the schematic nature of their drawing, the axe-head cannot be linked with the one housed in the Málaga museum with certainty. However, a recent review has identified some ambiguities and problems with the attributions of the materials in those old museum collections (Aranda Jiménez *et al.* 2013, 239). In any case, the finds are not necessarily of Neolithic date: according to their morphology and characteristics they could also be from the Chalcolithic.

There is only indirect evidence on the use of Menga in the Chalcolithic, a period of intense occupation in the surrounding Antequera plain, as exemplified at Cerro de Marimacho, a mere 200m to the east of Menga and Viera (Leiva Riojano and Ruiz González, 1977; Ferrer Palma *et al.* 1987a; Marqués Merelo *et al.* 2004b, 242), and at other nearby sites. Further indirect evidence comes from Viera, in particular from a C14 date (Aranda Jiménez *et al.* 2013), and from the 8cm long copper awl or punch attributed to this dolmen.[2]

Similarly, there is no direct evidence of how Menga was used during the Bronze Age. Nevertheless, in the province of Málaga, and in the neighbouring province of Granada, there is clear evidence of megalithic sites being intensely reused during this period (Ferrer Palma *et al.* 1987b; Fernández Ruiz *et al.* 1997; Fernández Ruiz 2004; Márquez Romero 2009, 214–218; Márquez Romero *et al.* 2009; Aranda Jiménez

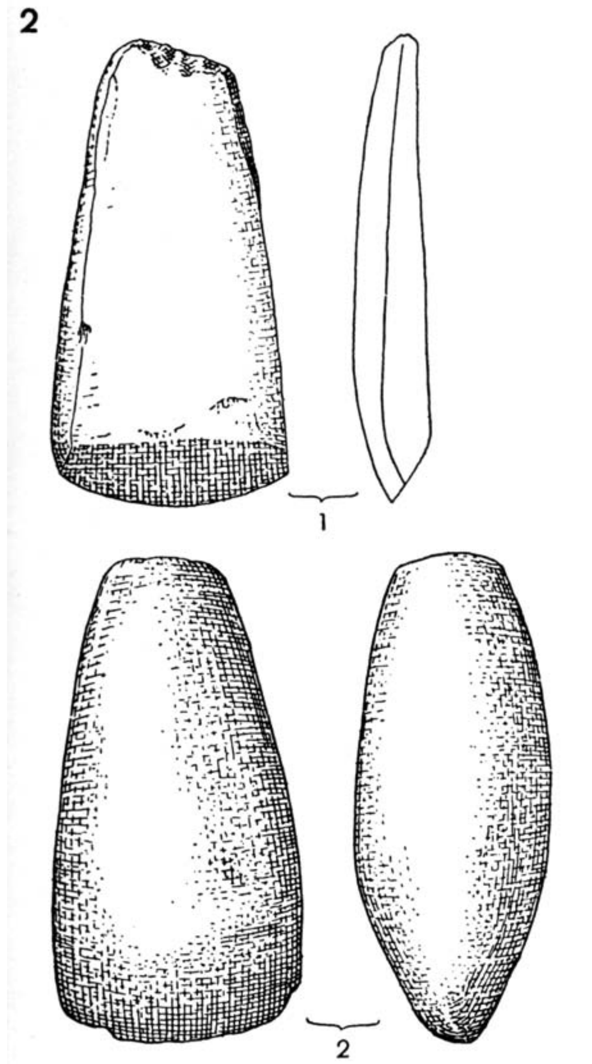


Fig. 1.7: Artefacts attributed to Menga by the Leisners. Source: Leisner & Leisner, 1943: Plate 58.

Fig. 1.8: Roman inhumation tombs discovered in 1988 by the University of Málaga near the Antequera-Archidona road, at the edge of the archaeological enclosure surrounding the dolmens of Antequera. Photo: Rafael Atencia Páez.

Fig. 1.9: Roman 'ossuary' discovered in 1991 in the tumulus of Menga by the University of Málaga. Photograph: Ignacio Marqués Merelo.

2013), including Viera itself (Aranda Jiménez *et al.* 2013). It therefore seems highly unlikely that Menga was not used as a sacred and/or burial site by the local Bronze Age populations, although we do not have direct proof at present.

The publications available for the University of Málaga's excavations in the 1980s and 1990s report no Iron Age materials in Menga. However, the unpublished reports of the 2005–2006 excavations mention fragments of orientalising-style pottery (Navarrete Pendón 2005, 20), as well as numerous Late Iron Age pre-Roman pottery fragments (Carrión Méndez *et al.* 2006a, 44). The practices that took place in the area surrounding Menga in the Iron Age are unknown.

Roman times

The excavations carried out in the late 1980s and early 1990s identified several Roman graves in the surroundings of the Menga and Viera tumuli (Ferrer Palma 1997a, 143; 1997b, 356; Marqués Merelo *et al.* 2004a, 184; Ferrer Palma *et al.* 2004, 207) (Fig. 1.8). In 1991, a Roman grave was found at the southwestern edge of the Menga mound, practically in the contact area with the Viera mound (Fig. 1.9). This grave, embedded in the mound's stone filling, had a cover made of large ceramic tiles that protected a small ossuary. Numerous fragments of wheel-thrown pottery were found very close by, including several remains of *terra sigillata* and a small piece of Roman glass.

The excavations accompanying the restoration of Viera in 2003 also revealed evidence of its use in Roman times, including a burial surrounded by bricks in the right hand side of its atrium (as one enters) which remains unexcavated and *in situ* (Fernández Rodríguez *et al.* 2006, 97; Fernández Rodríguez and Romero Pérez 2007, 416). In addition, some grooves were identified in the first capstone of Viera that, in the excavators' opinion, might have been caused by Roman quarrying, perhaps contributing to the partial dismantling of the monument (Fernández Rodríguez *et al.* 2006, 95).

How can this information on the use of the spaces surrounding Menga and Viera in Roman times be interpreted? First of all, it must be noted that just a short distance away (some 500m to the south-east) there is a Roman rural settlement known as Carnicería de los Moros (Ferrer Palma 1997a, 136; Marqués Merelo *et al.* 2004a, 184; Fernández Rodríguez and Romero Pérez 2007, 416). Remains of walls and a hydraulic structure with *opus signinum* that could have formed part of this rural settlement have been found near Viera. It seems possible that the Roman graves found around the perimeter of the dolmens could be connected with the inhabitants or occupiers of this suburban villa. The University of Málaga team dated these funerary contexts to between the late 5th and 6th centuries AD (Ferrer Palma 1997a, 136). They emphasised the fact that those buried had no grave goods, interpreting it to mean that the people buried there were low class, perhaps servants of the villa (Marqués Merelo *et al.* 2004a, 184).

Middle Ages

The excavations conducted in the atrium of Menga in the spring of 2005 revealed two human skeletons: the arrangement and context suggested that these burials were medieval (Navarrete Pendón 2005, 24–25) (Fig. 1.10). Both individuals were interred in simple, single graves in a prone position, with the upper and lower limbs extended, and hands at the pelvis. Neither individual was buried with any grave goods, nor was any type of funerary architecture found apart from the grave pit. Two subsequent radiocarbon dates demonstrate that those two individuals died between the 8th and 11th centuries AD (Díaz-Zorita

Fig. 1.10: Excavation of medieval inhumation no.1 in the atrium at Menga (2005). Photo: Juan Moreno.

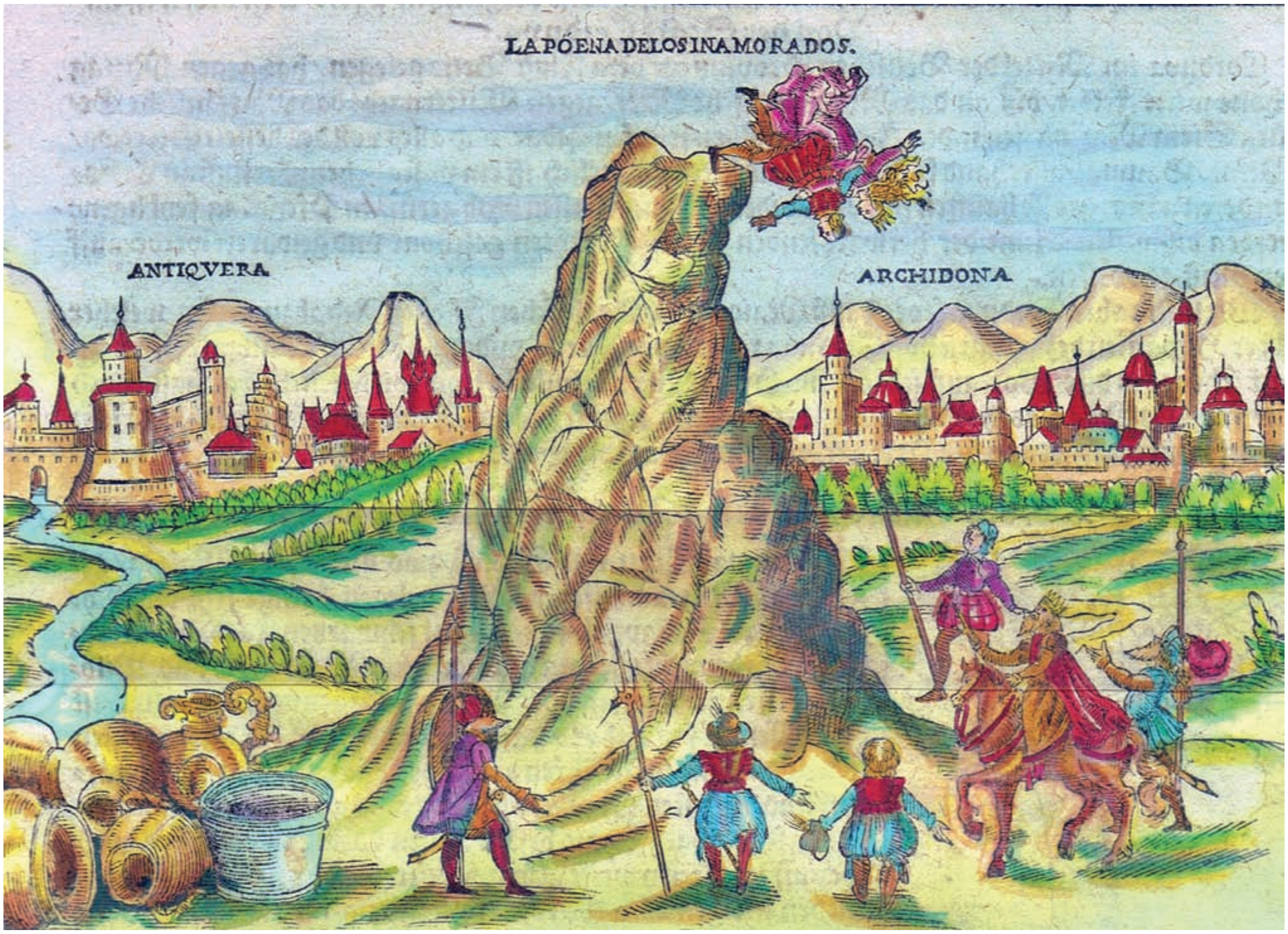


Fig. 1.11: Visualisation of the legend of La Peña de los Enamorados published in Basel in 1610 in Cosmographia Universalis *(first edition 1507).*

Bonilla and García Sanjuán 2012, 244–245). Both bodies were approximately aligned with the axial symmetry of the dolmen (in other words, "in line" with the chamber), suggesting those who buried them wanted to place them in that exact position, acknowledging their awareness of the existence of the megalithic monument (and perhaps its great age).

No other cases have been identified of megalithic sites (or prehistoric burial places in general) in the Antequera region being reused in the Middle Ages. The only other possible testimony is found in the schematic rock art complex of Peñas de Cabrera (Casabermeja, Málaga) located 30km south-east of Antequera. Engraved cruciform figures were found at this site, alongside an important series of schematic motifs, suggesting it was used as a sanctuary by Mozarab communities (Maura Mijares 2010, 119). The continuity of use of Peñas de Cabrera into the Middle Ages raises the question of the *calvario* (Christian cross) carved into the third orthostat of Menga (on the left as you enter). As noted by Bueno Ramírez *et al.* (forthcoming), this *calvario* was carved with a different technique from that used for the other motifs carved on that particular upright. Its specific chronology, however, remains a matter of conjecture.

The excavations carried out in the atrium of Menga in the spring of 2005 also discovered "medieval" pottery as well as "some resealed 8-maravedíes[3] coins" (Navarrete Pendón 2005, 20–21). Similarly, Hispano-Muslim materials were recorded in Viera, inside the "tunnel" (considered to have been made by "plunderers") located at the back of the passage's orthostats, dated to the 14th and 15th centuries AD, coinciding with the Nasrid dynasty.

Modern and contemporary times

Menga appears to have played a sacred and/or funerary role as an ancestral site from its foundation up until some point in the late 1st or early 2nd millennium AD. This religious and/or funerary significance seems to decline with the abrupt cultural shift brought about by the Castilian conquest of the region between AD 1410 and 1462 and the subsequent Christianisation. However, there is consistent evidence that between the 16th and 18th centuries it was known and surrounded in a shroud of mystery and legend.

In 1587, the prebendary of Granada Cathedral, Agustín de Tejada Páez, wrote a manuscript entitled *Discursos Históricos de Antequera*. In an account of "some antiquities and curiosities" in his city, he referred to "a cave which is called Menga, and another besides which (not long ago) has been discovered, and they are on the outskirts of the city as you leave towards Granada". Tejada Páez claimed that these "caves" (the second could be Viera) were "made by hand and must have been nocturnal temples where gentiles came at night to perform sacrifices". In the late 16th century, therefore, there was a clear awareness of the existence and age of Menga (and most likely the Viera dolmen also), its construction and purpose attributed to non-Christian cults on whose behalf "sacrifices" were performed. In the mid-17th century, in his History of Antequera, Francisco de Tejada y Nava (nephew of Tejada Páez) considered Menga to be the "… work of supernatural beings in which men performed sacrifices or demonic rituals" (Sánchez-Cuenca López 2011, 15).

La Peña de los Enamorados was also famous in the 16th century AD as a "natural monument", suggested by the fact that it features in an engraving in the German edition of the *Universalis Cosmographia* dated to 1610 (although first published in 1507), providing a pictorial version of the legend to which the mountain owes its name (Fig. 1.11). Different versions of this late medieval legend tell the story of a Muslim man and a Christian woman (or vice versa) who decide to run away together when their relationship is rejected by their families. They are chased as they try to escape and seek refuge on La Peña de los Enamorados but, cornered by their pursuers, they jump to their deaths off the north face precipice, where they are later buried (Jiménez Aguilera 2006).

It is likely that Menga was used as a refuge, dwelling, or even animal pen during these centuries. Many of the publications and reports consulted in writing this paper make reference to the existence of "modern" materials in the excavated zones of the interior and exterior areas of Menga although, once again, these materials have never been the subject of any detailed study. The geoarchaeological survey conducted by the University of Granada concluded that the visible wear on the lower third of several orthostats and (most notably) pillars was caused by animals rubbing against them, suggesting Menga was used as a stable at some point in its history (Carrión Méndez *et al.* 2006, 178). The two radiocarbon dates, obtained from animal bones found in the upper part of the shaft filling (Riquelme Cantal 2012, 232), fall between the late 17th and first half of the 20th century AD (Table 1.1).

Rafael Mitjana y Ardison stated that he first saw the

Fig. 1.12: Watercolour by A. Wallace Rimington picturing Menga as a dwelling, published in Edward Hutton The Cities of Spain *(Methuen & Co., London, 1906) Source: Archive Conjunto Arqueológico Dólmenes de Antequera.*

Fig. 1.13: Fired bullets discovered in Trench 21 of the University of Málaga 1991 excavations at Menga, currently held at the Málaga museum. Photo: Leonardo García Sanjuán.

"Cave of Mengal" on 17 April 1842, and that he visited the monument on 25 occasions between this date and the publication of his *Memoria* in 1847. He was aware of the scientific importance of the monument, which had never been recognised before, and so ordered that it be cleaned and the entrance closed off with a fence (Rodríguez Marín 2006, 124). If a fence was necessary, that implies that the site was known and frequented. Mitjana's *Memoria* spread around the world very quickly: when British traveller Louisa Tenison travelled through southern Spain in 1852, she made her way to Antequera especially to visit the already famous megalithic monument of Menga (Tenison 1853). In early 1885, Alfonso XII, the King of Spain, was touring the province of Málaga visiting those affected by the serious earthquake that occurred on 25 December 1884: he also visited Menga. Impressed by the dolmen, he ordered that it be declared a National Monument: this came to pass on 1 June 1886, following the issuing of a Royal Order (Ruiz González 2009, 20). In 1896, *Blanco y Negro* magazine published the first photograph of Menga on its cover (taken by the photographer Juan Barrera) with the title "Old Spain", commenting that "although the Cave of Menga was declared a national monument some years ago, nothing has been done to restore it and now it is in a complete state of abandonment" (Sánchez-Cuenca López 2011, 66). A watercolour included in a British publication of 1926 (the sixth edition of the 1906 book *The Cities of Spain*, by Alexander Wallace Rimington) depicts Menga as a picturesque traditional dwelling (Fig. 1.12). It is not known whether this watercolour was painted at the site, or if it is a fanciful recreation based on 19th-century clichés spread by European travellers about Spain and Andalusia.

There is one final episode in the biography of Menga that is worth mentioning. Both during the University of Malaga excavations, and during those of spring 2005, numerous bullets with clear signs of impact were identified (Fig. 1.13). Many of these fired bullets are held in the Málaga museum: in all likelihood they were left behind after summary executions performed after General Franco's uprising against the Spanish Republic in July 1936. Their study may some day provide further details on what would appear to be the saddest episode in the millenary biography of Menga.

Corollary

Menga exemplifies a wider cultural phenomenon that is well documented throughout Iberia: namely the permanence and changing roles of megalithic monuments through later prehistory, Antiquity and the Middle Ages (García Sanjuán *et al.* 2007; 2008; García Sanjuán and Díaz-Guardamino 2015). Due to its 'aura' and exceptional material properties, namely its large scale and durability, Menga has been a constant feature in its surrounding landscape, acting as a focus for complex social interactions, and providing the arena for the negotiation of cultural traditions and identities.

Acknowledgements: We owe a debt of gratitude to several colleagues who generously provided us with invaluable unpublished data, and dedicate a special acknowledgement to all of them.

Notes

[1] We refer to those carried out by the University of Málaga in 1986, 1988, 1991 and 1995 (Marqués Merelo *et al.* 2004a; Ferrer Palma, 1997a), the intervention carried out in 2005 to support the installation of a new electrical system (Navarrete Pendón, 2005), and those conducted subsequently between 2005 and 2006 by the University of Granada (Carrión Méndez *et al*. 2006a; 2006b).

[2] This copper punch or awl is part of the small collection of objects from Viera held in the Málaga museum (Aranda Jiménez *et al.* 2013), and was already published in the summary of G. and V. Leisner (1943, pp. 182–185 and pl. 58). According to its shape, it can be dated to the Chalcolithic, which fits well with the set of materials that accompany it, especially the lithic materials. However, it is not possible to rule out an Early Bronze Age date, when this type of tool was very common and in which, as a C14 date has pointed out (Aranda Jiménez *et al.* 2013), Viera was also in use.

[3] The maravedí coin was used between the 11th and 14th centuries AD.

References

Aranda Jiménez, G. 2013. Against uniformity cultural diversity: the 'others' in Argaric societies. In: Cruz Berrocal, M., García Sanjuán, L. and Gilman, A. (eds) *The Prehistory of Iberia: debating early social stratification and the state*. Routledge: New York, pp. 99–118.

Aranda Jiménez, G., García Sanjuán, L., Lozano Medina, A. and Costa Caramé, M. E. 2013. Nuevas dataciones radiométricas del dolmen de Viera (Antequera, Málaga). La Colección Gómez-Moreno. *Menga. Journal of Andalusian Prehistory* 4, pp. 235–248.

Bueno Ramírez, P., de Balbín Behrmann, R., Barroso Bermejo, R. and Vázquez Cuesta, A. forthcoming. Los símbolos de la muerte en los dólmenes antequeranos y sus referencias en el paisaje de la Prehistoria Reciente de Tierras de Antequera. In: García Sanjuán, L. (ed.) *Antequera Milenaria. La Prehistoria de las Tierras de Antequera*. Junta de Andalucía: Seville.

Cámalich Massieu, M. D., Martín Socas, D. and González Quintero, P. 2004. Conclusiones. In: Martín Socas, D., Cámalich Massieu, M. D. and González Quintero, P. (eds) *La Cueva del Toro (Sierra del Torcal, Antequera, Málaga). Un Modelo de Ocupación Ganadera en el Territorio Andaluz entre el VI y II Milenios ANE*. Junta de Andalucía: Seville, pp. 297–323.

Carrión Méndez, F., Muñiz López, T., García González, D., Lozano Rodríguez, J. A., Félix, P. and López Rodríguez, C. F. 2006a. *Intervención en el Conjunto Megalítico de Menga y Viera (Antequera, Málaga)*. Unpublished Report. University of Granada: Granada.

Carrión Méndez, F., Lozano Rodríguez, J. A., García González, D., Muñiz López, T., Félix, P., Esquivel Guerrero, J. A. and Mellado García, I. 2006b. *Estudio Geoarqueológico de los Sepulcros Megalíticos de Cueva de Menga y Viera y El Romeral (Antequera, Málaga).* Unpublished Report. University of Granada: Granada.

Clavero Toledo, J. L. 2010. Investigación sísmica en simas de la alta Axarquía (Málaga): Comportamiento de la falla que originó el terremoto de 1884. *Jábega* 102, pp. 130–140.

Díaz-Zorita Bonilla, M. and García Sanjuán, L. 2012. Las inhumaciones medievales del atrio del dolmen de Menga (Antequera, Málaga): estudio antropológico y cronología absoluta. *Menga. Journal of Andalusian Prehistory* 3, pp. 237–250.

Fernández Rodríguez, L. E., Romero Pérez, M. and Ruiz de la Linde, R. 2006. Resultados preliminares del control arqueológico de los trabajos de consolidación del sepulcro megalítico de Viera, Antequera. *Anuario Arqueológico de Andalucía/2003*, Tomo III. *Actividades de Urgencia*. Junta de Andalucía: Seville, pp. 89–99.

Fernández Rodríguez, L. E. and Romero Pérez, M. 2007. Las necrópolis en el entorno de Antikaria y Singilia Barba. Bases para su estudio sistemático. *Mainake* 29, pp. 401–432.

Fernández Ruiz, J. 2004. Uso de estructuras megalíticas por parte de grupos de la Edad del Bronce en el marco de Río Grande (Málaga). *Mainake* 26. *Monográfico Los Enterramientos en la Península Ibérica durante la Prehistoria Reciente*, pp. 273–229.

Fernández Ruiz, J., Marqués Merelo, I., Ferrer Palma, J. E. and Baldomero Navarro, A. 1997. Los enterramientos colectivos de El Tardón (Antequera, Málaga). In: de Balbín Berhmann, R. and Bueno Ramírez, P. (eds) *Actas del II Congreso de Arqueología Peninsular (Zamora, Septiembre de 1996)*, Volume II. Fundación Rei Afonso Henriques: Zamora, pp. 371–380.

Ferrer Palma, J. E. 1997a. Proyecto de reconstrucción arquitectónica y paleoambiental en la necrópolis megalítica de Antequera (1985–1991): aspectos metodológicos. In: Martín Ruiz, J. M., Martín Ruiz, J. A. and Sánchez Bandera, P. J. (eds) *Arqueología a la Carta. Relaciones entre Teoría y Método en la Práctica Arqueológica*. Diputación Provincial de Málaga: Málaga, pp. 119–144.

Ferrer Palma, J. E. 1997b. La necrópolis megalítica de Antequera. Proceso de recuperación arqueológica de un paisaje holocénico en los alrededores de Antequera, Málaga. *Baetica* 19, pp. 351–370.

Ferrer Palma, J. E., Baldomero Navarro, A. and Garrido Luque, A. 1987a. El Cerro de Marimacho (Antequera, Málaga). *Baetica* 10, pp. 179–188.

Ferrer Palma, J. E., Fernández Ruiz, J. and Marqués Merelo, I. 1987b. Excavaciones en la necrópolis campaniforme de El Tardón (Antequera, Málaga), 1985. *Anuario Arqueológico de Andalucía/1985* III. *Actuaciones de Urgencia*. Junta de Andalucía: Seville, pp. 240–243.

Ferrer Palma, J. E., Marqués Merelo, I., Baldomero Navarro, A. and Aguado Mancha, T. 2004. Estructuras tumulares y procesos de construcción en los sepulcros megalíticos de la provincia de Málaga: la necrópolis megalítica de Antequera. *Mainake* 26. *Monográfico Los Enterramientos en la Península Ibérica durante la Prehistoria Reciente*, pp. 117–210.

García Sanjuán, L. and Wheatley, D. 2009. El marco territorial de los dólmenes de Antequera: valoración preliminar de las primeras investigaciones. En Ruiz González, B. (ed.) *Dólmenes de Antequera. Tutela y Valorización Hoy*. Junta de Andalucía: Seville, pp. 128–143.

García Sanjuán, L. and Wheatley, D. 2010. Natural substances, landscape forms, symbols and funerary monuments: elements of cultural memory among the Neolithic and Copper Age societies of Southern Spain. In: Lillios, K. and Tsamis, V. (eds.): *Material Mnemonics. Everyday Memory in Prehistoric Europe*. Oxbow Books: Oxford, pp. 10–39.

García Sanjuán, L. and Lozano Rodríguez, J. A. forthcoming. Menga: biografía de un monumento neolítico excepcional. In: García Sanjuán, L. (ed.) *Antequera Milenaria. La Prehistoria de las Tierras de Antequera*. Junta de Andalucía: Seville.

García Sanjuán, L. and Díaz-Guardamino Uribe, M. 2015. The outstanding biographies of prehistoric monuments in Iron Age, Roman and Medieval Iberia. In: Díaz-Guardamino Uribe, M., García Sanjuán, L. and Wheatley, D. (eds) *The Lives of Prehistoric Monuments in Iron Age, Roman and Medieval Europe*. Oxford University Press: Oxford, 183–204.

García Sanjuán, L., Garrido González, P. and Lozano Gómez, F. 2007. Las piedras de la memoria (II). El uso en época romana de espacios y monumentos sagrados prehistóricos del Sur de la Península Ibérica. *Complutum* 18, pp. 109–130.

García Sanjuán, L., Garrido González, P. and Lozano Gómez, F. 2008. The use of prehistoric ritual and funerary sites in Roman Spain: discussing tradition, memory and identity in Roman society. In: Fenwick, C., Wiggins, M. and Wythe, D. (eds) *TRAC 2007. Proceedings of the Seventeenth Annual Theoretical Roman Archaeology Conference (UCL and Birbeck College, University of London, 29 March–1 April 2007)*. Oxbow Books: Oxford, pp. 1–14.

García Sanjuán, L., Moreno Escobar, M. C., Márquez Pérez, J. and Wheatley, D. W. forthcoming. La Prehistoria Reciente de las Tierras de Antequera (VI–I milenios cal ANE): una perspectiva territorial. In: García Sanjuán, L. (ed.) *Antequera Milenaria. La Prehistoria de las Tierras de Antequera*. Junta de Andalucía: Seville.

García Sanjuán, L., Wheatley, D. W., and Costa Caramé, M. E. 2011a. The numerical chronology of the megalithic phenomenon in southern Spain: progress and problems. In: García Sanjuán, L., Scarre, C. and Wheatley, D. W. (eds) *Exploring Time and Matter in Prehistoric Monuments: Absolute Chronology and Rare Rocks in European Megaliths. Proceedings of the 2nd European Megalithic Studies Group Meeting (Seville, Spain, November 2008). Menga: Journal of Andalusian Prehistory, Monograph 1*. Junta de Andalucía:

Seville, pp. 121–157.
García Sanjuán, L., Wheatley, D. W. and Costa Caramé, M. E. 2011b. Prospección de superficie en Antequera, Málaga: campaña de 2006. *Anuario Arqueológico de Andalucía/2006*. Junta de Andalucía: Seville, pp. 3716–3737.
Hoskin, M. 2001. *Tombs, Temples and Their Orientations: a new perspective on Mediterranean prehistory*. Ocarina Books: Oxford.
Jiménez Aguilera, F. 2006. Archidona. La leyenda de la Peña de los Enamorados. *Rayya. Revista Cultural de la Comarca Norte de Málaga* 2, pp. 11–28.
Leisner, G. and Leisner, V. 1943. *Die Megalithgräber der Iberischen Halbinsel. Der Süden.* Römisch-Germanische Forschungen 1. Verlag Von Walter de Gruyter and Co: Berlin.
Leiva Riojano, J. A. and Ruiz González, B. 1977. Materiales arqueológicos del Cerro de Antequera. *Jábega* 19, pp. 15–18.
Lozano Rodríguez, J. A., Ruiz-Puertas, G., Hódar Correa, M., Pérez-Valera, F. and Morgado, A. 2014. Prehistoric engineering and astronomy of the great Menga Dolmen (Málaga, Spain): A geometric and geoarchaeological analysis. *Journal of Archaeological Science* 41, pp. 759–771.
Marqués Merelo, I., Ferrer Palma, J. E., Aguado Mancha, T. and Baldomero Navarro, A. 2004a. La necrópolis megalítica de Antequera (Málaga): historiografía y actuaciones recientes. *Baetica* 26, pp. 173–190.
Marqués Merelo, I., Aguado Mancha, T., Baldomero Navarro, A. and Ferrer Palma, J. E. 2004b. Proyectos sobre la Edad del Cobre en Antequera, Málaga. *Actas de los Simposios de Prehistoria de la Cueva de Nerja. La Problemática del Neolítico en Andalucía. Las Primeras Sociedades Metalúrgicas en Andalucía*. Fundación Cueva de Nerja: Nerja, pp. 238–260.
Márquez Romero, J. E. 2009. Málaga. In: García Sanjuán, L. and Ruiz González, B. (eds) *The Large Stones of Prehistory: megalithic sites and landscapes of Andalusia*. Junta de Andalucía: Seville, pp. 198–227.
Márquez Romero, J. E. and Fernández Ruiz, J. 2009. *The Dolmens of Antequera. Official Guide to the Archaeological Complex*. Junta de Andalucía: Antequera.
Márquez Romero, J. E., Fernández Ruiz, J. and Rodríguez Vinceiro, F. 2009. Cronología del sepulcro megalítico del Tesorillo de la Llaná. In: Márquez Romero, J. E., Fernández Ruiz, J. and Mata Vivar, E. (eds) *El Sepulcro Megalítico del Tesorillo de la Llaná, Alozaina (Málaga). Una Estructura Funeraria Singular en la Cuenca Media de Río Grande.* University of Málaga: Málaga, pp. 81–88.
Maura Mijares, R. 2010. *Guía del Enclave Arqueológico de Peñas de Cabrera*. Junta de Andalucía: Seville.
Mergelina, C. de 1922. La necrópolis tartesia de Antequera. *Actas y Memorias de la Sociedad Española de Antropología, Etnología y Prehistoria* 1, pp. 37–90.
Mitjana y Ardison, R. 1847. *Memoria sobre el Templo Druida Hallado en las Cercanías de la Ciudad de Antequera*. Imprenta de José Martínez de Aguilar: Málaga.
Navarrete Pendón, V. 2005. *Memoria de los Trabajos en el Control de Movimientos de Tierras para el Acondicionamiento de Iluminación y Accesos al Sepulcro Megalítico de Menga*. Unpublished report.
Riquelme Cantal, J. A. 2012. Estudio de los restos óseos animales recuperados en la parte superior del relleno del pozo de Menga (Antequera, Málaga) en la intervención arqueológica de 2005. *Menga. Journal of Andalusian Prehistory* 3, pp. 221–236.
Rodríguez Marín, F. J. 2006. Rafael Mitjana y Ardison. Arquitecto Malagueño (1795–1849). *Baetica* 28, pp. 109–144.
Ruiz González, B. 2009. El proyecto de tutela y valorización de los dólmenes de Antequera. In: Ruiz González, B. (ed.) *Dólmenes de Antequera. Tutela y Valorización Hoy*. Junta de Andalucía: Seville, pp. 12–37.
Sánchez-Cuenca López, J. 2012. *Menga in the Nineteenth Century: 'The Most Beautiful and Perfect of the Known Dolmens'. Menga: Journal of Andalusian Prehistory* Monograph 2. Junta de Andalucía: Seville.
Tenison, L. 1853: *Castile and Andalucia*. Richard Bentley: London.
Walker, M. J. 1995. El sureste, Micenas y Wessex. La cuestión de los adornos óseos de vara y puño. *Verdolay* 7, pp. 117–125.

2

Structural functions and architectural projects within the long monuments of Western France

Luc Laporte

Abstract

The natural or unworked appearance of the very large stones used in the construction of megalithic monuments has led many people to regard them as "primitive". In Western Europe, these are the oldest monumental prehistoric structures built of stone. Even the most recent research still reflects some difficulty in abandoning such a perception of megalithic monuments. It is for that reason that, in western France, insufficient attention has been given to the function of each structural element. A detailed study of the eastern end of Péré Tumulus C at Prissé-la-Charrière (France) reveals the presence of terraces, ramps, relieving arches, internal buttresses, external supports, and even vertical bonding between walls, which may themselves function as ribs or angles. Such elements are more generally used in historical architecture, but here find appropriate application in dry stone structures. In this way, we are able to reconstruct the entire construction project. Regarding the large elongated trapezoidal monuments of the middle Neolithic in western France, we seek to examine the technical constraints to demonstrate that the development of the technical knowledge was driven by the concern to obtain a building whose external forms result from structural constraints more appropriate to timber architecture.

Résumé

L'aspect naturel ou brut d'extraction des très grosses pierres employées pour la construction de monuments mégalithiques concoure à leur donner comme un aspect « primitif » aux yeux de nos contemporains. En Europe occidentale, il s'agit des plus anciennes architectures monumentales d'époque préhistoriques qui furent construites en pierre. Les avancées les plus récentes de la recherche ont encore un peu de mal à se départir d'une telle perception du mégalithisme. De ce fait, dans l'ouest de la France, peu d'attention a été portée à la fonction architectonique de chaque élément. Une étude détaillée de l'extrémité orientale du tumulus C de Péré à Prissé-la-Charrière (France) révèle la présence de terrasses, de rampes, d'arcs de décharge, de contreforts internes ou de cerclage, voire de chaînages verticaux entre des parois qui peuvent elles-mêmes avoir une fonction de raidisseur ou de harpage, par exemple. Autant de termes utilisés pour les architectures maçonnées des périodes historiques qui trouvent ici leur juste application pour des constructions en pierre sèches. C'est tout le chantier de construction qui se déroule alors sous nos yeux. Pour les grands monuments allongés trapézoïdaux du Néolithique moyen dans l'ouest de la France, nous tenterons enfin de démonter que la mise en oeuvre de l'ensemble de ces savoir faire a été rendue nécessaire de par le soucis d'obtenir un édifice dont les volumes en élévation découlent en fait de contraintes architectoniques plutôt propres aux architectures en bois. Un peu comme s'ils reproduisaient en pierre, mais avec des contraintes architectoniques différentes, le souvenir du modèle de la maison de prestigieux ancêtres parmi les tous premiers agriculteurs de la région.

Keywords: long mound, construction ramp, structural cells, Prissé-la-Charrière, house plans, timber architecture

Particularly over the last few decades, the megalithic monuments of Western Europe have been extensively studied. Topics have included: the large stones used in their construction which sometimes bear symbolic markings; the diversity of the funerary practices that are often associated with such structures; and their role as monuments serving as places of memory for the living, as markers in the landscape, and as indicators of social complexity. More rarely, they have been considered as real architecture representing the first stone buildings in this part of the world.

Surrounded by dry stone walling – sometimes reaching several metres high – the megalithic monuments of western France, and others in the British Isles, lend themselves particularly well to this type of study. These monuments were formerly grouped together as belonging to the prehistoric "giant tumuli" of Europe: amongst them the long mound of Péré C is the subject of a programme of extensive excavations, unique in Europe. These began in 1995 under the joint direction of L. Laporte, C. Scarre and R. Joussaume. Studies (currently in progress) on the eastern end of this structure are used here as an example (Fig. 2.1).

Architecture

None of the most imposing Neolithic monuments of western France represents a "snap-shot" of a particular moment. They all result from the superimposition of distinct architectural projects implemented in the same place over time, and they

Fig. 2.1: General view of Péré tumulus C at Prissé-la-Charrière, Deux-Sevres, France. In this photograph, taken in 2008, the western part of the monument has just been restored, whereas the eastern part of the tumulus is still in the course of excavation (Ballonet.com)

all appear today in the form of ruins (Laporte 2010). This implies that none of these stone-built structures can really be regarded as an object of study in its own right in the form we observe in the present day.

As such, these structures can be distinguished from, for example, many megalithic monuments in the Iberian peninsula, whose single burial chamber is concealed under a circular mound only seldom delimited by side walls in elevation. At least, those structures were not created with enduring stone walls. This also allows us to distinguish, although in a different way, monuments in western France from Irish c*ourt tombs* (Eogan 2006), as well as from certain *passage graves* found in northern Europe (Bakker 1992; Hansen *et al.* 2000), and some (but not all) of the *Cotswold-Severn* type long barrows in England (Darvill 2004; Bayliss and Whittle 2007; Dixon *et al.* 2011). The megalithic monuments investigated in western France (Laporte and Le Roux 2004) are particularly favourable for exploring the concept of an architectural project, provided we develop the means to study structures resulting from the implementation of successive projects. However, before reaching this level of analysis, we need to separate out those aspects resulting from technical constraints related to the nature of the materials used, and to the course of operations on the site during construction. We should also consider the architectonic function of each element composing the mass of the tumulus.

In fact, the succession of various architectural projects in the same place is more than a simple phenomenon of accretion, as initially proposed by Giot (1987) from his study of the monuments of Barnenez, Carn, or Guénnoc in north Finistere. Giot drew on previous work carried out in England, for example at Wayland's Smithy (Atkinson 1965), where an initial wooden burial chamber was covered by an even more impressive monument. A question has emerged more recently concerning the degree of autonomy of *rotundas* (in this case, built of stone), in view of some actually quite similar examples discovered under certain Cotswold-Severn type barrows (Corcoran 1972; Scarre 2005), or other structures recognised at the centre of tumuli such as Camster Long in Scotland (Masters 1997). In the Iberian peninsula, we could also mention the dolmens of Dombate (Cebrian del Moral *et al.* 2011). However, it would now appear that such observations represent only a particular case of a more general tendency that is extremely well illustrated elsewhere in Europe, seen in Irish examples such as Knowth (Eogan 1986), where the largest tumulus mound covers a true megalithic necropolis made up of distinct pre-existing monuments. Although elongate in form, the majority of large tumuli in the west of France actually seem to testify a rather similar sequence.

This is the case with Prissé-la-Charrière, located in Deux-Sevres (Laporte *et al.* 2010), where at least one of the two long mounds arranged side by side corresponds to a 100m long

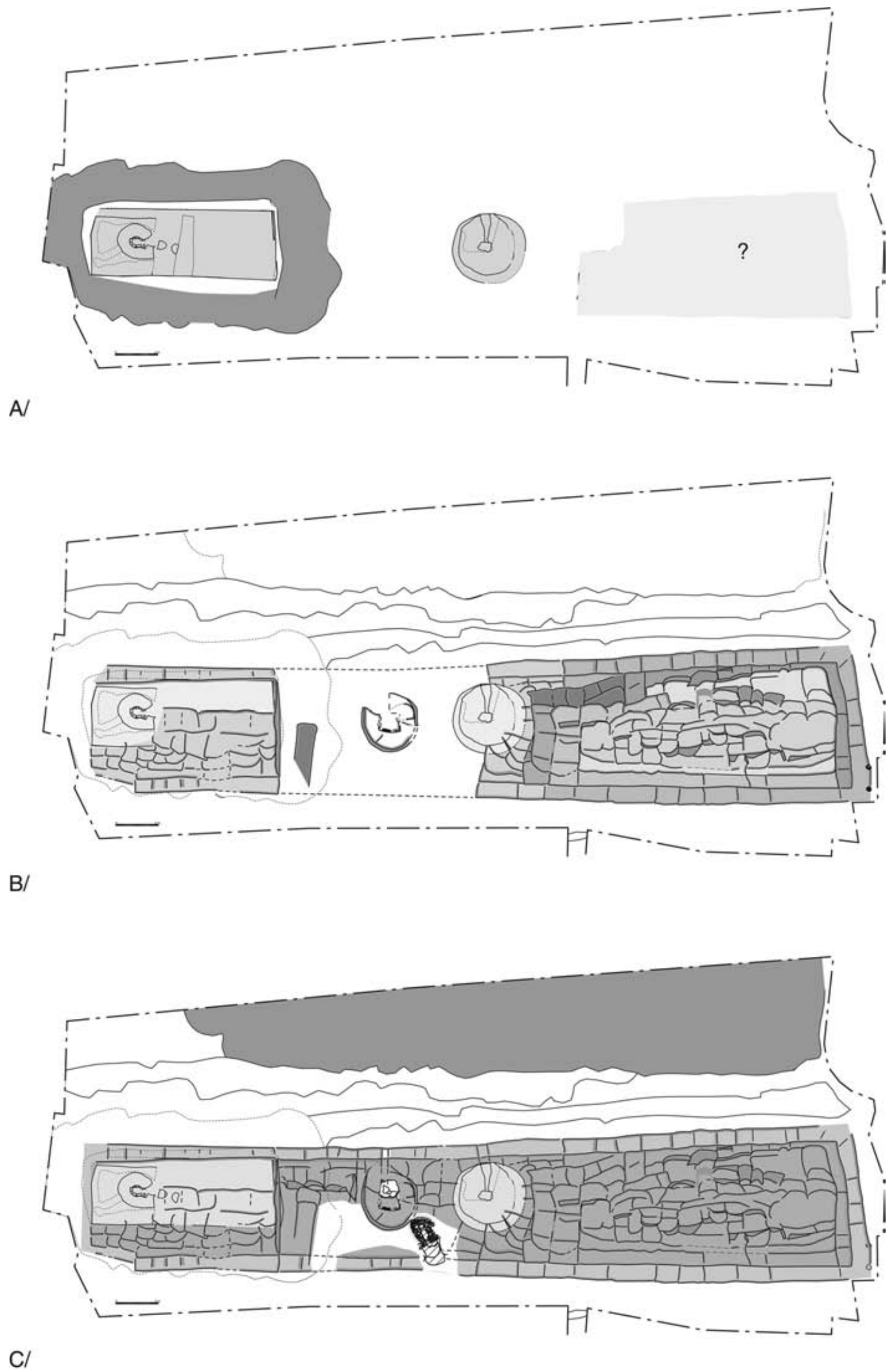


Fig. 2.2: Implementation of the architectural project, and different phases in the construction of Péré tumulus C at Prissé-la-Charrière, Deux-Sevres, France. A pre-existing megalithic necropolis. B enlargement to the south, starting from a 23m long rectangular monument; enlargement towards the east, starting from the circular cairn III with passage grave; construction of a new burial chamber. C construction of the central section of the 100m long trapezoidal monument

tumulus covering two distinct monuments. One monument is made up of a 23m long rectangle with a large cist – a burial space without a *covered* access structure. The other is a circular mound *covering* a passage grave (Fig. 2.2). The excavation of one of the two long mounds of Souc'h at Plouhinec in Finistere, although much more levelled off, also revealed the presence of eight or nine successive phases of construction (Goffic 2006). This recent data throws new light on the mode of operation of the large cairn of Barnenez at Plouézoc'h. These three monuments of western France belong to the second half of the 5th millennium cal BC (Joussaume and Laporte 2006). Therefore, they pre-date the majority of the other examples mentioned above.

The study of the long mound of Péré C at Prissé-la-Charrière (Scarre *et al.* 2003) enables us to clarify this concept of an architectural project. The construction of the 100m long trapezoidal tumulus affected the elevation of the eastern circular monument, and the alignment of the northern face of the 23m long western rectangular monument (Laporte 2010), providing good evidence of three distinct architectural projects at this site. The two earlier monuments were independently arranged and associated with their own architectural, ceremonial and funerary history: the earliest contained a cist and the second a passage grave. Construction of the 100m long monument thus began at each end: the central part was completed with the building of a new burial chamber. This final construction phase consisted initially of a widening of the monument towards the south starting from the pre-existing rectangular monument. At the same time, an elongated mound 50m in length was built up towards the east, abutting against the circular monument that belonged to the earlier megalithic necropolis. The plan of the 100m long tumulus was thus designed very precisely as a whole, even before its realisation on the ground by a single contiguous structure. This applies right down to the detailed arrangement of the basic units of construction, which were planned in a very precise manner over the entire eastern part of the monument (Fig. 2.3).

Consequently, the lateral dissymmetry noted in the trapezoidal plan of all the mounds of this type of monument, such as Prissé-la-Charrière, Barnenez, Souc'h, and even Mané-Pochat or Mané-Ty-Ec, have been studied in some detail. They cannot merely be the result of an approximate and awkward implementation of the construction project (Laporte *et al.* 2001): they clearly meet a conceptual standard undoubtedly specific to the architectural project, realised here in a far more rigorous manner than previously imagined. There is a close correspondence between this dissymmetry and

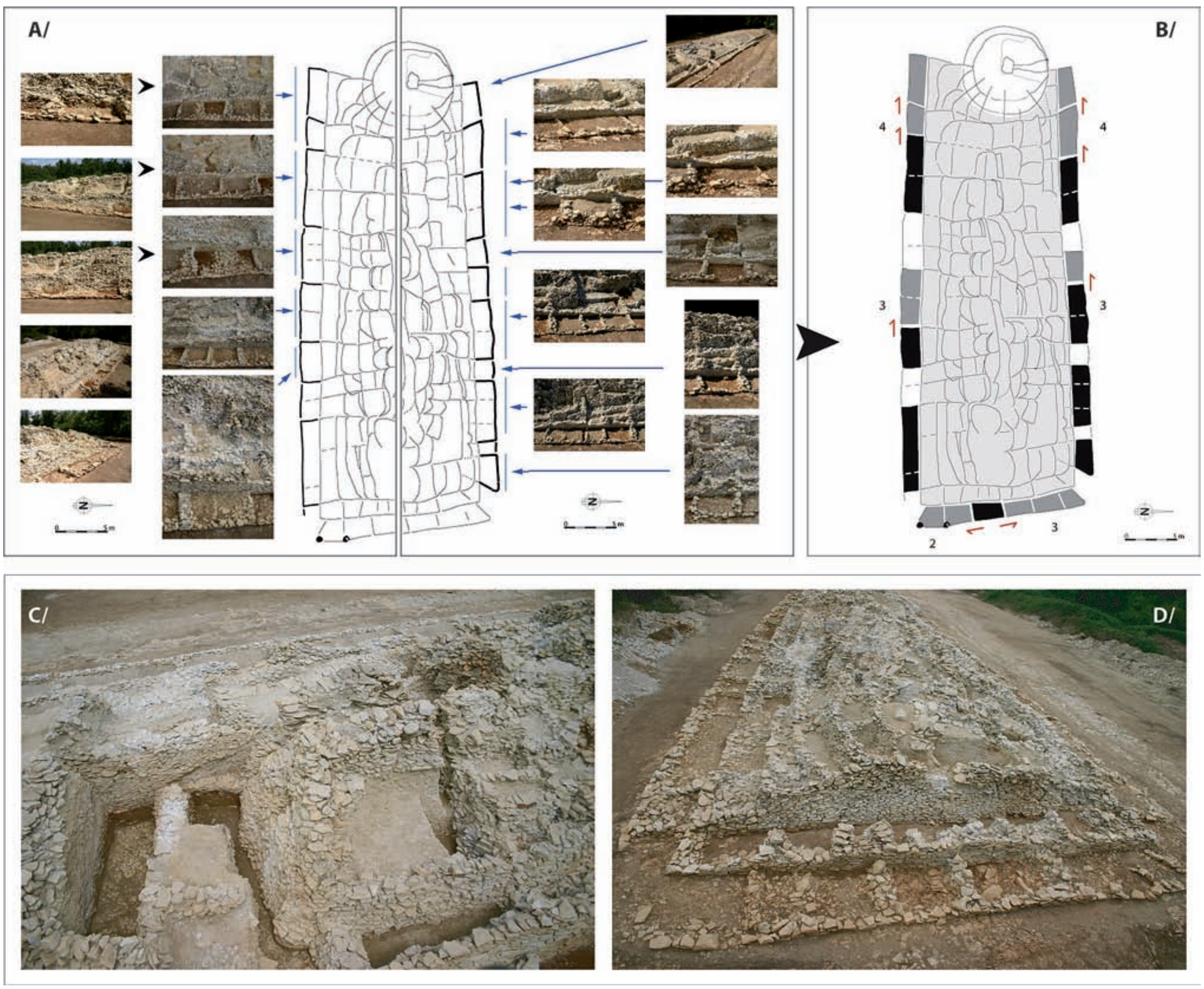


Fig. 2.3: Progress of the construction project. A stratigraphic relations between each basic structural unit contributing to the building of a lateral bench. B these are initially realised by isolated cells distributed regularly around the perimeter of the monument, according to a conceptual plan carefully drawn up beforehand. C several basic structural units sometimes make up modules that, when joined with each other, form an integral part of the construction project, as seen here in the centre of the tumulus mound. D eastern facade of Péré tumulus C during excavation (L. Laporte)

the layout of some BVSG dwellings in Brittany (Laporte and Tinevez 2004), in particular where this feature is expressed by the Y-shaped arrangement of posts (Cassen *et al.* 1998) within the space elsewhere used as a passage.

The construction site

These architectural projects are realised by basic structural units that, according to their form and arrangement, have been designated as cells, terraces or even supporting walls. Each unit is delimited in elevation by one or more side walls, where the latter delimit a filling that is itself sometimes structured by transverse internal reinforcements.

Most of the wall facings of megalithic structures in western France are built of stone, but others were probably of timber (e.g. Chancerel and Desloges 1998). More rarely, the same basic structural unit comprises one stone wall and another in wood. In view of recent discoveries concerning middle Neolithic dwellings in this region (De Chazelles *et al.* 2012; Laporte *et al.* 2011), it would not be surprising in the future to find others that are built of adobe (Delibes and Zapatero 1996). The internal mass of the Cruchaud tumulus at Sainte-Lheurine, in Charente Maritime (Burnez *et al.* 2003), is structured using facings made from accumulated clumps of turf. The stone facings are made up of various courses, some of which can be characterised.

Foundation courses are used as a basic unit of construction. They rest either directly on the footing, or on a foundation slab. This latter thus corresponds to the lowermost horizon of the former ground surface, levelled off for the construction work. The presence of a cover, or stabilisation, course within a facing wall sometimes marks a momentary pause or definitive halt in construction. In other cases, an inserted course between larger block courses will allow the transfer of the pressure exerted by the upper part of the structure. In western French megalithic structures, the joints between the stones almost always correspond to an empty space partially filled by infiltrating soil. This feature very clearly distinguishes the corbelled vaults in the megalithic burial chambers of western France, which belong to the second half of the 5th millennium BC, from the vaults covering tholoi in the south of the Iberian peninsula, which are dated to the first half of the 3d millennium BC. For these latter structures, a very compact clay preparation was used for bonding the courses within the construction and the joints in the facade (Kunst and Arnold 2011; Laporte *et al*. 2014a). For each wall facing, three main roles can be recognised. Some elements stabilise certain parts of the structure to better transfer internal thrust, and can thus be considered as reinforcements. Others ensure bonding between the various parts of the internal filling, thus preventing break away: they serving as toothing. Finally, other elements maintain the walling in elevation. In a recent article we attempt to clarify this vocabulary, to some extent borrowed

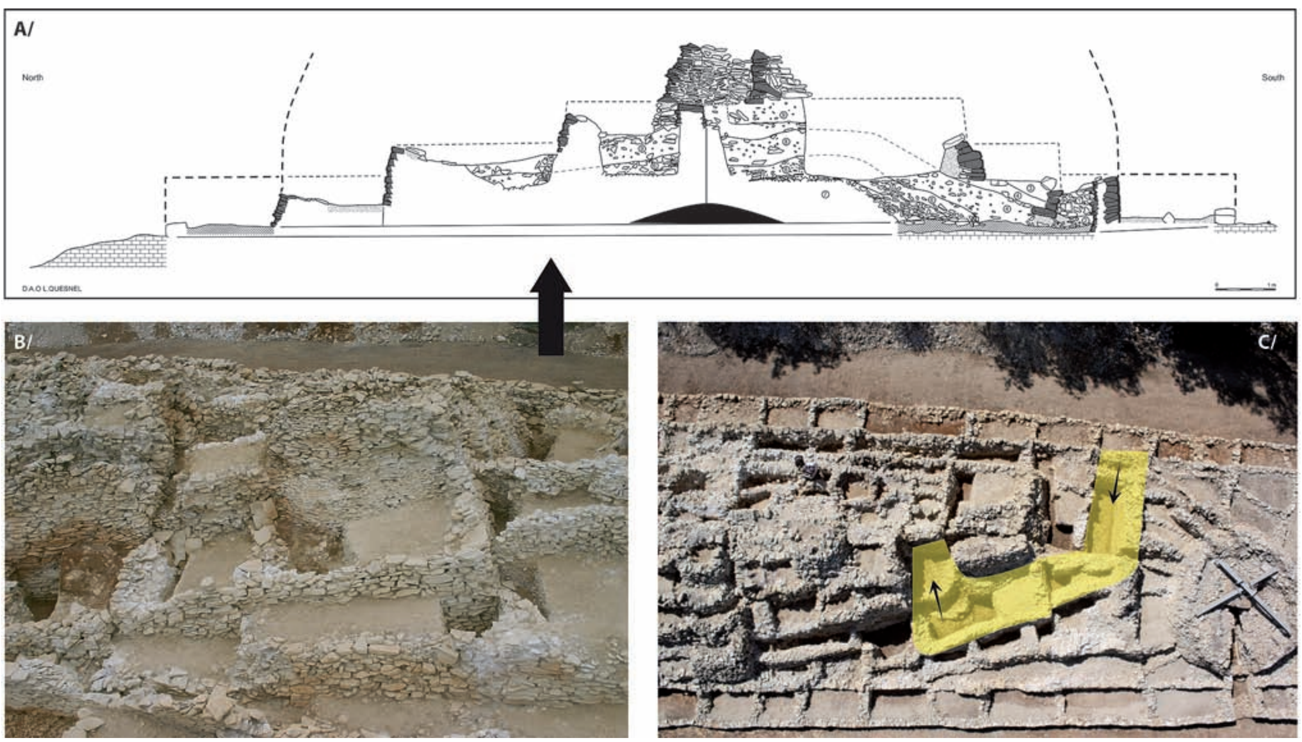


Fig. 2.4: Terraces serving as a base for the long cairn. A north-south cross-section at the base of the tumulus. B general view of terraces revealed within the tumulus to the west of chamber III. C ramps and passageways providing access to the upper parts of the construction site (L. Laporte and Ballonet.com; CAD L. Quesnel)

Fig. 2.5: Elevation of the cairn: tiering of relieving arches on the northern face at the eastern end of Péré tumulus C at Prissé-la-Charrière, Deux-Sevres, France (L. Laporte)

from the architecture and archaeology of built structures from historical periods (Laporte *et al.* 2014).

The arrangement of the basic structural units is quite different according to whether they contribute to the support of a vast elongated burial mound or the small circular structure enclosing the burial chamber space. The area covered by each unit, its layout on the ground, and its volume in elevation allow us to distinguish between the different components. However, among the megalithic monuments in western France, very few structural units can be described as *walls*, i.e. having two opposite facings and an internal rubble stone filling. The *terraces* can be delimited by two or three facings that are broadly perpendicular (Fig. 2.4). Joined together, they form a platform on which an elongated mound can then be placed in elevation.

In some cases, it is possible to recognise approach ramps at the higher level. The term *cell* is generally reserved for structural units of small surface area displaying a continuous facing wall tracing out the arc of a circle. This term was initially used by Joussaume (2006) to describe the internal structure of tumulus C of Champs-Châlon at Courçon in Charente Maritime. Once construction is completed, these cells behave as a network of truncated cones linked with each other (Fig. 2.5): each facing wall of the cells acts as a *relieving arch*. However, we cannot completely dissociate the filling of the structural units from their function. Cells that are exclusively filled by dry stones can sometimes reinforce a particular point of the construction, either in its mass or around the perimeter, where they act as *buttresses*. Other cells on the facade form a *lining*, doubling the internal wall. The majority of the structural units making up the Péré C long mound are filled mainly with stones mixed with earth, or with imported soil. A covering of red clay is sometimes inserted within the soil. These coverings of the filling are frequently associated with a stabilization course within the walls of the cell. The whole structure therefore indicates a temporary halt in the construction project, at least in the examined sector. A resumption of construction is sometimes marked by a slight shift in the layout of the walls of the same structural unit.

As a result, modular structural units can be defined that link, for example, one or more ramp with their respective tiered platform. In the eastern part of the Péré C tumulus, such terraces also allowed temporary access to the highest levels of the pre-existing circular monument. The elevation of this first circular monument was then modified to better integrate it into the new architectural project, and levelled.

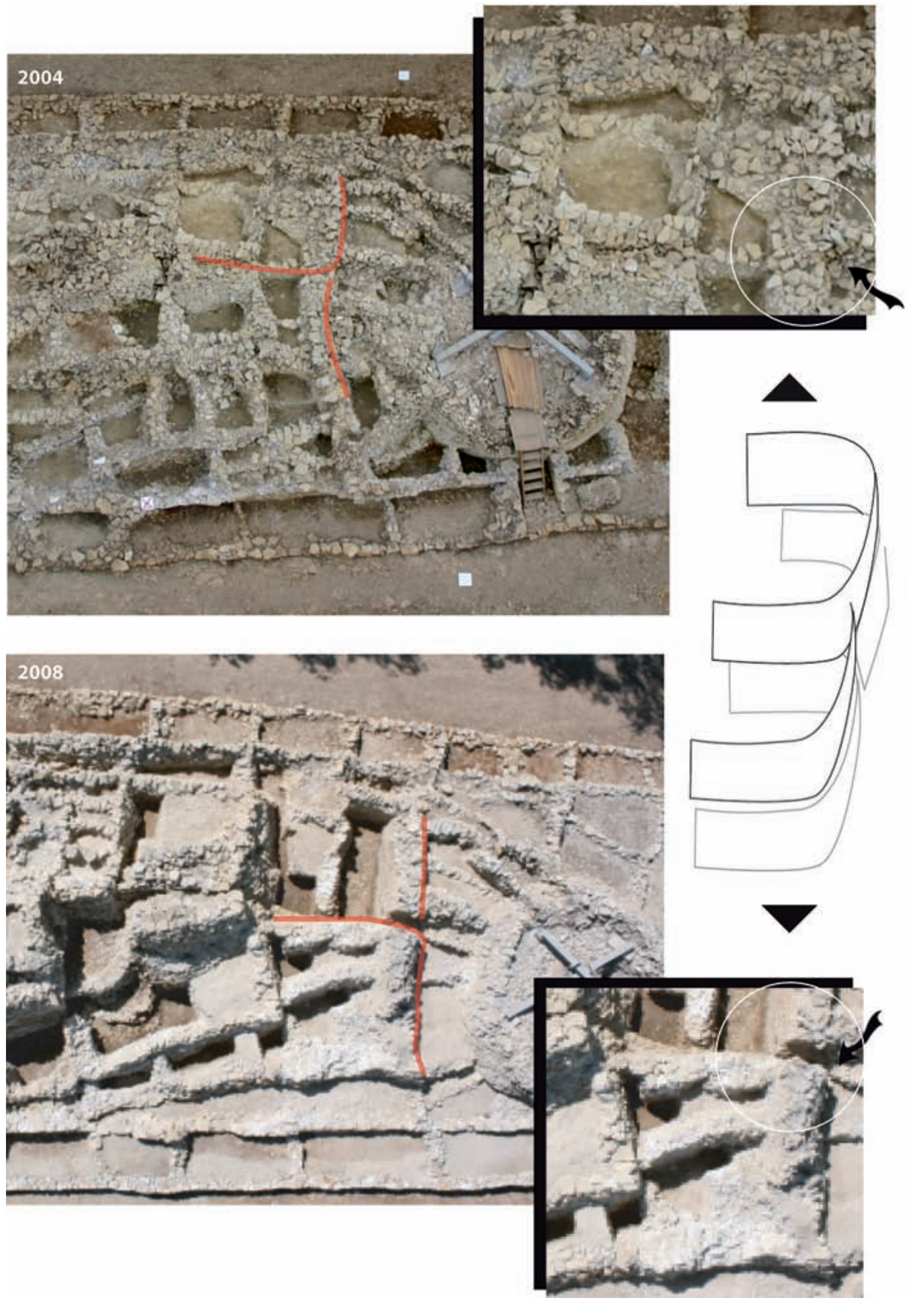


Fig. 2.6: Complexity of the technical solutions: vertical sequence of modular construction units superimposed on either side of the long axis of the tumulus (L. Laporte)

This operation corresponded to a halt in the construction work of the adjacent elongated mound. The network of relieving arches then made it possible to build up the tumulus mound without having to widen the base. In other words, while the architectural project can be understood by projecting the vertical walls onto a horizontal plane, the various phases of construction are revealed, on the other hand, by correlating more or less horizontal slices corresponding to distinct sections within each of the facing walls (Fig. 2.6). However, we found no evidence of a break in the progress of the work corresponding to the idea of seasonal construction carried out by early stockbreeders and farmers. On the contrary, the organisation of the construction site appears to have been very well coordinated by engineers who gave their instructions to a significant number of workmen at various points on the site. Conversely, the organisation of work carried out at these different points is extremely segmented.

The architectural project

It is still highly problematic to address the intentions of the Neolithic builders. Without an extremely detailed study of monuments that are particularly well preserved over their entire elevation, it is difficult to reconstruct successive architectural projects at the same site. At Prissé-la-Charrière, the structure of the monument and the vestiges of a pavement at its top suggest the presence of a of 2m wide stone platform, slightly inclined and running over its entire length from east to west (Laporte *et al.* 2002). The cross-section of the stone walls inside the monumental mass shows that the slope of the facing walls tend to be accentuated with increasing height, which could indicate the external angle of the sides of the monument. This feature was observed by Giot (1987) on the elevation of the outer walling of monuments like Carn Island or Barnenez in Finistere, and again by Lecornec (1994) over an even more impressive height on the external facade of cairn II of the Petit Mont at Arzon in Morbihan. The restored volume appears to be similar to that built by the *navetas* of the Balearic Islands (Guilaine 1994) one or two millennia later: these are much better preserved since they are constructed of cyclopean masonry (Fig. 2.7). However, they have an apsidal layout which is also observed locally in the contemporary houses. In western France, we find a trapezoidal rectangular plan bordered by side quarries – the same pattern displayed by megalithic monuments of very different length (Laporte 2013), as observed at Prissé-la-Charrière and Champ-Châlon.

In northern Europe, there has been a long-standing debate (Childe 1949) about whether it is possible to establish a link between megalithic monuments and LBK longhouses, which are both bordered by side quarries (Hodder 1984; Migdley 1985; Sherratt 1990; Thomas 2012). More generally, many comparisons have been proposed between such funerary spaces and domestic dwellings (Bradley 2003). These include the hypogea of the Marne valley (Leroi-Gourhan *et al.* 1963) and Sardinia (Caprara 1986), and other forms of Atlantic megalithic monuments (Kjaerum 1967; Joussaume 1985) found from the Orkneys to Brittany, which all belong to more recent periods of the Neolithic. In southern France, the sloping of internal walls within the Fontvieille hypogea can also be observed within the chamber of passage graves such as the dolmen of Pouget. Here, the arrangement is not merely

Fig. 2.7: What was the nature of the architectural project? The elevation proposed in restoration work for the long mounds of central western France (at the end of the 5th millennium BC) is broadly similar to those of the navetas of the Balearic Islands, which were built using cyclopean-type masonry a few millennia later: A Péré tumulus C at Prissé-la-Charrière, Deux-Sevres, France. (L. Laporte). B Es Tudons, Balearic Islands, Spain (Guilaine 1994). C Petit Mont II near Arzon, Morbihan, France (P. Gouézin). D ethnographic example: long houses of the Iroquois Indians (Indianspictures 2014).

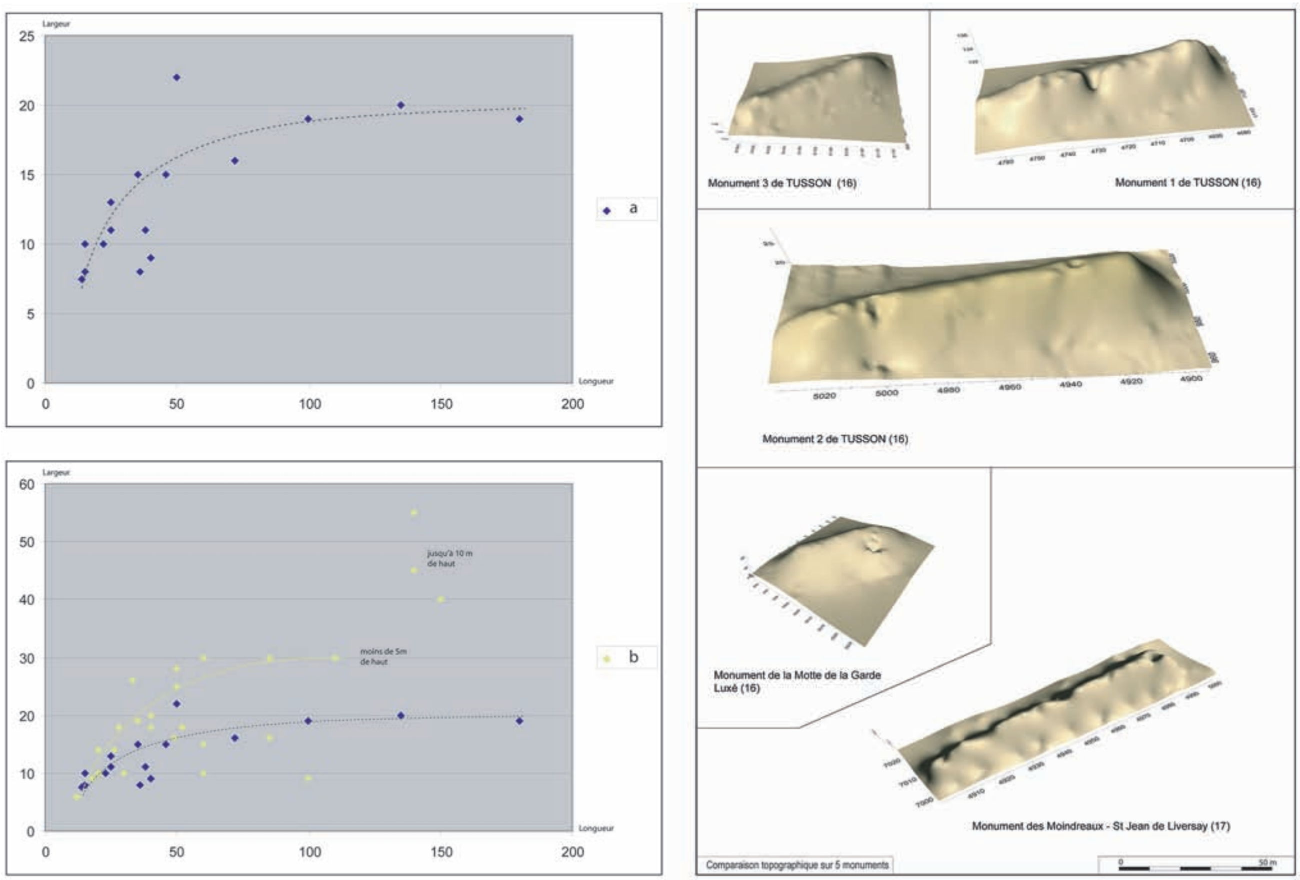


Fig. 2.8: Dimensions of megalithic long mounds in central western France showing a standardised width. A monuments whose width and length are documented by excavations or the pattern of peripheral ditches. B topographic anomalies, whose dimensions are indirectly dependant on the underlying monument. (Data on diagrams taken from Boulestreau (2003). Topographic surveys: R. Bernard (INRAP))

intended to reduce the size of the covering slab, which is imposing in size (Châteauneuf *et al.* 2012), but also serves to reproduce the internal volumes of other types of construction built of perishable materials.

While the length of the elongated monuments of the second half of the 5th millennium BC in western France is extremely variable, ranging from a few tens to more than 100m, their width is highly standardised, being only about 10–15m (Fig. 2.8). It is a technical challenge to maintain a constant width during the construction of terraces for these tumuli, while simultaneously increasing the height of the structure. Initially, such an objective seems absurd: it would appear more logical to widen the base to ensure its solidity. Yet we can see that a wealth of technical knowledge was mobilised to create a structure meeting this specific standard. We are dealing with a constraint of the conceptual model, which is independent and more important than all the other constraints related to the technical implementation of the construction project.

Consequently, we can wonder whether the standardised width of the conceptual model appropriate for the long tumuli of central western France could be a feature inherited from the architecture of large wooden buildings. Were the external volumes created by the need to obtain a covered empty space then transposed to be used as a standard in the construction of monumental masses made of stone and earth? Since the volumes of these structures are filled, their construction encounters the opposite technical constraints to timber houses. Indeed, the span of the wall plates, or of the tie beams, represents one of the major technical constraints for the construction of timber buildings intended to shelter an empty and covered space: increasing this span while maintaining the height of the building would require knowledge and skills in carpentry to be renewed with the passage of time. In western France, the span between each wall plate, or between the ridge timber and side walls, increases progressively throughout the Neolithic (Fig. 2.9). While this dimension is only a few metres in the LBK longhouse, it increases to about 5m in the Pezou house, attributed to the middle Neolithic, and ultimately attains 10m in the Antran-type houses attributed to the late Neolithic. Dating from this same period, the Pléchâtel house is composed of modules of constant width

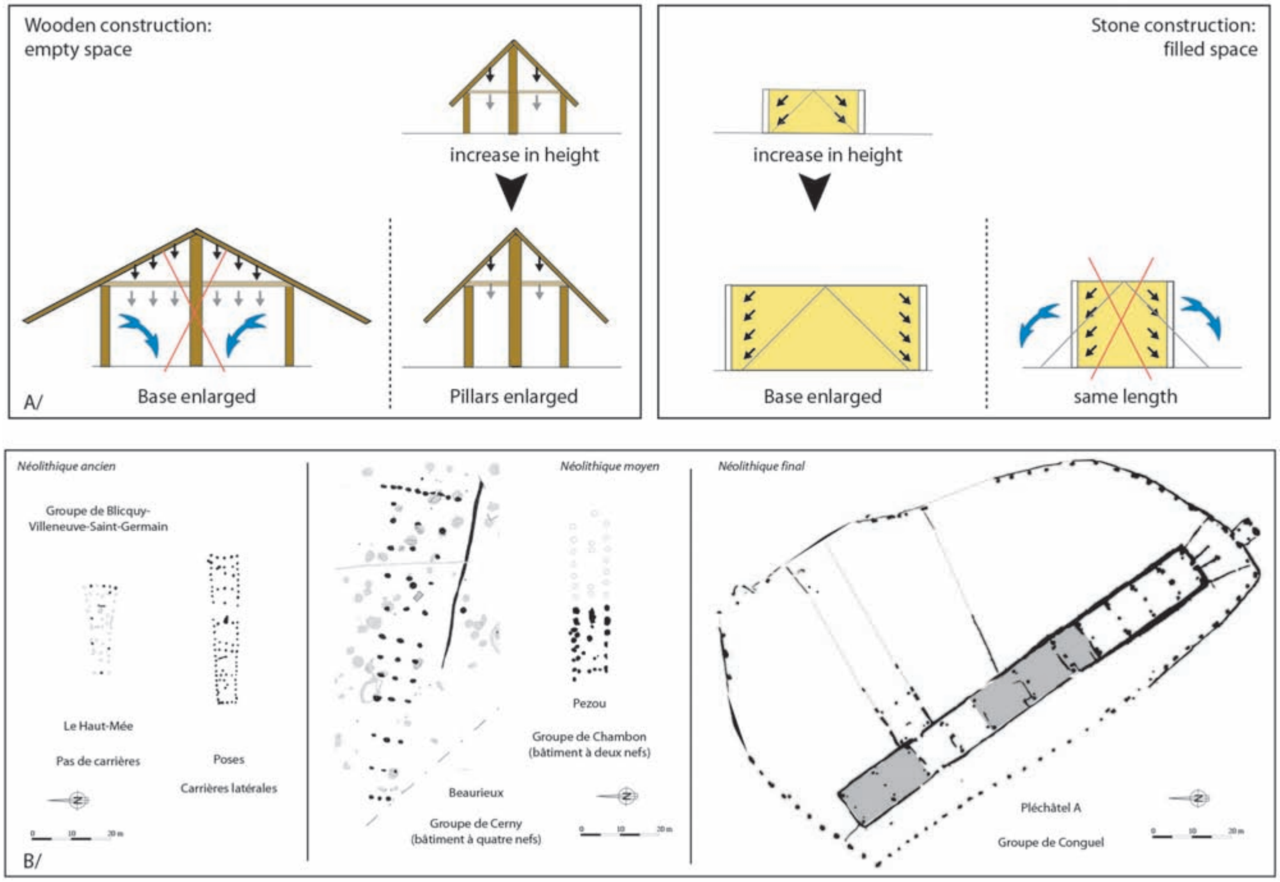


Fig. 2.9: Technical constraints inherited from the construction of wooden houses influenced the reproduction in stone according to one conceptual model. A: structural constraints for wooden architecture are the opposite of those for stone-built constructions. B: span of the beams is the main structural constraint for domestic wooden architecture covering an empty space: in western France during the Neolithic period, the internal span limiting the width of houses increased from 2.5m to reach 10m in some exceptional cases

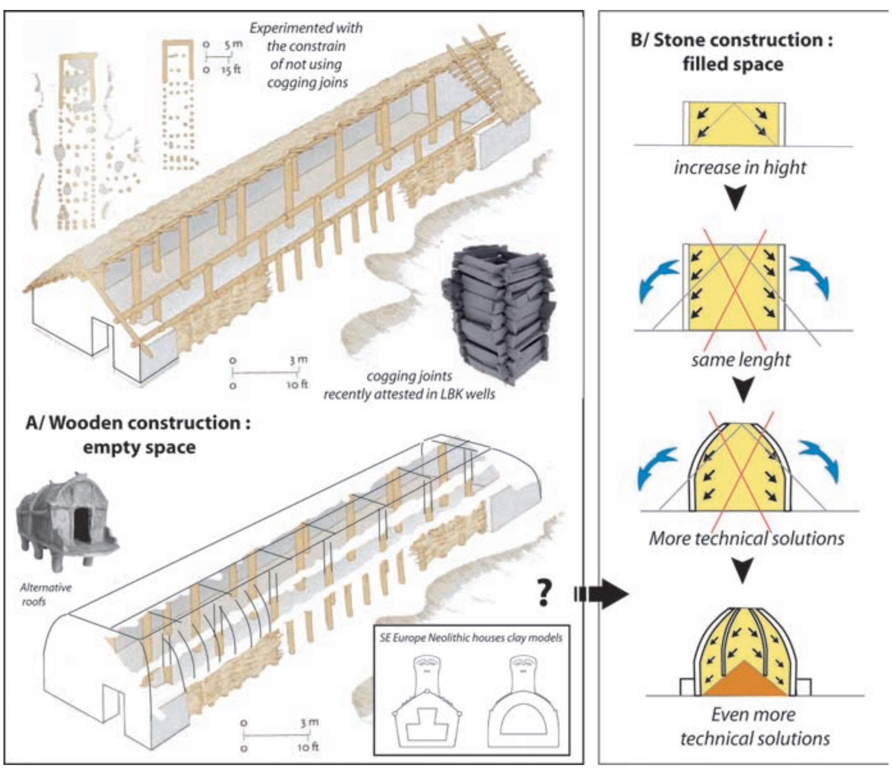


Fig. 2.10: The architecture of some megalithic monuments can also inform us about the building of timber structures, which may themselves have been taken as a starting point for the design of long mounds. While the first examples of double-pitched roofs only appear in continental Europe with the Lengyel group, represented by small adobe houses, all experimental reconstructions of LBK longhouses (often supported by posts of almost equal diameter) are based on the assumption that mortise and tenon joints were not exmployed. This is now known to be incorrect since these elements are found in the framework of LBK wells in Germany. (After Scarre 2005b; Chaudisis 2009; 2010; Tegel et al. 2012)

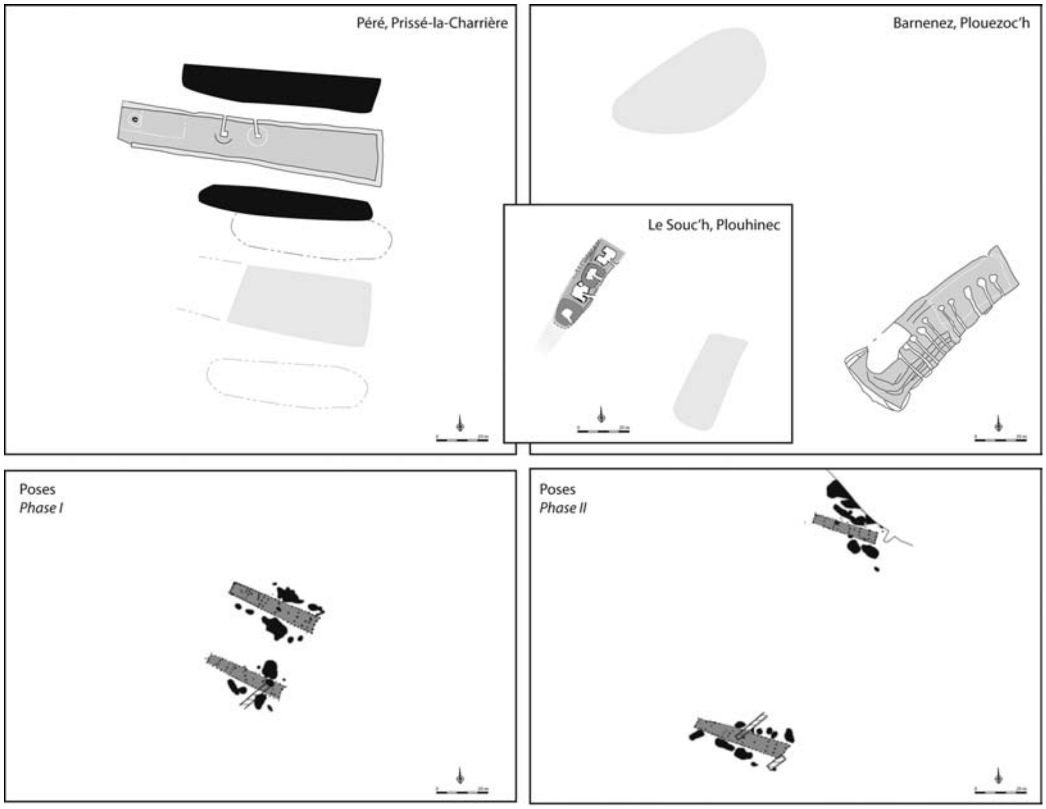


Fig. 2.11: Megalithic necropolises linking two elongated tumuli located side by side, with the two successive phases of the BVSG village at Poses at the same scale. (After Joussaume and Laporte 2006; Bostyn et al. 2003)

joined up alongside each other, forming a building 100m in length (Tinevez 2004).

Finally, we can consider the same hypothesis from another point of view: could the architecture of certain megalithic monuments provide insight into the construction of wooden buildings, which might have been inspired by the former. Long mounds and barrows are sometimes preserved to their original height, while the latter are generally reconstructed by archaeologists from observations of post-holes (Fig. 2.10). Such considerations apply equally well to circular monuments. To the north of the Gironde estuary, as well as south of the Pyrenees, early Neolithic settlements on the Atlantic seaboard evidence the layout of small circular dwellings of very similar diameter to the Bougon F0 megalithic monument and the primary cairn of Île Carn (Mohen and Scarre 2002; Laporte and Marchand 2004; Laporte *et al.* 2012). At the beginning of the middle Neolithic, in the western and southern Paris basin, other circular structures of much more imposing size are instead attributed to the Cerny group (Verjux 1999; Cassen 2000; Billard *et al.* 2014b).

The proponents of a unilinear typology refuse to accept that two distinct architectural forms might exist simultaneously in the same area (Boujot Cassen 1992; Cassen 2009; cf. Laporte 2011). However, it appears that the multiple and progressive integration of different forms of burial space within elongated mounds can be particular well explained by the hypothesis presented here (Laporte *et al.* 2002; 2011). We should not forget that this part of the Atlantic seaboard was one of the rare parts of Europe where the spheres of continental and southern neolithisation (Nicolas *et al.* 2013) came together (Joussaume 1981; Laporte and Picq 2002; Marchand and Manem 2006; Scarre 2011). Both traditions were confronted with various groups of hunter-gatherers who occupied this region, particularly on the coastal plains (Marchand 1999). A phase of integration followed that is reflected not only in the material culture (Laporte 2005), but also perhaps at the biological level through the matrilineal transmission of certain genetic features (Deguilloux *et al.* 2011): however, current data is still too sparse to be entirely representative. Such a phase of integration would not be lacking in expressions of specific cultural identities, which become all the more exacerbated while they are in the process of dissolution (Fig. 2.11). Rectangular and circular monuments are thus buried under the imposing mass of trapezoidal long mounds bordered by side quarries, displaying volumes not unlike the houses built by early LBK farmers.

Conclusions

Such an approach to studying megalithic monuments in western Europe allows us to distinguish the architectural project from the implementation of the construction. In this way, we can identify features related to the history of techniques, while also addressing questions about the intentions of Neolithic builders who created stone structures that could have been built elsewhere using different materials. Beyond local availability, even the choice of building with stones (large or small ones) reflects the builders' intentions. It makes the monument a durable structure surviving into the future. At first sight, such architecture may appear somewhat rudimentary, both in terms of the tools used by the builders and their concern, often explicitly expressed, in the use of very large stones preserving many characteristics of their natural appearance. This does not mean to say that the architectural project was simplistic: very high levels of skill were mobilised. Such an approach is compatible with the possibility, often stressed by many authors, that the course of actions leading to the construction could also have a symbolic and ceremonial dimension, in a context where such monuments are almost always associated with funerary practices. By attempting to ascertain, wherever possible, the nature of each architectural project and its place within the successive processes of monumentalisation, we are taking a first step to placing these architectures in the more general framework of the worldview of Neolithic builders. While dedicated, at least in part, to burial of the dead or to the memory of ancestors, megalithic monuments are evidently not simply a transposition of the world of the living, no more so than their design can ever be regarded as being totally dissociated from it. In western France, indeed, many of such monuments seems to have reproduced in stone, but with different structural constraints, the memory of the houses of prestigious ancestors who were among the very first farmers of the region.

Acknowledgements

I am grateful to M. Carpenter for the English translation of this paper.

References

Atkinson, R. J. 1965. Excavations at Wayland's Smithy long barrow; Berkshire. *Antiquity* 39, pp. 126–133.

Bakker. J. A. 1992. *The Dutch Hunebedden: Megalithic Tombs of the Funnel Beaker Culture*. International Monographs in Prehistory: Ann Arbor, MI.

Bayliss, A. L. and Whittle, A. 2007. Histories of the dead: building chronologies for five southern British long barrows. *Cambridge Archaeological Journal* 17(S1).

Billard, C., Charraud, F., Ghesquière, E., Hulin, G., Marcigny, C. and Marcoux, N. 2014. Goulet (Orne) "Le Mont": approche préliminaire des structures internes de l'enceinte du Néolithique moyen 2. In: Joussaume, R. and Large, J. M. (eds.), *Enceintes néolithiques de l'Ouest de la France de la Seine à la Gironde*. Association des Publications Chauvinoises: Chauvigny, pp. 51–62.

Bostyn, F., Beurion, C., Billard, C., Guillon, M., Hachem, L., Hamon, C., Lanchon, Y., Praud I., Reckinger F., Ropars, A. and Munaut A.-V. 2003. *Néolithique ancien en Haute-Normandie: le village Villeneuve-Saint-Germain de Poses "Sur la Mare" et les sites de la boucle du Vaudreuil.* Travaux – Société Préhistorique Française 4: Paris.

Boulestreau, E. 2003. *Les monuments funéraires allongés du Néolithique dans le Centre-Ouest de la France.* Mémoire de maîtrise, Université de Paris I, dactylo: Paris.

Boujot, C. and Cassen S. 1992. Le développement des premières architectures funéraires monumentales en France occidentale. In: Le Roux C.-T. 1992 (ed.): *Paysans et bâtisseurs: l'émergence du Néolithique atlantique et les origines du mégalithisme; XVII colloque interrégional sur le Néolithique, Vannes, octobre 1990, Rennes. Revue Archéologique de l'Ouest*, supplément 5, pp.195–211.

Bradley, R. 2003. A life less ordinary: the ritualization of the domestic sphere in Later Prehistoric Europe. *Cambridge Archaeological Journal* 13(1), pp. 5–23.

Burnez, C., Louboutin, C. and Kinnes, I. 2003. Le tumulus du Cruchaud à Sainte-Lheurine (Charente-Maritime) – Etude archéologique. *Bulletin de la Société Préhistorique Française* 100(2), pp. 293–314.

Caprara, R. 1986. *La necropoli de San Andrea Priu*. Delfino: Sassari.

Cassen, S. (ed.) 2000. *Eléments d'architecture, exploration d'un tertre funéraire à Lannec-er-Gadouer (Erdeven, Morbihan)*. Mémoire XIX, Ass. Editions Chauvinoises

Cassen, S. (ed.) 2009. *Autour de la table: explorations archéologiques et discours savants sur des architectures néolithiques à Locmariaquer, Morbihan (Table des Marchands et Grand Menhir)*. Laboratoire de recherches archéologiques LARA du CNRS/Université de Nantes: Nantes.

Cassen, S., Audren, C., Hinguant, S., Lannuzel, G. and Marchand, G. 1998. L'habitat Villeneuve-Saint-Germain du Haut-Mée (Saint-Etienne-en-Coglais, Ille-et-Vilaine). *Bulletin de la Société Préhistorique Française* 95(1), pp. 41–76.

Cebrián del Moral, F., Yañez Rodríguez, J., Lestón Gomez, M., Vidal Pérez, F. and Carrera Ramírez, F. 2011. *El dolmen de Dombate, arqueología, arquitectura y conservación*. Diputación de Coruña: A Coruña.

Chancerel, A. and Desloges, J. 1998. Les sépultures pré-mégalithiques de Basse-Normandie, In: Guilaine, J. (ed.) *Sépultures d'occident et genèses des mégalithismes (9000–3500 avant notre ère)*. Errance: Paris, pp. 89–106.

Châteauneuf, F., Ambert, P., Platscheck, C., Rocca, J.-M. and Requirand, C. 2012. Le dolmen du Pouget (Viols-le-Fort – Argelliers, Hérault). Architecture et mobilier. Constribution à l'étude des dolmens à dalles latérales inclinées du Languedoc. *Bulletin de la Société d'Anthropologie Préhistorique de Monaco* 52, pp. 81–103.

Childe, V. G. 1949. The origin of Neolithic culture in northern Europe, *Antiquity* 23(91), pp. 129–135.

Corcoran, J. 1972. Multi-period construction and the origin of the chambered long cairn in western Britain and Ireland. In: Lynch, F. and Burgess, C. (eds) *Prehistoric Man in Wales and the West.* Adams and Dart: Bath, pp. 31–63.

Darvill, T. 2004. *Long Barrows of the Cotswolds and Surrounding Areas*. Tempus: Stroud.

Deguilloux, M.-F., Soler, L., Pemonge, M.-H., Scarre, C., Joussaume, R. and Laporte, L. 2011. News from the west: ancient DNA from a French megalithic burial chamber. *American Journal of Physical Anthropology* 144, pp. 108–118.

Dehn, T., Hansen, S. and Flemming, K. 2000. *Klekkendehoj og Jordehoj. Restaureringer og undersogelser 1985–90*. Stenaldergrave i Danmark bind 2. Nationalmuseet: Copenhagen.

Delibes, G. and Zapatero, P. 1996. De lugar de habitacion a sepulcro monumental: una reflexion sobre la trayectoria del yacimiento neolitico de La Velilla, Osorno (Palencia). *Rubricatum* 1, pp. 337–348.

Chazelles, C.-A. de, Pons, F. and Gandelin, M. 2012. L'enceinte incendiée de Château-Percin. *Midi-Pyrénées patrimoine* 29, pp. 40–43.

Dixon, P., Bayliss, A., Healy, F., Whittle, A. and Darvill, T. 2011. The Cotswolds. In: Whittle, A., Healy, F. and Bayliss, A. *Gathering*

Time: Dating the Early Neolithic enclosures of southern Britain and Ireland. Oxbow Monograph: Oxford, pp. 434–475.
Eogan, G. 1986. *Knowth and the Passage Tombs of Ireland*. Thames and Hudson: London.
Eogan, G. 2006. The Irish megalithic tombs in their social setting. In: Joussaume, R., Laporte, L. and Scarre, C. (eds.) 2006. *Origin and Development of the Megalithic Monuments of Western Europe*. Musée des Tumulus de Bougon: Bougon, pp. 135–158
Giot, P.-R. 1987. *Barnenez, Carn, Guennoc*, 2 volumes. Travaux du laboratoire d'Anthropologie, Préhistoire, Protohistoire et Quaternaire Armoricains: Rennes.
Guilaine, J. 1994. *La mer partagée*, Hachette: Paris.
Hodder, I. 1984. Burials, houses, women and men in the European Neolithic. In: Miller, D. and Tilley, C. (ed.) *Ideology, Power and Prehistory.* Cambridge University Press: Cambridge, pp. 51–68.
Indianspictures 2014, available at http://indianspictures.blogspot.fr/p/iroquois-indian-pictures-and-images_16.html, (accessed July 2014)
Joussaume, R. 1981. *Le Néolithique de l'Aunis et du Poitou occidental dans son cadre atlantique*. Travaux du Laboratoire d'Anthropologie, Préhistoire, Protohistoire et Quaternaire Armoricains (ER 27 du CNRS): Rennes.
Joussaume, R. 1985. *Des dolmens pour les morts*. Hachette: Paris.
Joussaume, R. 2006. *Les tumulus de Champ-Chalon à Benon (Charente-Maritime).* Groupe Vendéen d'Etudes Préhistoriques 42.
Joussaume, R. and Laporte, L. 2006. Neolithic funerary monuments of Western France. In: Joussaume, R., Laporte, L. and Scarre, C. (eds.) 2006. *Origin and Development of the Megalithic Monuments of Western Europe*. Musée des Tumulus de Bougon: Bougon, pp. 319–344.
Kjaerum, P. 1967. Mortuary houses and funeral rites in Danemark. *Antiquity* 41, pp. 190–196.
Kunst, M. and Arnold, F. 2011. Sobre a reconstrucao de estruturas defensivas do Calcolitico na penisula Iberica com base na Torre B de Zambujal (Torres Vedras, Lisboa). *O Arqueólogo Português*, Series V (1), pp. 429–488.
Laporte, L, 2005. Néolithisation de la façade atlantique du Centre-Ouest de la France; actes des journées SPF de Nantes. In: Marchand, G. and Tresset, A. 2005. *Unité et diversité des processus de néolithisation*, Actes du colloque de Nantes, Mémoire XXXVI de la Société Préhistorique Française: Paris, pp. 99–125.
Laporte, L. 2010. Restauration, reconstruction, appropriation; évolution des architectures mégalithiques dans l'Ouest de la France, entre passé et présent. *Munibe,* supplement 20, Actes du colloque international de Beasain (Espagne), pp. 15–46.
Laporte, L. 2011. Innate and/or expressed identities: their conceptualization through monumentality, funerary practices and grave goods? Some examples from the megalithic tradition of Western France. In: Furholt, M., Lüth, F. and Muller, J. (eds) *Megaliths and Identities, Fruhe Monumentalität und soziale differenzierung* 1: Kiel, pp. 199–224.
Laporte, L. 2012. Dépôts de mobilier, architectures et pratiques funéraires dans l'ouest de la France, au cours du Néolithique récent et final. In: Sohn, M. and Vaquer, J. (eds) *Sépultures collectives et mobiliers funéraires de la fin du Néolithique en Europe occidentale*, Actes de la Table-ronde de Carcassonne, 2008, ed. Archives d'Ecologie Préhistorique: Toulouse, pp. 113–145.
Laporte, L. 2013. Les carrières fournissant le petit appareil employé dans la construction des masses tumulaires. Mégalithismes de l'ouest de la France, projets architecturaux, stratégies d'approvisionnement et techniques mises en œuvre pour l'extraction. In: Guyodo, J.-N. and Mens, E., (eds) *Technologie des premières architectures en pierre en Europe occidentale du Ve au IIe mill. av. J.-C*. Actes du colloque de Nantes: Presses Universitaires de Rennes: Rennes, pp. 00–00.
Laporte, L. and Marchand, G. 2004. Une structure d'habitat circulaire dans le Néolithique ancien du Centre-Ouest de la France, *Bulletin de la Société Préhistorique Française* 101, pp. 55–73.
Laporte, L. and Le Roux, C.-T. 2004. *Bâtisseurs du Néolithique, Mégalithisme de la France de l'Ouest*. Coll. Terres mégalithiques, Maison des Roches: [Online]. Available at: http://halshs.archives-ouvertes.fr/view_by_stamp.
Laporte, L. and Tinevez, J.-Y. 2004. Neolithic houses and chambered tombs of western France. *Cambridge Archaeological Journal* 14 pp. 217–234.
Laporte, L. and Picq, C. (eds.) 2002. Les occupations néolithiques du vallon des Ouchettes (Plassay-Charente-Maritime). *Gallia Préhistoire* 44, pp. 1 – 120.
Laporte, L., Joussaume, R. and Scarre, C. 2001. Megalithic monuments of west-central France in their relationship to the landscape. In: Scarre, C. (ed.), *Monumentality and Landscape in Atlantic Europe*. Routledge: London, pp. 73–83.
Laporte, L., Joussaume, R. and Scarre, C. 2002. Le tumulus C de Péré à Prissé-la-Charrière (79), état des recherches après 6 années d'intervention. *Gallia Préhistoire* 44, pp. 167–214.
Laporte, L., Scarre, C., Joussaume, R. and Soler, L. 2010. Nouvelles données sur le mégalithisme de l'Ouest de la France: Recherches en cours autour du tumulus C de Péré à Prissé-la-Charrière (Deux-Sèvres). *Archéo-Théma*, sept. 2010.
Laporte, L., Bizien-Jaglin, C. and Guyodo, J.-N. 2011. Occupations du Néolithique moyen autour de la butte de Lillemer (Ille-et-Vilaine). *Dossiers du Centre Régional Archéologique d'Alet* 39, pp. 83–91.
Laporte, L., Jallot, L. and Sohn, M. 2011. Mégalithismes en France. Nouveaux acquis et nouvelles perspectives de recherche. *Gallia Préhistoire* 53, pp. 289–338.
Laporte, L., Bizien-Jaglin, C. and Guyodo, J.-N. 2014a. Enceintes néolithiques de l'ouest de la France: une archéologie des fossés? In: Joussaume, R. and Large, J.-M. (eds.), *Enceintes néolithiques de l'Ouest de la France de la Seine à la Gironde*. Association des Publications Chauvinoises: Chauvigny, pp. 455–487.
Laporte, L., Parron, I. and Cousseau F. 2014b. Nouvelle approche du mégalithisme à l'épreuve de l'archéologie du bâti. In: Sénépart, I., Billard, C., Bostyn, F., Praud, I., & Thirault, É. (eds.) *Méthodologie des recherches de terrain sur la Préhistoire récente en France, Nouveaux acquis, nouveaux outils, 1987–2012, Actes des premières Rencontres Nord/Sud de Préhistoire récente, Marseille 23–25 mai 2012*. Éditions Archives d'Écologie Préhistorique: Toulouse, pp. 169–186.
Lecornec, J. 1994. *Le Petit Mont, Arzon, Morbihan*. Documents Archéologiques de l'Ouest: Rennes.
Le Goffic, M. 2006: La nécropole mégalithique du Souc'h en Plouhinec. Journée «civilisations atlantiques et archéosciences», pp. 24–25.
Leroi-Gourhan, A., Bailloud, G. and Brézillon, M. 1963. L'hypogée II des Mournouards (Mesnil-sur-Oger, Marne). *Gallia Préhistoire* 5, pp. 23–134.
Marchand, G. 1999. *La néolithisation de l'ouest de la France. Caractérisation des industries lithiques*. British Archaeological Reports: Oxford.
Marchand, G. and Manen, C., 2006. Le rôle du Néolithique ancien méditerranéen dans la néolithisation de l'ouest de l'Europe atlantique. In Fouéré, P., Courtaud P., Ferullo, O. and Leroyer, C. (ed.) *Paysages et peuplement. Aspects culturels et chronologiques en France méridionale*. Actes des 6e Rencontres Méridionales de Préhistoire Récente, Périgueux, 2004, ADRAHP/Préhistoire du Sud-Ouest, pp. 213–231.

Masters, L.J. 1997. The excavation and restoration of Camster long chambered cairn, Caithness, 1967–80. *Proceedings of the Society of Antiquaries of Scotland* 127, pp. 123–183.
Midgley, M. 1985. *The Origin and Function of the Earthen Long Barrows of Northern Europe*. British Archaeological Reports International Series 259. British Archaeological Reports: Oxford.
Mohen, J.-P. and Scarre C. 2002. *Les tumulus de Bougon, complexe mégalithique du Ve au IIIe millénaire.* Errance: Paris.
Nicolas, E., Marchand, G., Henaff, X., Juhel, L., Pailler, Y., Darboux, J.-R. and Errera M. 2013. Le Néolithique ancien à l'ouest de la Bretagne: nouvelles découvertes à Pen Hoat Salaun (Pleuven, Finistère). *L'Anthropologie* 30, pp. 1–43.
Scarre, C. 2005a. *Monuments mégalithiques de Grande Bretagne et d'Irlande*. Errance: Paris.
Scarre, C. 2005b. *The Human Past. World prehistory and the development of human societies*. Thames and Hudson: London.
Scarre, C. 2011. *Landscapes of Neolithic Brittany*. Oxford University Press: Oxford.
Scarre, C., Laporte, L. and Joussaume, R. 2003. Long mounds and megalithic origins in Western France: recent excavations at Prissé-La-Charrière. *Proceedings of the Prehistoric Society* 69, pp. 235–251.
Sherratt, A. 1990. The genesis of megaliths: monumentality, ethnicity and social complexity in Neolithic north-west Europe. *World Archaeology* 22, pp. 147–167.
Tegel, W., Elburg, R., Hakelberg, D., Stäuble, H. and Büntgen, U., 2012. Early Neolithic water wells reveal the world's oldest wood architecture. *PLoS ONE* 7(12): e51374.
Thomas, J., 2012. Los monumentos megaliticos de Europa. In: Rojo Guerra, M., Garrido Pena, R. and Martinez de Lagran, I. (ed.), *El Neolitico en la peninsula Iberica y su contexto europeo*. Catedra: Madrid, pp. 55–69.
Tinevez, J.-Y. (ed.) 2004. *Le site de la Hersonnais à Pléchâtel (Ille-et-Vilaine): un ensemble de bâtiments collectifs du Néolithique final*. Société Préhistorique Française: Paris.
Verjux, C. 1999. Des bâtiments circulaires du Néolithique moyen à Auneau (Eure-et-Loire) et Orval (Cher), note préliminaire. *Revue Archéologique du Centre de la France* 37, pp.179–190.

3

Megalithic building techniques in the Languedoc region of southern France: recent excavations at two dolmens in Hérault

Noisette Bec Drelon

Abstract
New investigations have been conducted at two dolmens in the Hérault department as part of a research project on *Devices and facilities around the megalithic monuments in Languedoc between the 4th and 2nd millennium*. They are situated 15km north of Montpellier: the dolmen of Mas de Reinhardt II at Vailhauquès, and the dolmen of Caissa dels Morts II at Murles. The excavations were focused essentially on exploration of the tumulus: burial chambers and passages were empty due to old or clandestine excavations. A trench was dug in the best preserved part of each tumulus in order to understand its structure. Exhaustive excavation was conducted to determine how the monument was influenced by, and interacted with, the geology of the bedrock. The results of this fieldwork show both a choice in the location of the megalith and a systematic adaptation to the area. Thus, the construction of a dolmen is the result of both logical planning and opportunism on the part of the architects.

Keywords: Late Neolithic, southern France, passage tomb, tumulus, building techniques

There is an extensive bibliography on the megalithic monuments of Hérault. Research conducted from 1930 to 1960 enabled the discovery and the excavation of many dolmens. In spite of this craze, knowledge of Hérault's megalithic monuments remains incomplete. In fact the first excavations done by Jean Arnal, Maurice Louis, Denis Peyrolles, and Jacques Audibert only relate to the burial chambers (Arnal 1963; Audibert and Boudou 1955). Those studies have remained incomplete, with no topographical drawing or stratigraphic section. We have to return to these monuments with new problems in order to understand the whole construction and, in particular, peripheral structures – in other words, the barrow. These early investigations are here revisited as part of a research on *Devices and facilities around the megalithic monuments in Languedoc between the 4th and 2nd millennium* (Bec Drelon forthcoming). It is hoped through this to discover new evidence about the construction techniques used, and how the sites were located, in addition to establishing a better chronology for the megalithic phenomenon in this territory.

Geographical situation

We have chosen the limestone Causses of Montpellier, located next to the Pic Saint-Loup, for these initial investigations as it exhibits a remarkable landscape. The density of remains dated to the prehistoric period is particularly significant: numerous dolmens and Neolithic villages have been recorded in this area. For instance, we can cite the dolmens of Lamalou and Ferrières (type site of the Late Neolithic Ferrières culture) and the Chalcolithic villages of Boussargues and Cambous.

In particular, we have selected two dolmens among this important concentration, both situated north of Montpellier – the Mas de Reinhardt II dolmen at Vailhauquès, and the dolmen of La Caissa dels Morts II at Murles. According to Jean Arnal, these burials have been classified among the gallery graves with "p" or "q" shapes (Arnal 1963). The typology of the internal space seemed similar for both dolmens, with only few differences, and from the first glance these monuments showed evidence of the structural development of their tumuli. The new excavations focus mainly on exploration of the tumuli: the burial chambers and passages were empty due to old or clandestine excavations. At the dolmen of Mas de Reinhardt II, we noticed the presence of a kerb made with slabs of stone surrounding the tumulus. At the dolmen of la Caissa dels Morts, despite its geographical proximity, the structures observed were different: we identified a dry stone wall enclosing the tumulus. In addition, exhaustive excavation was conducted to determine how the monument was influenced by, and interacted with, the local geology. Within the framework of new surveys, it would be interesting to determine the nature of these various structures, and to date more precisely their chronology of construction.

Mas de Reinhardt II: a complex and rational architecture

The dolmen of Mas de Reinhardt II lies on the crest of a limestone plateau (*le Closcas*): most of its architecture is preserved. The burial chamber is composed of three limestone slabs or blocks, which would have supported a capstone, now lost. The remarkable trapezoidal backstone is significantly taller than the two orthostats pressing against it. The passage is aligned to the south west: together with the burial chamber, it is "p" shaped in plan. The western wall of the access passage is built of dry stone walling while the eastern one is formed by a long megalithic block (now broken into several pieces).

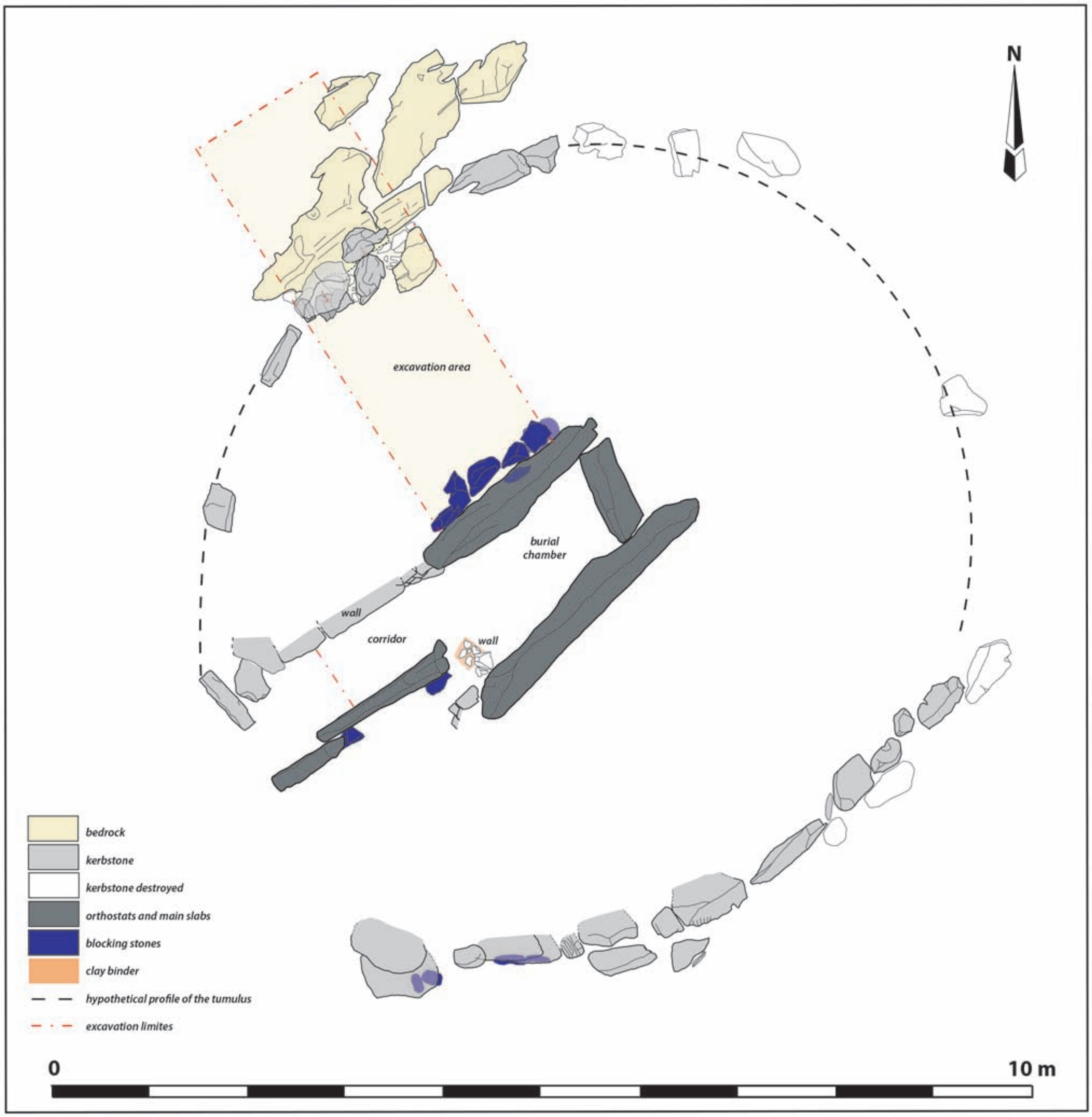


Fig. 3.1: Dolmen of Mas de Reinhardt II (southern France), general plan

A section was excavated across the passage. This revealed a dry stone wall that had been built under part of the southern orthostat to compensate for its irregular shape. The wall may have been concealed by a thin slab: it was found in a collapsed position but may have been a facing for the wall. In addition, the foundation of another wall was found, running perpendicular to the southern orthostat and joined to the south wall of the passage. It faces the backstone and closes that side of the chamber. There is clay mortar between the stone courses. The discovery of such a binder is unique to the region. The walls of this type of monument are more usually of dry stone construction. The section was extended along the passage enabling the discovery of blocking stones that were used to stabilise the long slab of the access feature. Another block was discovered at the entrance to the passage: it was levelled and ran perpendicular to the passage axis. Perhaps it was a megalithic entrance stone, or a threshold, or an element of the kerb.

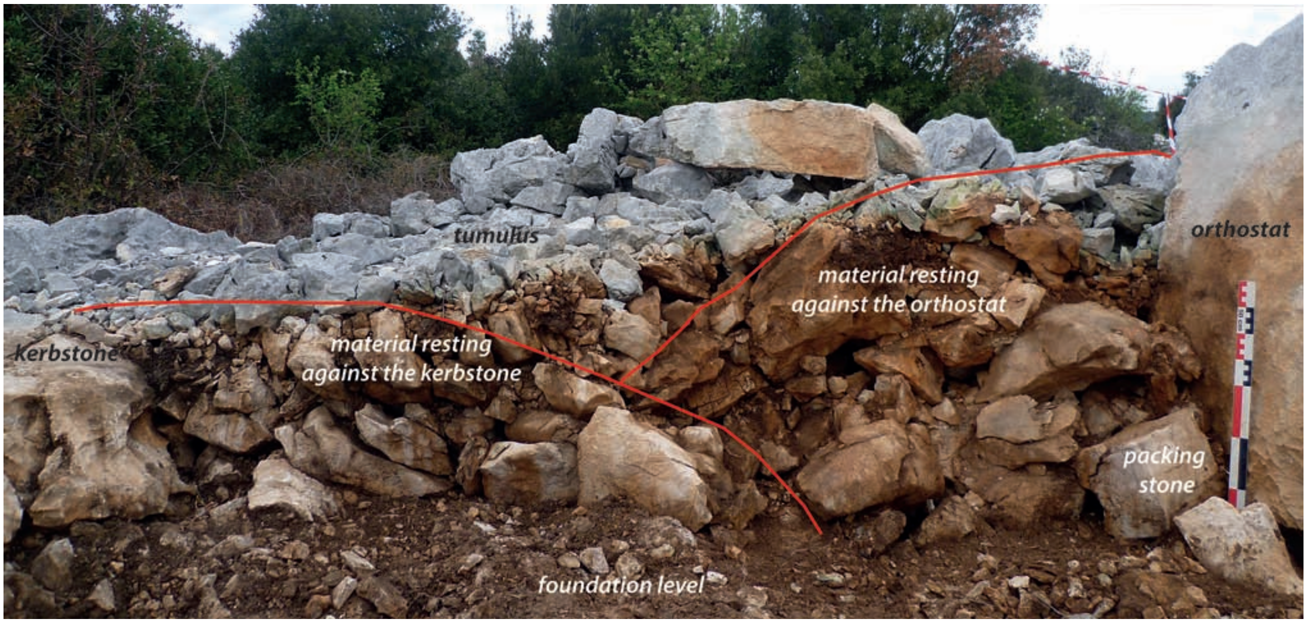


Fig. 3.2: Dolmen of Mas de Reinhardt II, stratigraphic section through the mound

The tumulus is about 6m in diameter, and is delimited by a kerb (Fig. 3.1). The general morphology of the bedrock played a key role in the choice of location for the monument. To the west, the builders used a natural step in the bedrock to support some of kerbstones (in Fig. 3.1 the bedrock is in yellow and the kerb is light grey). A boulder that was slightly detached from the bedrock was employed to help demarcate this edge. To the east, the ground slopes naturally downwards, and kerbstones were installed in the depression (Fig. 3.4). The excavation trench revealed that the core of the tumulus was composed of large limestone boulders arranged in two opposed units (Fig. 3.2). The outer one of these rested directly against the kerbstones that are themselves supported by the bedrock step. The inner unit of the tumulus was placed against the back of the northern orthostat, which was supported on the other side by the backstone. These groups of organised stones distribute the weight and consequently balance the stability of the whole monument. Several packing stones were also found around the base of the orthostat: this is rarely documented in dolmens in Hérault (Fig. 3.3). We

Fig. 3.3: Dolmen of Mas de Reinhardt II, packing stones around the orthostat

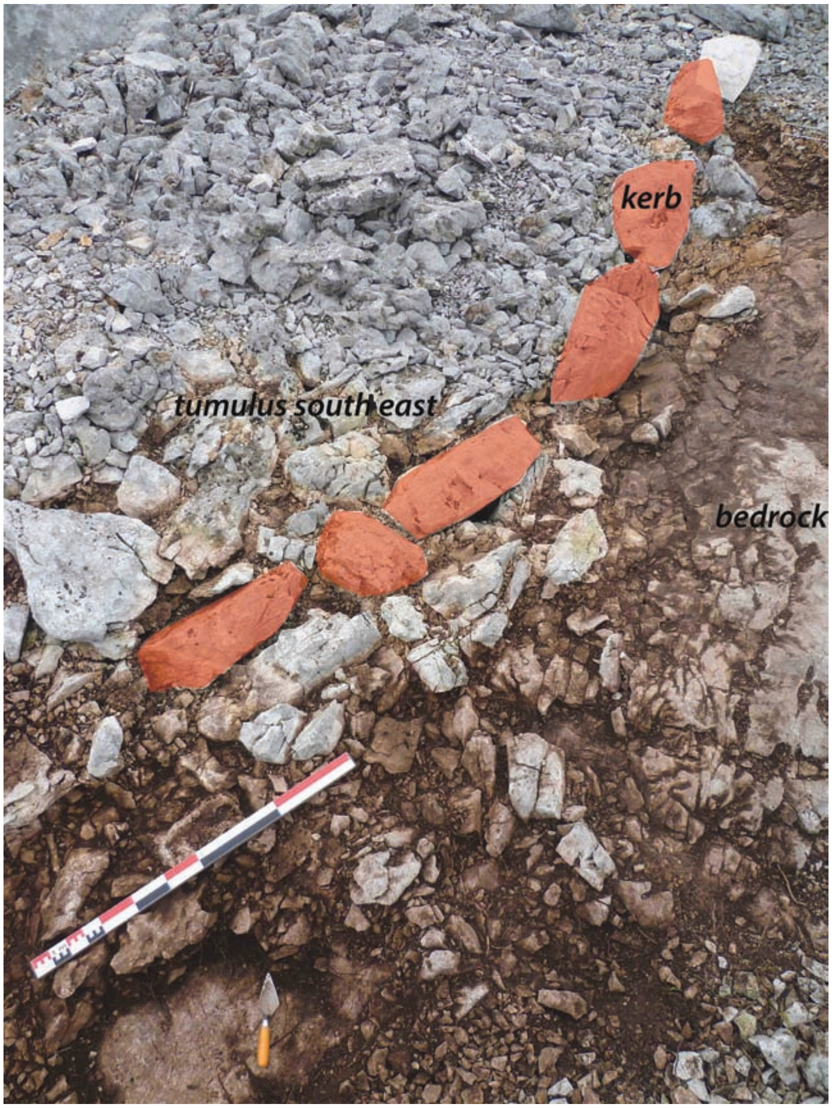


Fig. 3.4: Dolmen of Mas de Reinhardt II, south-eastern part of kerb

should also mention the slab of dolomitic limestone found mostly in the passage. These stones are probably part of the original covering system. The most common material used in this structure is Jurassic limestone, which crumbles rapidly. Thus it would be too ambitious to try to estimate the original height of the tumulus.

The objects found in the monument include fragments of vessels, the typology of which is still difficult to define. However, a fragment of a ceramic rim decorated with a garland of pastilles could be linked to the Fontbouisse repertoires. A polished axe blade of greenstone (3cm long) was also found at the base of the tumulus. These elements allow us to date the use of the burial chamber roughly to between the late Neolithic/Chalcolithic and the late Bronze Age. The latter is estimated from the presence of low bowl characteristic of reuse for burial at this time. We hope that radiometric dating will reduce the chronological range, and may be give more precise dates. No human bones have been excavated from the chamber or the passage and the previous excavations did not provide more information. Therefore it seems impossible to infer anything about the number of individuals, or make observations about the funeral practices.

Caissa dels Morts II: locating the tomb – an opportunist approach

Unlike Mas de Reinhardt II, Caissa dels Morts II is a smaller dolmen with an off-centre passage to the east and a "q"-shaped plan (Fig. 3.5). The burial chamber is composed of three megalithic slabs in a trapezoidal shape: it is slightly larger at the entrance than at the backstone. The trapezoidal backstone is set between orthostats and stacks of small dry stones bridge the interstices. The western orthostat was extended to the south by a dry stone wall, although this thin slab may have broken during its' erection. The builders probably changed their initial architectural plan after this incident. Here, the capstone is also missing, although during the excavation we

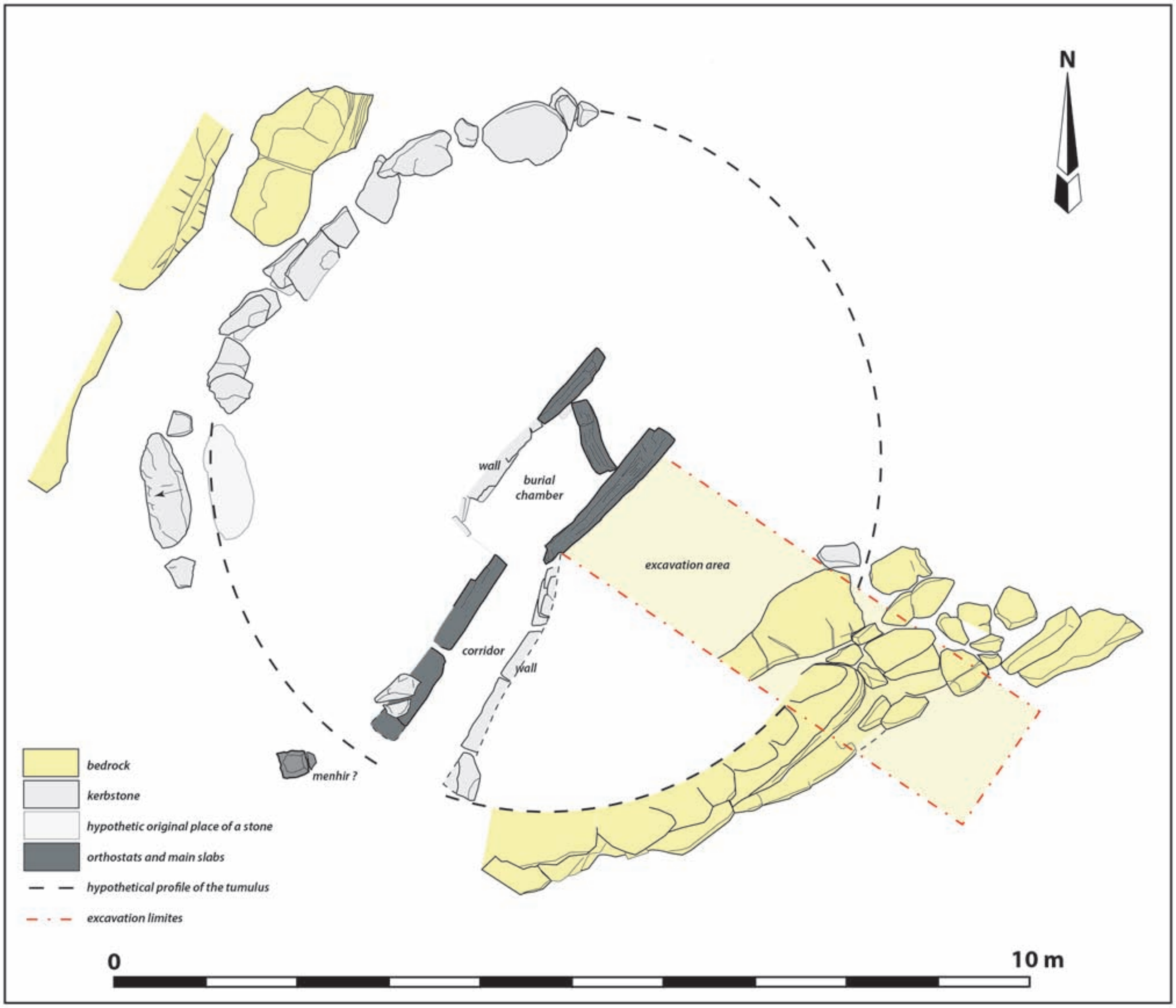


Fig. 3.5: Dolmen of Caissa dels Morts II (southern France), general plan

found several slabs in the chamber which could have belonged to the previous covering slab. The passage is bordered to the west by two megalithic stones and to the east by a dry stone wall. Highlighting the entrance to the west is a 1m high slab, carefully pecked on one of its faces (see Fig. 3.8). This seems to be a menhir. A section was cut in order to determine whether it belonged to the monument or if it was placed in front of it. No holes or packing stones have been observed surrounding this "menhir": it seems to be resting on natural soil. In addition, in this region no menhirs have been found in association with a dolmen; hence it is more probable that it is a modern addition.

The tumulus, which is circular, is edged on the west and north sides by paving stones (Fig. 3.5): it is difficult to determine their limits due to the presence of karst that masked the majority of the material. On the east and south sides, the tumulus appeared to be built from four long paving stones that constituted a monumental wall. But after excavation, this proved to be bedrock that had naturally disintegrated into long paving stones (Fig. 3.6). This may provide the reason why builders probably established the monument in this place. It was easier to build on terraced bedrock as it requires less building material, and consequently less energy. In the trench we could also see a stone bank against the orthostat. All the stones have the same orientation and wedge the orthostat into position as at the dolmen of Mas de Reinhardt II (Fig. 3.7). Together, the terraced bedrock and the stone tumulus placed on it give a deceptive, almost trompe l'œil, effect of monumentality.

Very little archaeological material was found in the dolmen except for several vessel fragments. A dozen teeth unearthed in the burial chamber allowed us to identify

Fig. 3.6: Dolmen of Caissa dels Morts II, excavation of the tumulus showing stepped bedrock

Fig. 3.7: Dolmen of Caissa dels Morts II, stratigraphic section through the tumulus

Fig. 3.8: Dolmen of Caissa dels Morts II, chamber and passage access from the south-west

two interred individuals, including a child over four years old. Unfortunately, due to the lack of additional bones no observations can be made about the population (Leroy, rapport d'étude anthropologique, 2012). Radiocarbon dating was carried out on a tooth (Poz-51288: 4360±40 BP, 3038–2900 cal BC, 2s, OxCal 4.2.3), allowing us to date that use of the burial chamber to the late Neolithic.

Function of mound structures: between monumentalisation and stability

With these two examples, we start to see the construction processes underlying megalithic monuments, in particular the spatial organisation and relationships between the different architectural components. We can say that the choice of the location depends on the morphology of the bedrock. It was used in order to monumentalise the tomb structure and also to stabilise it. A megalithic monument is therefore a complex but rational construction. According to the relative chronology accepted today, the use of Languedoc dolmens begins in the late Neolithic, around 3000 BC. Our ongoing research programme aims to provide more precise details of the chronology of the construction of dolmens in the Languedoc area by continuing the study of many other megalithic burials.

References

Arnal, J. 1963. *Les dolmens du département de l'Hérault. Préhistoire* T. XV. Presses Universitaires de France: Paris.

Audibert, J. and Boudou, J. 1955. Une vallée à l'énéolithique. *Cahiers Ligures de Préhistoire et d'Archéologie* 4, pp. 93–96.

Bec Drelon, N. forthcoming. *Autour du coffre: dispositifs et aménagements des monuments funéraires mégalithiques en Languedoc et en Roussillon (IVe/IIe millénaires)*. Thèse de doctorat, Laboratoire Méditerranéen de Préhistoire Europe Afrique, Université d'Aix Marseille I.

4

Megalithic constructional techniques in north-west France: cairn III at Prissé-la-Charrière

Florian Cousseau

Abstract

Independent circular cairns have been observed since the 19th century within long quadrangular mounds. These cairns, called rotundas since 1936 in Great Britain, are present in the west of France but have been little studied. Given the methods and knowledge available at the time, their original discovery did not lead to comprehensive architectural studies. In 2001, a rotunda was unearthed in tumulus C of Péré at Prissé-la-Charrière, allowing us to return to the issues concerning rotundas: how were they built; to what degree were they autonomous in relation to the covering monument; and what might have been their morphology? Since 2007, a methodology developed for historical architecture has been used in the excavation of tumulus C: "building archaeology". It allows us to deconstruct the monument, establishing its construction sequences, and understand the intentions and the technical quality of the builders. This data is used to better understand the chronology of the monument, the objectives of its construction, and to reconstruct its original morphology, in order to establish its autonomy from the long mound that encloses it.

Keywords: constructional techniques, western France, building archaeology, circular cairn, 3D reconstruction

Introduction

Péré Tumulus C at Prissé-la-Charrière (Deux-Sèvres) in western France is a long mound, 100m long and 20m wide (Laporte *et al.* 2002a; 2006) (Fig. 4.1). As explained elsewhere in this volume (Laporte), the construction of the long tumulus covered two monuments. At its centre, the long tumulus incorporates a circular cairn, 8m in diameter, called cairn III. This contains a passage grave with an entrance on the northern side that – until its recent discovery – had not been entered since the Neolithic. It provides a unique case of a square chamber 1.80m across built of dry stone walling.

An independent circular cairn included in a long quadrangular mound was called a rotunda for the first time by Elsie Margaret Clifford in the publication of the monument of Notgrove, England (Clifford 1936). The definition is based on the exterior: it must have an oval or circular cairn that has been included in a long, quadrangular mound. Internally, a rotunda can contain a passage grave or a cist (Mullin unpublished) but Darvill includes only monuments with a cist (Darvill 2004).

Since the 1930s, the principal question concerning rotundas is whether they were a part of the original architectural design of the mound, or were independently built and then included in the long barrow. This must be dealt with on a case-by-case basis, studying the integration of the cairn in the surrounding mound, and the elevations of the circular cairn and the walls of the monument that surround it. It allows us to recognise the sequences of construction, to understand the techniques used, and to reconstruct the cairn's original morphology.

This study has been undertaken for cairn III in Péré tumulus C at Prissé-la-Charrière. The elevations of tumulus C have been studied using the "building archaeology"

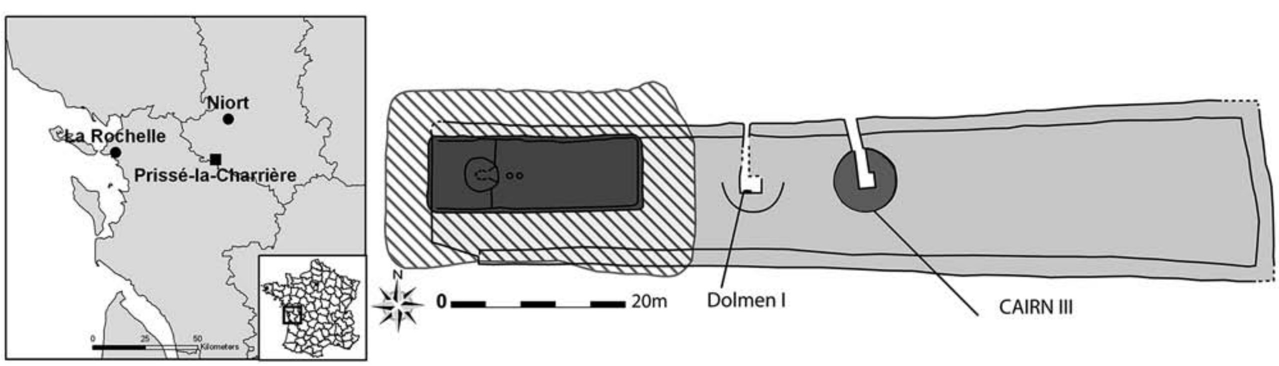


Fig. 4.1: Location and plan of Péré tumulus C at Prissé-la-Charrière (Deux-Sèvres). (Plan from Scarre et al. *2003)*

methodology, more usually employed for the historic period, and applied to megaliths for the first time by Luc Laporte in collaboration with Isabelle Parron (Laporte *et al.* 2014).

New approaches to megalithic architecture

In western France, the focus of studies of megalithic architecture changed in the 1950s. In 1955, the pair of monuments at Barnenez (Plouezoc'h, Finistère) was damaged by quarry-workers, and P. R. Giot decided to study the southern, better preserved structure (Giot 1987). First, the chambers were researched and excavated. Then Giot, and the architect in charge of the consolidation, decided to uncover the complete plan, in order to restore the monument entirely: two phases with different morphologies were found. At Barnenez, for the first time in western France, studies of the external stone facings were undertaken to determine the general plan of the monument.

Interest in the internal structure of these mounds behind the facing began in the 1970s and 1980s, in particular with the work on the monuments of the necropolis of Champ-Châlon (Benon, Charente-Maritime) and Bougon (Deux-Sèvres) (Joussaume *et al.* 2006; Mohen and Scarre 2002). Within the mounds, architectural sequences of construction began to be recognised.

The complete excavation of Péré tumulus C at Prissé-la-Charrière revealed an internal structure complex in terms of its elevation, with a network of dense and regular walls. To have a good understanding of these networks in both plan and elevation, a new methodology was needed. Since the 1980s, a recognised methodology called "building archaeology", has existed for historic buildings (Parron and Reveyron 2005). The successful adaptation of this methodology to megaliths and dry stone walling led to new research to extend its application (Laporte *et al*. 2008; 2010; Parron and Laporte 2010).

The process begins with documentary research, comparing new data with old representations or recordings. It permits us, for example, to define conserved facings on a restored wall, and to study or reconstruct the volume that may have been destroyed by excavation or restoration. Then, an exploration of the visible facings is carried out: a detailed observation is recorded. Sections or construction units are determined via: ruptures in the walls; differences of masonry; of profile; of the geological nature of the materials; or of fracture of the stones. Although the definition of the sections has an intuitive aspect, some test excavations in the mass behind the facings can assist their recognition. From these different records, the sequence of construction of the monument can then be defined. This process gives us access to the nature of the original architectural project – to its volume, its mode of construction, its integration in the landscape, and to the morphology desired. Additionally, we can access the management of the construction, including the human and material resources necessary to build an organised architectural structure. For historic periods, "building archaeology", provided a methodology which studies the complete monument, whereas stylistic analyses used by architects and art historians comprehended the edifice through its decorated features. Chronologies of monuments were mostly based on the latter, and have been totally redefined by the arrival of "building archaeology".

The vocabulary used in France for megalithic building recording is based on that for classical architecture (Perouse de Montclos 2011), and from different of various dry stone construction manuals and inventories of vernacular architecture (Lassure online; Lassure and Repérant 2006; CAPEB 2008; Cagin and Nicolas 2008; Lassure 2008). Some definitions have been modified to correspond to megalithic construction (Laporte *et al*. 2014). According to this vocabulary, most of the walls present inside the megalithic monuments are *retaining walls*: they retain a mass of earth and/or stones behind them. Among the stones used, we can distinguish *facing stones* that block infill behind them. *Pins* wedge the building stones in place. In the stones which form the courses, two categories exist: *throughstones* where the long axis of the stone extends inside the mound, running perpendicular to the face; and *tracers* where the long axis is visible in the facing. Throughstones and tracers that alternate at a corner between two walls build a *quoin*. Some *running joints* are visible on the facings. Marked by a succession of aligned vertical joints, they are often clues to the construction method as they mark a quoin or a vertical stop in construction. Courses of *stabilization* or *copestones* can be identified by the presence of large blocks marking a horizontal break in construction. The profile of the walls may be vertical, but when an inclination occurs this is called *batter*. The batter is reversed when the top of the wall overhangs the base.

3D tools help to deal with the elevations. 3D scans and numerical photogrammetry permit us to increase the time and the complexity of the drawing of such irregular architecture. Numerical photogrammetry is particularly useful for its simplicity. The software has an algorithm to recognise matching points between two photos and, with these points, it can give coordinates for the position of the camera for each photo (Hartley and Zisserman 2004). With a batch of photos that entirely cover the monument from different angles and heights, and a 40–60% overlap between each photo, the software creates a pointcloud. This is then transformed to a mesh. With a 3D scan, the pointcloud is produced directly by the scanner. With it – or with the mesh – it is possible to produce orthophotos, cross-sections, or complete plans of the monument. 3D modelling with a computer graphics designer, based on the models acquired, offers a 3D vision, enabling us to test sequences of construction; to restore to the monument its lost volume; to place the monument in its landscape (if known); and to see the monument from different points of view. 3D modelling is also a powerful tool for presentation.

Studying the building of cairn III

The first step was to update the drawing of the external wall of cairn III from the excavation, and to draw the internal walls. Then sections on the drawing were highlighted according to the masonries: the sizes of the blocks, and the dimensions of the gaps between them. The profiles of the wall and the breaks of the stones also played a role in the definition of some sections. The south-eastern part of cairn III could not be observed as the walls of the long tumulus hide the external facing.

The passage and chamber interior

The chamber and the passage were built on the bedrock, whilst the rest of the monument rests on a layer of earth. The chamber is currently 1.50m high internally, covered by a capstone 38cm thick. The east wall of the passage continues into the chamber with a quoin at the junction to form the north wall with which it is continuous. The remainder of the chamber is formed by the east, west, and south walls. Overall, the east and the west walls are composed of larger slabs than the south and north wall (Fig. 4.2).

Each of the internal elements begins with foundations (C1-P1) that are composed of two courses of large blocks and measure 30cm high (Fig. 4.3). The section above (C2) rises to 80cm, with slabs of medium size in a regular masonry. At the angles, there is no quoin: the walls are built resting against each other. An order of construction can be observed. In C2, the eastern wall continues into the mass of the cairn at each side. The south wall rests against the eastern wall, and continues west into the mass. The C2 section of the west wall butts up against the south wall and also against the west wall of the passage. The next overlying section (C3) is composed of regular masonry, but the sizes of the stones differ in the different walls. The western wall is largely collapsed. In C3, the chamber still has no quoins: the walls are not tied together at the corners. The west wall butts up against the west wall of the passage and continues to the south into the fill. The south wall rests against the west wall and continues to the east. To finish, the east wall has been built between and up against the north and south walls. The top of this section is 1.30m high. The uppermost section which completes the chamber (C4) is 20cm high and is composed of two or three courses. This section is peculiar as, at the corners, the continuous courses cut the angles of the previous square plan to give it an octagonal form.

In the passage, three sections have been observed. These sections continue in the external facing and the north wall of the chamber with quoins at the angles. The width of the passage reduces as it progresses, from 1.50m at the entrance to 40cm at the junction between the passage and chamber. The first section (P1) is a foundation similar to C1 but is not present in the external facing. The second section (P2) rises 1.30m from the ground. It is formed from very regular masonry of large slabs and a vertical profile. This section, at the north wall of the chamber, butts up against the east wall of

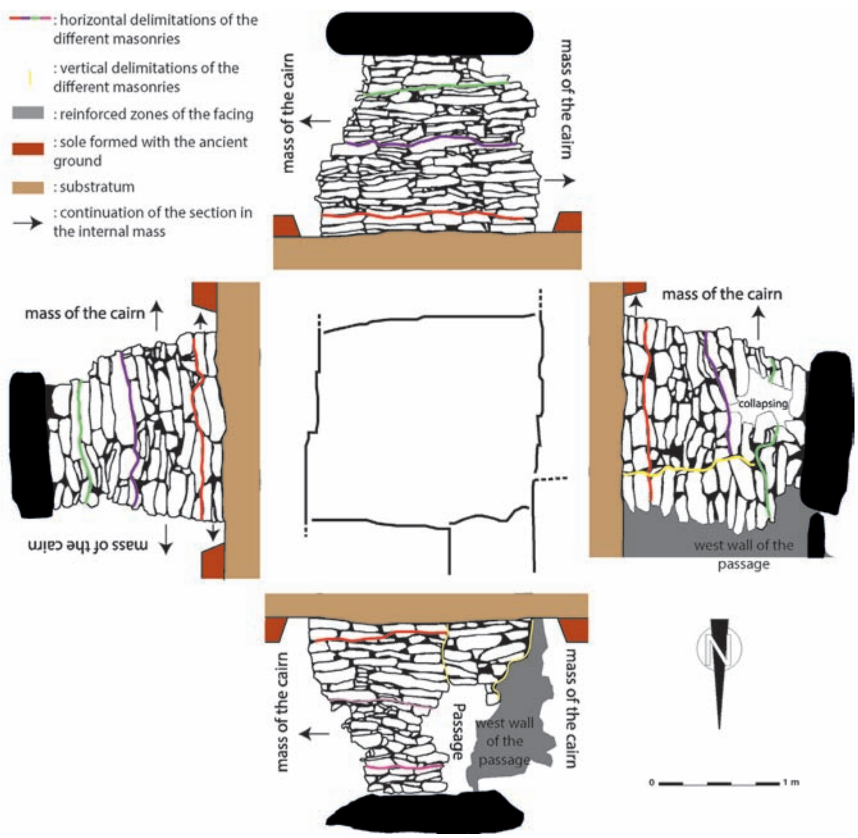


Fig. 4.2: Masonry of the chamber based on an orthophoto by Perazio

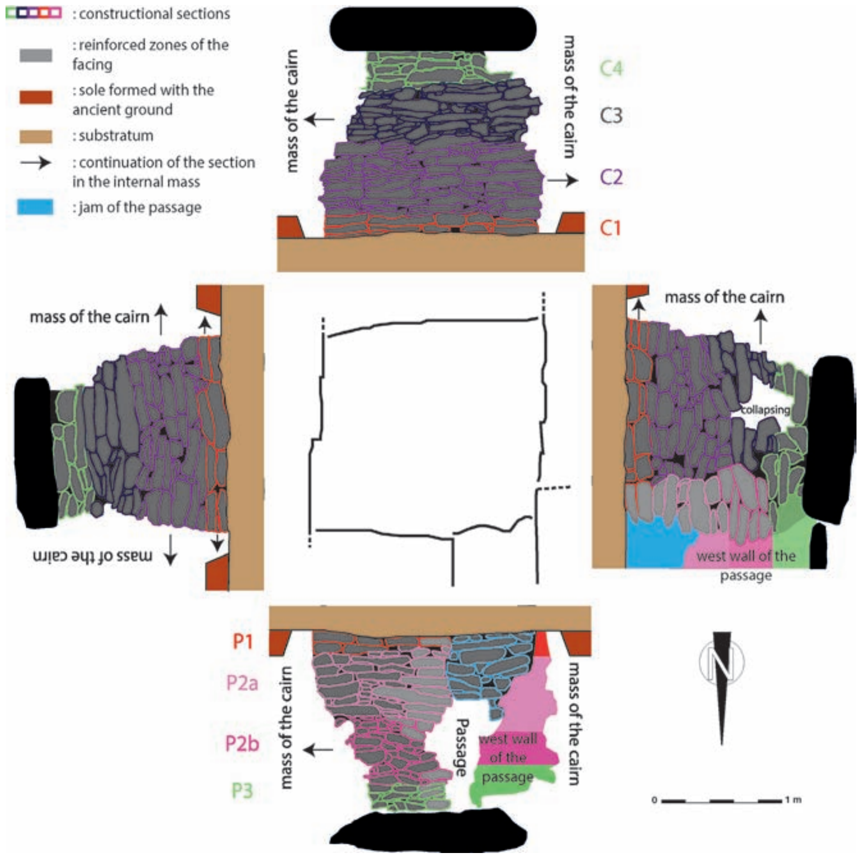


Fig. 4.3: Recording of the sections of the walls of the chamber based on an orthophoto by Perazio

the chamber and oversails it. The section can be divided in two parts (P2a-P2b) at around 80cm high, as the masonry differs between them and a running joint in the external wall stops at this height. The third and last section (P3a), is 30cm high and is composed of massive elongated slabs. Each course is laid projecting over the previous one. This corbelling technique provides better support for the capstones, as the reversed batter is increasingly strengthened over the chamber. The capstones of the passage have been included in this section. To the west, the junction between P3 and C3 has collapsed. In the outer part of the passage, from 1.60m, section (P3b) continues upwards, and must have covered the capstones. With its width and the change of profile at P3, the passage clearly narrows as it leads to the chamber.

External facing of the circular cairn

During recording, six sections were identified in the external facing of the cairn beyond those parts directly linked to the passage (Fig. 4.4). There are no foundation courses for this facing, but a layer of earth, 20–30cm thick, was observed during the excavation under the facing (Scarre *et al.* 2003). This layer represents the level to which the old ground surface was scraped before the construction of the monument: it was taken down to the bedrock only for the chamber and the passage.

The top of the first section (E1) is about 1.30m high. Two vertical running joints are visible in this section, and two more where it makes contact with the entrance. These running joints mark quoins with a wall that continues back inside the internal structure of the cairn. The construction between them is homogenous with very regular masonry composed of elongated slabs, except to the south where some blocks (less elongated than the slabs) are present. This section has a vertical profile near the passage to the north. Then a batter begins, reaching 20° in the south. The section can be separated into two parts (E1) at a height of 80cm by a difference in the profile of the running joints: the stones are also bigger in the upper part.

The upper section (E2), 60cm high, is composed of slabs and thin elongated stones. It is capped by a stabilization course. The stones are different in the southern part: heavier and thicker. The courses are regular and are interrupted by running joints extending the full height of this section. These ruptures mark the limits between different portions of this facing, but in plan it is more circular than E1 and in profile has a more pronounced batter, although with the same difference between the northern and southern parts.

The third section (E3) is 30cm high, and is composed of regular courses of thick and elongated stones, largely broken. Its plan is circular and no rupture was visible: the masonry

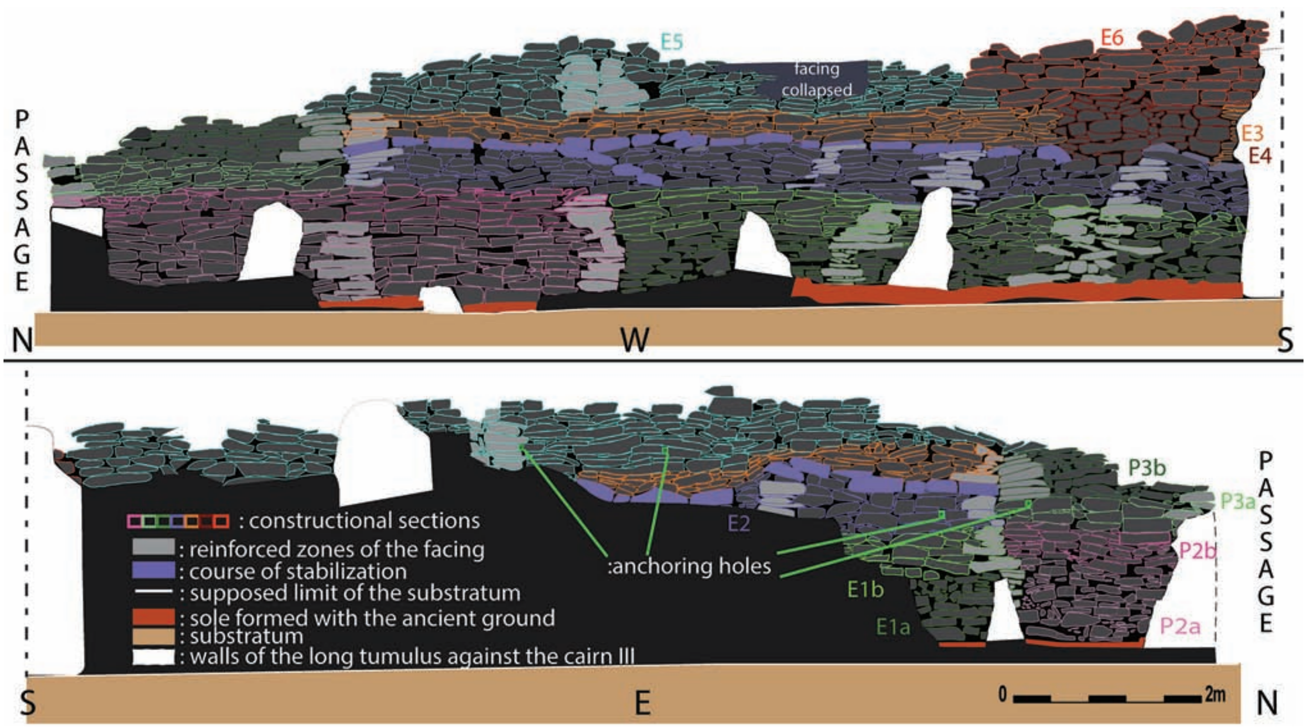


Fig. 4.4: Recording of the masonry and the sections of the external facing. (Updated from a drawing by Dora Kemp)

was built continuously. E3 signals the interface between the drum and the beginning of the circular roof via a sole. This absorbed the movement of the roof after construction when the thick stones broke. E3 is visible on above the capstone: it slopes from the capstone of the chamber where it is the highest to the facing.

Another section (E4) cuts E3 and slightly cuts the top of E2 at the southern part of the facing. The stones are heavy and the masonry is irregular, with many spaces between the stones. It looks like a rough infill to fill a collapsed zone.

The uppermost part of the cairn consist of a dome covering the chamber capstone. The only preserved section (E5) of the dome has a maximum height of 60cm in the western part. Running joints are visible with the adjoining stones reinforced. These joints define portions of facing, each of which has its own type of masonry. One portion presents regular masonry with large blocks, while the next is irregular with thick and elongated stones. The profile of this section has a strong batter to begin the cover of the cairn.

Section E6 is present in the southern part of the cairn and cuts E5. It is composed of three to four regular courses of heavy slabs, based on E4 but also on the courses of E5. This section is linked with E4 and both were built together.

Anchoring holes have been identified in the facing of cairn III (Laporte *et al.* 2008). Each is defined by two elongated slabs, one forming a lintel, and the other a base. Two other stones form the sides. There are four of these in the eastern part of the cairn. The pair closest to the passage are at 1.40m high, and the other pair – farther to the south – are at 1.60m. Pieces of wood could have been placed in these anchoring holes that may be the negatives of scaffolding, or simply a decorative feature.

The sequence of construction

From this information a detailed sequence of construction can be deduced. The first stage was to prepare the base of the cairn and its foundation (Fig. 4.5). The builders removed the soil down to the bedrock in the area of the passage and the chamber. For the rest of the cairn, a layer of soil was left in place. This layer of soil was also discovered below Champ-Châlon A, C, D and the tumulus des Moindreaux (Joussaume *et al.* 2006). Its extent (after removal of topsoil) indicated the future placement of the cairn on the ground. It also absorbed the movements of the monument after its construction.

The foundation courses were built after the surface preparation was completed, and laid out the plan of the internal framework. Similarly, the plan of the monument of Pey-de-Fontaine at Le Bernard (Vendée) was marked on the ground by courses in white limestone (Joussaume 1999). The chamber of cairn III was completed entirely in dry stone, without masonry reinforcement at the corners: one wall leans against another. Furthermore, some sections of the walls continue into the internal mass of the cairn. Each wall works like a block. The resulting plan gives the appearance of

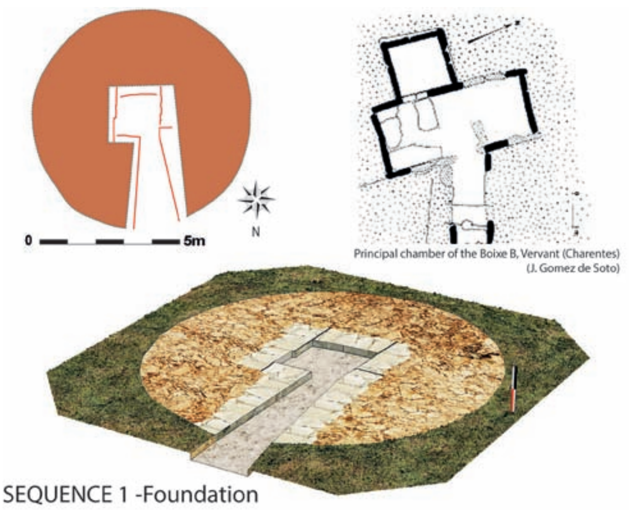


Fig. 4.5 Foundation stage of cairn III. (Plan of La Boixe B from Gomez de Soto, 1990; 3D modelling: Yann Bernard-CNPAO)

a chamber built with stone slabs, like the principal chamber of La Boixe B (Gomez de Soto 1990). Each slab leans against another. While the construction methods are different, the final plans are very similar.

The second stage began the drum of cairn III, with the construction of sections C2, P2a and E1a, to a height of 80cm (Fig. 4.6). Work began with the east part of the cairn, then the south. Simultaneously, the north-west quarter was built, forming the west wall of the passage. A space remained empty between this quarter and the south part. The work finished with the filling of this space, corresponding to section C2 of the west wall of the chamber. This space could have served as temporary access to the chamber during this stage. Section P2a, including the east wall of the passage, may have been

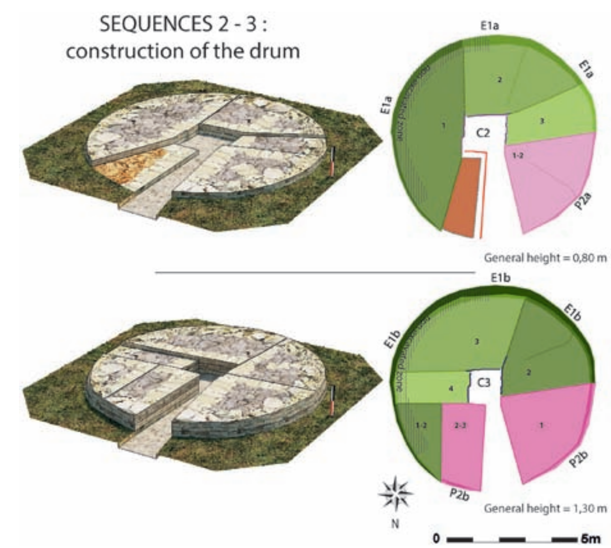


Fig. 4.6: Stages 2–3, construction of the drum. (3D modelling: Yann Bernard-CNPAO).

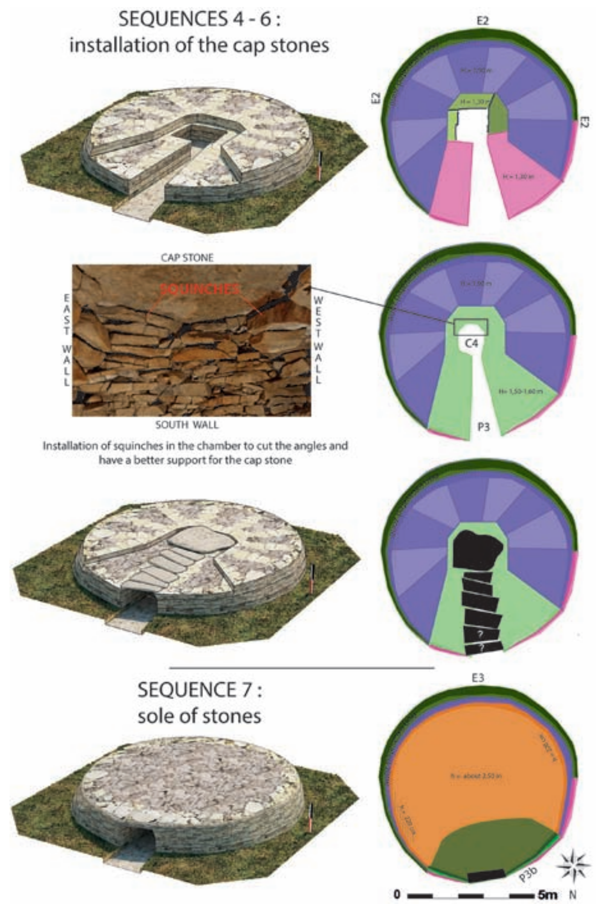


Fig.4.7: Stages 4–6, installation of the capstones. (3D modelling: Yann Bernard-CNPAO).

built during this stage.

The third stage continued construction of the drum to 1.30m high with sections C3, P2b and E1b. Unlike the second stage, they began with the northwest quarter, then the south-west and the south-east. The northeast part was built in two parts: first the area composed from section E1b; and then P2b, with the east wall of the passage. P2a could have been realised simultaneously with P2b. If they were built together, the passage must have been wider and was narrowed only at the end of this phase, meaning that the access to the chamber could have been easier. To finish this stage, the builders filled the space between the southeast and the north-east sections. We can see that the order of construction of the two last stages was reversed, strengthening the corners of the chamber.

The fourth stage began the installation of the capstones (Fig. 4.7) within the section E2, 1.90m high. The running joints showed two stages in the construction of E2. First, portions with facings were completed, then the spaces between them

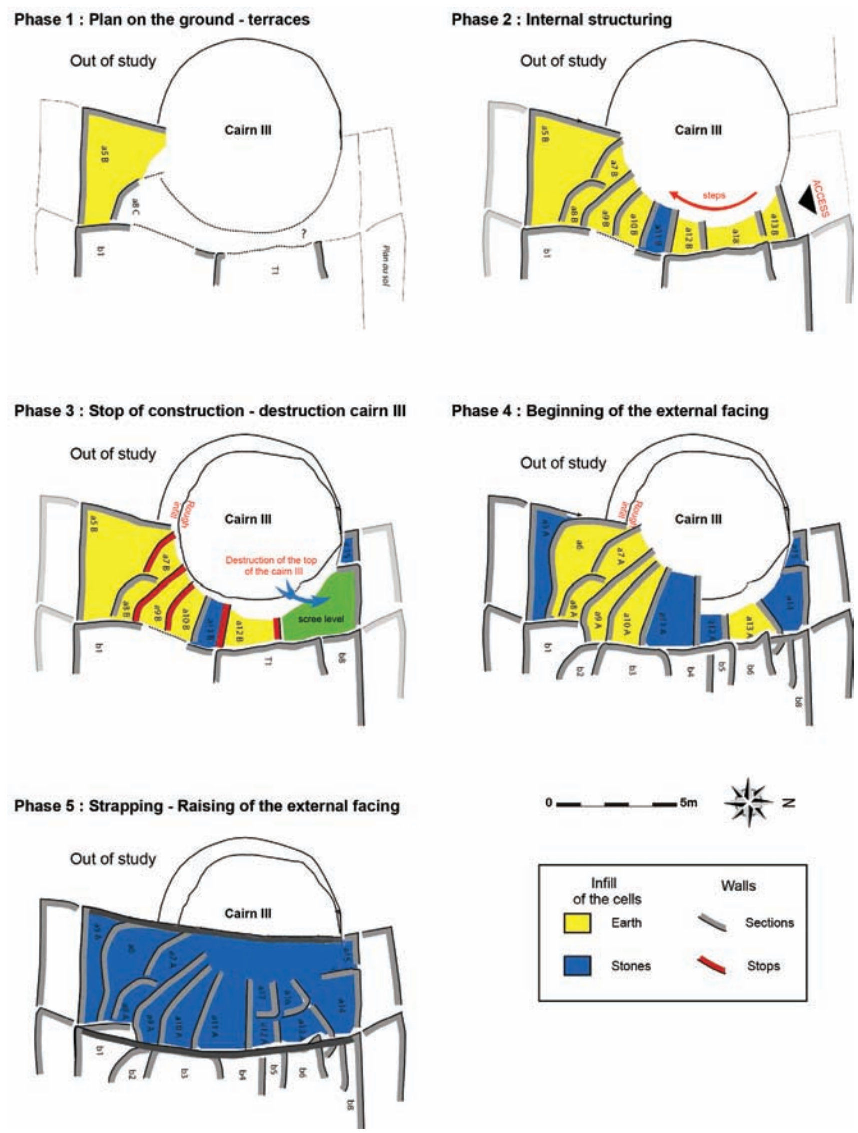


Fig. 4.8: Phases of construction of tumulus C around cairn III

were filled, in a radiant technique. E2 did not extend as far as the entrance, so an empty space was left above sections P2b and C3.

The fifth step was to fill this empty space with sections P3a and C4, rising to between 1.50–1.60m, which seem to have been built continuously. They served as support for the capstones, each using a specific constructional technique to provide this support. P3 uses the technique of corbelling to narrow the upper part of the passage in order to create a larger area of surface contact between P3 and the capstones. With the same goal, C4 cuts the angles of the chamber to give an octagonal plan at the top. Known in classical architecture, this technique is used to pass from a square plan to a circular plan to build a cupola with squinches.

Then for the sixth stage, the capstones were laid on sections P3a and C4. Only the four capstones on passage closest to the one of the chamber were seen during the excavation. The two others added on the draw are supposed and could never have existed.

The roof was started in the seventh stage. The monument was covered by the third section of external facing (E3), except for the north façade, which was covered by P3b. This section slopes from the centre, 60cm above the chambers' capstone, to the external facing, where it is 30cm thick. It is located at the interface between the base of the monument and the dome. It is composed of long, very thin stones, all of which are broken. We can interpret this as a seating that absorbed the movements of the roof after its construction. Any movements of the overlying structure were wedged in place by this component. The basal soil layer played the same role, showing that the builders anticipated some settlement of the cairn, and were able to guarantee longevity for the monument. Part of the drum of the cairn survives but is visible in section E5.

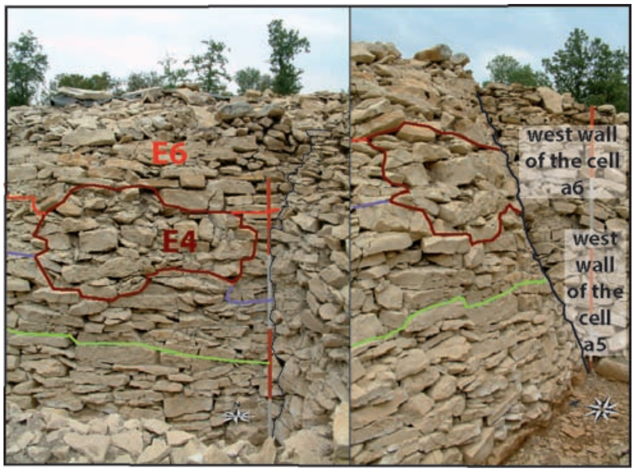


Fig. 4.9: Rough infill in the southern part of cairn III. (Photo: C. Scarre).

The excavations and the study of the building phases around this circular cairn within tumulus C give us some information about the original covering (Fig. 4.8). Five phases have been identified on the east side of the cairn: the western side lies outside this study (Laporte *et al*. 2014). The two sides can be isolated as they were built separately. The first stage saw the construction of the foundations, marking the ground plan. In the same phase, the first sections of terracing were built. In the second phase, the northern part of the long cairn provides access from the north to the top via the construction of steps consisting of sections of differing heights. The southern part contains a system of cells. Phase 3 corresponds to a break in construction materialised by stabilisation courses on most of the sections. In the north part above the steps an extensive deposit of scree was present, resulting from the destruction of the original covering of cairn III. This layer of scree separates two sections (A and B) of the north wall of a13, although both parts retain a similar layout. The destruction lowered the top of cairn III to bring it in line with the overall morphology of tumulus C. Only on the north-east has this layer been revealed but we can suppose that it was also present on the west. The fourth phase saw the continued construction of tumulus C with a system of cells on each side of a platform (a11) that occupied the summit of the cairn. The external facing of the long tumulus was built, with an infill of stone behind it to consolidate it. The final phase raised the external facing, and stabilised the internal mass of the tumulus with a network of sections filled with stones. This network partially overlay the upper part of the rotunda in order to conceal it. The objective was to mask the presence of cairn III as a separate structure and to create a uniform morphology for the long cairn.

Cairn III: the extent of its autonomy

The techniques of construction observed during this study show that the northern façade of cairn III was highlighted by the builders. Indeed, the entrance sections of the external wall and the passage were built at the same time, to give them coherence. Furthermore, the difference in the angle of batter between the northern and southern façades reveals that the covering of the cairn must have been built off-centre toward the entrance. However, as we have seen, during the construction of tumulus C, the builders destroyed the top of cairn III to align it to the morphology of the tumulus. They also partially covered cairn III during the final phase to hide it. Thus there is a contradiction between the techniques of construction of cairn III, and those of the long tumulus C. The builders do not seem to have had the same intentions.

The rough infill of stone in the southern part of the external wall, composed of section E4, restored a collapse zone (Fig. 4.9). Then section E6 covered it with massive and regular stone courses to block it. The west wall of cell a6, phase 4, of the long tumulus leans on the external wall of cairn III (Fig. 4.8). In particular, the section which covers the rough infill (E6) is the support of the wall of the cell. So section E6 was built before phase 4 of the long tumulus. We can suppose that this restoration must have been done during phase III of the construction of the long tumulus, at the same time as the destruction of the cover of the circular cairn. The reasons for the collapse perhaps give some clues about the chronology of the circular cairn. In the life of a dry stone construction, a collapse either happens due to the action of time or humans, but it happens in an empty environment. For the former, internal pressures within the monument are increased by vegetation and frost, degrading the stones over time. If an area is particularly sensitive to these actions due to an inherent weakness, with time it collapses. Human activity on or around cairn III can also accelerate a collapse on a monument damaged by time. However, if the collapse occurred naturally, that implies a long length of time between the two constructions. A collapse could also occur even if the monument was only built shortly before, but this would mean that the circular cairn had been quickly covered and protected from natural damage by the long tumulus. In this regard, the fractures of the stones of the circular cairn are more marked than those of the long tumulus. The exposure to the weather at the circular cairn was much longer than that of the walls of tumulus C. On a recently built monument, only human activity could trigger a collapse. The one known action is the destruction of the cover in phase III, where control could have been lost. This argues for the difference in intentions between the builders: the first wanted to highlight the northern façade, and the second to hide the whole cairn III.

These elements argue that cairn III is a rotunda, built as an independent architectural project before that of the long tumulus. Supporting this, the possible scaffolding identified could overlap with the stairs to give access to the top of the cairn.

The morphology of the destroyed covering, and of the general monument, can now be discussed (Fig. 4.10). However, we currently have no access to any rotunda that is completely preserved in height. René Galles, during the excavation of the tumulus of Moustoir-Carnac, found a rotunda that appeared to have been completely preserved (Galles 1864). The longitudinal trench cut in the middle of the tumulus gave him a complete profile of the height of the rotunda. R. Pocard-Kerviler du Cozker painted it with a lightly pointed circular arch profile. This was the only rotunda uncovered with its total height remaining. A rotunda is also present in the Tumulus Saint-Michel, discovered during the excavation by Zacharie Le Rouzic (1932). The drawing done then shows a monument with a semi-spherical morphology, but according to the associated text only the base of the external facing was observed. The top is hypothetical, and most likely inspired by the work of René Galles at Moustoir-Carnac.

For cairn III, the function of the sole in section E3, and the level of scree present in the northern part of the cairn, argue for a massive cover. Furthermore, the conserved batter of this cover in section E6 implies that the facing continues higher. So, on the base of the profile drawn for the rotunda of Moustoir-Carnac, we can propose three reconstructions of the cover of cairn III. For all, it is not centrally placed on the monument, the profile is more vertical at the north, with a strong batter at the south, moving the dome from the centre to the north. According to the profile of the cairn, the cover should therefore measure between four to five meters in height. The three different profiles for the cover are: firstly, the lightly pointed circular profile, as drawn at Moustoir-Carnac; secondly, a circular more arched, so that it is higher; and third, a profile with a ruptured slope and a more conical roof. The dry stone huts of vernacular architecture present plans and elevations which are similar to those of the rotundas. Furthermore, the techniques used for both types of architecture are very similar, despite the difference in age between them. The dry stone huts demonstrate wide diversity in the forms of cover, and those discussed are visible.

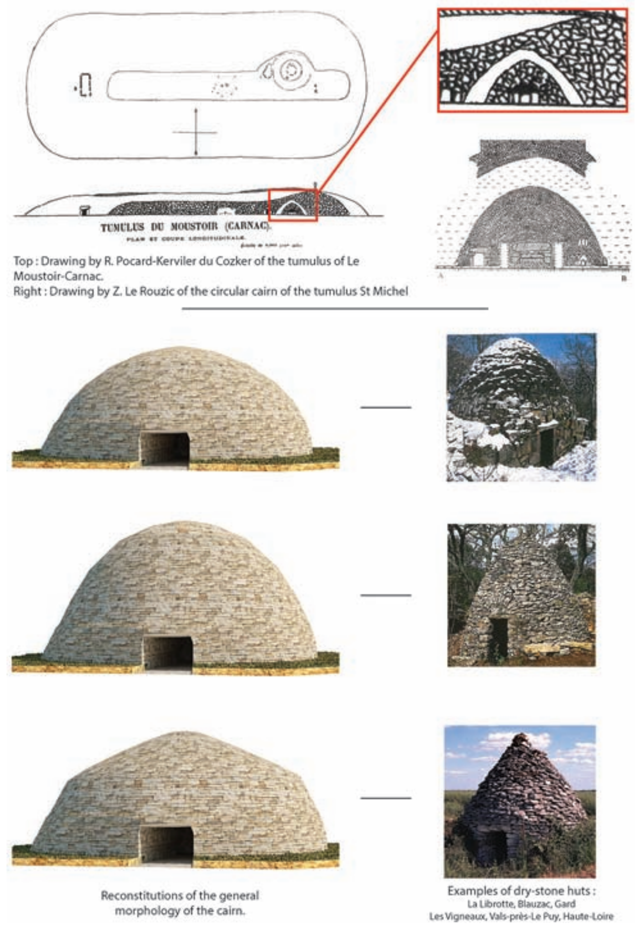


Fig. 4.10: Hypothetical reconstructions for cairn III. (Drawing of Le Moustoir from Galles 1864, and Tumulus de St Michel from Le Rouzic 1932; 3D modelling: Yann Bernard-CNPAO; photos: C. Lassure and D. Reperant 2007)

Conclusion

"Building archaeology" allows us to comprehend the phases and sequences of construction, and the techniques used by the builders of cairn III. Through these elements, we can see their interests, their technical skills, and their organisational abilities. The construction of the circular cairn was achieved through a succession of stages: the first marks the plan on the ground; the second and the third provide, via construction in quarters, two means of access to the chamber during the work. The fifth used corbelling in building the upper part of the passage, and techniques like squinches for the chamber: both give good support to the capstones. Some actions are more complex and show the builders possessed the knowledge to make the cairn more durable. These include the layers of earth and stone in the first and seventh stages. The earth provided a cushion to offset the movements of the building after construction, and the slope of section E3 evacuates water.

The builders of cairn III had different intentions to those who built the long tumulus. The latter highlighted the north façade, giving it a vertical profile and locating from the covering of the cairn off-centre towards the north. We can suppose that primary direction of approach to cairn III was from the north. The passage to the chamber was narrowed, making it similar to a cave. The builders of the long tumulus wanted to hide cairn III, incorporating it in the general morphology of tumulus C. The projects were different, and the infill discovered argues for a lengthy time interval between the end of the first project and the beginning of the second. In spite of the very small number of monuments preserved to their full height, we can propose a reconstruction of the general morphology of cairn III before its integration into the long tumulus. This is based on the drawings of the well preserved rotunda of Moustoir-Carnac, and is supported by the batter of cairn III, the presence of the basal soil layer, and the scree deposit. The covering may have had an arched, semi-spherical or conical form, and its height would have been between four and five metres. The dating of the rotunda is unknown: only new excavations could provide this. Given the time elapsed between the two constructions, cairn III predates the long tumulus. The latter is dated to the third quarter of the 5th millennium. The rotunda could therefore be dated at the first part of the 5th millennium. The circular plan is also present in early Neolithic settlements in south-west France, including les Ouchettes which is dated to the second and third quarter of the 5th millennium (Laporte *et al.* 2002b). A possible affiliation between these domestic plans and the circular cairns has been discussed elsewhere (Laporte and Marchand 2004; Laporte this volume). Could we also suppose that the elevations of both were constructed in the same pattern? The application of "building archaeology" must be extended to other monuments which contain or could contain rotunda, even if they have already been studied, to provide new data about their form and sequence.*

References

Cagin, L. and Nicolas, L. 2008. *Construire en pierre sèche*. Eyrolles: Paris.

CAPEB. 2008. *Pierre sèche: guide de bonnes pratiques de construction de murs de soutènement*. École Nationale des Travaux Publics de l'État: Lyon.

Clifford, E. M. C. 1936. Notgrove long barrow, Gloucestershire. *Archaeologia* 86, pp. 119–162.

Darvill, T. 2004. *Long Barrows of the Cotswolds and Surrounding Areas.* Tempus: Stroud.

Galles, R. 1864. Fouilles du tumulus du Moustoir-Carnac. *Bulletin de la Société Polymathique du Morbihan 1864*, pp. 117–25.

Giot, P. R. 1987. *Barnenez, Carn, Guennoc*. Travaux du Laboratoire d'Anthropologie. Rennes

Gomez de Soto, J. 1990. Monument B de la nécropole de la Boixe. *Mégalithisme et Société*, p. 61.

Hartley, R. and Zisserman, A. 2004. *Multiple View Geometry in Computer Vision* (2nd edn). Cambridge University Press: Cambridge.

Joussaume, R., Cadot, R. and Gilbert, J. M. 2006. Les tumulus de Champ-Châlon à Benon Charente-Maritime. *Bulletin du GVEP* 42, pp. 1–90.

Laporte, L. 2010. Restauration, reconstruction, appropriation; évolution des architectures mégalithiques dans l'Ouest de la France, entre passé et present. In: Fernandez Eraso, J. and Mujika Alustiza, J. A. (eds) *Megalitismo y otras manifestaciones funerarias contemporáneas en su contexto social, económicio y cultural. Munibe* Suplemento 32, pp. 14–43.

Laporte, L., Joussaume, R. and Scarre, C. 2002a. le tumulus C de Péré à Prissé-la-Charrière (Deux-Sèvres): état des recherches après 6 années d'intervention. *Gallia Préhistoire* 44, pp. 167–214.

Laporte, L., Joussaume, R. and Scarre, C. 2006. Le tumulus C de Péré à Prissé-la-Charrière (Deux-Sèvres). In: Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et développement du mégalithisme de l'ouest de l'Europe*. Musée des tumulus de Bougon: Bougon, pp. 365–368.

Laporte, L., Marchand, G. and Quesnel, L. 2004. Une structure d'habitat circulaire dans le Néolithique ancien du Centre-Ouest de la France. *Bulletin de la Société Préhistorique Française* 101(1), pp. 55–73.

Laporte, L., Picq, C., Oberlin, C., Fabre, L., Marambat, L., Gruet, Y. and Marchand, G. 2002b. Les occupations du Ve millénaire avant J.C. et la question du Néolithique ancien sur la façade atlantique de la France. *Gallia Préhistoire* 44, pp. 27–86.

Laporte, L., Soler, L., Kerdivel, G., Dartois, V., Cathlin, C., Cadot, R., Deguilloux, M.-F., Pemonge, M.-H., Perazio, G., Vergnieux, R. and Lopez-romezo, E. 2008. *Prissé-la-Charrière, Nécropole mégalithique de Péré.* Rapport final 2008. Service régional de l'Archéologie: Poitiers.

Laporte, L., Soler, L., Cousseau, F., Cadot, R., Cros, J.-P., Cathelin, C., Darriba, X., Delvoye, A., Gouezin, P. and Muret, T. 2010a. *Prissé-la-Charrière, Nécropole mégalithique de Péré.* Rapport 2010. Service régional de l'Archéologie: Poitiers.

Laporte, L., Scarre, C., Joussaume, R. and Soler, L. 2010b. Nouvelles données sur le mégalithisme de l'ouest de la France. *Archéothema* 10, pp. 7–12.

Laporte, L., Parron, I. and Cousseau, F. 2014. Nouvelle approche du mégalithisme à l'épreuve de l'archéologie du bâti. In: *Méthodologie des recherches de terrain sur la Préhistoire récente en France. Nouveaux acquis, nouveaux outils (1987–2012). Actes des Premières Rencontres Nord/Sud de Préhistoire Récente,* Marseille 23-25 mai 2012. Editions Archives d'Ecologie Préhistorique: Toulouse, pp. 169-186.

Lassure, C. 2002. Vocabulaire anglais-français de l'architecture rurale en pierre sèche (réédition actualisée de l'article paru en 1977 dans *L'architecture rurale en pierre sèche*). CERAV. Updated 22 October 2006. Available at: http://www.pierreseche.com/vocabulaire_anglais.html [Accessed 19 February 2014]

Lassure, C. 2008. *La pierre sèche, mode d'emploi.* Eyrolles: Paris

Lassure, C. and Reperant, D. 2006. *Cabanes en pierre sèche de France*. Édisud: Aix-en- Provence.

Le Rouzic, Z. 1932. *Carnac. Fouilles faites dans la Région. Tumulus du Mont-Saint-Michel 1900, 1901, 1902, 1903, 1904, 1905 & 1906.* Lafoyle: Vannes.

Mohen, J.-P. and Scarre, C. 2002. *Les tumulus de Bougon, (Deux-Sèvres): complexe mégalithique du Ve au IIIe millénaire.* Errance: Paris.

Parron, I. and Reveyron, N. 2005. *L'archéologie du bâti: pour une harmonisation des méthodes.* Table ronde des 9–10 novembre 2001 au musée de Saint-Romain-en-Gal. Errance: Paris.

Parron, I. and Laporte, L. 2010. Archéologie du bâti et mégalithisme: une experience. *Archéothema* 10.

Perouse de Monclos, J.-P. (ed.) 2011. *Description et vocabulaire méthodique. Inventaire général du patrimoine culturel.* Éditions du Patrimoine, Centre des Monuments Historiques: Paris.

Scarre, C., Laporte, L. and Joussaume, R. 2003. Long mounds and megalithic origins in western France: recent excavations at Prissé-la- Charrière. *Proceedings of the Prehistoric Society* 69, pp. 235–251.

* The 3D models presented in this article can be manipulated at sketchfab.com/flocou

5

A monumental task: building the dolmens of Britain and Ireland

Vicki Cummings and Colin Richards

Abstract

The dolmens of Britain and Ireland are a distinctive "type" of early Neolithic monument which are characterised by the presence of substantial capstones supported by uprights. In this paper we discuss the different stages of construction involved in building a dolmen. We suggest that many dolmens were built by quarrying and raising a single large stone *in situ*. The capstones of dolmens were then deliberately shaped before being displayed in particular ways. We provide detailed information on the proposed six-stage construction process from our recent excavations at Garn Turne in south-west Wales and discuss the wider social implications of this form of building.

Keywords: Dolmens, megaliths, construction, quarrying, shaping capstones, display

Introducing dolmens

The beginning of the Neolithic in Britain and Ireland is accompanied by the appearance of monumental architecture. In the past such architecture has been ordered and segregated by the identification of different "types", predicated on the presence and absence of specific architectural characteristics. Such typological ordering was especially prevalent within the field of megalithic monuments (Daniel 1950; Piggott 1954; Henshall 1963; 1972). However, the potency of past typologies is often underestimated and still lurks behind various interpretations of the Neolithic (e.g. Sheridan 2003; Whittle *et al.* 2011). Of course, there is a requirement to distinguish between monumental constructions, but typological labelling, despite its minute attention on architectural features, somehow fails to capture the divergent intentions and essence of expression embodied in different monumental forms.

A case in point is the "dolmen" monument, which arguably is the most spectacular monument of the early Neolithic period. Dolmens can be characterised by the presence of a large capstone supported by a number of uprights. These monuments are known by a variety of names in the literature: "portal dolmens" in Britain, "portal tombs" in Ireland, and in a few cases, small passage graves (Cummings and Richards 2015). There are slight differences between these different classifications, including the presence of a short passage at some sites, but the overall architectural form and effect is the same: "The standard 'Portal Tomb' is based on a tripod design with tall portals and lower backstone supporting a massive roofstone poised with its heavier end above the entrance" (Ó Nualláin 1983, 88). This description is worth considering for a moment. The name "portal tomb" instantly identifies function, and once such function is attributed, further scrutiny becomes subordinate. Yet, in the case of the portal tomb as described by Ó Nualláin, there is an architectural feature which is overwhelming in terms of appearance and construction; the massive capstone. It is the enormous capstone which is the definitional characteristic of the portal tomb, not the presence of "portals" or the ephemeral skeletal remains. How has such imagery and effort of construction been overlooked for this distinctive architectural form? One answer may lie in a tyranny of typology which homogenises the very monuments it seeks to define.

Here it is suggested that the intentionality of these monuments is not the creation of a burial chamber *per se*, but the elevation and display of a large capstone. The builders seem to have wished to produce an architectural representation through raising an enormous stone and supporting it on the slenderest of stone uprights. The produced imagery is often emphasised and enhanced through the smallest possible contact points between the uprights and the capstone. The elevated stone really does appear to float in the air (Whittle 2004). We would argue that this is the dominant imagery of the so-called portal tombs, and consequently no cairn was added onto dolmens in their initial phase of construction. However, in some cases, cairns may have been added later on as monuments were adapted for other purposes, most notably deposition (as can be postulated, for example, at Pentre Ifan: Barker 1992, 24, and see Cummings and Whittle 2004, 74). Dolmens contrast with other forms of early Neolithic megalithic monuments, such as Cotswold-Severn, Clyde and court cairns, where architecture created both chambers for the deposition of bodies and material culture, as well as space for people to congregate (also see Whittle 2004). It is also worth noting that dolmen monuments are not found ubiquitously throughout Britain and Ireland, but are erected in discrete clusters (see Fig. 5.1).

Fig. 5.1: The distribution of dolmen monuments in Britain and Ireland

There have been surprisingly few recent excavations of dolmen monuments, and the focus of investigation has consistently been on the role of these sites as burial monuments. Thus it has primarily been the chamber and its contents which have been highlighted and explored in the past (Kytmannow 2008). Curiously, this is despite the striking imagery of the presence of an enormous capstone.

Both Pentre Ifan (Grimes 1948) and Dyffryn Ardudwy (Powell 1973) in Wales were excavated to a high standard for the time but neither produced large numbers of finds. Two sites have produced more material. A surprisingly large number of skeletal remains, as well as animal bones, stone artefacts, bone objects, and pottery, were found at Poulnabrone in County Clare, Ireland (Lynch 2014). Carreg Coetan in south-west Wales also produced many finds, including a large number of lithics and pot sherds (Rees 2012). It is clear that those monuments that have been excavated have produced evidence for the use of the chamber in the early Neolithic, and this has been employed to suggest that these sites were also constructed at this time. However, these monuments continued to receive depositions for many thousands of years demonstrating that they retained their significance over a long period of time. There has also been detailed work on the distribution of dolmens (Ó Nualláin 1983) as well as their broader landscape setting (Bradley 1998; Cummings 2009; Cummings and Whittle 2004; Kytmannow 2008; Tilley 1994; 1996). It has been suggested that these monuments were specifically located in relation to particular landscape features which may have been significant in local cosmologies (Whittle 2004). The focus of our project takes into account both their use and location but is primarily concerned with the imagery of dolmen architecture and how it was achieved through practices surrounding construction and it is to this issue which we now turn.

Fig. 5.2: An outcrop near Pentre Ifan, Wales. This is the type of stone dolmen builders would have selected as a capstone. (Photo by Vicki Cummings)

Construction processes

> When we are concerned with distributions and sequences of tomb plans and with objects of dateable type buried with the dead in these tombs, it is easy to forget the implications in human terms of these great monuments – the man hours of navvying and quarrying and dragging involved, and the ideas and ideals that prompted and inspired this hard work. (Daniel 1963, 22)

In recent years there has been a growing interest in the construction processes employed at various types of monuments throughout Europe (e.g., papers in Cooney 2011b; Richards 2013). There has also been an increased focus on both the quarrying of stone for megaliths (e.g. Richards 2004a, 2009; Cooney 2011a) as well as their subsequent deployment in monuments (Pollard and Gillings 2009; Scarre 2009a; 2009b). Quarries more generally have seen considerable interest over the last few decades, primarily in relation to stone axes. Previous studies have looked at both sourcing the specific stone types used to make axes (Clough and Cummins 1988; Davis and Edmonds 2011) and the broader context of stone axe production (Bradley and Edmonds 1993). However, in recent years it has also been possible to locate the quarries for megaliths. For instance, a project examining the construction of stone circles has identified a number of monolith quarries in Orkney, and at Calanais (Callanish) in the Outer Hebrides (Richards 2013). Likewise, a number of projects have attempted to identify the source of the Stonehenge bluestones in south-west Wales (Darvill and Wainwright 2011; Parker Pearson *et al.* 2011; Thorpe *et al.* 1991). In some cases it has been possible to reconstruct quite complex sequences of quarrying stones for megaliths, as in the case of Carnac in north-west France (Mens 2008).

It has also been suggested that instead of thinking that people built monuments because they were aiming for a finished structure that could then be used to fulfil a particular function, it was the act of construction itself that was important (Barrett 1994). Labouring and building brought people together. McFadyen (2006) in particular has talked in detail about the importance of the construction of Neolithic architecture as a social process, bringing together not only

Fig. 5.3: Arthur's Stone, Gower, Wales. The dolmen sits within a large pit. (Photo by Colin Richards)

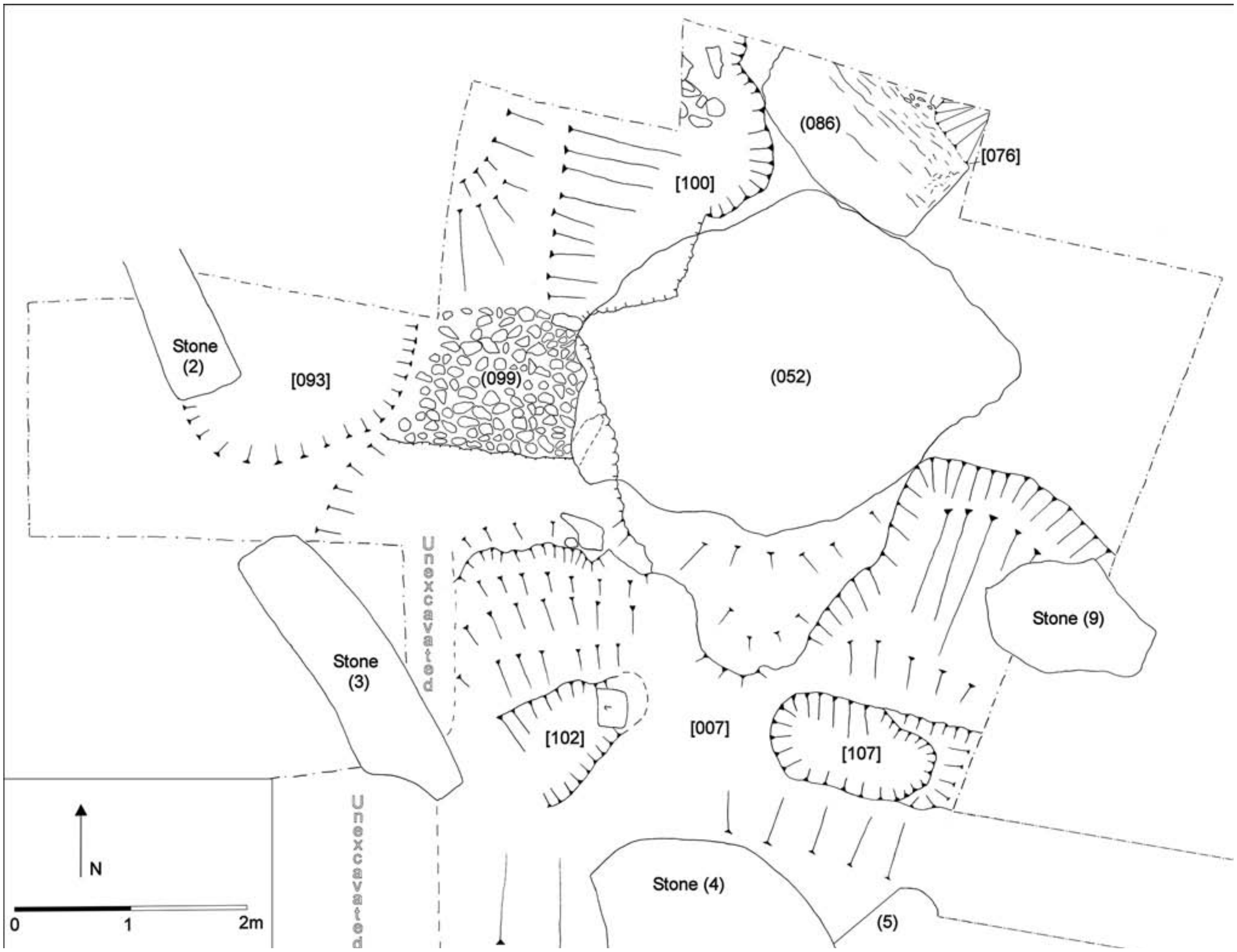


Fig. 5.4: Post-excavation plan of the forecourt area at Garn Turne. [007] is the cut of the large pit and [102] and [107] are the slots at the base of this pit. The large stone (052) and associated contexts are an earlier phase at the site. Stones 2, 3, and 9 are those of the forecourt

people, but also substances, memories and bits of other places, and interweaving them into an architectural form (also see McFadyen 2007, 348–354). It is therefore important to consider the social implications of building a monument, particularly the necessary accumulation and deployment of resources necessary to produce the conditions under which construction could commence. For example, the builders would need to arrange for a large group of people to gather at a particular point. They would need rope, rollers, grease, and traction, and they would require large quantities of food

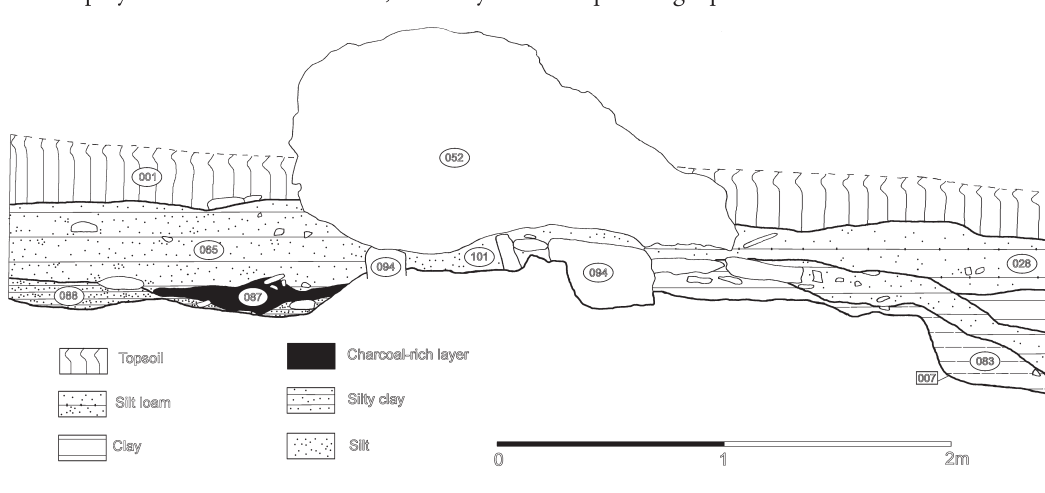


Fig. 5.5: Section through the large pit in the forecourt at Garn Turne. [007] is the cut of the capstone extraction pit and [102] is the slot at the base of this pit. Stone 4 is one of the collapsed uprights which originally supported the capstone. The large stone (052) and associated contexts are an earlier phase at the site

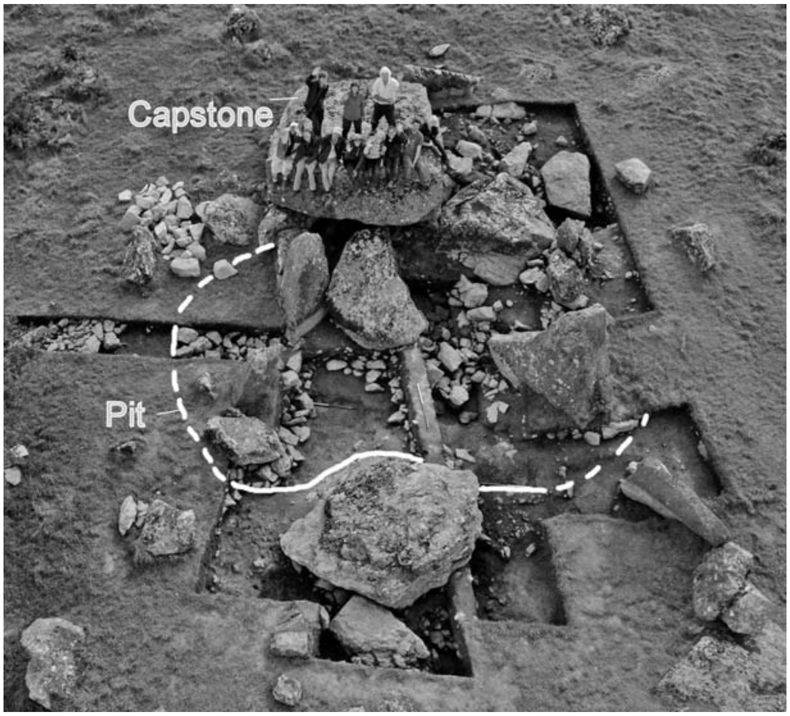
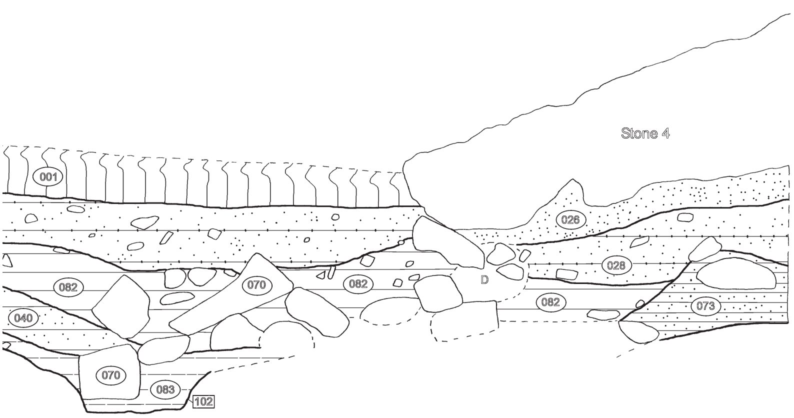


Fig. 5.6: Photo of the location of the large pit found in the forecourt at Garn Turne, which we have interpreted as the quarry site for the capstone. The solid white line indicates the definite location of the pit, and the dashed white line the probable location. While we were able to explore much of the pit, the façade standing stones in the forecourt obscure its full extent. (Photo by Adam Stanford)

to feed those involved in construction (Joussaume 1985, 102–103; Richards 2004b). This may have involved years of negotiations between different social groups, the accumulation of food, and the gathering together of resources. In addition, amongst contemporary groups who still construct megalithic architecture, the act of construction embodies different levels of significance. Large numbers of participants can provide an index of status as much as ensuring successful building projects (Hoskins 1986). Moreover, much social risk is embodied in such elaborate strategies of enhancing social position (Richards *et al.* 2013). The point of building may not be how quickly or efficiently it can be achieved, but how many people can be brought together to be involved in a significant social event. Following this line of research we will detail the stages in the construction process of a dolmen monument. This will enable us to characterise the quantity of investment of both labour and time, but also to think through the social consequences of construction.



Building a dolmen

Stage 1: choose an outcrop/erratic

The first stage in the construction process would be to decide precisely where to build a monument. A central question concerns what requirements influenced situation. Tilley (1994), and subsequently Cummings and Whittle (2004), argue that the situation of some Welsh dolmen was based upon topography and landscape reference. Yet, this scheme could be potentially compromised if we were to follow

Fig. 5.7: A stone on Carn Alw. This stone is lying on its side surrounded by a small platform, which would be an easy way of gaining access to the base of a capstone for shaping and dressing. (Photo by Peter Style).

Fig. 5.8: Hammerstones found at Garn Turne. (Photo by Vicki Cummings)

Fig. 5.9: Rhyolite flakes found in the pit at Garn Turne, produced by shaping the capstone. (Photo by Vicki Cummings)

Lynch's (1975) suggestion concerning the capstone for Carreg Samson in south-west Wales. She proposed that the capstone was originally visible as an outcrop/erratic which was quarried *in situ*, and then elevated to form the monument. This scheme indicates that the position of the monument is predicated on the location of a suitable stone (and see Fleming 2005). When considering this issue, however, it is worth bearing in mind that in the Neolithic, landscapes that have been cleared for agriculture over millennia and are now devoid of stone would then have contained masses of stones that would be suitable for monumental construction (Scarre 2009b, 9–11). Conversely, stone outcrops are often still visible around many sites today, including the dolmen of Pentre Ifan, Pembrokeshire, Wales, even though the fields have seen extensive clearance (Fig. 5.2). Therefore, back in the Neolithic, the builders would have had a huge range of stones to choose from when considering which to use in construction. This means that the choice of stone cannot have been predicated purely by stone availability. Thus, the use of one outcrop/erratic over another is likely to have taken into account other factors, including overall landscape setting.

Stage 2: dig a big pit

Once a particular stone had been selected for dolmen architecture, labour for extraction was required. Many stones and boulders, while partly visible on the surface, would have been deposited in natural soil since the retreat of the ice sheets 7000 years earlier. Consequently, the digging of a substantial pit would be required around the selected stone in order to gain access. Significantly, older excavations have produced tentative evidence for this process. At Carreg Samson (Lynch 1975) there was evidence of a pit directly underneath the monument, although the excavator was unable to explore it in any detail due to the presence of the monument within it. Likewise, at Pentre Ifan (Grimes 1948) the excavator suggested the remains of a large pit in which the monument stood was the source of the capstone. Moreover, some dolmens are present within massive pits, such as Arthur's Stone on the Gower, Wales (Fig. 5.3). The excavations of the monument of Garn Turne in south-west Wales in 2011 and 2012 were designed to discover if a similar situation existed there. The intention was to explore the extraction pit of the capstone in more detail: this was possible because the standing monument had collapsed backwards.

After initial exploration in 2011, a very large pit which had once contained the massive capstone was confirmed. The offset position of the collapsed dolmen allowed us to excavate a considerable portion of the pit, although some areas were inaccessible due to the presence of a façade of standing stones in the forecourt which obscured its full extent. The pit at Garn Turne was substantial, roughly seven metres wide and over a metre deep (Figs 5.4–5.6). At the very base of the pit we found two long, narrow slots projecting in from either side which were cut prior to the stone's extraction. These slots would have enabled large timbers to have been inserted beneath the stone.

Stage 3: extract the capstone

However, not all dolmens are built over pits. In some cases, the capstone was clearly detached from an adjacent outcrop. Nonetheless, it seems that in several cases, dolmen monuments were constructed within the extraction pits of their capstone. Raising a stone of this magnitude must have constituted a dangerous act of great practical and ontological consequence. In practical terms, once a trench had been dug around a suitably shaped stone for a dolmen capstone, the stone needed to be elevated *in situ*. At this point in the construction process, ropes, levers (presumably large tree trunks), and manpower would have been required. Levering stones is an efficient technique of manoeuvre (Joussaume 1985, 103), as demonstrated via experimental archaeology

Fig. 5.10: The capstone at Brennanstown, Ireland, the underneath of which has clearly been shaped. (Photo by Vicki Cummings)

and confirmed by the two opposed slots discovered at the base of the Garn Turne pit. Once one end of the capstone had been lifted, support could be placed under the stone and the other end levered up (see below). Slowly the large stone would have emerged.

Stage 4: shape the underside of the capstone

Dolmen capstones ubiquitously have flat undersides. Indeed, the tortoise shell profile of the dolmen capstone is almost an archetypal image. It has been assumed that this shape is a product of the fault line or fissure which allows a capstone to be extracted from a rounded outcrop. In some case this is true, but when a stone is quarried from a pit, such as Pentre Ifan, the stone is rounded in shape. In these cases, it requires splitting; a dangerous enterprise as the overall trajectory of fissures and bedding planes can be notoriously difficult to predict. However, it is clear from the visual inspection of some dolmens that such splitting could be extremely successful. Wooden wedges swollen with water could effectively detach a section with a flat and level fracture plane. In other cases, things did not work out so well, and then a degree of shaping was required. It would be extremely difficult to shape the underside of a capstone while it was being elevated from its extraction pit. One solution for both splitting and shaping a stone would be to manoeuvre the capstone so that it lay on its side. The base of the capstone could then be flaked or pecked with greater ease (see Fig. 5.7).

We have excellent evidence for the shaping of the capstone at Garn Turne. The base of the capstone was clearly flaked: in addition, 93 hammerstones were found in the large pit, most with abraded ends, and some were also fragmented and broken. These hefty hammerstones would have been suitable for shaping the stones employed in the dolmen monument (Fig. 5.8). In addition, we uncovered a mass of large flakes of rhyolite, the stone from which Garn Turne was constructed (Fig. 5.9). The vast majority of the flakes were cortical, suggesting that they were created during the minimal, rough trimming of the capstone and orthostats (Olaf Bayer pers. comm.). This assemblage had a combined weight of over 123kg. At other dolmen monuments, it is also possible to see evidence for the shaping and dressing of the underside of the capstone, which could have been achieved through flaking, as at Garn Turne, and/or pecking (Fig. 5.10).

Stage 5: elevate the capstone into position

Once the capstone was partially elevated and its base shaped, it could then be manoeuvred into position. Levers were most likely used to gradually lift up the stone, with large stones and wooden props placed underneath to provide support as it was raised. This method was employed in an experiment on a 32 tonne capstone replica at Bougon, France. Here, three 10m oak levers raised the block 50cm at a time, and chocks were placed beneath the stone (Joussaume 1985, 103). At Garn Turne, a mass of very large stones were present in the base of the pit (many of which required two or more people to lift them): we propose these were used as chocks. Large stones would be sufficient to support a capstone as it was raised using levers. Ropes tied around the stone and tensioned would have been useful for stabilisation as it was levered up. As the stone was raised higher, timbers could also be employed to provide support. At Garn Turne no postholes were found that could have held supports for the elevated capstone: however, a mass of burnt mature oak was deposited in the pit which may have been the remains of such timbers. Monuments elsewhere have evidence of postholes which may well have served this purpose (see Bakker 2009, 30).

A possible alternative to elevating the capstone into position would be to drag the stone out of its quarry pit, erect the supporting orthostats nearby, and then drag the capstone up a ramp in order to carefully lower it onto the supporting uprights. This idea of dragging a stone up a ramp is frequently cited as the way in which horizontal stones were placed in position during megalithic construction (Bakker 2009, 31), and it is possible that some dolmen were also constructed in this way. However, one of the issues with this method of construction is how to gently lower the capstone without

Fig. 5.11: The dolmen at Achnacliffe, Ireland. (Photo by Colin Richards)

damaging either the supporting uprights or the capstone. In the case of Stonehenge, the lintel was placed on top of the wide, thick trilithons, so this was far less of an issue. It is also not a problem if the uprights are surrounded and supported by a cairn. In the case of dolmen monuments, however, we argue that there was no surrounding cairn (see above) and that the builders aimed to have the capstone touching the smallest possible area of the uprights. This would be more reliably achieved by adding uprights to an elevated and supported capstone, as detailed below.

Stage 6: add supporting uprights

If the capstone has been quarried and elevated *in situ*, and is supported by chocks and/or wooden supports, it is relatively easy to insert the supporting upright stones one by one. Small sections of the underlying support can be removed and an upright inserted in their place. This would allow the builders to achieve the desired effect – the smallest possible surface of the upright touching the capstone – as there was scope for trial and error in the placement of the support. It also allows the uprights to be inserted straight into the base of the pit without the need for sockets. Indeed, the absence of sockets was documented at the excavation of Carreg Samson, where the excavator was both surprised, and rather horrified, that the uprights were essentially held in place only by the weight of the capstone: a "house of cards" effect (Frances Lynch pers. comm.). Stability was enhanced by infilling of the pit. At Garn Turne, pottery fragments were deposited on the bottom of the pit, and radiocarbon dates on charcoal came back as early Neolithic (3787–3656 cal BC (SUERC 43883) and 3761–3643 cal BC (SUERC 43884) at 2σ; calibration OxCal). This also suggests a range of associated activities surrounded the elevation of a stone.

This method of adding in the uprights would be an effective way of constructing a dolmen, but would not negate all problems. In some cases dolmen monuments would still be prone to collapse when the final chocks and supports were removed. Indeed, this seems to have happened at Garn Turne: the monument collapsed backwards after the underlying support had been removed but before all the uprights were in place.

At some monuments, a cairn may have been added around the monument once the uprights were in position. This could have happened straight away, many years later, or even many centuries later. It may also have varied from site to site: some sites may have seen the addition of large and high cairns, while others may have seen only low-level platform cairns. The debate surrounding the presence of a cairn will be difficult to resolve conclusively due to the subsequent remodelling and robbing of these sites. Nevertheless, the presence or absence of a cairn at these sites does not alter the suggested construction process outlined above, apart from to note that stone used during construction may have been subsequently redeployed as cairn material.

Discussion and conclusion

We have outlined a six-stage process for the construction of a dolmen monument which seems to be consistent with the archaeological evidence we have observed. If our suggestion is correct, one of the key components of dolmens was lifting and displaying a stone *in situ*. This supports two suggestions. Firstly, that the stones used as capstones may have been important in their own right, potentially including their precise location in relation to other landscape features (Cummings and Whittle 2004; Scarre 2009b, 4–5; Whittle 2004). Second, the *presentation* of the stones lifted up and supported on uprights was also of great significance. A corollary of this interpretation would be that these monuments were made from natural formations that were already known and which were important places in the landscape before they were transformed into monuments (see Bradley 1998; Tilley 1994; Whittle 2004). However, contrary to most accounts, we have provided substantial evidence that the capstones in dolmen monuments in Britain and Ireland were carefully shaped and dressed. All have a flat underside, created either by splitting the stone along a fault line, or – if this process was unsuccessful – by careful shaping through flaking or pecking. The capstones of dolmens, then, were transformed, and through their dramatic display such alterations would have been readily recognisable. This means that while dolmens may well have been partly inspired by natural rock formations, in their altered state they possessed a duality – the upper morphology natural and untouched while the basal surface was flat and dressed. The manner of presentation, elevated in the air, emphasised and exaggerated this duality to a wide audience.

We have also noted above that pit digging was an important part of the construction process. This was the second stage in construction – releasing the stone from the ground. Pit digging has been discussed more widely in relation to the Neolithic, particularly in relation to deposition (Anderson-Whymark and Thomas 2012). However, pit digging can be seen as part of a broader intensification of digging in the Neolithic, marked also by flint mining and the broader phenomenon of digging into, and altering, the earth (Bradley 1993; Whittle 1995). Certainly while under construction, but also for a considerable period afterwards, the landscape around a monument would have resembled a building site – clearances, timbers, spoil-heaps, fulcrum points, flakes of megalithic debris and so on. This would further enhance the fact that these sites were not natural formations (cf. Tilley 1996; Bradley 1998; Tilley and Bennett 2001). At Garn Turne, it is clear that the large pit was never completely filled in. Late Neolithic and Iron Age deposits were found in the upper levels of the silts infilling the pit, which is still visible today as a hollow. This is echoed at other sites such as Arthur's Stone, illustrated above. This could suggest that the builders did not seek to conceal the leftovers of construction. Indeed, at some dolmen monuments, these sites saw subsequent constructional events. At Garn Turne the façade was clearly added on subsequently (we would suggest in the late Neolithic), and this has been hypothesised for Pentre Ifan, which also has a façade (Barker 1992, 24–26). Garn Turne saw further elaboration with the addition of multiple standing stones both around the main monument as well as in the immediate vicinity. Remnants of construction, then, may well have been left once a monument was standing. In some cases, construction was on-going, as sites were further added to or altered. In this respect it is necessary to reconsider construction as a process of facilitation. Building may therefore be conceived as one of the main purposes of monumentality. Rather than leading to completion, construction may be redefined as the deployment of strategic practices leading to the reconstitution of the social world. A corollary of this perspective is the imagery of monuments surrounded by the materials of their construction, monuments left unattended for long periods of time until they were re-appropriated by later generations.

It is also worth noting the speed at which the six-stage construction process outlined above could be achieved. Even taking into account the fact that many items would need to be acquired and accumulated before construction could begin, dolmen construction could have been achieved relatively rapidly. This could mean that instead of people repeatedly coming together year after year in order to build a site, as has been envisaged for other "monuments", such as causewayed enclosures (e.g. Edmonds 1999), dolmens could have been built as a single event, albeit one spread out over multiple days. In this sense we could understand the construction process as an arena for social negotiations, interactions and display. The raising up of an enormous stone would have been an incredible visual spectacle. At Garn Turne, the capstone weighed around 85 tonnes: this was the largest stone ever to have been quarried and lifted in Britain. To successfully remove this stone from the earth and then raise it up would undoubtedly be recognised as a significant feat. Such a feat was situated in a Neolithic social mosaic whereby status and reputation may well have been negotiable, and we suggest partly articulated through monumental construction (also see Richards 2013). Unfortunately, such projects are not without social, symbolic and practical categories of risk, and in the case of Garn Turne this risk was brought dramatically into focus when the monument collapsed. Such an event was not merely inauspicious, but to the sponsoring or organising group, likely disastrous.

It should be clear that there was no need to use an 85 tonne capstone in order to create a functional chamber for the deposition of human skeletal remains. This observation provides a hint that initially, dolmen construction potentially had nothing to do with creating a burial space, but was a way of displaying stones that had been quarried and transformed. While Garn Turne certainly fulfils this criterion, the most extreme example of raising stones for purposes other than providing a roof for a burial chamber comes from Ireland. For example, the site of Achnacliffe, County Longford (Fig. 5.11), has an enormous capstone perched on top of a smaller "chamber" and single upright. Such imagery is not about creating a burial chamber; instead it is concerned with the display and celebration of an enormous stone, the labour necessary for the re-presentation, and the social conditions necessary for such a feat to be undertaken.

Acknowledgements
We would like to thank Luc Laporte and Chris Scarre for inviting us to attend the original conference in Rennes, and to contribute to this publication. The dolmen project has received financial support from the British Academy (Reckitt Fund) and the Royal Archaeological Institute. We would also like to thank Magdalena Midgley and the editors for comments on an earlier draft of this paper.

References

Anderson-Whymark, H. and Thomas, J. (eds.) 2012. *Regional Perspectives on Neolithic Pit Deposition*. Neolithic Studies Group Seminar Papers 12, Oxbow: Oxford.

Bakker, J. 2009. Hunebedden and Hünengräber: the construction of megalithic tombs west of the River Elbe. In: Scarre, C. (ed.) *Megalithic Quarrying. Sourcing, Extracting and Manipulating the Stones*. Archaeopress: Oxford, pp. 27–34.

Barker, C. 1992. *The Chambered Tombs of South-west Wales: a reassessment of the Neolithic burial monuments of Carmarthenshire and Pembrokeshire*. Oxbow: Oxford.

Barrett, J. 1994. *Fragments from Antiquity: an archaeology of social life in Britain 2900–1200 BC.* Blackwell: Oxford.

Bradley, R. 1993. *Altering the Earth*. Society of Antiquaries of Scotland: Edinburgh.

Bradley, R. 1998. Ruined buildings, ruined stones: enclosures, tombs and natural places in the Neolithic of south-west England. *World Archaeology* 30(1), pp. 13–22.

Cooney, G. 2011a. Introduction: transformations at the quarry face. *World Archaeology* 43(2), pp. 145–148.

Cooney, G. 2011b (ed.). *Special Issue: new approaches to stone mines and quarries: materials and materiality. World Archaeology* 43(2).

Cummings, V. 2009. *A View from the West: the Neolithic of the Irish Sea zone*. Oxbow: Oxford.

Cummings, V. and Richards, C. 2015. The essence of the dolmen: the architecture of megalithic construction. *Préhistoires Méditerranéennes*.

Cummings, V. and Whittle, A. 2004. *Places of Special Virtue: megaliths in the Neolithic landscapes of Wales*. Oxbow: Oxford.

Daniel, G. 1950. *The Prehistoric Chamber Tombs of England and Wales*. Cambridge University Press: Cambridge.

Daniel, G. 1963. *The Megalith Builders of Western Europe*. Pelican: Harmondsworth.

Darvill, T. and Wainwright, G. 2011. The stones of Stonehenge. *Current Archaeology*, 21(12), pp. 28–35.

Davis, V. and Edmonds, M. (eds) 2011. *Stone Axes Studies* 3. Oxbow: Oxford.

Edmonds, M. 1999. *AncestralGgeographies of the Neolithic; landscapes, monuments and memory*. Routledge: London.

Fleming, A. 2005. Megaliths and post-modernism: the case of Wales. *Antiquity* 79, pp. 921–932.

Grimes, W. 1948. Pentre Ifan burial chamber, Pembrokeshire. *Archaeologia Cambrensis* 100, pp. 3–23.

Henshall, A. S. 1963. *The Chambered Tombs of Scotland Vol.1.* Edinburgh University Press: Edinburgh.

Henshall, A. S. 1972. *The Chambered Tombs of Scotland Vol. 2*. Edinburgh University Press: Edinburgh.

Hoskins, J. 1986. So my name shall live: stone dragging and grave-building in Kodi, west Sumba. *Bijdragen tot de Taal-Land-en Volkenkunde* 142, pp. 31–51.

Joussaume, R. 1985. *Dolmens for the Dead. Megalith Building Throughout the World*. Guild: London.

Kytmannow, T. 2008. *Portal Tombs in the Landscape: the chronology, morphology and landscape setting of the portal tombs of Ireland, Wales and Cornwall*. BAR 455, Archaeopress: Oxford.

Lynch, F. 1975. Excavations at Carreg Samson megalithic tomb, Mathry, Pembrokeshire. *Archaeologia Cambrensis* 124, pp. 15–35.

Lynch, A. 2014. Poulnabrone: An Early Neolithic Portal Tomb in Ireland. Dublin: Wordwell.

McFadyen, L. 2006. Building technologies, quick and slow architectures and early Neolithic long barrow sites in southern Britain. *Archaeological Review from Cambridge* 21, pp. 70–81.

McFadyen, L. 2007. Making architecture. In: Benson, D., and Whittle, A. (eds), *Building Memories: the Neolithic Cotswold long barrow at Ascott-under-Wychwood, Oxfordshire*. Oxbow: Oxford, pp. 348–354.

Mens, E. 2008. Refitting megaliths in western France. *Antiquity* 82, pp. 25–36.

Ó Nualláin, S. 1983. Irish portal tombs: topography, siting and distribution. *Journal of the Royal Society of Antiquaries of Ireland* 113, pp. 75–105.

Parker Pearson, M., Pollard, J., Richards, C., Thomas, J., Welham, K., Bevins, R., Ixer, R., Marshall, P. and Chamberlain, A. 2011. Stonehenge: controversies of the bluestones. In: García Sanjuán, L., Scarre, C. and Wheatley, D. W. (eds) *Exploring Time and Matter in Prehistoric Monuments*. Menga: *Journal of Andalusian Prehistory* Monograph 1. Junta de Andalucía: Seville, pp. 219–250.

Piggott, S. 1954. *Neolithic Cultures of the British Isles*. Cambridge University Press: Cambridge.

Powell, T. G. E. 1973. Excavations at the megalithic chambered cairn at Dyffryn Ardudwy, Merioneth, Wales. *Archaeologia* 104, pp. 1–50.

Rees, S. 2012. Excavations at Carreg Coetan Arthur chambered tomb, Pembrokeshire. *Archaeologia Cambrensis* 161, pp. 51–163.

Richards, C. 2004a. A choreography of construction: monuments, mobilization and social *organization* in Neolithic Orkney. In: Cherry, J., Scarre, C. and Shennan, S. (eds) *Explaining Social Change: studies in honour of Colin Renfrew*. McDonald Institute Monographs: Cambridge, pp. 103–113.

Richards, C. 2004b. Labouring with monuments: constructing the dolmen at Carreg Samson, south-west Wales. In: Cummings, V. and Fowler, C. (eds) *The Neolithic of the Irish Sea: materiality and traditions of practice*. Oxbow: Oxford, pp. 72–80.

Richards, C. 2009. Building the great stone circles of the north: questions of materiality and social identity. In: O'Connor, B., Cooney, G. and Chapman, J. (eds) *Materialitas: working stone, carving identities*. Prehistoric Society Research Papers 4: Oxford, pp. 54–63.

Richards, C. (ed.) 2013. *Building the Great Stone Circles of the North*. Windgather Press: Oxford.

Richards, C., Brown, J., Jones, S., Muir, T. and Hall, A. 2013. Monumental risk: megalithic quarrying at Staneyhill and Vestra Fiold, Mainland, Orkney. In: Richards, C. (ed.) *Building the Great Stone Circles of the North*. Windgather Press: Oxford, pp. 119–148.

Scarre, C. (ed.) 2009a. *Megalithic Quarrying. Sourcing, extracting and manipulating the stones*. BAR S1923, Archaeopress: Oxford.

Scarre, C. 2009b. Stony ground: outcrops, rocks and quarries in the creation of megalithic monuments. In: Scarre, C. (ed.) *Megalithic Quarrying. Sourcing, extracting and manipulating the stones*. BAR S1923, Archaeopress: Oxford, pp. 3–20.

Sheridan, A. 2003. French connections I: spreading the marmites thinly. In: Armit, I., Murphy, E., Neils, E. and Simpson, D. (eds.) *Neolithic Settlement in Ireland and Western Britain*. Oxbow: Oxford, pp. 3–17.

Tilley, C. 1994. *A Phenomenology of Landscape.* Berg: Oxford.

Tilley, C. 1996. The powers of rocks: topography and monument construction on Bodmin Moor. *World Archaeology* 28, pp. 161–176.

Tilley, C. and Bennett, W. 2001. An archaeology of supernatural places: the case of West Penwith. *Journal of the Royal Anthropological Institute* 7, pp. 335–362.

Whittle, A. 1995. Gifts from the earth: symbolic dimensions of the use and production of Neolithic flint and stone axes. *Archaeologia Polona* 33, pp. 247–259.

Whittle, A. 2004. Stones that float to the sky: portal dolmens and their landscapes of memory and myth. In: Cummings, V. and Fowler, C. (eds) *The Neolithic of the Irish Sea: materiality and traditions of practice*. Oxbow: Oxford, 81–90.

Whittle, A., Healy F. and Bayliss, A. 2011. *Gathering Time: dating the early Neolithic enclosures of southern Britain and Ireland.* Oxbow: Oxford.

6

The megalithic construction process and the building of passage graves in Denmark

Torben Dehn

Abstract
On the basis of observations made since the 1980s during investigations of scheduled megalithic monuments in Denmark in connection with restoration work, an attempt is made to illustrate the process of building a passage grave. It is demonstrated that decisions relating to aspects such as the drainage system, the intermediary layer and the construction where the passage meets the chamber must be taken at a relatively early stage. It was therefore necessary, already at the planning phase, to take account of the final design, form and size of the finished monument. It is also concluded that the most difficult part of the construction process was the placement of the capstones. This step has left traces in the surrounding mound in the form of a horizontal platform at the level of the top of the orthostats or alongside the intermediary layers. It is concluded that the remains of the building site and traces of the process involved in the construction of individual passage graves suggest a planned, well-considered and continuous operation. However, once constructed, the monuments were subsequently maintained, and altered as desired, both by the original builders and by their descendants. Further to these were the alterations and additions of later prehistoric periods.

Keywords: Megalithic construction, architecture, building site, passage grave

Introduction
A large number of megalithic graves were excavated in Denmark in the decades around 1900. Some were also restored to assist preservation and to enable public access. However, public access brought with it an obligation to maintain them in good condition. In the 1980s, a systematic appraisal of the *c.* 500 scheduled passage graves revealed that a dangerous process of decay was in progress, resulting from variable quality of the restoration work. In an attempt to reverse this decline, an intensive effort was initiated to restore and investigate the most threatened, and the most visited monuments.

This paper builds upon observations made during restoration work on about 70 megalithic monuments to illustrate the processes involved in building a Danish passage grave. These interventions were of varying extent and were located in different places in the monuments, as required. Some of the details observed are seen at one or only at few monuments, whilst others are more general features. The construction could be ambitious as tombs can be large and complex, or relatively simple. However, common to them all is their building material – moraine boulders, i.e., glacial erratics from the Ice Age, because bedrock is not accessible in the Danish landscape (Dehn *et al.* 2013).

Phases of building

Planning
The nature of the planning process preceding construction of a megalithic monument is unknown, but it is obvious that the type and design of the structure were determined from the outset. Certain monument types are, to some degree, also the result of local traditions. However, generally it must have been decided at the start whether the monument was to be a twin passage grave, with two chambers each with its own passage, or a structure with only a single chamber and passage, in order to obtain the required building materials. Calculation for the passage grave of Maglehøj shows that it took 990 tons of building materials, including 832 tons for the covering mound, to build a medium-sized, single-chambered monument (Holten 2009, fig. 2). The dimensions and form of the capstones, and several of the orthostats, were exploited to the utmost, and complemented each other in a way that must have been worked out in advance. As an example, close fitting to leave minimal space between the capstones is only achievable if the capstones have been chosen according to their length and shape, and their individual and relative positions have been determined in advance. This is clearly illustrated by the Rævehøj passage grave (Fig. 6.1). Only when the exact form and size of the roof – i.e., the capstones – are known, is it possible to design a more detailed ground-plan for the chamber. The precise width of the chamber and the inclination of the orthostats will then be adjusted to fit the chosen capstones. It was also necessary to know in advance whether there were any specific architectural requirements, such as stones needing to be put in a particular place in the construction (Dehn 2009, 21–23). This is the case, for example, in the passage grave of Ørnhøj, where a pair of twin stones – two pieces of the same moraine boulder –

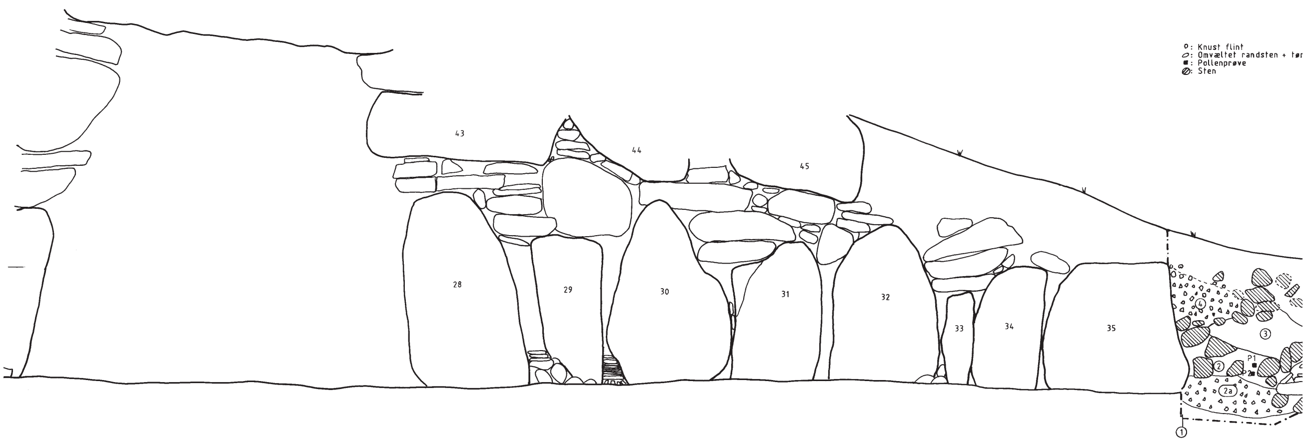


Fig. 6.1: Cross-section of the passage grave at Rævehøj with elevation plan of the passage. The chamber is 2.3m high and the capstones lie on three intermediary layers above the orthostats. They slope inwards so the walls form a kind of vault. The capstones overlap only a few centimetres with the uppermost intermediary layers, and their length is considerably less than the width of the chamber at floor level. (Drawing: T. Dehn)

apparently had to be used as corner stones, even though they are too tall relative to the rest of the construction (Dehn and Hansen 2000, 220). The passage grave of Kong Svends Høj includes five pairs of twin stones – one pair in the passage and the remainder arranged together at one end of the chamber. As twin stones are always arranged symmetrically relative to each other, the positioning of a large number of twin stones must have been arranged in advance (Dehn *et al.* 1995, fig. 57).

The place where the capstones of the chamber and passage meet constitutes a weak point. The transition from passage to chamber can be constructed with or without a keystone. The keystone is the innermost capstone of the passage, on which one or two of the chamber capstones rest. It is therefore part of the passage roof, but also forms part of the chamber wall. The style without a keystone is characteristic of a small geographical region: solutions involving a keystone are much more common (Hansen 1993, 46–50; Westphal 2015). The ground-plan needs to take account of the chosen solution, as the height and form of the cornerstones are crucial with respect to the keystone.

It was probably decided at an early stage whether there would be a closing stone, because this is important relative to the ground-plan and to the entire construction process. The closing stone is a commonly-observed phenomenon. It stands in the chamber wall, but is not part of the load-bearing construction. It is smaller than the other stones making up the wall, and was put in place from outside the chamber at the end of the construction process. This was possible because of a channel running through the partially-built mound: it led into the chamber, providing alternative access to the passage, and was useful for transporting materials in and out of the chamber. It may also have had a ritual significance (see Fig. 1.6; Dehn *et al.* 2004, 165–167).

When establishing the building site, it can be presumed that the most important building materials, such as capstones, twin stones, and other significant stones in the construction were transported to the site. Setting out the most important elements of the ground-plan would have been done at a very early stage. On the mound base in the twin passage grave at Østrup there was a row at least 3m long of 10–15cm diameter stones running towards a point in the middle of the wall line that separates the two chambers (unpublished investigation 2007). In Kong Svends Høj, just above the base of the mound next to an orthostat, there was a row of fist-sized stones. This was aligned to a passage wall and is therefore interpreted as a sighting line used during the early building phases (Dehn *et al.* 1995, 28–30). It was presumably important that the orientation and direction of the passage could be marked out precisely by eye. This is apparent from the fact that, in the majority of passage graves, a line continuing from one – or both – of the sides of the passage generally strikes a space between two orthostats in the rear wall of the chamber (Dehn and Hansen 2006b, 53–54). An investigation into the orientation of passages in 105 Danish passage graves proposes three hypotheses relative to the determining factor: the rising sun, the rising full moon and the rising full moon before an eclipse. The conclusion reached in this study is that orientation relative to the moon is most likely (Clausen *et al.* 2008, 227).

The initial phases of construction

Early work on the construction site involved preparation of the chamber area. Sometimes, as seen in Jordehøj, the topsoil was removed and laid over the intact soil surface directly behind the planned position of the chamber walls, in order to form the base of the mound (Dehn *et al.* 2000, fig. 3.19). The orthostats were generally erected in individually tailored sockets, such that their final height in the structure must have been fixed at this stage. This shows that key architectural components, for example, stones with special characteristics in terms of form, colour, symmetry or other significant features, were also worked out at this point. In addition, the

Fig. 6.2: Cross-section through the lower part of the mound construction at the gable of the Maglehøj passage grave. The chamber lies to the right of the edge of the drawing, and the original soil layer is labelled "9". The edge of the capstone can be seen over the intermediary layer comprising four slabs, lying on the orthostat. A continuous packing of crushed flint runs from the orthostat foundation ditch, stepwise up through the mound construction to the sloping flagstones of the capstone roof. The construction is not preserved above this level due to an intrusion later in prehistory. (Drawing L. Holten and M. Nissen)

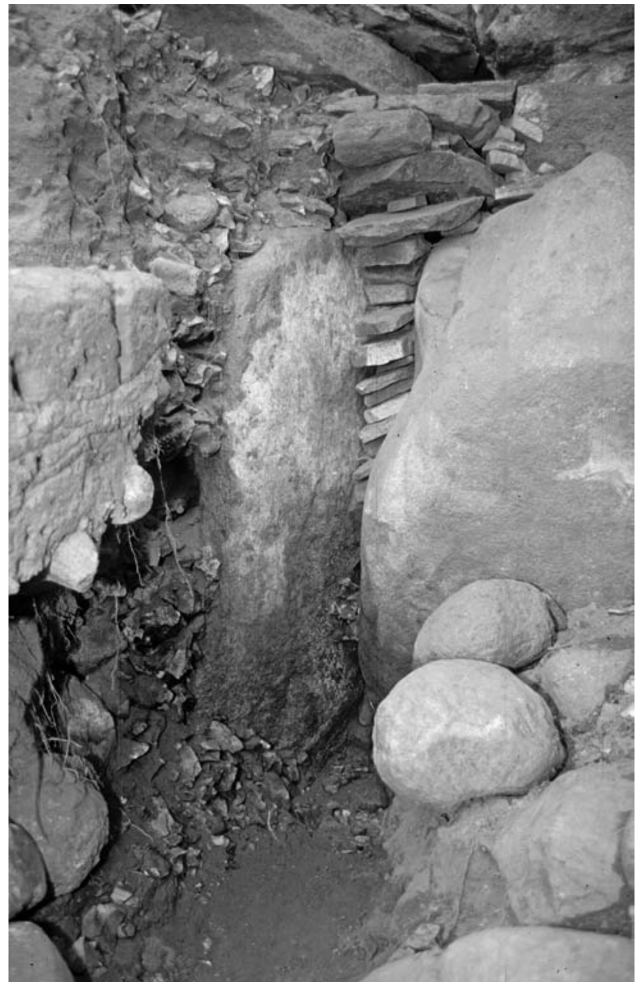


Fig. 6.3: Close-up of the excavation section in Fig. 6.2. The packing of crushed flint can be followed from the trench in which the orthostats stand, up behind them and then behind the intermediary layer. (Photo T. Dehn)

architectural and technical requirements necessary for the capstones would have been considered, although they were not placed into position until much later.

Once the orthostats were erected, the decision was made as to whether the drainage system should include a flint-filled ditch behind the orthostats, as seen in Jordehøj (Dehn *et al.* 2000, 86–88) and Maglehøj (Figs 6.2 and 6.3; Dehn and Hansen 2007, 18–20). This ditch formed the base for the flint packing that was gradually raised in height, together with the dry-walling and the core of the mound. The upper part of the flint packing was in contact with the flint in the roof construction, and acted to divert water percolating down through the mound.

Dry-walling

The walls and ceiling of the chamber had to be completely watertight so that penetrating water did not wash the mound fill into the chamber, destabilising the construction. The often irregular gaps between the orthostats were therefore sealed with shaped, flat flagstones – usually of sandstone – laid horizontally on top of each other. This is referred to as dry-walling, as today these flagstones appear to have been laid without a binding agent. However, originally clay, chalk mass, or birch bark were all used (Dehn and Hansen 2006a).

As the dry-walling was built, its rear face was secured with a packing of crushed flint that, in turn, was held in position by the mound fill, comprised of stones, soil, or a combination of the two. This progressed in alternating stages: courses of dry-walling, then crushed flint and mound fill, followed by further courses of dry-walling and so on. Dry-walling construction would have required access to both sides. Waste stone chips from shaping of the flagstones, and splinters from crushing of the flint, were seen in the rear of the dry-walling at Maglehøj passage grave (Figs 6.2 and 6.3).

Once the orthostats were in place, the dry-walling was built up level with their top, and the core of the covering mound was raised to hold the flint packing in place. Then the seating for the capstones had to be adjusted. In some areas, the capstones lie at a level corresponding to the top of the tallest orthostat: in others the wall height is increased by adding one to three layers of intermediary stones. The orthostats lean slightly inwards and the stones of the intermediary layer also lie slightly displaced inwards relative to one another, so that a kind of vault is created. The intermediary layer is also secured at the rear with flint packing, and chalk mass or bark fills the horizontal spaces.

Capstones

Details of the chamber ground-plan must have been adjusted around the capstones, and these must hence have been selected and brought to the building site at a very early stage in construction. Observations suggest a number of ways in which these capstones, weighing 10–15 tons, could have been placed on top of the orthostats and the intermediary layer at a height of up to 2.5m above ground level. However, just as there are regional differences in construction, so there may also have been regional differences in building methods. Evidence relating to the handling of capstones is rare but includes traces of temporary platforms, level with the top of the orthostats or the intermediary layer. Flat-topped platforms were formed by the uppermost part of the core of the mound, constructed in parallel with the wall, the dry-walling and the possible intermediary layer in order to hold these elements in place, and were 1.5–2.5m wide. In Jordehøj, it was apparent simply as a thin wash layer in the homogeneous clay fill (Dehn *et al.* 2000, 90–92), whereas the platform in Birkehøj was consolidated with a very even, cobbled surface made of small stones laid in sand. In the latter case, the platform had been established along parts of both longitudinal sides of the chamber. It is not clear whether the actual capstones lay on this platform during the operation or whether it was just used by the builders during their handling of the stones (Fig. 6.4).

In addition to the two above-mentioned platforms, four more examples are known across Denmark. The first observation of the remains of a platform was at the passage grave at Tustrup (Kjærum 1955, 30) where, at a level matching the tops of the orthostats: "it was possible to follow a pale-coloured stripe of fine sand that was covered with a very thin dark layer, presumably an old humus layer". At Lundehøj, 5km from Jordehøj, at a corresponding level, there was a 15–20cm thick horizontal layer of hard, chalk-rich clay, (Fig. 6.5; Ørsnes 1957, 229–230, fig. 3). The passage grave at Kragnæs contained "a 3–5 cm thick, greyish-black stripe which sloped upwards towards a point just beneath the top of the orthostats. This stripe consisting of slightly sandy loam can hardly be anything other than the remains of a vegetation layer formed during a first phase of the mound's construction" (Skaarup 1985, 251). As it appeared to have been trampled by activity, a *c.* 10cm thick horizontal layer in Kong Svends Høj is also interpreted as the traces of a platform (Dehn *et al.* 1995, 30, fig. 30).

Fig. 6.4: The passage grave of Birkehøj. Behind the surface of the chamber's intermediary layer a cobbled platform can be seen which presumably was established in conjunction with laying the capstones in place. The orthostats in the lower part of the picture have partly toppled into the chamber. (Photo T. Dehn)

These observations suggest that once the chamber had been erected and stabilised by the mound core, laying the capstones was the next step. The surface of the mound core bears evidence of this, either as a trampled activity layer, or as a layer reinforced with stones or clay/chalk. Some of the layers are horizontal, others appear to be slightly sloping: two have traces of an associated vegetation horizon.

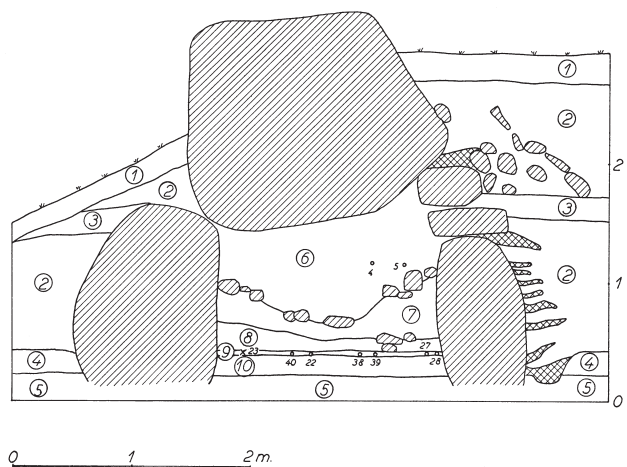


Fig. 6.5: Cross-section of the chamber in the passage grave of Lundehøj, excavated in 1955 due to its poor state of preservation. The layer labelled "3" is the reinforced platform of clay/chalk, which was established in connection with laying of the capstones. The cross-hatching denotes crushed flint, which is seen, for example, in the ditch behind one of the orthostats. (After Ørsnes 1957)

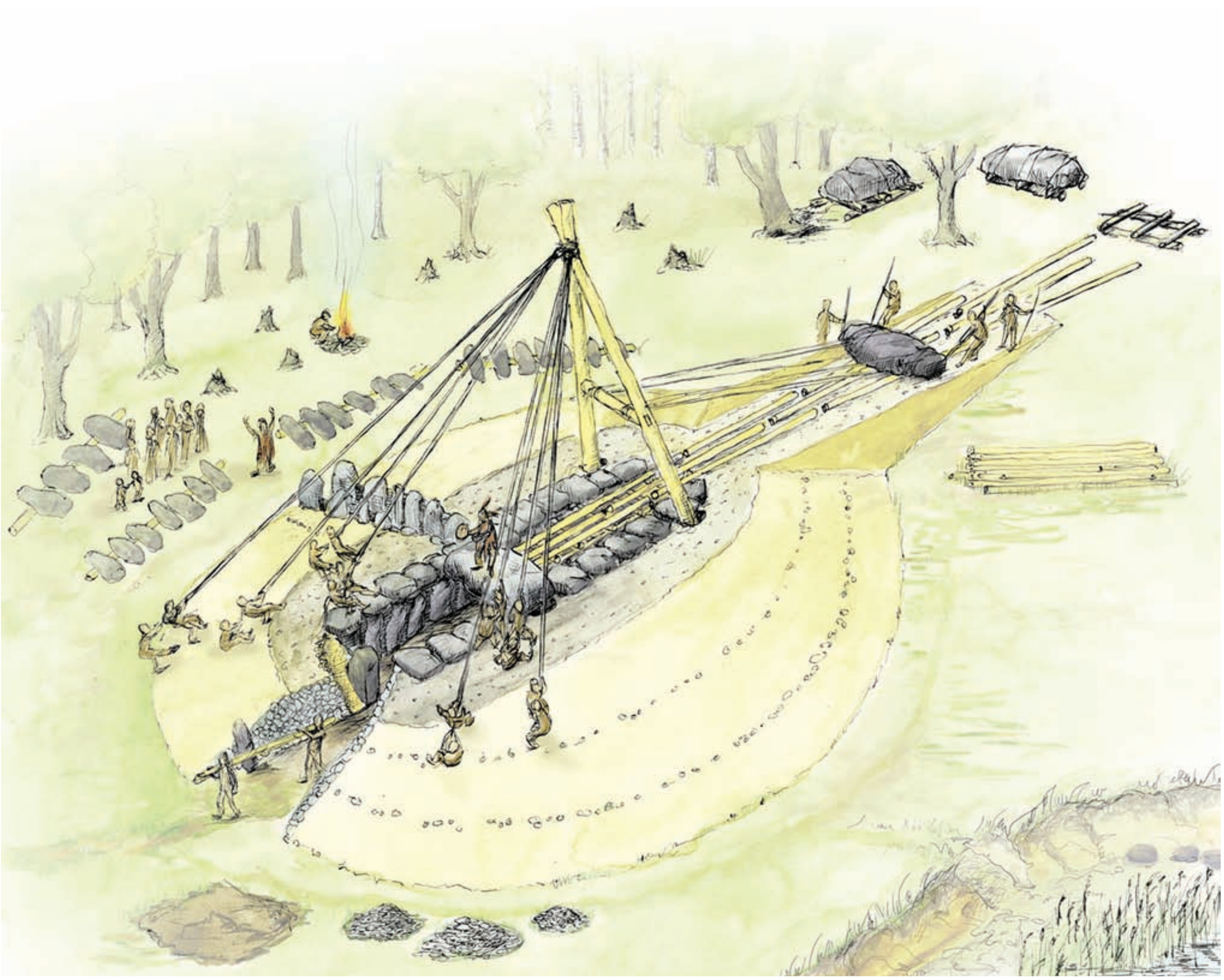


Fig. 6.6: A suggestion as to how the task of laying the capstones on Birkehøj may have been accomplished. The drawing shows a situation where the capstones have been raised and stabilised by the core of the surrounding mound. To the lower left, a channel can be seen running through the mound where the closing stone has not yet been put in position. (Drawing T. Bredsdorff)

These differences could reflect both different methods of laying on the capstones and the fact that the surface of the mound core was not prepared in the same way all the way round the upper edge of the chamber. This could depend on where the capstones had been transported from and how they were to be raised. A ramp and platform need only be constructed on part of the mound core and the chamber. All the above-mentioned observations were made in one section of a ditch within individual structures. It is therefore not possible to conclude more than that ramps are evident in those constructions in those sections. The fact that a ramp cannot be demonstrated in a particular section does not necessarily mean that one was not present in the monument.

In four cases, traces of posts have been demonstrated in the mound structure. The posts must have been removed or sealed by the continuing building process. Three extended down into the ground beneath the mound core, all located very close to the rear of an orthostat (Dehn and Hansen 2007, 25), while the fourth was located in the intermediary layer (Dehn *et al.* 2004, 166–168). Two of these posts had been rocked back and forth in line with the longitudinal axis of the chamber, (Fig. 6.6), perhaps in connection with post removal. All the postholes were carefully sealed before the building work continued.

Laying the capstones must have been the most complicated part of the building process. Moraine boulders weighing 10–15 tons had to be moved and positioned very precisely at a height of 2.5m above ground level, with limited room for manoeuvre and a relatively loose working surface. Examining the underlay of the capstones, either from inside the chamber or, more rarely, from outside, suggests the surface was adjusted with flat or wedge-shaped stones before the capstones were finally placed in position. Adjustments achieved the correct fall of the flat roof surface in relation to the capstones' contact points with the orthostats and the dry-walling, and compensated for the natural irregularity of the moraine boulders.

In two cases it appears that control of a capstone was lost as it was being manoeuvred into position: it slipped too far down into the chamber and became lodged. One accident led to the major fracturing of a capstone and a partially destroyed dry-wall: it was then roughly rebuilt from inside the chamber (Dehn 2009, 24). Considering how skilfully capstones were generally handled, it is remarkable that the stones were not brought up into the correct position. However, a capstone positioned lower than the others could have been an intentional architectural feature that, like a lintel, separated one end of the chamber from the rest (Hansen 1993, fig. 75). Only exposure of its upper surface can reveal the reason behind a capstone that hangs further down into the chamber.

Once all the capstones were placed and the gaps sealed, the floor was established by levelling. Clay or stone pavements of flagstones or cobbles could also be added. Birkehøj had a sunken floor covered with a layer of clay, under which was a capillary layer of gravel (Dehn *et al.* 2004, 164).

The passage-grave mound

When the chamber and the inner part of the passage were secured by the mound core, construction of the outer mound had to be completed. A few chambers are located in rectangular long barrows, but the majority lie encapsulated within round barrows. A round mound could be made of stone, clay, sand, or a combination of these. Various means were applied to keep the chamber and passage sealed and dry. For example, in the mound fill covering both the chamber and the passage, layers of overlapping flagstones or sloping layers of clay were intended to divert water. These layers may be in contact with the flint packing behind the walls and in the drainage ditch.

The question has been asked whether the capstones always were covered by mound fill. It is argued that some of the more simple dolmens were established as "open dolmens" with exposed chambers (Andersen *et al.* 2014). However, my own investigations found that two of the proposed "open" dolmens were actually covered by a mound (Dehn 2013).

Rows of single closely spaced stones are often seen forming concentric circles around the chamber within the mound. These circles have been observed at the base of the mound or at different levels within it, often behind the walls of the chamber in mounds built of stones and those with a sand fill, but they were not found in Jordehøj, which was built of clay/chalk. However, that monument was found to have two cavities in its mound fill. A plaster cast revealed that a post, almost 10cm in diameter and 64cm in length, stood vertically in the Neolithic topsoil (Fig. 6.7). Excavation suggested that posts such as this extended up to about 1.2m, reaching a level directly below the horizontal platform (Dehn *et al.* 2000, 88–90). A wooden structure was also found in the ploughed-out passage grave of Vroue Hede III: there were the remains of two concentric rings of burnt wood between the traces of missing kerbstones and the chamber (Jørgensen 1977, 107).

These concentric stone rows may mark the various stages of mound construction, and could have stabilised materials during building work. They could also have controlled the form of the mound during construction, like the Bronze Age wooden wattle structures seen in Lusehøj (Thrane 1984, 93–98). Pottery deposits associated with these stone rows in the Neolithic mounds suggest that different stages in the construction process were marked by particular activities. This was seen at the passage-grave site of Damsbo Mark A1, where there was apparently a spiral rather than concentric circles (Andersen 2011, 152, fig. 5). At Klekkendehøj, a hearth was seen in the stone-built lower part of the mound

Fig. 6.7: Vertical cavity at Jordehøj. In the clay-rich mound fill of the passage grave, vertical cavities were apparent in the area beneath the platform. On being filled with plaster of Paris, one of them proved to be the impression of a post 10cm diameter and 64cm long. The post had stood in the topsoil at the base of the mound and observations during the excavation suggest that it reached 1.2m in height. (Photo T. Dehn)

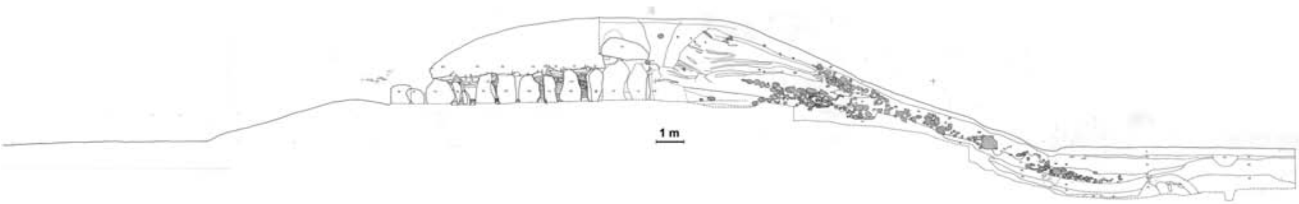


Fig. 6.8: Cross-section of the twin passage grave at Klekkendehøj from 2001, with elevation plan of the northern passage and the wall stones between the northern and southern chambers, a section through the eastern part of the mound, and the section trench in the terrain at the foot of the mound. The pit at the foot of the mound contained a layer of small detached stone fragments, presumably waste from the construction of the chambers and passages. The edge of the pit is overlain by the lowermost of two presumed terrace steps. In a profile section from 1987, only one terrace step could be recognised. (Drawing P. E. Skovgård and J. Westphal)

(Dehn unpublished investigation 2011), and a dolmen at Tårup also had traces of fire in the initial phase of the mound construction (Holst 2006, 12). Were such activities and deposits connected with longer pauses in the building work, or did they represent ritual events during construction?

Kerbstones

Kerbstones were erected in one of the final building phases, often with dry-walling. Kong Svends Høj has a long barrow covering a 12.5m long chamber: the dry-walling between the kerbstones was so high that a channel was necessary between them and the mound core in order to provide rear access during construction (Dehn *et al.* 1995, 32). At *c.* 1.5m, the kerbstones in Kong Svends Høj are some of the tallest recorded, and the gable stones are almost 4m high. A similar approach was observed at a 90m long mound at Ibjerg where the kerbstones were erected and stabilised with stones and crushed flint, forming a 1m wide band associated with the actual earthen fill of the mound (Juel *et al.* in press).

Kerbstone constructions can also be considerably more modest. For example, those around Maglehøj are less than 0.5m in height, with dry-walling between them. Some monuments appear to have only small, widely-spaced kerbstones, with such large gaps between them that dry-walling was apparently not needed. However, bearing the variable preservation in mind, it is not normally possible to understand the method of kerbstone construction without some form of study, usually sectioning the mound in order to clarify the monument's history before verifying the construction method. Mounds may have been plundered for their kerbstones in recent times, but passage graves were also often expanded and altered in later prehistoric periods, typically in the late Neolithic and Bronze Age, such as at the passage grave at Bigum, which was rebuilt and altered several times. A new lower kerbstone construction was laid outside the original structure from the passage grave mound, and the latter was raised with a layer of horizontal stones (Dehn *et al.* 2000, fig. 14, 17).

The stone pavements seen in front of the passage entrance or around the entire mound also constitute elements of the kerbstone construction. For example, the passage grave at Sarup Gamle Skole II (Andersen 1997, fig. 127) had traces of a *c.* 4m wide stone pavement running around the mound at the foot of the kerbstones. At Nissehøj, a semicircular stone pavement sealed an Early Neolithic grave in front of the entrance with an offering area (Holten 2000, 290–291). However, it is not certain that these elements were part of the monument's construction phase: they could represent later changes.

The latter is not the case for another, rarely-occurring element – terracing. All around Klekkendehøj, there is a 1–1.5m flat horizontal platform at the foot of the mound and *c.* 1m above ground level. The floors and entrances to the passages are at the same level as this platform entrance. In 1987, a section trench in the south side of the mound revealed it to be an original feature (Dehn *et al.* 2000, 39–44). A section trench through the west side of the mound in 2001 confirmed that the terracing was the final step in the building process and that there was potentially an additional terrace. The outermost part of the terrace feature lay stratigraphically over the edge of a pit, on the bottom of which were small stones and fragments of larger stones. These, together with other material, are interpreted as waste from the construction of the chamber/passage and the core of the mound (Dehn and Hansen 2007, 30). Within the trench, the pit reached 1.8m in depth and extended 7m in one direction, but its actual size remains unknown. It is interpreted as a source of mound fill material, and was backfilled in connection with extensive levelling-out of the terrain after construction was completed (Figs 6.8 and 6.9).

The sophisticated construction of passage graves lead us to conclude that construction was largely carried out by specialists, perhaps even travelling master craftsmen. One calculation demonstrates that, in the islands of Bogø and Møn (an area of 231 km^2), an average of one megalithic monument a year was constructed, and a similar calculation for the Sarup area suggests an average of one newly-constructed megalithic monument every two years (Andersen 1997, 40). According to yet another calculation, on average two passage graves a week were built across the area that is now Denmark (Ebbesen 2011, 239). Regardless of the uncertainty associated with such calculations, these monuments represent the investment of unprecedented efforts by a relatively modest population over the course of a few generations. This must, in turn, have resulted in a great accumulation of knowledge and experience among the people who took part in the building work. The planning and leadership was presumably in the hands of a few individuals, but gathering and transport of the materials, as well as the actual construction work, must have involved a considerable number of people with extensive associated logistical support. As a consequence, in the generations during which this building work influenced daily life, there must (to some extent) have been widespread knowledge and experience of megalithic construction. In addition to building new monuments, it would also have been necessary to carry out regular maintenance, alteration, and adaptation of existing monuments.

Passage graves as architecture

The megalithic construction work described above represents only the technical and tangible part of the process. It is beyond doubt that the building of a structure able to stand for 5,000 years constituted a significant engineering and logistical achievement (Westphal 2015). However, Neolithic monument builders had motives beyond just raising a structure. To a great extent, the driving force was the social, religious, political, and strategic dimensions inherent in both the construction process and the actual end product – a monument that stood as confirmation of agreed alliances. The commitment of resources to build even a single monument suggests that each involved more people than there was a space for in the area around the individual structure. During the construction process, participants became part of the fellowship associated with this, and would later have been able to swap stories about special events that took place during the work, and about details of the construction known only to those who took part.

An interrupted or a continual construction process?

The structure of large megalithic monuments can reveal details of the organisation that lay behind the undertaking. Were there multiple discrete construction periods over several years, or did the work involve a continual sequence, ending with a completed structure? In the investigations described here, no indications of stagnation or breaks in the work have been found. The various components of the monuments combine to form a complex whole. In only two cases are there indications of a vegetation horizon associated with a platform established in connection with the placement of the capstones. Other traces, in the form of wash layers, subsidence or other forms of deterioration within the structure, have not been observed. A break of longer duration would, for example, have left traces in the very homogeneous flint packing behind the orthostats and the dry-walling. On the other hand, activity layers have been observed that reflect trampling during the building work and transport of materials. There are also traces of presumably ritual-based activities such as fires and the deposition of pottery. The vegetation horizons could represent a pause in the building work, but they relate to the placement of the capstone, a particularly crucial part of the process, so the platform may have stood unused while activities proceeded elsewhere. There is nothing to suggest any extended interruptions to the process.

Fig. 6.9. Detail from the section drawing Fig. 6.7 with a presumed material pit which was back-filled during extensive levelling of the terrain. The stones lay c. 0.5m above the base of the pit and at the side closest to the chamber. They presumably represent waste from the building work. (Photo T. Dehn)

It is stated above that the building process illustrated here led to the production of a finished monument. This product is not, however, identical with the final form of the monument as we see it during an archaeological investigation. In addition to the alterations and additions during later periods of prehistory, especially in the late Neolithic and Bronze Age, the builders and their immediate Funnel Beaker culture descendants probably carried out regular maintenance and modifications. Anthropological sources demonstrate that, with time, houses develop in form according to the people who use them and the circumstances surrounding them: they are changed by alterations and additions. "Building, then, is a process that is continually going on, for as long as people dwell in an environment" (Ingold 2000, 188). It seems likely that the same was also true after a megalithic monument had been constructed. The passage grave of Birkehøj demonstrates that both maintenance and alterations were carried out. The unusual architecture in one end of its chamber suggests that

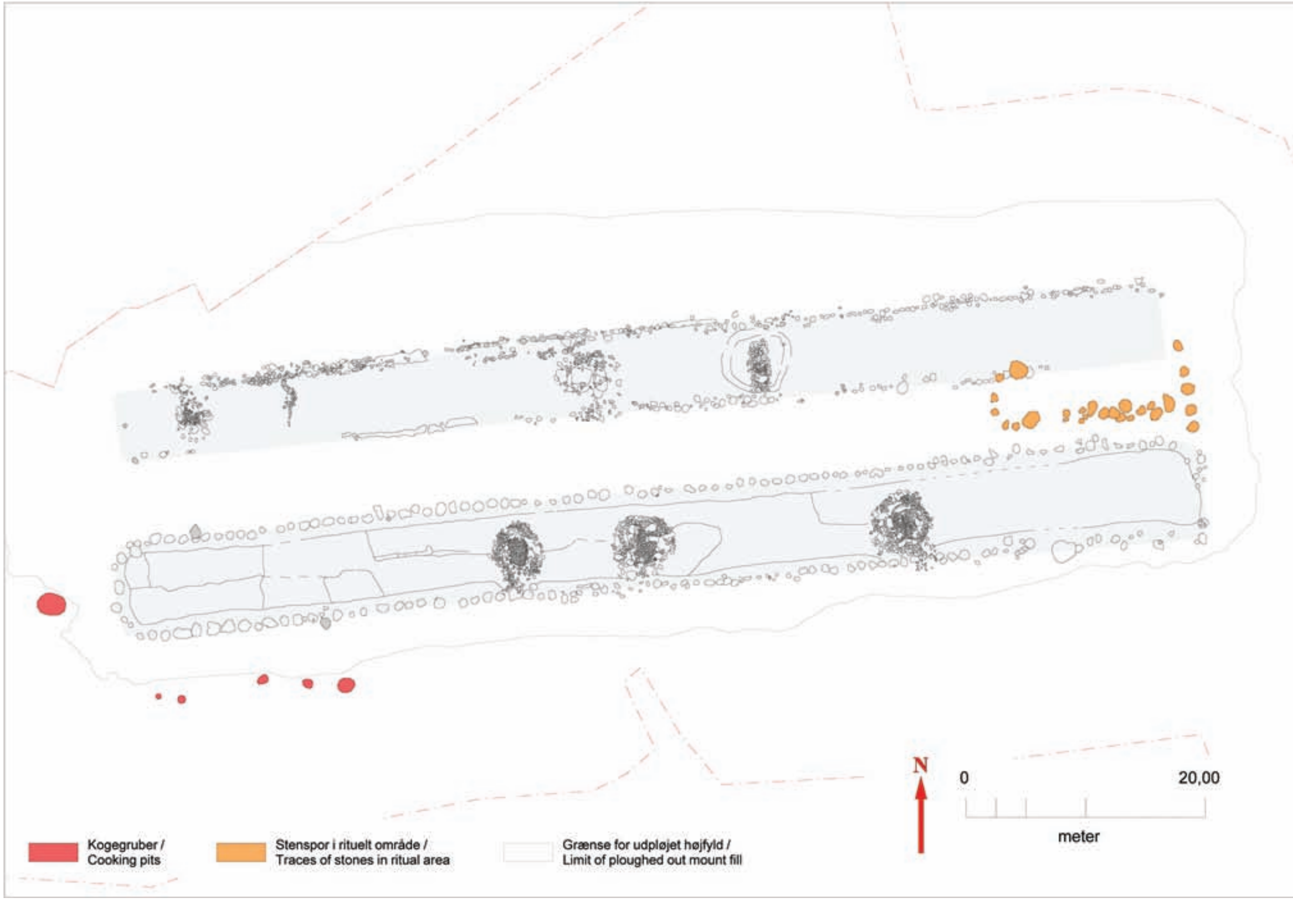


Fig. 6.10: Plan of the two ploughed-down long dolmens at Ibjerg, excavated between 2007 and 2009. A structure associated with the construction became apparent at the base of the southern mound, in the form of a longitudinal central axis with several sections at each side. (After Juel et al. in press)

an orthostat toppled over after the capstones had been put in place, requiring it to be re-erected and secured as best as possible – although the only access was from inside the chamber. This incident presumably occurred as the toppled orthostat stands at the end of the chamber formed by an earlier small dolmen chamber that was later altered and extended to produce the 11m long passage-grave chamber (Dehn *et al.* 2004, 169–171).

Conclusion

This attempt to illustrate megalithic building processes is based exclusively upon the author's own archaeological investigations and observations of the architecture in about 70 Danish megalithic monuments, especially passage graves, supplemented by examples taken from the literature. It is not certain that the same conditions and situations prevailed in all areas with megalithic monuments, or with respect to earlier monuments such as long barrows and long dolmens. In one of the two, now ploughed-out, parallel long dolmens at Ibjerg, there were suggestions in the mound construction of a cell-like structure that can be interpreted as either a step-like building process or the involvement of several construction teams (Fig. 6.10; Juel *et al.* in press). A similar phenomenon, seen in the English long barrow chamber at Ascott-under-Wychwood, Oxfordshire, where the phases have different dates, is interpreted as follows: "... the dead were incorporated into a construction site and not a finished tomb" (Bailey *et al.* 2010, 565). The Danish record on which this description of the building process is based gives no grounds for arriving at a similar conclusion. However, the idea of continual construction and rebuilding could be the reason why megalithic monuments most often lie in clusters comprising long barrows, round dolmens and passage graves, as seen for example at Lønt (Gebauer 2015). In the individual monuments, the traces left by the construction site and work on the passage graves reflect a planned, well-considered and continual effort.

Acknowledgements

The foundation for this article was a fruitful collaboration with my colleagues Svend Illum Hansen and Jørgen Westphal, who do not necessarily agree with all my interpretations.

Translation from Danish: David Earle Robinson and Anne Bloch.

References

Andersen, N. H. 1997. *The Sarup Enclosures. The Funnel Beaker Culture of the Sarup site including two causewayed camps compared to the contemporary settlements in the area and other European enclosures.* Jutland Archaeological Society Publications 33(1): Moesgaard.

Andersen, N. H. 2011. Causewayed enclosures and megalithic monuments as media for shaping Neolithic identities. In: Furholt, M., Lüth, F. and Müller. J. (eds.) *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic.* Frühe Monumentalität und soziale Differentierung 1. Dr. Rudolf Habelt GmbH: Bonn, pp. 143–154.

Andersen, N. H., Eriksen, P., Kjærum, P. and Scarre, C. 2014. *Stendysser. Arkitektur og Funktion.* Jysk Arkæologisk Selskab: Aarhus.

Bailey, D. and McFadyen, L. 2010. Built objects. In: Hicks, D. and Beaudry, M. C. (eds) *The Oxford Handbook of Material Culture Studies*. Oxford University Press: Oxford, pp. 562–587.

Clausen, C., Einicke, O. and Kjærgaard, P. (2008) The orientation of Danish passage graves. *Acta Archaeologica* 79, 216–229.

Dehn, T. 2009. The megalithic building site. In: Scarre, C. (ed.) *Megalithic Quarrying, Sourcing, Extracting and Manipulating the Stones*, BAR S1923, Archaeopress: Oxford, pp. 21–25.

Dehn, T. 2013. "Open dolmens" – a matter of decay? In: Bloo, S. B. C., Bakker, J. A. and Dütting, M. K. (eds) *From Funeral Monuments to Household Pottery – Current Advances in Funnel Beaker Culture (TRB/TBK) Research. Proceedings of the Borger Meetings 2009, The Netherlands*. BAR S2474, Archaeopress: Oxford, pp. 96–109.

Dehn, T. and Hansen, S. I. 2000. Doubleness in the construction of Danish passage graves. In: Ritchie, A. (ed.) *Neolithic Orkney in its European Context*. McDonald Institute for Archaeological Research: Cambridge, pp. 215–221.

Dehn, T. and Hansen, S. I. 2006a. Birch bark in Danish passage graves. *Journal of Danish Archaeology* 14, pp. 23–44.

Dehn, T. and Hansen, S. I. 2006b. Megalithic architecture in Scandinavia. In: Laporte, L., Joussaume, R. and Scarre, C. (eds) *Origin and Development of the Megalithic Monuments of Western Europe*. Musée de Bougon: Bougon, pp. 39–61.

Dehn, T. and Hansen, S. I. 2007. Examples of megalithic technology and architecture in Denmark. In: Bloemers, J. H. F. (ed.) *Tussen D26 en P14: Jan Albert Bakker 65 jaar*. Amsterdams Archaeologisch Centrum, Universitet Van Amsterdam: Amsterdam, pp. 17–31.

Dehn, T., Hansen, S. I. and Kaul, F. 1995. *Kong Svends Høj. Restaureringer og undersøgelser på Lolland 1991.* Stenaldergrave i Danmark 1. Skov- og Naturstyrelsen: København.

Dehn, T., Hansen, S. I. and Kaul, F. 2000. *Klekkendehøj og Jordehøj. Restaureringer og undersøgelser 1985–1990. Stenaldergrave i Danmark* 2. Skov- og Naturstyrelsen: København.

Dehn, T., Hansen, S. I. and Westphal, J. 2004. Jættestuen Birkehøj. Restaurering af en 5000 år gammel storstensgrav. *Nationalmuseets Arbejdsmark* 2004, 153–173.

Dehn, T., Hansen, S. I. and Westphal, J. 2013. Restoration of megalithic tombs in Denmark. In: Bergerbrant, S. and Sabatini, S. (eds.) *Counterpoint: Essays in Archaeology and Heritage Studies in Honour of Professor Kristian Kristiansen*. BAR S2508, Archaeopress: Oxford, pp. 695–702.

Ebbesen, K. 2011. *Danmarks Megalitgrave* 1(1). Attika: København.

Gebauer, A. B. 2015. Two types of megaliths and one oddball dolmen at Lønt, Denmark. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 137–144.

Hansen, S. I. 1993. *Jættestuer i Danmark. Konstruktion og restaurering*. Skov- og Naturstyrelsen: København

Holten, L. 2000. Death, danger destruction and unintended megaliths. In: Ritchie, A. (ed.) *Neolithic Orkney in its European Context*. McDonald Institute for Archaeological Research: Cambridge, pp. 287–297.

Holten, L. 2009. Åbninger til en anden virkelighed. Megalitanlæg som mediatorer mellem her og hisset. In: Schülke, A. (ed.) *Plads og rum i tragtbægerkulturen*, Det Kongelige Nordiske Oldskriftselskab: København, pp. 159–177.

Ingold, T. 2000. The *Perception of the Environment. Essays on Livelihood, Dwelling and Skill.* Routledge: London and New York.

Juel, C., Hansen, J. and Andersen, A. B. 2015. Grave i lange baner – et højkompleks fra tragtbægerkulturen ved Ibjerg sydøst for Odense *Aarbøger for nordisk Oldkyndighed og Historie*.

Jørgensen, E. 1977. *Hagebrogård – Vroue – Koldkur. Neolithischer Gräberfelder aus Nordwest-Jütland.* Arkæologiske Studier IV. Akademisk Forlag: København.

Kjærum, P. 1955. Tempelhus fra stenalder. *Kuml* 1955, pp. 7–35.

Ørsnes, M. 1957. Om en jættestues konstruktion og brug. *Aarbøger for nordisk Oldkyndighed og Historie* 1956, pp. 221–234.

Skaarup, J. 1985. *Yngre stenalder på øerne syd for Fyn.* Meddelelser fra Langelands Museum. Langelands Museum: Rudkøbing.

Thrane, H. 1984. *Lusehøj ved Voldtofte – en sydvestfynsk storhøj fra yngre bronzealder.* Fynske Studier XIII. Odense Bys Museer: Odense.

Westphal, J. 2015. In the Eye of the Beholder. Emergence of architectural elements in the visual analysis of Danish megalithic tombs during the last 25 years. In: Laporte, L. and Scarre, C. (eds) The Megalithic Architectures of Europe. Oxbow Books: Oxford, pp. 89–97.

7

Accident or design? Chambers, cairns and funerary practices in Neolithic western Europe

Chris Scarre

Abstract

The classic image of the Neolithic chambered tomb is of a stone-built – often megalithic – burial chamber covered by a mound or cairn. Many such chambers appear today in a denuded condition, usually as a consequence of natural or human destruction. Controversy has raged since the 19th century as to whether some megalithic chambers may never have had a covering mound, and evidence from sites from Scandinavia to Spain indicates that this may occasionally have been the case. Even where remains of a mound or cairn are present, however, the chamber was often the first structure to have been built, and would for a period have been free standing. At some sites, the deposition of human bodies began at this stage. It is not impossible that the addition of a covering mound was in some cases an act of closure, marking the cessation of burial activity.

Keywords: dolmen, megalithic tomb, burial mound, passage tomb, portal tomb, cairn

In 1865, a dramatic engraving of the megalithic monument of Pentre Ifan in south-west Wales appeared in the periodical *Archaeologia Cambrensis* (Longueville-Jones 1865) (Fig. 7.1). It showed a couple on horseback resting under the massive capstone, profiled against the distant backdrop of hazy mountains. The artist had carefully emphasised the delicately propped nature of the stone, resting on the pointed tops of three tapering orthostats that barely seemed capable of supporting its weight.

Fig. 7.1: The portal dolmen of Pentre Ifan in south-west Wales: engraving from Archaeologia Cambrensis *(1865)*

Seven years later, a similar image was reproduced in *Rude Stone Monuments in All Countries*, written by the architect James Fergusson (1872). Fergusson's book provided one of the first general surveys of megalithic monuments, covering not only western and northern Europe, but also Asia and the Americas. One of his key objectives was to explain why early societies had chosen to construct megalithic monuments using massive blocks of stone. In that context, his comments on Pentre Ifan were especially salient, and bear directly upon the question examined here of chambers and mounds. For, he observed:

> men do not raise such masses and poise them on their points for the sake of hiding them again … The mode of architectural expression which these Stone men best understood was the power of mass. At Stonehenge, at Avebury, and everywhere, as here, they sought to give dignity and expression by using the largest blocks they could transport or raise – and they were right; for in spite of their rudeness, they impress us now; but had they buried them in mounds, they neither would have impressed us nor their contemporaries. (Fergusson 1872, 169)

These engravings of Pentre Ifan are typical of the large numbers of paintings and drawings of the late 18th and 19th centuries that portrayed Neolithic chambered tombs as megalithic skeletons, devoid of any covering of earth or stones. They include paintings by Romantic artists such as Johan Christian Dahl (*Hünengrab nahe Vordingborg im Winter* 1825) and the famous Caspar David Friedrich (for example *Spaziergang in der Abenddämmerung c*. 1837/40). The power of the stones takes centre-stage, set against a dramatic natural background of stormy sky or brooding twilight. This focus on the stones, however, masks an important issue. How many of these structures were ever intended to be visible in that way? Were all of the many chambered tombs – including Dahl and Friedrich's *hünengräber* – originally covered by mounds or cairns?

In Britain, it was the publication of the first English edition of Worsaae's *Primeval Antiquities of Denmark* in 1849 that appears to have sparked the debate. Worsaae divided the monuments into two categories: "Cromlechs" (*Steendysser*) and "Giant's Chambers" (*Jaettestuer*). The former he described as "slightly elevated mounds surrounded by a number of upright stones, *on the top of which* are erected chambers formed of large stones placed one upon the other" (Worsaae 1849, 78, my emphasis). The *jaettestuer*, by contrast, were "tombs, covered by earth" (Worsaae 1849, 86). The notion that megalithic tombs had been built on top of their mounds most likely arose from the antiquarian belief that they were altars, and the fact that, in their eroded state, many megalithic structures were seen protruding from their mounds. An engraving in Øle Worm's *Danicorum Monumentorum Libri Sex* of 1643, showed a rectangular monument defined by a kerb with three mounds within it, a free-standing dolmen perched on top of the middle one (Dehn 2009). A version of the same illustration appeared in *Den Danske Atlas* by Erich Pontoppidan a century later. It was not until more careful inspection in the 19th century that it was recognised that chambers such as this had been built at ground level, and that they were indeed enclosed by their mounds, rather than supported upon them (Dehn 2009, 34).

The debate took a similar course in France. In one of the earliest descriptions of the prehistoric monuments of the Morbihan region of southern Brittany, the Abbé Mahé drew a distinction between "dolmens" (megalithic chambers), and "barrows" and "galgals" (earthen mounds and stone cairns) (Mahé 1825, 17–37). That distinction was followed by subsequent writers, such as the Chevalier de Fréminville who distinguished the cairn-covered "tombelle" of Mont Héleu (Er Grah) at Locmariaquer from the exposed "dolmen" of La Table de César (Table des Marchands) (de Fréminville 1834, 23ff). It lived on in the Baron de Bonstetten's *Essai sur les dolmens* of 1865. He divided "dolmens" into two principal categories: "*dolmens apparents*" (visible dolmens) and "*dolmens couverts d'un tumulus en terre ou en cailloux*" (dolmens covered by a mound of earth or stones). Bonstetten argued that "dolmens apparents" were not megalithic structures that had lost their mounds. Furthermore, he held that no process can reasonably be envisaged that would have led to the removal of those mounds if they had originally existed (Bonstetten 1865, 8).

Yet not all French or francophone writers saw matters in these terms. In the 1850s, Alfred Fouquet argued that the exposed or free-standing "dolmens" of the Morbihan were in fact merely the denuded remnants of formerly covered monuments. Take the Gavrinis passage tomb and remove its covering cairn, he suggested, and one would be left with a "dolmen" like the Table des Marchands: "more complete and more decorated; but, within several centuries, the weather and human action will assuredly turn it into a simple dolmen" (Fouquet 1853, 6). By the 1870s, this had become the prevailing view and, by 1889, Cartailhac was writing as if the debate were settled, affirming that these monuments were originally "furnished with a covering of pebbles, stones or earth and buried beneath a mound of greater or lesser height." He contrasted this original design with the condition to which many megalithic chambered tombs had ultimately been reduced: "Over time the monument has become degraded and the covering has disappeared. The blocks have been exposed and the chamber, which has been emptied, is itself often ruinous" (Cartailhac 1889, 162).

In Britain, too, the advocates of universal covering mounds eventually won out. William Collings Lukis, for example, took particular exception to Worsaae's contention that the Danish tombs consist of a "stone chamber … perched upon the top of the mound", with the stones exposed. He noted in contrast that the British "cromlech" is "enclosed in a mound, and is either planted upon the level of the surrounding earth, or raised a little above it" (Lukis 1864, 146). Lukis attributed the absence of a surviving mound (where that was the case) to processes of natural erosion:

> the superincumbent earth will be carried by rain through the interstices of the cap stones and their supports, and in process of time fill up the chamber of the tumulus. The action of the elements will also tend, in course of ages, to carry the earth down the sides of the mound. This will account partly for two facts which are apparent to us now, viz. – the denudation and exposure of many cromlechs, and their being, in some cases, more or less filled with earth or silt. (Lukis 1864, 150)

Lukis concluded "that all cromlechs, of whatever form, were originally enclosed in mounds of earth or stone" (Lukis 1864, 150).

Scandinavian prehistorians were unconvinced. Cartailhac drew criticism from no less an authority than Oscar Montelius, who – like Bonstetten – preferred to distinguish a category of free-standing dolmens (*freistehende Dolmen*) from buried or below-ground chambers with entrance passages or entry via a vertical shaft (Montelius 1899, 9). In contrast, in Britain, by the early years of the 20th century, the arguments advanced by Lukis and others had won general acceptance. Thus in the last (seventh) edition of *Prehistoric Times* (1913), John Lubbock observed:

> We may regard a perfect megalithic interment as having consisted of a stone chamber, communicating with the outside by a passage, covered with a mound of earth, surrounded and supported at the circumference by a circle of stones, and in some cases surmounted by a stone pillar or "menhir". (Lubbock 1913, 113)

Allowance was made for occasional exceptions, but the concept of the "normal" megalithic tomb encased within its mound was firmly established. It remained so through the middle decades of the century. Gordon Childe, in the last edition of the *Dawn of European Civilization*, puts the matter straightforwardly: "Built chamber tombs, when not erected in an artificial excavation, were probably always put underground artificially by burial in a mound or cairn" (Childe 1957, 218).

Within recent decades, however, such a standardised view of the "classic" chambered tomb has been increasingly questioned. The basis for this re-evaluation is twofold: first, a new and greater emphasis on the uniqueness and diversity of individual monuments; and secondly, new excavations leading to a heightened awareness that Neolithic monuments are often multi-phase structures that reached their final form only through successive stages of addition and modification. Thus it is a combination of theory and field observation that has reopened the question of chambered tombs and their mounds.

There are essentially two questions to consider. 1) Were all megalithic tombs covered by mounds? 2) Was there a single architectural concept that was carried through to completion by the construction of the chamber and the addition of the mound?

Moundless chambers

Let us begin by returning to Pentre Ifan, the megalithic chamber at the heart of the 19th century debates. James Fergusson remarked on the complete absence of side-walls. The chamber is open on both sides: supported only by megalithic orthostats at each end. Some archaeologists believe that originally there would have been dry stone side walls, to complete and close-in the chamber. Yet, if dry stone side walls had originally existed, no trace of them remained by the 19th century, and the remoteness of the location made it unlikely that local farmers had removed the cairn to take material for buildings or field walls (Fergusson 1872, 169–170). It was not until the 1930s that unequivocal evidence for an enclosing cairn or platform was discovered. Excavations in 1936–37 revealed the outline of an elongated structure extending back over 30m from the chamber (Fig. 7.2). The edges of this cairn had been marked out by smaller upright stones, represented mainly by their empty sockets, though these extended for only 17m along the eastern and western sides of the cairn, and did not appear to enclose the whole of the structure (Grimes 1948, 15).

These discoveries established the original presence of a structure surrounding the Pentre Ifan chamber but fell short of determining its height and profile. In the 1970s, the idea was revived that portal dolmens (such as Pentre Ifan) had been essentially free-standing (Kinnes 1975, 25). The multi-phase nature of Neolithic monuments was gaining wider recognition: it was suggested that Pentre Ifan had initially been set within a low cairn, and that the tall orthostatic façade and lengthening of the cairn were later additions (Lynch 1972). An alternative view considered the megalithic chamber and façade to be the primary elements, with the whole of the cairn a later addition, and argued that the latter was of relatively low height (Barker 1992, 23–26). The idea that the cairn may have been merely a platform around the base of the chamber is seductive, but hard to substantiate. Other reconstructions adhere to the concept of a more substantial structure, enclosing the chamber although not necessarily concealing the capstone (Turner 1992, fig. 8).

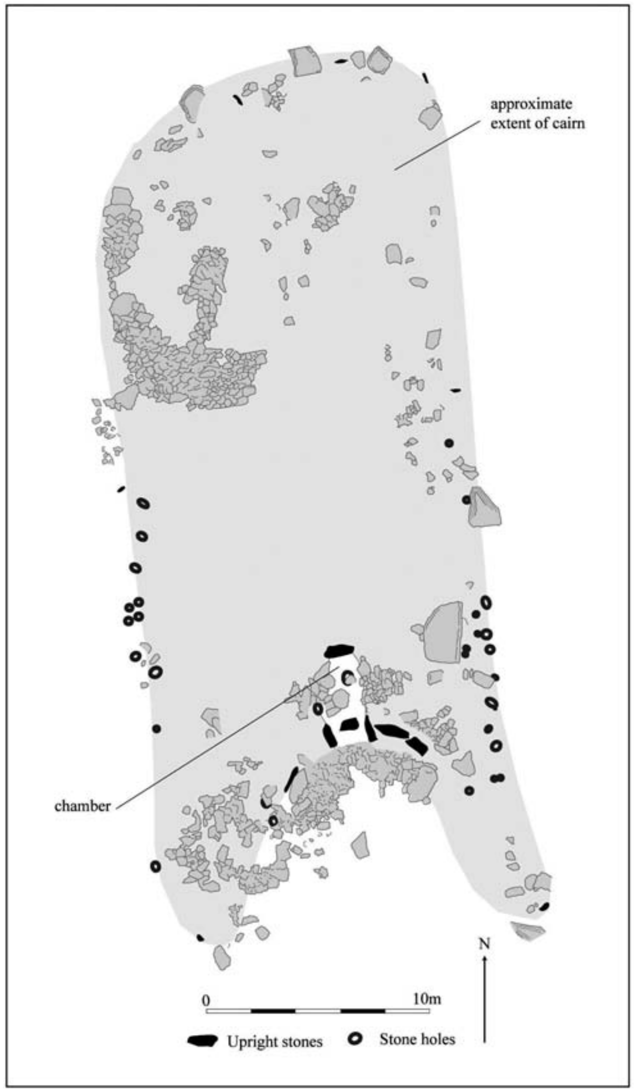


Fig. 7.2: Pentre Ifan: plan of the monument showing the cairn footings revealed in 1936–1937. (After Grimes 1948)

Despite the continuing uncertainty, recent interpretations have largely accepted the proposal that Pentre Ifan and similar sites were not masked by mounds. The massive capstones raised on conspicuously slender pillars have conjured the evocative image of "stones that float to the sky", which led to the suggestion that the purpose of these structures was not to create a closed funerary chamber but to venerate and display the capstones themselves (Whittle 2004). These capstones, at Pentre Ifan and at the neighbouring site of Carreg Samson, may have been earth-fast boulders dug from the very spot on which the chambers were later constructed (Lynch 1975; Richards 2004). Hence the massive capstones that are typical of portal dolmens may have been symbolically powerful in themselves, and the surviving structures might be more than merely their megalithic skeletons exposed by the removal or erosion of cairns. In this class of tomb, such cairns may never have existed.

It must be emphasised, however, that in this respect portal dolmens may have been exceptional among the Neolithic chambered tombs of western Britain. Most megalithic burial chambers of this region were covered by mounds or cairns, and some remain so to this day. The Cotswold-Severn long mounds of south-western England and south Wales, for example, enclosed megalithic chambers. Excavations at Belas Knap in 1929–1930 revealed that the stone-built cairn had had a covering of overlapping slabs laid like roof tiles, and a ridged configuration can be envisaged (Berry 1929; 1930). A central ridge was also observed at West Tump, Cow Common Long, and Lamborough Banks, and most (if not all) may have been finished with a roof-like structure with central ridge and sloping sides (Corcoran 1969, 78; Darvill 2004, 123). What should be remarked in all these cases, however, is that construction of the chambers preceded the building of the cairn, and the chambers must therefore, for a short period at least, have been free-standing. This is confirmed by the sequence of constructional phases at Hazleton North and Ascott-under-Wychwood (Saville 1990; Benson and Whittle 2007). There is nothing to preclude the possibility that the chambers at these sites were used for burial from the very outset. Thus interment in a free-standing megalithic chamber could have been much more common than we now believe, even though in most cases those chambers were subsequently covered by a mound or cairn.

The absence of an original covering mound has been argued for a number of sites in Britain and Ireland. In Ireland, the Carrowmore tombs are a case in point, surviving as small megalithic chambers surrounded by circular boulder kerbs. There is little evidence that the space between kerb and chamber was ever occupied by a substantial cairn. This argument is particularly clear in the case of more recently excavated tombs such as Carrowmore 27 (Fig. 7.3). The excavator concluded there could never have been a covering mound (Burenhult 1980, 55; 1984, 61). The chamber uprights had been supported by a packing of stones around their base, but there was no evidence that this material had slipped or spread either within or beyond the limits of the boulder ring. The packing stones could have supported at most only a low platform. Earlier references to "cairns" at Carrowmore are either inaccurate, or relate to recent stone clearance from the fields surrounding the sites (Bergh 1995, 79–81).

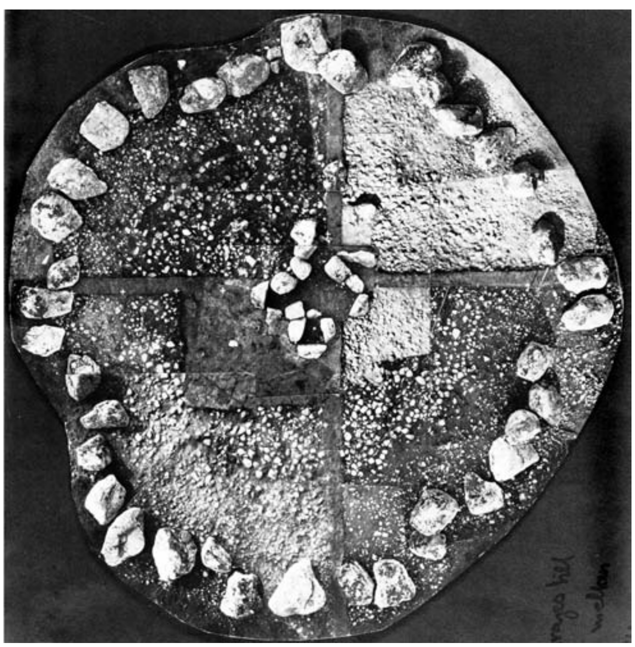


Fig. 7.3: Photo mosaic of excavations at Carrowmore tomb 27. (From Burenhult 1980)

Of the 180 or so portal tombs in Ireland, 86 have traces of a cairn, and the greater scarcity of cairn remains in areas of fertile soil suggests that, where they are missing, their absence is due to human clearance (Kytmannow 2008, 42–43). In less intensively exploited regions, such as the Burren, the outlines of kerbless cairns have been revealed by excavation and are visible today (Fig. 7.4). In no cases do the surviving remains of the cairn approach the height of the chamber, and it has been argued that they were most likely low bench-like structures, above which the capstone would always have been visible (Kytmannow 2010, 212; Lynch 2014, 181). It is possible that the placing of the capstone required the construction of a full-height mound or ramp, up which the massive slabs could be dragged; in which case the low bench-like cairn could be either the reduced remains of that structure, or an entirely separate construction. The postulated absence of a mound is far from universal, however, even on the Burren, where later megalithic wedge tombs still retain remains of the covering mound resting upon the capstone (Fig. 7.5).

The passage tombs of Ireland, western Britain and north-west France provide a more complex picture. Most of these appear to have had covering mounds or cairns that entirely enclosed the chamber. In northwest France, many famous megalithic tombs have ample evidence for the existence or former existence of a covering mound. These are not mere dumps of earth and stone. It is now more than a century since Zacharie Le Rouzic noted the presence of concentric internal walls within the cairn that covered the passage tomb of Ile Longue (Le Rouzic 1914), and the internal structure of the Breton passage tomb cairns achieved greater prominence following Pierre-Roland Giot's excavations at Barnenez in the 1950s. When Giot began work at Barnenez, he was struck by the fact that the inner walls were visible high up the mound, standing to a greater height than the outer kerb of the monument. As he explained: "Such structural features had hitherto been considered part of the internal arrangements hidden within the cairns, evidence of phases and techniques of construction, and playing the role of retaining

Fig. 7.4: Irish portal tomb of Poulnabrone on the Burren (Co. Clare). Excavations in the 1980s revealed traces of a small oval kerbless cairn, but it is unlikely that this would ever have covered the capstone (Lynch 2014. 181). (Photo: Chris Scarre)

Fig. 7.5: Irish wedge tomb of Parknabinnia on the Burren (Co. Clare). Note the capstone still carries remains of the original covering mound. (Photo: Chris Scarre)

or supporting walls." It was this that led him to propose a stepped mound, and thus was the monument of Barnenez physically reconstructed at the end of his excavations. The published detail does not allow us to go further than this (Giot 1987, 31–32). Reconstruction at several north French passage tombs has subsequently adopted the stepped concept, giving these monuments a very different appearance to that envisaged for most British and Irish sites.

A number of passage tombs are of primarily dry-stone construction and are roofed by corbelled vaults. Their stability depends on the presence of the enclosing cairn, and in these cases the two structures – cairn and chamber – must have been built synchronously (Cavanagh and Laxton 1990; Eogan 1986, 44; O'Kelly 1982, 119–120). Where chambers are megalithic in construction, however, and roofed by capstones, the same imperative does not apply. It is possible that, in at least some of these cases, the passage and chamber were built as free-standing structures, before the mound or cairn was added.

The well-known passage tomb of Bryn Celli Ddu on Anglesey has a particular place in this debate by virtue of the diversity of interpretations that have been placed on its constructional sequence. Excavations in 1925–1929 revealed that the passage and chamber, together with its oval mound and orthostatic kerb, concealed a series of earlier structures (Hemp 1930). The most significant of these was an annular ditch with an arc or circle of stones on its inner edge. At its centre, immediately behind the chamber, was a pit and, lying flat beside that (though originally upright), was a single decorated block known as the "pattern stone". The multi-phase character of the sequence at this site was demonstrated by the fact that the pattern stone and stone circle had been entirely hidden by the mound. Additionally, it was clear that the orthostatic kerb had been built directly on the infill of the annular ditch. O'Kelly argued that a henge (represented by the ditch and stone circle) preceded the passage tomb (O'Kelly 1969). Against this is the absence of a bank outside the ditch, and the likelihood that the digging of the ditch furnished the material for the mound. Hence alternative reconstructions propose a small initial mound enclosing the burial chamber, followed by enlargement to give an oval mound with an orthostatic kerb overlapping the top of the earlier ditch (Eogan 1983; Bradley 1998; Burrow 2010).

Documentary evidence confirms that the cairn, at least in its final form, enclosed the passage and chamber. This is shown by a schematic 1723 engraving that appears to show the mound intact (Rowlands 1723, pl. vii), although from a later illustration it can be seen that by 1847 the mound was already badly degraded (Fig. 7.5). Some of the original mound material still survived on top of the capstone when excavations began in 1925 (Hemp 1930, 221), but it was removed and later replaced by the modern replica mound that covers the chamber today. Recent proposals for a two-phase mound leave open the possibility, however, that the original smaller mound may only have lapped around the base of passage and chamber. Even the initial mound probably buried the "pattern stone", suggesting an initial mound-free stage that may only have been of short duration. Cremated human remains were found in association with several of the stones in the stone circle: radiocarbon dates suggest that these deposits pre-date the deposits from the passage and chamber by a short interval (Burrow 2010) though the two may be effectively contemporary. The overall impression is of a relatively rapid transformation from virgin site to stone structures (with human remains) and to mounded tomb. Passage and chamber may have appeared at a fairly early stage in this sequence. They may have remained visible at first, only partially enclosed by the small initial mound, even if some measure of support was essential from the outset to stabilise the shallowly bedded orthostats. Alternatively, the initial mound may have covered the chamber from the outset, and the expanded mound filled the remainder of the space within the orthostatic kerb later, forming a lower platform (Burrow 2010, 261).

Bryn Celli Ddu provides an excellent example of the

Fig. 7.6: *Bryn Celli Ddu, passage tomb on the island of Anglesey (North Wales): 19th century engraving showing remains of the cairn still surviving on top of the capstone: engraving from* Archaeologia Cambrensis *(1847)*

complexity underlying "finished" monuments. It also illustrates the difficulty of deciphering constructional sequences even when excavation evidence is available. Above all, however, it draws attention to the changing appearance of the monument through time, and demonstrates that the addition or enlargement of the covering mound was often one of the final acts in a lengthy drama. Indeed, in some cases, it may have been a mark of closure. We shall return to that concept shortly.

An even clearer demonstration of this phenomenon is provided by the tomb of Mound of the Hostages at Tara (O'Sullivan 2005; Scarre 2013). Here the passage tomb is covered by a two-tier structure: an inner cairn of stones, and an outer mound of earth (Fig. 7.6). The chamber remained accessible and continued to receive new inhumations into the early Bronze Age, at which time individual burials were also inserted into the earthen mound. It is possible that the earthen mound was added only at this period (Fig. 7.7). The "great mound" at Newgrange may have been added in the late third or early 2nd millennium BC, enclosing and concealing the famous passage tomb and its decorated kerb (Eriksen 2008). It is the beginning of the sequence at Mound of the Hostages that is particularly interesting, however, since behind the orthostats three small stone-slab cists were constructed. These contained cremated human remains that must have been deposited after the erection of the chamber but before the construction of the inner cairn. Radiocarbon dates and the presence of Carrowkeel bowls suggest that the deposits in the cists were contemporary with the initial burials within the chamber. This implies that the chamber at Mound of the Hostages was receiving human burials as a free-standing structure for an indeterminate, but possibly extended, period before the cairn was added. The potential parallels and contrasts with the sequence at Bryn Celli Ddu are striking.

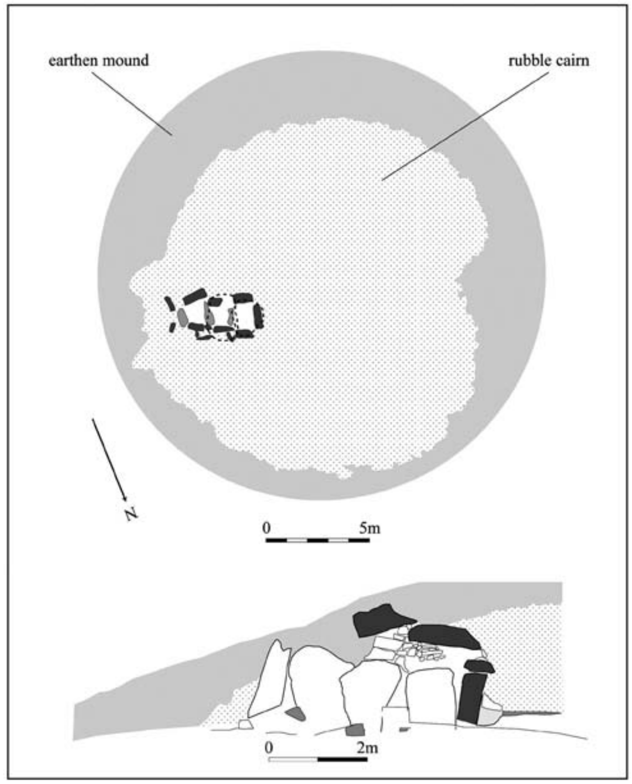


Fig. 7.7: Mound of the Hostages at Tara (Co. Meath, Ireland). (After O'Sullivan 2005)

The decoupling of chamber and cairn suggested by the evidence of these British and Irish examples is more than a mere constructional detail: it goes to the very heart of what we consider a megalithic tomb to be. Further examples could be given, not only from Britain and Ireland, but from Iberia, France and Scandinavia, where evidence occasionally demonstrates what may have been the case much more generally: that megalithic mounds were not only built but also used before the addition of a mound.

Mounds as closure

In some instances, indeed, the mound may have been added as an act of closure. At Tårup in East Jutland, Denmark, excavation was unable to provide definitive evidence that the megalithic chamber had initially been free-standing (Holst 2006, 9). It can nonetheless be suggested that the original structure was only later covered by a turf mound, before being enclosed in the early Bronze Age in a much larger mound (Figs 7.8 and 7.9). A similar sequence may apply to Carrowmore tomb 51, which stands apart from the rest of the Carrowmore tombs, both in its position at the centre of the cemetery, and in its morphology. It was the only Carrowmore tomb with remains of a cairn, but a significant interval may have elapsed between the completion of the tomb and the addition of the cairn (Burenhult 2003, 67–68).

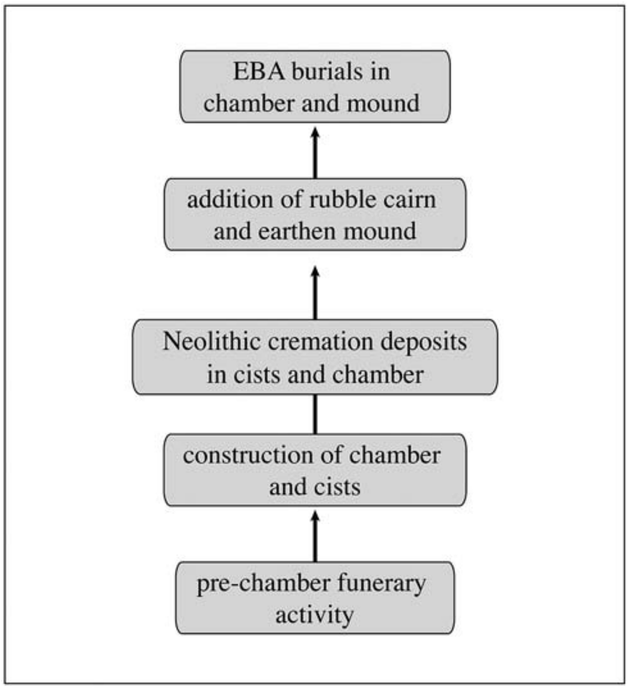


Fig.7.8: Constructional sequence at Mound of the Hostages, Tara: the earthen mound covering the stone cairn contained a number of early Bronze Age burials and may only have been added at that stage

A clearer sequence is provided by Tomb 5 in the Forno dos Mouros complex in Galicia (Mañana Borrazás 2005; see also Fábregas & Vilaseco, this volume). This is a relatively large multi-phase monument that has suffered extensive damage: excavation revealed the earliest structure to have been a free-standing megalithic chamber of the seven-stone morphology typical of western Iberia. The chamber had been preceded by a short passage comprised of only two slabs flanking the entrance. Due to the acidity of the soil, nothing survived of the interments that were presumably placed within the chamber, and at the end of its use the passage was carefully blocked by three stone slabs. A ring of medium-sized blocks was then piled against the outside of the chamber, sufficiently heavy to have caused the latter's collapse. It was only after this that a mound of earth and gravel was added, completely covering the chamber and the blocking material. The excavator was in no doubt that the chamber had been a free-standing structure and was only covered by a mound after it was blocked and taken out of use: "Although in principle the hypothesis can be entertained that this tumulus and chamber constituted a single monumental ensemble, the fact is that the stratigraphic evidence show with complete clarity … that the chamber preceded this first mound construction and that it functioned free standing and open" (Mañana Borrazás 2005, 52). A larger mound was added later, probably associated with a second, larger megalithic chamber (Fig. 7.10).

It is entirely possible that many of the seven-stone tombs of western Iberia experienced a similar sequence, and that the addition of a mound or cairn was essentially an act of closure. For most of the monuments discussed above, however, the presence of a cairn or mound did not in itself obstruct access to the funerary space. Yet, it may still have marked the memorialisation of a previous burial space, albeit not one that was actively receiving new deposits.

Conclusions

Studies of megalithic tombs frequently consider the burial chamber and its covering mound or cairn to be the product of a single unified design. This is challenged by evidence from recent excavations demonstrating that many, if not most, of these monuments were multi-phase constructions, the result of successive modifications and additions.

There is hence an inherent tension between the tomb as finished product, and the multiple stages by which that product was achieved. To regard these structures as the intended culmination of a constructional sequence fails to account adequately for the dynamic character of their creation. Since the nineteenth century, the contention that all such tombs were once covered by mounds has been opposed by the view that some were built as free-standing monuments.

For certain categories of tomb, the simultaneous construction of chamber and cairn would have been essential for their structural integrity. The remainder, however, will inevitably have passed through an initial mound-free stage during the process of construction. Furthermore, chambers

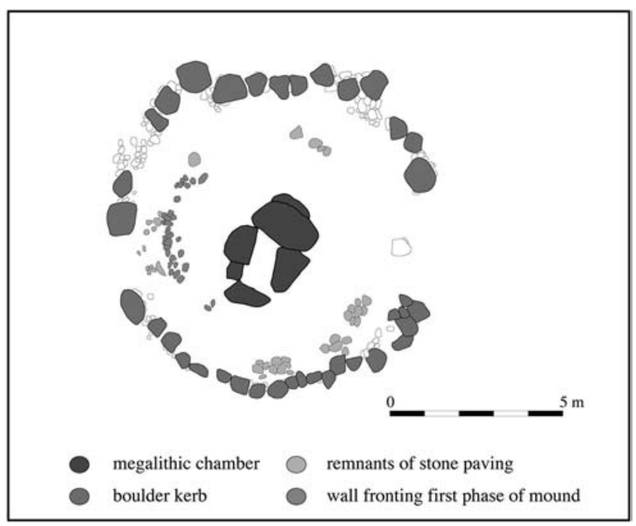


Fig. 7.9: Plan of the megalithic tomb at Tårup in East Jutland. The initial dolmen was probably built in the later 4th millennium. The chamber may initially have been free standing within a boulder circle enclosing a paved ceremonial area. A cairn was subsequently added, then a turf mound 15m in diameter, and finally a 57m mound with encircling ditch in the 2nd millennium BC. (After Holst 2006)

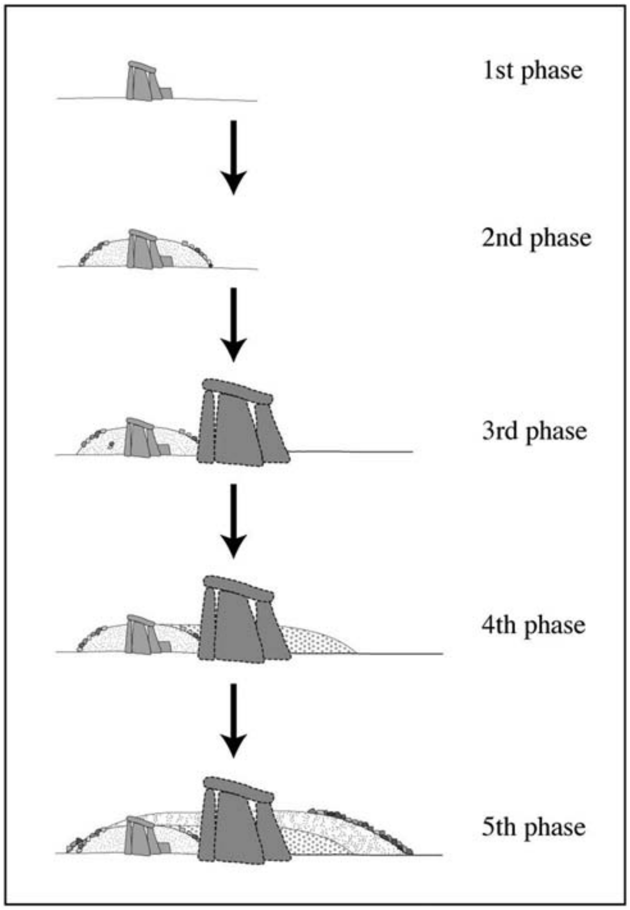


Fig. 7.10: Constructional sequence at Forno dos Mouros (Galicia). The initial hexagonal chamber was initially free-standing, and closed with blocking slabs across the entrance, before a covering mound was built. A larger mound with a possible second chamber was later added. (From Mañana Borrazás 2005, 52)

did not always wait for mounds to be added before being used for burial deposition.

This interpretation has been proposed for a number of Scandinavian megalithic tombs, such as Trollasten in Scania, Kjallesten on Lolland, Gunderslevholm on Zealand, and Tustrup in Jutland (Eriksen and Andersen 2015). At Lønt, in Jutland, it has been argued that the megalithic chambers must have remained as free-standing monuments for some appreciable time before the mounds were constructed (Gebauer 2015). This view has not gone uncontested, however, and the alternative view – that apparently free-standing or "open" dolmens are merely the weathered and denuded remains of once mound-covered structures – has been closely argued for some of these sites (Dehn 2013). What is important here, above all, is that the issue be considered carefully on a site by site basis, free from prior assumptions that mounds were (or were not) a consistent feature of megalithic chambered tombs.

Rather than marking the structure as ready for use, the addition of the mound might sometimes have essentially been an act of closure. At a number of sites, funerary activity can be shown to have begun before the chamber was erected. In these cases, the erection of the megalithic chamber may mark only the formalisation of pre-existing mortuary activity at that location. This analysis underlines the importance of disentangling construction, funerary activity, and final form as separate (if interwoven) elements, rather than parts of a single project design.

Two key conclusions arise from this brief review. The first is the importance of *sequence*: that in monuments where a chamber is covered by a mound, the chamber may have operated for a significant period before the mound or cairn was added. It is generally difficult to determine the length of that period, but free-standing chambers may have been much more common than conventional wisdom suggests. There will have been exceptions, notably in the case of corbel-vaulted burial chambers where parallel construction of the chamber and cairn would have been essential to ensure the stability of the covering. In other cases, however, the building of a mound or cairn may have been the final stage in a multi-phase sequence of construction, use and abandonment.

In second place we must recognise how difficult it is to reconstruct the original three-dimensionality of these monuments. Nineteenth century antiquarians were sometimes misled by the appearance of the surviving megalithic structures, and overlooked issues of natural degradation and human interference. Absence of a visible mound does not necessarily indicate that one never existed. Furthermore, at many well-known sites the covering mound still survives, such as West Kennet in Wiltshire, Gavrinis in Brittany, and Newgrange in Ireland. In the majority of cases, however, excavation may discover the base of a cairn-like structure, but that discovery does not resolve the question of its original character. Was it merely a bench or platform, or did it rise above the capstones? Careful observation can sometimes determine the issue, but not in all cases. What emerges is the diversity of forms encountered amongst the Neolithic monuments of northwest Europe, and the realisation that structures that look very similar in their current denuded state, or from the published plan, could have been strikingly different in concept and appearance.

Acknowledgements

I am grateful to the late Magdalena Midgley for constructive comments on an earlier version of this article. This paper is developed from my chapter in the Danish volume *Stendysser. Arkitektur og funktion* (eds Palle Eriksen & Niels Andersen: Jysk Arkæologisk Selskab: Aarhus, 2014) and I should like to thank the editors for permission to reproduce some of that material here in English.

References

Barker, C. T. 1992. *The Chambered Tombs of South-West Wales.* Oxbow Books: Oxford.

Benson, D. and Whittle, A. (eds) 2007. *Building Memories. The Neolithic Cotswold Long Barrow at Ascott-Under-Wychwood, Oxfordshire*. Oxbow Books: Oxford.

Bergh, S. 1995. *Landscape of the Monuments: a study of the passage tombs in the Cúil Irra region*. Riksantikvarieämbetet Arkeologiska Undersökningar: Stockholm.

Berry, J. 1929. Belas Knap long barrow, Gloucestershire: report of the excavations of 1929. *Transactions of the Bristol and Gloucestershire Archaeological Society* 51, pp. 273–303.

Berry, J. 1930. Belas Knap long barrow, Gloucestershire. Second report: the excavations of 1930. *Transactions of the Bristol and Gloucestershire Archaeological Society* 52, pp. 123–150.

de Bonstetten, Baron A. 1865. *Essai sur les dolmens.* Jules-Guillaume Fick: Geneva.

Bradley, R. 1998. Stone circles and passage graves – a contested relationship. In: Gibson, A. and Simpson, D. (eds) *Prehistoric Ritual and Religion*. Sutton Publishing: Stroud, pp. 2–13.

Burenhult, G. 1980. *The Archaeological Excavation at Carrowmore, Co. Sligo, Ireland. Excavation seasons 1977–79*. G. Burenhults Förlag: Stockholm.

Burenhult, G. 1984. *The Archaeology of Carrowmore: environmental archaeology and the megalithic tradition at Carrowmore, Co. Sligo, Ireland*. G. Burenhults Förlag: Stockholm.

Burenhult, G. 2003. The chronology of Carrowmore. In: Burenhult, G. (ed.) *Stones and Bones. Formal Disposal of the Dead in Atlantic Europe during the Mesolithic–Neolithic interface 6000–3000 BC*. BAR S1201, Archaeopress: Oxford, pp. 66–69.

Burrow, S. 2010. Bryn Celli Ddu passage tomb, Anglesey: alignment, construction, date, and ritual. *Proceedings of the Prehistoric Society* 76, pp. 249–270.

Cartailhac, É. 1889. *La France Préhistorique d'après les sépultures et les monuments*. Félix Alcan: Paris.

Cavanagh, W. G. and Laxton, R. R. 1990. Vaulted construction in French megalithic tombs. *Oxford Journal of Archaeology* 9, pp. 141–167.

Childe, V. G. 1957. *The Dawn of European Civilization.* Routledge and Kegan Paul: London.

Corcoran, J. X. W. P. 1969. The Cotswold-Severn Group: 2. Discussion. In: Powell, T. G. (ed.) *Megalithic Enquiries in the West of Britain.* Liverpool University Press: Liverpool, pp. 73–104.

Daniel, G. 1958. *The Megalith Builders of Western Europe*. Hutchinson: London.

Darvill, T. 2004. *Long Barrows of the Cotswolds and Surrounding Areas*. Tempus: Stroud.

Dehn, T. 2009. The Videdys long dolmen 1643–2006. In: Midgeley, M. (ed.) *Antiquarians at the Megaliths*. BAR S1956, Archaeopress: Oxford, pp. 31–35.

Dehn, T. 2013. "Open dolmens" – a matter of decay? In: Bakker, J. A., Bloo, S. B. C. and Dütting, M. K. (eds) *From Funeral Monuments to Household Pottery: current advances in Funnel Beaker Culture (TRB/TBK) research*. BAR S2474, Archaeopress: Oxford, pp. 95–109.

Eogan, G. 1983. Bryn Celli Ddu. *Antiquity* 57, pp. 135–136.

Eogan, G. 1986. *Knowth and the Passage-Tombs of Ireland.* Thames and Hudson: London.

Eriksen, P. 2008. The great mound of Newgrange: an Irish multi-period mound spanning from the megalithic tomb period to the Early Bronze Age. *Acta Archaeologica* 79, pp. 250–273.

Eriksen, P. and Andersen, N. H. 2015. Dolmens without mounds in Denmark. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 79–87.

Fergusson, J. 1872. *Rude Stone Monuments in All Countries; their Ages and Uses*. John Murray: London.

Fouquet, A. 1853. *Des monuments celtiques et des ruines romaines dans le Morbihan*. Cauderan: Vannes.

Fréminville, C.-P. de la Poix. 1834. *Antiquités de la Bretagne. Monumens du Morbihan*. Lefournier: Brest.

Gerbauer, A. G. 2015. Two types of megaliths and an unusual dolmen at Lønt (Denmark). In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 137–144.

Giot, P.-R. 1987. *Barnenez, Carn, Guennoc*. Travaux du Laboratoire d'Anthropologie, Préhistoire, Protohistoire et Quaternaire Armoricains: Rennes.

Grimes, W. F. 1948. Pentre Ifan burial chamber, Pembrokeshire. *Archaeologia Cambrensis* 100, pp. 3–23.

Hemp, W. J. 1930. The chambered cairn of Bryn Celli Ddu. *Archaeologia* 80, pp. 179–214.

Holst, M. K. 2006. Tårup. A round dolmen and its secondary burials. *Journal of Danish Archaeology* 14, pp. 7–21.

Kinnes, I. 1975. Monumental function in British Neolithic burial practices. *World Archaeology* 7, pp. 16–29.

Kytmannow, T. 2008. *Portal Tombs in the Landscape. The Chronology, Morphology and Landscape Setting of the Portal Tombs of Ireland, Wales and Scotland*. BAR 455, Archaeopress: Oxford.

Kytmannow, T. 2010. Round mounds containing portal tombs. In: Leary, J., Darvill, T. and Field, D. (eds) *Round Mounds and Monumentality in the British Neolithic and Beyond*. Neolithic Studies Group Seminar Papers 10, Oxbow Books: Oxford, pp. 211–218.

Le Rouzic, Z. 1914. Carnac. Restaurations faites dans la région. Dolmen à coupole et à galerie de l'Ile Longue. *Bulletin de la Société Polymathique du Morbihan* 1914, pp. 114–116.

Longueville Jones, H. 1865. Pembrokeshire antiquities. Cromlechs – Newton, Manorbier, St. David's Head, Pentre Ifan. *Archaeologia Cambrensis* 11, pp. 281–285.

Lubbock, J. 1913. *Prehistoric Times as Illustrated by Ancient Remains and the Manners and Customs of Modern Savages*. Williams and Norgate: London.

Lukis, W. C. 1864. Danish cromlechs and burial customs compared with those of Brittany, the Channel Islands, and Great Britain. *Wiltshire Archaeological and Natural History Magazine* 8, pp. 145–169.

Lynch, A., 2014. *Poulnabrone: An Early Neolithic Portal Tomb in Ireland*. Department of Arts, Heritage and the Gaeltacht: Dublin.

Lynch, F. 1972. *Portal Dolmens in the Nevern Valley, Pembrokeshire.* In: Lynch, F. and Burgess, C. (eds) *Prehistoric Man in Wales and the West*. Adams and Dart: Bath, pp. 67–84.

Lynch, F. 1975. Excavations at Carreg Samson megalithic tomb, Mathry, Pembrokeshire. *Archaeologia Cambrensis* 124, pp. 15–35.

Mahé, J. 1825. *Essai sur les Antiquités de Département du Morbihan*. Ainé: Vannes.

Mañana Borrazás, P. 2005. Túmulo 5 de Forno dos Mouros (Ortigueira, A Coruña). Primeiros resultados. *Cuadernos de Estudios Gallegos* 52, pp. 39–79.

Montelius, O. 1899. *Der Orient und Europa. Einfluss de orientalischen Cultur auf Europa bis zur Mitte des letzten Jahrtausends v. Chr*. Stockholm.

O'Kelly, C. 1969. Bryn Celli Ddu, Anglesey. *Archaeologia Cambrensis* 118, pp. 17–48.

O'Kelly, M. J. 1982. *Newgrange. Archaeology, Art and Legend.* Thames and Hudson: London.

O'Sullivan, M. 2005. *Duma na nGiall. The Mound of the Hostages, Tara.* Wordwell: Bray, Co. Wicklow.

Richards, C. 2004. Labouring with monuments: constructing the dolmen at Carreg Samson, south-west Wales. In: Cummings, V. and Fowler, C. (eds) *The Neolithic of the Irish Sea. Materiality and Traditions of Practice*. Oxbow Books: Oxford, pp. 72–80.

Rowlands, H. 1723. *Mona Antiqua Restaurata. An archaeological discourse on the antiquities, natural and historical, of the Isle of Anglesey, the ancient seat of the British Druids*. Dublin.

Saville, A. 1990. *Hazleton North. The Excavation of a Neolithic Long Cairn of the Cotswold-Severn Group*. English Heritage: London.

Scarre, C. 2013. Covering the dead: the cists behind the orthostats at the Mound of the Hostages. In: O'Sullivan, M., Scarre, C. and Doyle, M. (eds) *Tara – from the Past to the Future. Towards a New Research Agenda*. Wordwell: Dublin, pp. 159–169.

Turner, R. C. 1992. Pentre Ifan burial chamber, Pembrokeshire. The story of the first ancient monument in Wales. *Transactions of the Ancient Monuments Society* 36, pp. 99–118.

Whittle, A. 2004. Stones that float to the sky: portal dolmens and their landscapes of memory and myth. In: Cummings, V. and Fowler, C. (eds) *The Neolithic of the Irish Sea. Materiality and Traditions of Practice*. Oxbow Books: Oxford, pp. 81–90.

8

Dolmens without mounds in Denmark

Palle Eriksen and Niels H. Andersen

Abstract

The earliest monumental structures in Denmark appear at about 3700 BC, a couple of centuries after the first traces of a Neolithic economy in Denmark. The structures consist of elongated fenced areas, usually with or without timber built cists, but occasionally with stone built cists, such as in Barkær. These cists are the forerunners for the real dolmen-chambers, the latter built from erratic boulders and dating back to *c.* 3500 BC. This article uses examples from investigations of scheduled dolmens to show that originally the dolmen chambers were exposed, regardless of whether the chamber was free-standing, enclosed by a circle of stones (round dolmen), or had a rectangular setting of stones (long dolmen). Some dolmens were altered – often in multiple stages – in very dynamic ways, including the addition of extensive mound fill. Generally speaking however, many dolmens – especially later ones like Poskær Stenhus and the round dolmen at Tustrup – largely kept their original appearance. After around three centuries, at 3200 BC, the building of dolmens ceased, and instead a totally new type of monument – the mound-covered passage tomb – took over.

Keywords: dolmen, Denmark, free-standing chamber, multi-period monuments, stone cist, barkærfeature

Poskær Stenhus – a key site

Since the middle of the first half of the 19th century, Danish dolmens have been national icons, depicted by painters in monumental and dramatic ways showing raised capstones against a blue sky. The earliest legal protection of selected dolmens dates back to the same time. One example is the famous round dolmen, Poskær Stenhus (*Stenhus* meaning stone house) in Eastern Jutland. It measures 15.5m in diameter and has one polygonal chamber; it was scheduled in 1860 (Eriksen 1999) (Fig. 8.1). Poskær Stenhus is a key site in the discussion of whether dolmens had mounds. Poskær Stenhus, like many of our dolmens, is an open structure with no sign of ever having had a mound cover. The visibility of its big stones was even more striking and monumental before 1943, when the bottom section of the façade of the kerbstones was covered up with earth to protect them from falling. In spite of its present appearance, Poskær Stenhus is believed by some archaeologists to be a ruined and skeletal megalithic structure, whose mound has disappeared through a combination of human action and natural erosion. A similar opinion is expressed on the 20-year-old information board at the site (removed in 2003) which, beneath a drawing of a mound hiding the chamber of Poskær Stenhus (Fig. 8.2), states the following (our translation):

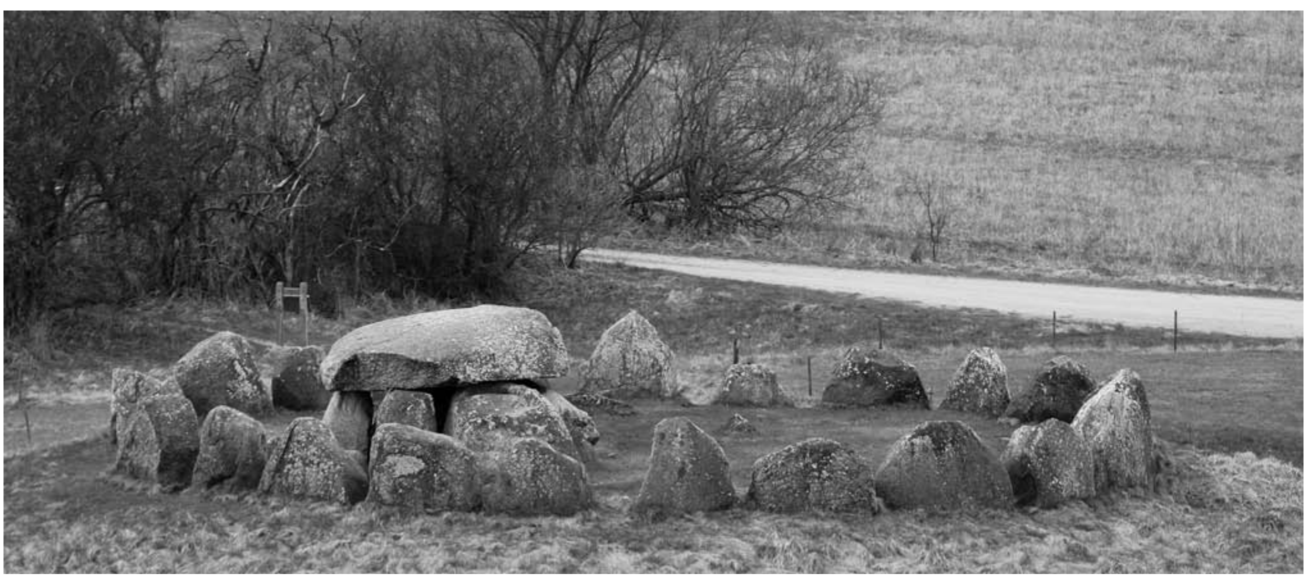


Fig. 8.1: The round dolmen Poskær Stenhus, Mols, in Eastern Jutland. (Photo: P. Eriksen)

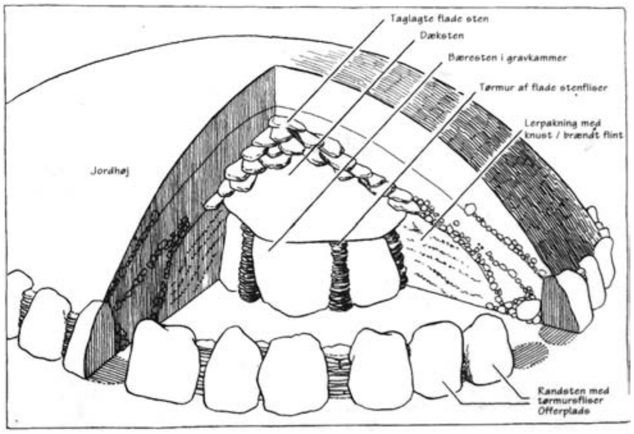


Fig. 8.2: Reconstruction drawing from the old information board at Poskær Stenhus, illustrating the original appearance of the site proposed by some archaeologists

> Reconstruction of the round dolmen's original appearance before the destruction of the dry walls between the kerbstones and the removal of the soil of the mound, which perhaps concealed the chamber totally. The chamber was not – as it is today – open and accessible, but must have been opened up in connection with new burials and offerings to the dead and the gods.

A survey of Poskær Stenhus, in 1995, demonstrated that this interpretation could not explain a number of construction details of the monument. Since then, the authors have conducted a study of dolmens with and without mounds (Eriksen and Andersen 2014). In this article we only deal with scheduled dolmens, but the book also includes information from the excavations of destroyed dolmens in the Sarup area, with many examples of dolmens originally without mounds.

Simple typology, definition and dating

In Denmark, all dolmens and the later passage tombs were built of stones left on the surface after the withdrawal of the ice. The main difference in morphology between dolmens and passage tombs is that the latter always have a passage connecting the interior of the chamber with the exterior of the mound, while dolmens never have a passage leading to the kerbstones or mound exterior.

Broadly speaking, the dolmens consist of two groups: an older group with small, mainly rectangular chambers, and a younger group with polygonal chambers which are generally bigger and higher than the chambers in the older group (see Figs 8.12 and 8.13). Usually dolmens have only one capstone, while passage tombs have more. Some passage tombs with a rounded floor plan are, in a misleading way, called great-dolmens (*stordysser* in Danish, Ebbesen 1979; *Grossdolmen* in German, Schuldt 1972). About 2400 protected megaliths (1800 dolmens and 600 passage tombs) are found in Denmark.

The mounds are built of earth, sometimes with intermittent layers of stones. They are not just mounds in the traditional sense, as the prehistoric layers comprising them can be divided into four principal classes: packing, cultic, natural, and real mound fill, the latter in the traditional sense of increasing the mound and sealing the structures inside it. The mound can be extremely low, or no traces of mound fill are found at all: the mound can also be extremely high. The shapes of the mounds vary from long rectangular, sometimes vaguely trapezoidal (long dolmens) to round (round dolmens). Finally, in the case of the free-standing dolmens, no mound is found at all.

The Neolithic period in Denmark begins around 3950 BC. The first monuments built there, at around 3700 BC, were elongated structures, frequently with imposing wooden constructions in one of the gables. We have called the whole structure a *barkærfeature*. After this monumental beginning, stone built cists and/or long barrows – which sometime cover the above-mentioned elongated structures with timber – were succeeded by dolmens at around 3500 BC, and by passage tombs at around 3200 BC.

Literature about Danish dolmens in foreign languages is sparse, but two books with summaries in English have been published recently (Ebbesen 2007; 2011).

Looking different – why?

The 1800 protected dolmens have very different appearances, spanning ruins with a few stones, free-standing chambers, and chambers in long or round mounds. These have levels of mound fill that vary from none to a complete cover of the chamber. Many of the monuments have been plundered for stones: the capstones are often missing, or several, if not all, of the kerbstones have been removed. Some of the remaining stones might have been broken or blown up into smaller pieces.

Until 1984, most Danish archaeologists believed that the dolmens, especially the later dolmens, were open structures in the Neolithic just like they appear today, but that year the erosion theory was put forward (Thorsen 1984). The idea – that man had a destructive, altering impact on the megaliths, combined with natural erosion – was not unknown, but with this theory every monument could fit into one and the same scheme in a very convincing way (Fig. 8.3).

The erosion theory operates at four stages, each illustrated by a section through the chamber in a long dolmen. Stage 1 is the newly built monument just as it was finished in the Neolithic. The mound completely covers the chamber in a gable roof shape, leaving only the upper top of the capstone visible. The long dolmen for the dead was meant to imitate a Neolithic house for the living. Some hundred years later in the Neolithic – in stage 2 – natural erosion has eroded the top of the mound, resulting in an exposed capstone but with kerbstones still almost completely hidden by the eroding mound fill. Stage 3 represents modern times (20th century) with more extensive farming activities: the eroded soil along the kerbstones is ploughed away or removed so the dolmen

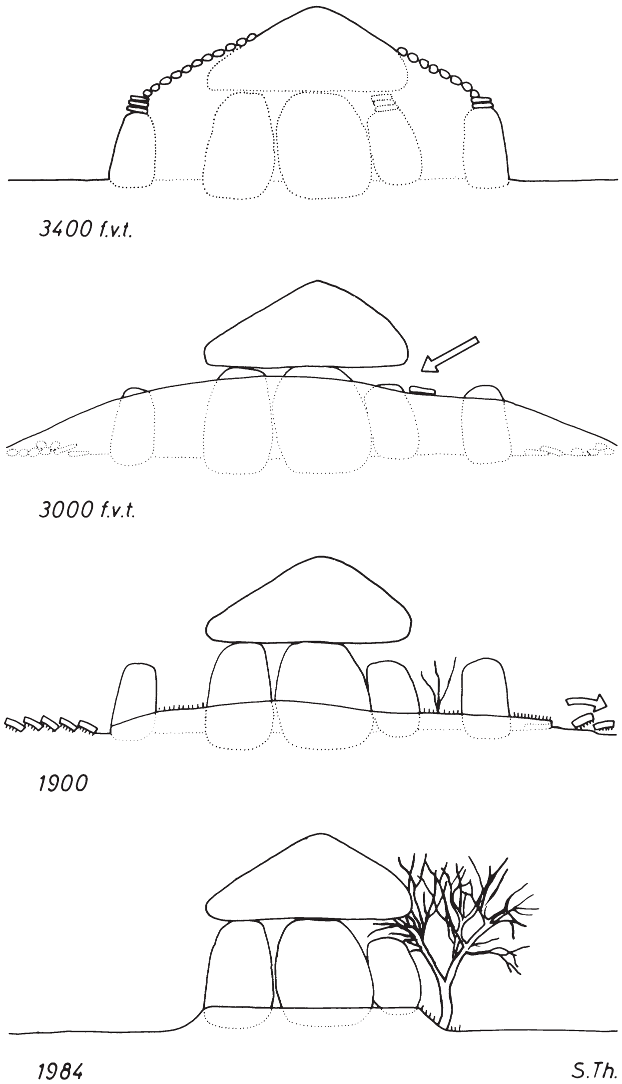


Fig. 8.3: The Erosion Theory. (From S. Thorsen 1984)

now looks like a dolmen without a mound. By stage 4 – in 1984 – the rest of the mound has disappeared together with the kerbstones; only the chamber survives, now as a free-standing structure. If this trend continued, the next stage would have been the removal of the capstone and later the orthostats of the chamber. However, in 1937, between stages 3 and 4, such monuments became protected by law.

The erosion theory convinced many Danish archaeologists that, originally, megalithic monuments in general were covered by a mound. The reconstruction in 1994 of the round dolmen at Tustrup in Eastern Jutland is an example of a monument that has been restored according to how a dolmen probably looked in the Stone Age, and this opinion is still maintained by the archaeologist who carried out the restoration (Dehn 2013; Hansen 2009a; 2009b; 2010). This theory is based upon the assumption that monuments such as the dolmens are single-period monuments. Of course, its supporters acknowledge that some dolmens have a more complicated building history; for example, that long dolmens grew longer as a result of additions (Kaul 2012).

In contrast to the erosion theory, we offer another explanation for the different appearance of the dolmens. Almost all dolmens are multi-period structures that evolved and changed their appearance in often very dynamic sequences – except the free-standing chamber, which marks the beginning of a possible sequence. The long barrow Bygholm Nørremark, in Eastern Jutland, serves as a good example (Rønne 1979; Mohen 1989, 97). The investigation of this monument was carried out in 1976–77 by Preben Rønne. It showed a monument built in four or five main phases, beginning with a 60m long timber enclosure that was covered by a long barrow, which was later elongated and surrounded by kerbstones. In the final stage, a passage tomb was inserted in the barrow, now 75m long, and an outer row of free-standing orthostats was added. Together, the phases span over 500-600 years; if we were to freeze the monument in each phase, we would have five different monuments. Dolmens could have developed in a similar multistage fashion (Holst 2006).

Some dolmens without mounds

The free-standing chambers make up a quarter of protected dolmens in Denmark. We know from older descriptions that many of them originally belonged to round or long dolmens with a higher or lower mound surrounded by kerbstones. Some of the free-standing chambers we see today, where no knowledge exists about their surrounding mounds, could also have appeared in this manner in the Neolithic. The only way to find out is by investigation. The first example of such an investigation is from Sweden, all the others are from Denmark.

The dolmen of Trollasten, situated in Scania, is a polygonal

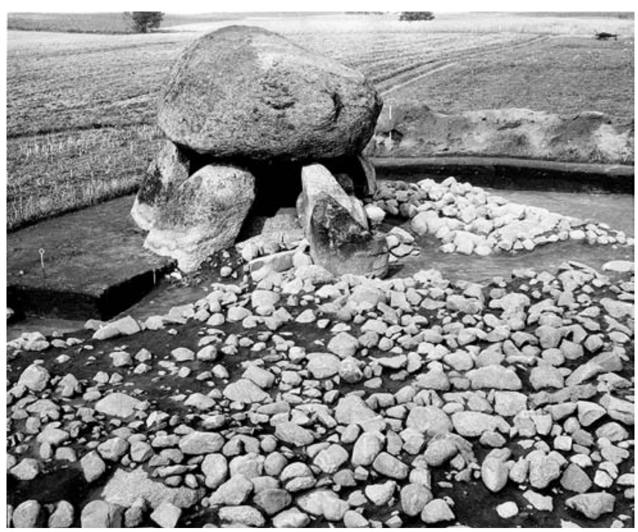


Fig. 8.4: Free-standing chamber at Trollasten, Scania, surrounded by pavements, as revealed by the excavation in 1965. (Photo from Strömberg 1968)

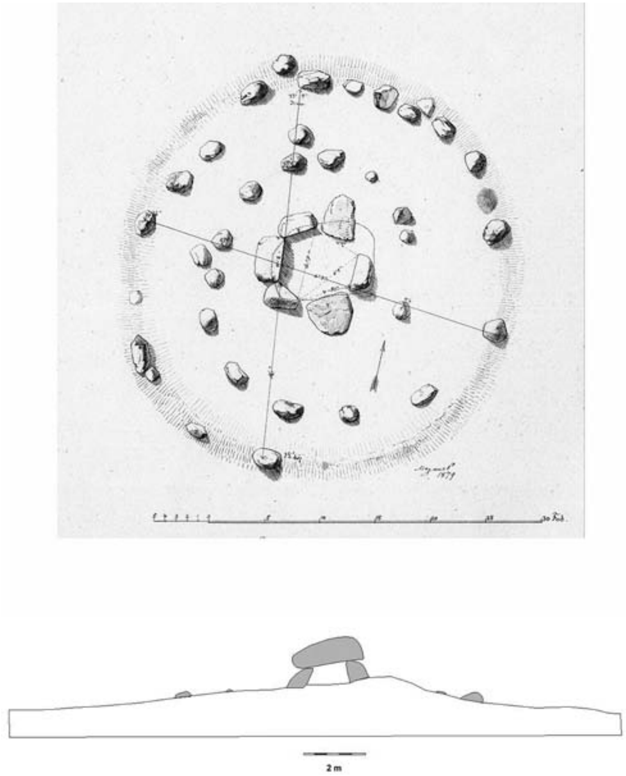


Fig. 8.5: (above) 1879 plan of the round dolmen at Kjallesten, Lolland, with two circles of stones, the outer one being kerbstones; (below) 1999 section drawing: note animal activity is responsible for the mound to the right of the chamber. (Plan by Magnus Petersen, Nationalmuseet, section by N. H. Andersen and P. Eriksen)

chamber, which was investigated in 1965 by Märta Strömberg (1968). The free-standing chamber was surrounded by pavings of smaller stones (Fig. 8.4). When we use the terms "pavement" or "paving" we do not mean carefully placed stones in the modern sense of the words. The stones are often placed quite arbitrarily and seem to reflect different activities and episodes, and appear to have accumulated over time in relation to different activities. One of the pavements – which Strömberg called the tablet – was very carefully executed. On the pavement in front of the dolmen lay potsherds and small clusters of burnt human bone, indicating that this surface was an activity area in the Neolithic. No traces of a mound or kerbstones were found.

In Denmark, there are only two examples of scheduled free-standing dolmen chambers where the surroundings have also been investigated: Lunden on the island of Langeland with a chamber of earlier or "older" type; and Ormslev in Eastern Jutland with a chamber of later or "younger" type. The

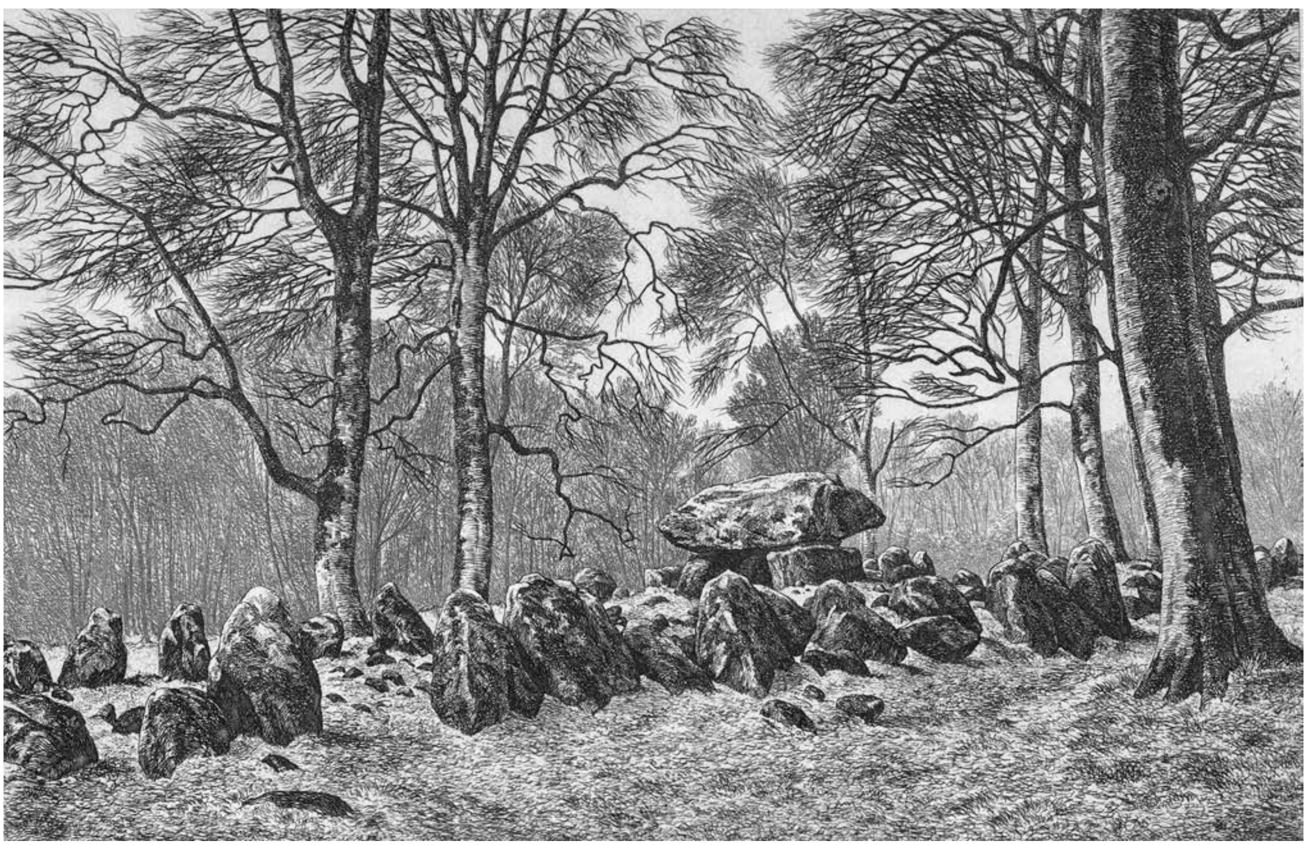


Fig. 8.6: Engraving of the long dolmen at Gunderslevholm Skov, Zealand, with surface of low inner mound covered by a scatter of stones. (From Madsen 1868)

Fig. 8.7. Polygonal chamber at Stenhus, Eastern Jutland, situated on top of a small hill. (Photo: P. Eriksen)

excavations, by Jørgen Skaarup in 1974 and Torsten Madsen in 1975 respectively, showed similar pavements and that these chambers also had never been covered with mounds or surrounded by kerbstones (Skaarup 1985, 212–214; Nielsen 2003). Another example is the free-standing dolmen chamber at Tustrup, excavated by Poul Kjærum in 1955–56. This dolmen, a different monument from the round dolmen at the same site, has a chamber of 'younger' type that was a chamber without a mound in the Neolithic, just as it appears today. At that time, the chamber was surrounded by a pavement and a circular setting of small kerbstones, as well as an outer concentric circle of free-standing orthostats with a diameter of 11m (Eriksen and Andersen 2014, 194–203). The outer circle may be a later addition, perhaps in response to Beaker influence in the late Neolithic.

Kjallesten, on the island of Lolland, is a polygonal chamber in a round dolmen with small kerbstones. When it was recorded in 1879, another circle of smaller stones was visible at the surface between the chamber and the kerbstones, and it was noted that "only very little mound fill is seen in relation to the surrounding surface". In 1999 we recorded a section through the monument to demonstrate the low surface of the mound in relation to the chamber (Fig. 8.5). Poskær Stenhus also had an inner circle of smaller stones but they were removed, possibly in 1859, the year before the monument was protected. Other chambers of 'older' types include Hydeskov Fredskov and Syllinge Skov (*skov* means forest), situated in Lolland and Southern Zealand respectively. These have inner stone circles, surrounded by smaller rectangular, nearly quadratic, settings of kerbstones, and are situated on completely flat terrain. They are good examples of spaces between kerbstones and chambers that, in prehistory, were sealed by smaller stone circles. These circles must not be confused with those of the kerbstones. A relevant parallel to these four dolmens with inner stone circles are the Irish dolmens at Carrowmore, where excavations in 1977–79 by Göran Burenhult revealed that they also lacked mounds (Burenhult 1980; Bergh 1995).

At Gunderslevholm Skov, in Zealand, we have a well preserved, 55m long dolmen with a chamber of 'older' type (Fig. 8.6). The monument is unique in Denmark because a scattering of 40–90cm big stones covers the interior surface inside the kerb without any intervening soil. The tops of the stones, which are some distance from the chamber, are quite low at around 1m when compared to the height of intact kerbstones and the top of the orthostats of the chamber. Similar to the inner stone circles just mentioned, this cover of scattered stones at the dolmen of Gunderslevholm Skov marks the last visible activity, irrespective of whether the stones were placed in the Neolithic or later. If a mound had covered the stones and it was later removed, traces should have been left, such as soil between the stones, or cleaved stones in the interior. That is not the case.

The normal settings of Danish dolmens and passage tombs in the landscape are on low-lying terrain or terraces. Settings on hilltops are unusual but do occur. The Stenhus dolmen – only 6km from Poskær Stenhus – is one such exception (Fig. 8.7). The first description of Stenhus, in 1878, mentions a mound, about 12m in diameter and 1m high, surrounding the chamber. No kerbstones could be detected. In a later description from 1925, 14 small-kerbstones, 75cm in size, were recorded. The monument was protected in 1925, and

Fig. 8.8: Round dolmen at Tustrup, Eastern Jutland, showing the lower layer of stones. Excavation demonstrated that the low mound consisted of two layers of stones separated by a layer of eolian sand. The capstone is missing. (Photo: P. Kjærum)

Fig. 8.10: Excavated section at the round dolmen at Tustrup, Eastern Jutland, with fallen kerbstones. Note the two layers of stones separated by a layer of eolian sand; the capstone is missing. (Photo: P. Kjærum)

Fig. 8.9: Excavated section at the round dolmen at Tustrup, Eastern Jutland, between chamber to the right and kerbstone to the left. Note the two layers of stones separated by a layer of eolian sand. (Photo: P. Kjærum)

Fig. 8.11: Polygonal dolmen chamber on hill of Rungeløsebjerg, Zealand, with impressive capstone. (Photo: P. Eriksen)

no alterations have taken place since the first description, except that the grass is higher nowadays. Unfortunately the vegetation hides the smaller stones that helped determine the diameter of the mound. These stones probably edged a pavement around the chamber. The fact that the chamber is placed on top of a small hill surrounded by the pavement – an original surface of the monument – makes it very unlikely that a covering mound ever hid the chamber. Just to cover the lower edge of the capstone, the mound inside the kerbstones should have been 1m higher at the chamber. The distance from the kerbstones to the outer edge of the chamber is only 3.5m.

In 1956, Poul Kjærum excavated the previously mentioned round dolmen at Tustrup. The kerbstones formed a circle nearly 9m in diameter around the polygonal chamber. The mound fill consisted of two different layers of stones separated by a layer of eolian sand (Figs 8.8–8.10). According to Kjærum, the Neolithic surface of the area between the chamber and the kerbstones appears to be the lower stone layer. The totally level surface surrounding the monument lay in heath before the monument was scheduled in 1887, and remains there still. The absence of a thick layer of eroded mound fill on this surface also argues against a mound.

One of the main objections to the interpretation of the Tustrup round dolmen as a monument without a mound is the presence of large amounts of flagstones from collapsed dry walls between the kerbstones. So many flagstones are present that the top of the erected dry walls may have been on a level with the top of the kerbstones. We agree that the dry walls might have achieved this height, but we do not agree with the conclusion that such high dry walls demanded a mound of similar height to support them (Dehn 2013). Instead we – like the excavator Poul Kjærum – understand the dry walls and the kerbstones as forming a circular enclosure around the free-standing chamber. This enclosure was not built for eternity: some parts might have collapsed already in the Neolithic. Deliberate destruction and natural collapse were integrated and not unusual phenomena related to Neolithic monuments. They should be seen as similar to the burning down of timber cult houses, the filling of the long ditches of the Sarup enclosures with soil, and the smashing of ceramics and burning of flint artefacts in front of passage tombs.

An additional argument supporting the idea that some dolmens lacked mounds is the fact that many exposed

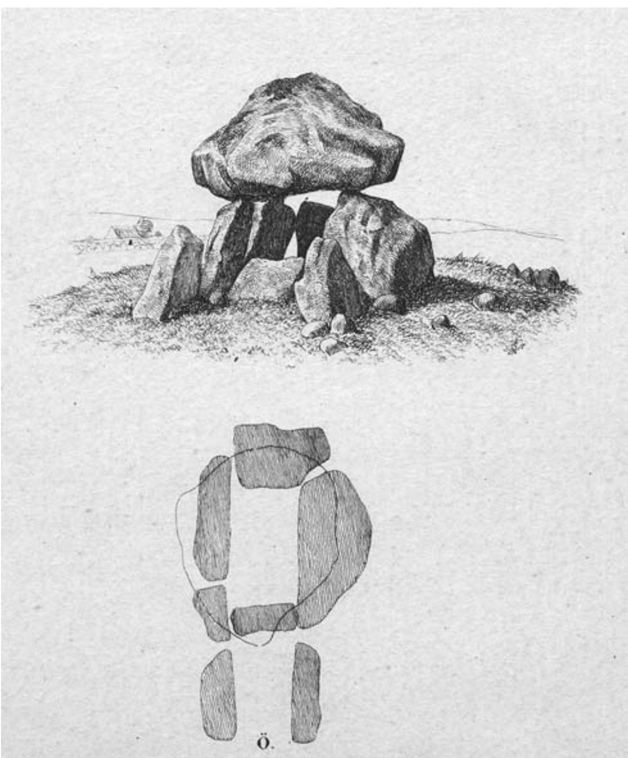


Fig. 8.12: The "older" or earlier type of dolmen chamber: access would have been impossible had they been covered by mounds. Passages orthostats are low and small and constitute only symbolic expressions of a passage. (From A.P. Madsen 1868)

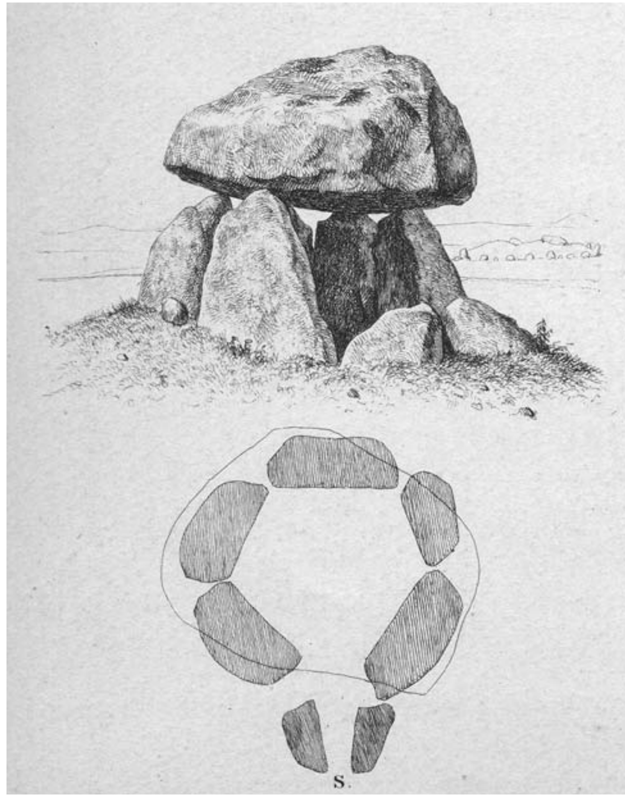


Fig. 8.13: The later or "younger" type of dolmen chamber: access would have been impossible had they been covered by mounds. The passage orthostats are small, and effectively present only a symbolic passage. (From Madsen 1868)

capstones at Danish dolmens are of such grandeur, and made of such spectacular material, that it must have been the intention of the dolmen builders that these magnificent stones should be visible, eye-catching and monumental (Fig. 8.11). This appearance is quite similar to that of portal dolmens in Britain and Ireland, where "the capstones float to the sky" (Whittle 2004). The capstones of Danish dolmens are often much thicker and heavier than those of British and Irish portal dolmens, but the same concept may apply to them too.

A final argument for dolmens without mounds is the rudimentary character of their passage. The passage is built from one, or occasionally two, pairs of smaller stones: these are often quite low compared with the orthostats of the chambers (Figs 8.12 and 8.13). Capstones over these symbolic passages are missing, and there is no evidence that they ever existed. The length of dolmen passages is always too short to reach the exterior of a possible mound. Taken together with the low height of the passage, this would make it impossible to enter the chamber through the passage if a mound covered the chamber. This assumes there is a passage at all: at the Tustrup round dolmen there is none in front of the opening to the chamber.

Fig. 8.14: Long barrow at Kellerød, Zealand, showing the unusually tall mound. With a height of 1.5m, the mound exceeds the height of the kerbstones and also covered the capstone of the single stone-built chamber (a dolmen cist). (Photo: P. Eriksen)

Dolmens with mounds – a lot of mounds!

Many long dolmens with dolmen chambers of the 'older' type have considerable mound fill. The height of the mounds might reach to the lower edge of the capstones, but there can also be so much mound fill that the capstones cannot be seen. How is this to be explained?

Let us first look at the chambers that, including the capstone, are completely enclosed by a mound. A good example is the only chamber in the 125m long, 7.5m broad, and 1.5m high dolmen at Kellerød at Zealand, which is surrounded by kerbstones (Fig. 8.14). The longitudinal chamber is situated near one of the ends of the long dolmen. It was discovered and excavated in 1933 (Nielsen 1984; Ebbesen 2008, 358–360). The chamber measured 2.5m x 0.6–0.75m and was only 60cm high. It was constructed of equally high stones, two at each long side and one at each gable, and covered by one capstone 3m long, 1.6m broad, and 0.35–0.5m thick. Like the capstone, the six side stones were all very thin, around 10–40cm, and with parallel sides. The stones were more like slabs than ordinary boulders, and the chamber was more like a cist than a normal dolmen chamber.

A similar stone cist, built of slabs in the same manner as the one at Kellerød, was found in one of the two long barrows at Barkær in Eastern Jutland, investigated by P. V. Glob in 1946–49 (Liversage 1992). The chamber measured 2.0m x 0.6m, and was 60–70cm high: it was covered by a thin slab-like capstone, which again had been sealed by half a meter of mound fill. In the same long barrow, traces were found of a cist made of wooden planks. At the other long barrow at Barkær, two similar timber cists were discovered. The two long barrows, which are around 90m long and 6.5–7.5m wide, are placed 10m apart and parallel to each other. In fact these barrows with no kerbstones should be classified as long barrows, predating the long dolmens with ordinary dolmen chambers of the 'older' type. The stone cist and the three timber graves at Barkær are regarded as contemporary, and the stone cist is just a wooden chamber translated into stone (Liversage 1992).

These two examples – Barkær and Kellerød – of stone cists made of slabs including their capstones, might be termed dolmen cists. They should not be confused with the 'younger' ordinary dolmens with chambers of 'older' types, built of much thicker erratic boulders with plain surfaces turned towards the interior of the chamber. The long barrows with the dolmen cists should be considered part of the tradition of early Neolithic long barrows. Many of these were perhaps closed by mounds and turned into memorials in the same manner as Neolithic long barrows in Brittany about one thousand years before (Scarre 2014, 2016).

Dolmens and passage tombs are like day and night

Although we are aware that some passage tombs might originally have been free-standing, like the Irish Mound of the Hostages at Tara (O'Sullivan 2005), we assume that – in general – they were covered by mounds. Standing outside the mound of a passage tomb, only the entrance to the passage would be visible, as opposed to dolmens, where all the stones can easily be seen. In lectures, the Danish archaeologist Professor Peter Vilhelm Glob has expressed the difference in this way: a dolmen had to be seen from the outside, a passage tomb from the inside (pers. comm.).

The same difference prevailed in the Neolithic. At the dolmens, the rituals could be followed by a number of people, while only a few people could observe and participate in the rituals inside the passage tombs. Dolmens and passage tombs represent two different cases, both cultic and architectural, where the architecture was dictated by the cult. Alongside the construction of the passage tombs, it is most likely that older monuments were refashioned according to the new customs by adding more soil to their mounds.

Both dolmens and passage tombs must not be understood

Fig. 8.15: Artificial dolmen erected as a war memorial in Haderslev in 1927 in honour of the Danish citizens of the town killed in the First World War in German service. (Photo: P. Eriksen)

as burial chambers in the traditional sense. In some dolmen cists, old investigations have produced perhaps a single skeleton, such as the one at Kellerød (Nielsen 1984; Ebbesen 2008, 358–360). However, no evidence of complete skeletons contemporary with the first use of these megaliths has yet been found from the real dolmens and the passage tombs. The fragmented skeletons found at the megalithic tombs form part of complicated rituals that also took place at other structures, such as the ceremonial enclosures and natural sites, where complete or partial skeletons were deposited (Andersen 2000).

In summary, the forerunners for the real dolmens were the dolmen cists in the long barrows, the barkærfeatures. At the beginning the cists were exposed, but later – perhaps very soon after – they were covered with large amounts of mound fill. The oldest real dolmens followed this tradition in part, but the capstones were visible in the round or long mounds. At the same time, free-standing chambers, with or without kerbstones, appeared and – with the arrival of the 'younger' dolmen chamber – became the dominant type of monument.

All in all, there is no reason to doubt or alter the common and popular understanding of how dolmens, particularly the more recent ones, looked in the past and still look today (Fig. 8.15).

Note: This broad outline is further explained and documented elsewhere (Eriksen and Andersen 2014).

References

Andersen, N. H. 2000. Kult og ritualer i den ældre bondestenalder. *Kuml* 2000, pp. 13–57.

Bergh, S. 1995. *Landscape of the Monuments: a study of the passage tombs in the Cúil Irra region.* Riksantikvarieämbetet: Stockholm.

Burenhult, G. 1980. *The Archaeological Excavation at Carrowmore, Co. Sligo, Ireland. Excavation seasons 1977-79.* Institute of Archaeology at the University of Stockholm, Theses and papers in North-European Archaeology 9, G. Burenhults Förlag: Stockholm

Dehn, T. 2013. "Open dolmens" – a matter of decay. In: Bakker, J. A., Bloo, S. B. C. and Dütting, M. K. (eds) *From Funeral Monuments to Household Pottery*. BAR S2474. Archaeopress: Oxford, pp. 95–109.

Ebbesen, K. 1979. *Stordyssen i Vedsted. Studier over tragtbægerkulturen i Sønderjylland.* Institute of Prehistoric Archaeology University of Copenhagen, Arkæologiske Studier 6. Akademisk Forlag: Copenhagen.

Ebbesen, K. 2007. *Danske dysser. Danish Dolmens*. Attika: Copenhagen.

Ebbesen, K. 2008. *Danske jættestuer*. Attika: Copenhagen.

Ebbesen, K. 2011. *Danmarks megalitgrave*. Attika: Copenhagen.

Eriksen, P. 1999: *Poskær Stenhus – Myter og virkelighed*. Moesgård Museum: Aarhus.

Eriksen, P. and Andersen, N. H. 2014. *Stendysser. Arkitektur og funktion.* Jysk Arkæologisk Selskab: Aarhus.

Hansen, S. 2009a. Dysser i høj – Grundtvigs offersted. *Fund og Fortid. Arkæologi for alle* 4, pp. 4–7.

Hansen, S. 2009b. Dyssen i Gunderslevholm Skov. Årsskrift. Fuglebjergegnens Lokalhistoriske Forening – Borupris' Venner, pp. 4–9.

Hansen, S. 2010. Dysserne ved Strids Mølle. Dysser i høje, del 2. *Fund og Fortid. Arkæologi for alle* 1, pp. 12–15.

Holst, M. K. 2006. Tårup. A round dolmen and its secondary burials. *Journal of Danish Archaeology* 14, pp. 1–21.

Kaul, F. 2012. Multi-period construction of megalithic tombs – and the megalithic tombs in Shetland. In: Mahler, D. L. (ed.) *The Border of Farming and the Cultural Markers.* Nationalmuseet: Copenhagen, pp. 100–121.

Liversage, D. 1992. *Barkær. Long Barrows and Settlements.* Institute of Prehistoric and Classical Archaeology University of Copenhagen, Arkæologiske Studier 9, Akademisk Forlag: København.

Madsen, A. P. 1868: *Afbildninger af danske Oldsager og Mindesmærker.* Thieles Bogtrykkeri: Copenhagen

Mohen, J.-P. 1989. *The World of Megaliths*. Cassell: London.

Nielsen, N. 2003. Ormslev-dyssen – en dysse uden høj? Fritstående dysser i tragtbægerkulturen. *Kuml* 2003, pp. 125–156.

Nielsen, P. O. 1984. Flint axes and megaliths – the time and context of the early dolmens in Denmark. In: Burenhult, G. (ed.) *The Archaeology of Carrowmore. Theses and Papers in North-European Archaeology* 14. Riksantikvarieämbetet: Stockholm, pp. 376–387.

O'Sullivan, M. 2005. *Duma na nGiall. The Mound of the Hostages, Tara*. Bray: Wordwell.

Rønne, P. 1979. Høj over høj. *Skalk* 1979(5), pp. 3–8.

Scarre, C. 2014. Dysser uden høje i Storbritannien, Frankrig og Irland. In: Eriksen, P. and Andersen, N. H. 2014. *Stendysser. Arkitektur og funktion.* Jysk Arkæologisk Selskab: Aarhus, pp. 216–236.

Scarre, C. 2016. Accident or design? Chambers, cairns and funerary practices in Neolithic western Europe. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 69-78.

Schuldt, E. 1972. *Die mecklenburgischen Megalithgräber.* Museum für Ur- und Frühgeschichte Schwerin: Berlin.

Skaarup, J. 1985. *Yngre stenalder på øerne syd for Fyn.* Rudkøbing: Langelands Museum.

Strömberg, M. 1968. *Der Dolmen Trollasten in St. Köpinge, Schonen. Acta Archaeologica Lundensia 7*. Gleerup: Lund.

Thorsen, S. 1984. Dysserne. Kæmpers værk. Nedrige altre. Oldheltenes grave. Arkæologiens smertensbørn. Eller de dødes huse? In: Bolvig, A., Mahler, D. and Holtegaard, G. (eds) *Fortid og Nutid.* Søllerød Kommune: Søllerød, pp. 29–38.

Whittle, A. 2004. Stones that float to the sky: portal dolmens and their landscapes of memory and myth. In: Cummings, V. and Fowler, C. (eds) *The Neolithic of the Irish Sea. Materiality and Traditions of Practice*. Oxbow Books: Oxford, pp. 81–90.

9

In the eye of the beholder: key architectural elements in 25 years of visual analysis of Danish megalithic tombs

Jørgen Westphal

Abstract

A number of construction features in passage graves appear to be repeated at multiple sites in Denmark. These constructional choices are likely to be reflections of certain functional and/or symbolic demands, and are thus considered architectural. Passage graves should be experienced as three-dimensional spaces and their physical impact should be felt on the body. The passage itself has several remarkable features: the antechamber, thresholds and doorframes, and an intriguing use of white burnt flint. A principle of duality may be reflected both in double chambered and twin chambered passage graves as well as in the use of twin stones and the layout of the individual chambers. In some areas, passage grave chambers are extended upwards by means of a so-called intermediate layer, virtually forming a corbelled roof. The aspiration to create chambers much taller than actually needed for the burials as such can be seen as the pinnacle of megalithic architecture in this region.

Keywords: passage grave, keystone, capstone, twin stone, crushed white flint, dualism

Introduction

A number of constructional features in passage graves appear to be anything but coincidental or opportunistic. On the contrary, these features are repeated at multiple sites, some throughout Denmark and others only within certain regions.[1] The interpretation offered in this paper is that the constructional choices made by the builders are likely to reflect certain functional and/or symbolic demands – not the constraints imposed by the unworked blocks.

No matter how hard we try, we can never extract the same amount and quality of meaning from the megaliths as did the Neolithic societies who built and used them. When investigating and analysing data from passage graves, it is all too easy to understand and interpret observations within our own experiences from modern day life. In fact, this is all we can do, no matter what sophisticated theories on Neolithic society and religion we filter that data through. I will do my best to avoid that and offer only a set of categorised observations open to comparison with the results and interpretations of other researchers.

Megaliths are structures to be experienced in three dimensions – not by studying plans and drawings. One has to crawl into them, sit there for a long time, contemplate what one is seeing, and discuss it with colleagues. Having done that myself with two of my own colleagues, Svend Illum Hansen and Torben Dehn (Dehn *et al.* 2008, 274–280), many times throughout the last two decades, I am glad to have the opportunity to present some of our observations.

Architecture of the passage and the antechamber

In the Danish language, passage graves are still termed "*jættestuer*", literally meaning "giants' halls". Despite the fact that, as early as 1744, an excavator concluded that the passage graves were indeed erected by normal human beings (Kaul 2010, 39), the Danish language has not adopted a term similar to the ones used in the neighbouring countries: "passage grave", "*gånggrift*", "*ganggrab*" etc. Although this erroneous and outdated term may appear charming, it draws less attention to the passage than the more accurate terms mentioned before. This is regrettable, because most visitors are already prone to crawl hastily through the passage in order to get into the chamber as quickly as possible. This is human nature: the uncomfortably low and narrow passage will, at

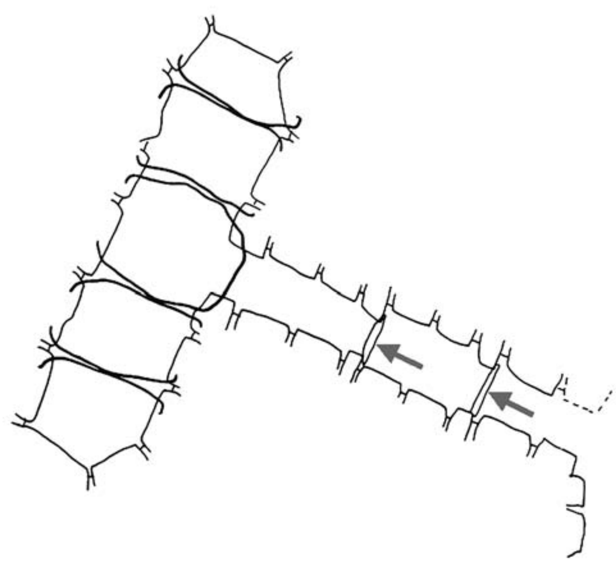


Fig. 9.1: Bogø passage grave (listed monument number 4227:13) showing the position of thresholds within the passage (Hansen 1993, 105) A single or double set of thresholds and doorframes are still preserved in most Danish passage graves

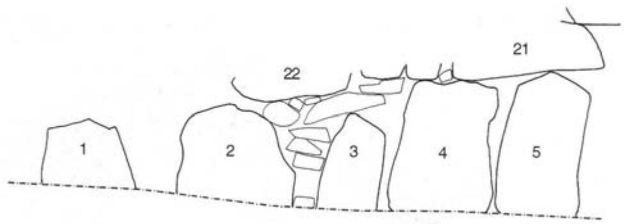


Fig. 9.2: Hjortegårdene passage grave (listed monument number 2826:4): elevation of the passage side wall (Dehn et al. *2000, 224). A uniform feature of most Danish passage graves is that the passage is lower and narrower at the entrance but becomes wider and higher towards the chamber*

best, cause a slight physical discomfort and may even trigger a feeling of claustrophobia. Furthermore, the well-prepared visitor anticipates that the chamber will reward him or her with a more agreeable ceiling height and a more ample space to move around. However crude, this feature of the passage is indeed an example of a very basic property of architecture: the ability of a structure to impose certain feelings on a visitor. The builders could quite easily have made the passage higher, wider, or shorter, but obviously chose not to do so.

Having recognised this architectural principle of the passage, one begins to notice other typical features. Most passages have one, two, or in rare cases three sets of doorframes

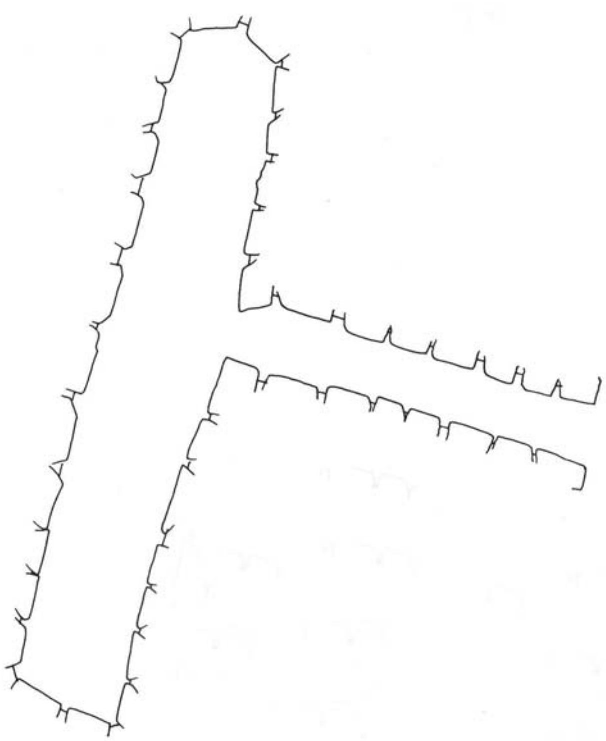


Fig. 9.3: Græse passage grave (listed monument number 2927:2) (Hansen 1993, 119): the slightly wider space between the corner stones and the innermost pair of orthostats in the passage constitutes an antechamber in most if not all passage graves

Fig. 9.4: Antechamber of the Tjæreby passage grave (listed monument number 3621:14). (Photo: Jørgen Westphal)

and thresholds, which are relatively easy to identify (Fig. 9.1). Furthermore, the typical passage is not evenly low and narrow. Usually it is lowest at the entrance, with a slight but significant increase of the ceiling height towards the chamber (Fig. 9.2). Subtler is a feature of the innermost one or two metres of the passage, immediately before the access to the chamber proper. Here, the walls usually bulge a little just before the passage meets the two cornerstones (the pair of orthostats that, together with the so-called keystone, form the entry to the chamber). This widening of the passage immediately before the transition to the chamber clearly constitutes an antechamber (Fig. 9.3). The effect may be enhanced by a slight angling of the two innermost pairs of orthostats and by placing the cornerstones close to each other. Very often, cornerstones are selected and placed with flat surfaces carefully angled in order to accentuate the relative width of the antechamber (Fig. 9.4).

One might speculate over the purpose of this architectural element. Did it have a role in the ritual use of the passage graves? Did people, material objects, or bodies of the dead pause at this place in their movement in or out of the chamber? Or was it intended to divert the visitor's experience from the otherwise monotonous feeling of constraint when moving through the passage?

The passage-chamber transition

Harnessing the forces of gravity that work on the several hundreds or thousands of tons of mass in a building is a challenge facing any constructor, thus also the builders of the passage graves. A modern constructional engineer would apply the science of statics. Statics is the branch of mechanics that deals with the analysis of loads on physical systems in static equilibrium. An experienced engineer can calculate the necessary dimensions of the building components, making the building able to withstand any projected impact without excessive use of materials. The builders of the passage grave probably did not have such deep mathematical insight but had to rely on their practical experience, just as had builders of Medieval and Renaissance churches and castles. But how close did the Neolithic builders dare to go to the maximum? The materials they chose, various natural stones, are known to have very good compression strength: there is hardly any limit as to how many pieces of stone one can stack upon each other. But stone has rather poor tensile strength and it breaks easily when pulled. Moreover, a pull is exactly the force that occurs in the lower part of a capstone that, in technical terms, acts as a horizontal load-bearing beam (Fig. 9.5), both under its own weight and certainly when further materials are placed on top of it. The capstones of passage graves always seem to be of appropriate thickness. Yet there is another constructional element where stones used as horizontal load-bearing beams sometimes fail. This is at the point where the passage joins the chamber. Here two orthostats of the chamber, the cornerstones, are placed at a sufficient distance to allow access from the passage to the chamber. Usually this access is relatively wide – 70cm is typical – but sometimes it so narrow that even a thin person has to squeeze through to get into the chamber. However, no matter what, there has to be a stone bridging the two cornerstones – the so-called keystone (Fig. 9.6).

The keystone has multiple functions. As mentioned above, it straddles the gap between the two cornerstones, thus forming a roof for the access to the chamber, but also ensures that the two cornerstones are locked in their respective positions and are not pushed inwards towards each other, blocking the access. The keystone is also the support for the immense weight of the overlying capstones. It appears that particularly robust types of stone were selected for this purpose. Given that there is not always a great difference between the height of the antechamber and the height of the chamber, there is often a limit to how thick the keystone can be. As a result, broken keystones can be seen in some passage graves. It is not known whether they broke during the construction process or at a much later stage. A prehistoric repair of such damage would have been challenging: given that the keystone is locked under the weight of the capstones, it would be difficult to remove and replace. During the recent years of megalith restoration in Denmark, no prehistoric repair of a broken keystone has been observed.

The problem of a keystone that is too long and too thin can be overcome by making it shorter and placing less weight on it. Instead of having a relatively long keystone bridge the gap between the highest points of the cornerstones, one can let a much shorter keystone rest on the shoulders of the cornerstones. By doing so, the cornerstones are still kept from being pressed towards each other; the keystone still forms

Fig. 9.6: Straight keystone in the Troldstuerne passage grave (listed monument number 2823:5). (Photo: Jørgen Westphal)

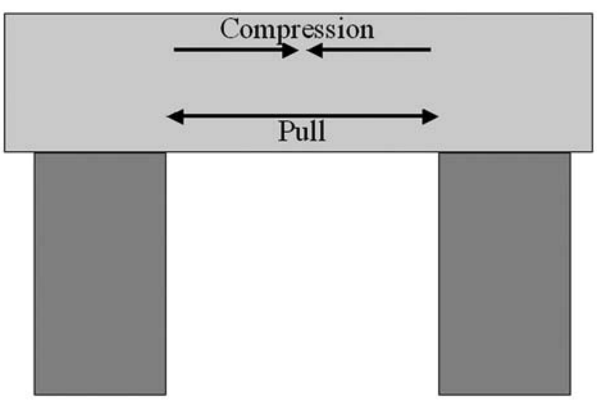


Fig. 9.5: The forces of compression and pull acting on a keystone serving as a load-bearing beam. (Diagram: Jørgen Westphal)

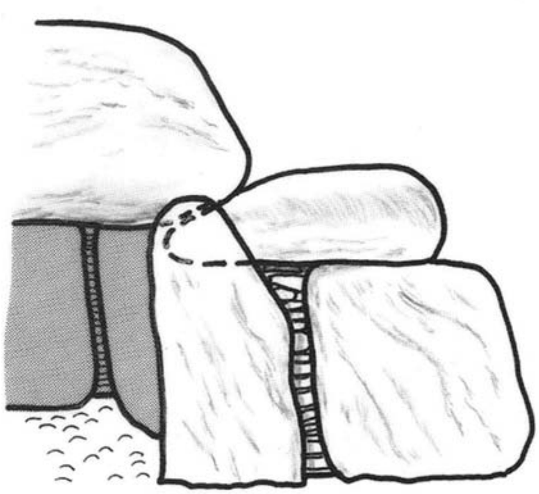


Fig. 9.7: The principle of a pointed keystone. (Diagram: Jørgen Westphal)

Fig. 9.9: Pointed keystone in the Grønhøj passage grave, listed monument number 2912:8. (Photo: Jørgen Westphal)

a roof covering the access to the chamber; and most of the load from the chamber capstones is conducted through the cornerstones instead of the keystone (Fig. 9.7). This solution is often seen in western Denmark, where such an arrangement has a pointed stone serving as both the innermost capstone of the passage and as a keystone, with the pointed end mounted between the shoulders of the cornerstones (Fig. 9.8). This method is very efficient and suitable when the capstones of the chamber are intended to lie more or less directly on top of the orthostats (Fig. 9.9). In such a case, a keystone lying on the highest points of the cornerstones would be in the way.

Double chambers, twin chambers and twin stones – duality as principle

Approximately 10% of the passage graves in Denmark have two chambers, isolated from each other and each with a separate passage (Fig. 9.10). One of the chambers might be thought to be a later attachment to the other, but in Denmark such rebuilding or extension of the mound surrounding the two chambers is not observed. Thus, there does not seem to be any considerable time span between the construction of the two chambers. It is, however, risky to draw conclusions from negative data, and since other indications of rebuilding or extension are sometimes observed, the building history of double-chambered passage graves may not yet be fully understood. Denmark has a subset of double-chambered passage graves, however, where

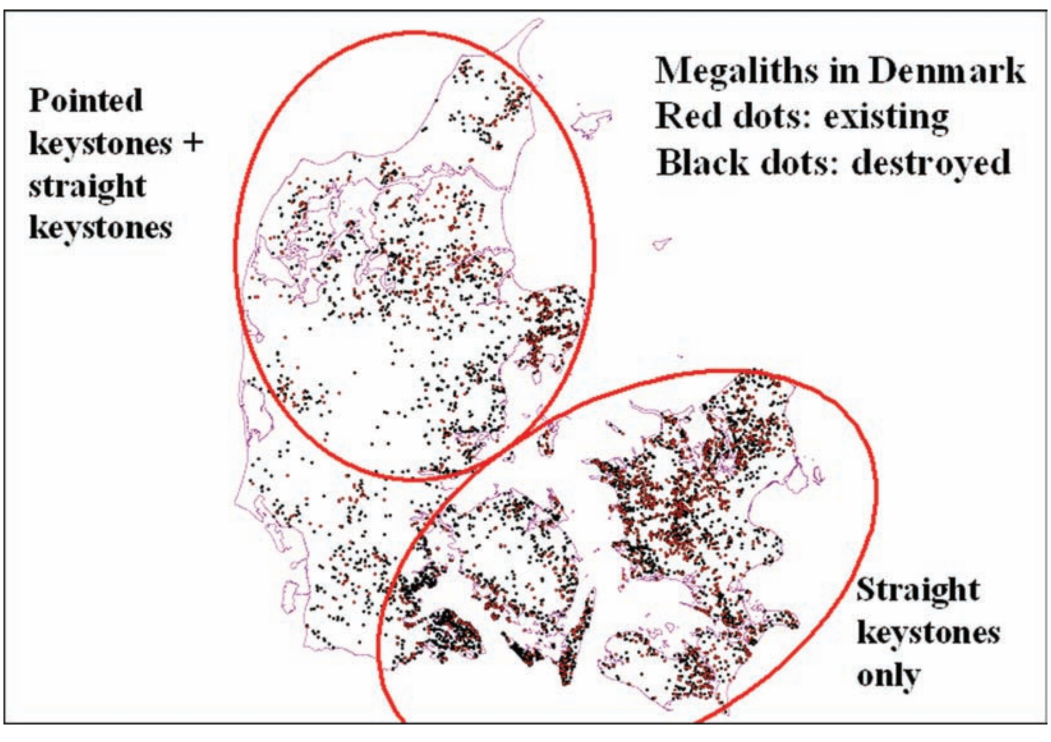


Fig. 9.8: Approximate distribution of pointed and straight keystones versus straight keystones in Denmark. (Map: Jørgen Westphal)

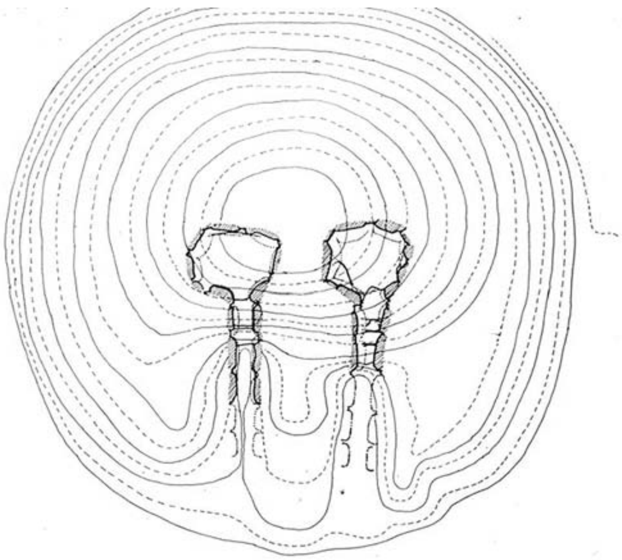


Fig. 9.10: Ground plan of a typical double passage grave. (Diagram: Jørgen Westphal)

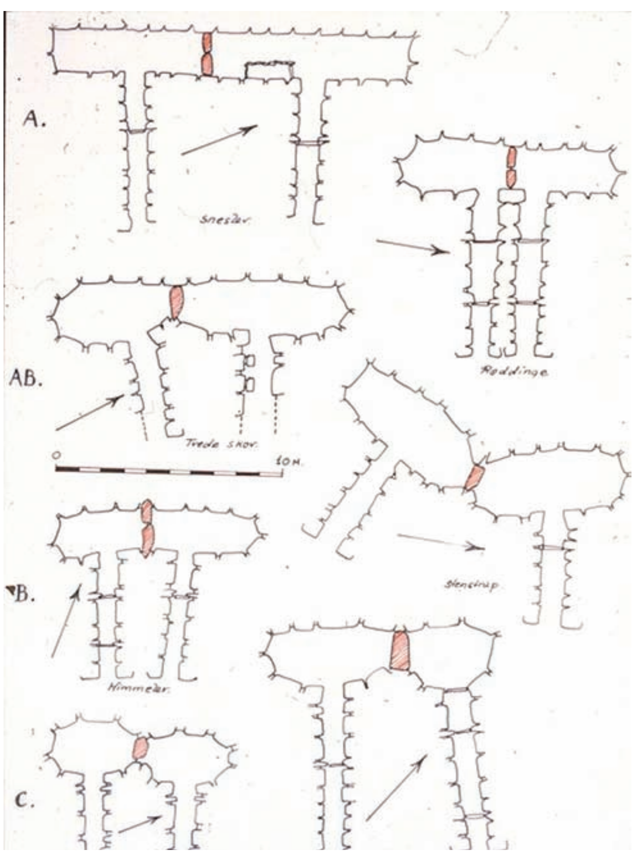


Fig. 9.11: Examples of twin passage graves: the shared orthostats are indicated in red (Diagram: Jørgen Westphal)

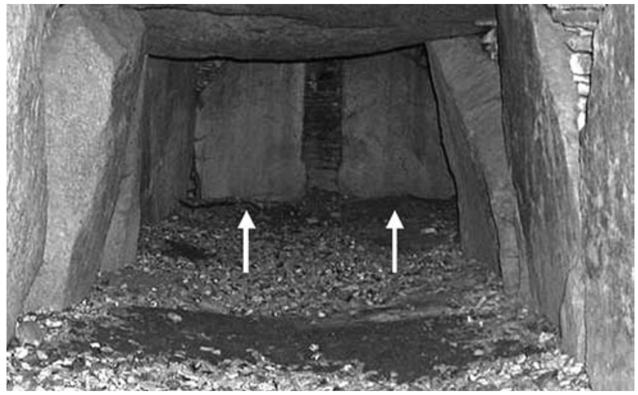


Fig. 9.12: Twin stones at the end of the Kong Svends Høj passage grave (listed monument number 4322:1). (Photo: Jørgen Westphal)

Fig. 9.13: Two halves of a large split stone found in the mound behind the chamber of the Måneshøj passage grave (listed monument number 4025:1). Combined weight 1.5 tons. (Photo: Jørgen Westphal)

the structures of the two chambers are integrated in a manner that practically excludes an asynchronous building process: the so-called twin passage graves. In a twin passage grave, the two chambers actually form a single structure, only separated by one or two shared orthostats (Fig. 9.11). This variant, to our knowledge, is not found elsewhere in Europe.

In about 50% of all passage graves and great dolmens in Denmark, one or more pairs of so-called twin stones can be seen. 'Twin stones' is a Danish term for two halves of a single stone, incorporated in a megalithic tomb with the split surfaces facing inwards. The two halves might be orthostats standing next to each other or opposite each other, always with some kind of recognition of their relationship (Fig. 9.12), or they might, in rarer cases, be used as capstones. In Denmark, no clear tool marks have been found to indicate that the stones have been intentionally split by human action. Generally, they are assumed to have been split by natural forces, perhaps through direct pressure imposed by an Ice Age glacier or from the effects of frost action. In one case, the

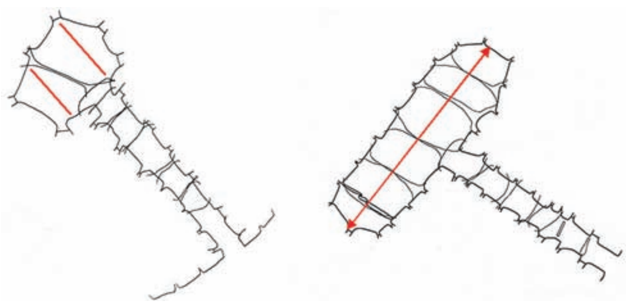


Fig. 9.14: Capstone arrangement in Danish passage graves. Where more than one capstone is present, the capstones are always placed more or less parallel to the passage and transversely to the horizontal axis of the chamber. regardless of chamber length. (Diagram: Jørgen Westphal)

Fig. 9.15: Structural and architectural emphasis on the left-hand chamber in the twin passage grave Rævebakken (listed monument number 3017:37), where the dividing orthostats deliberately lean inwards to this chamber. (Photo: Jørgen Westphal)

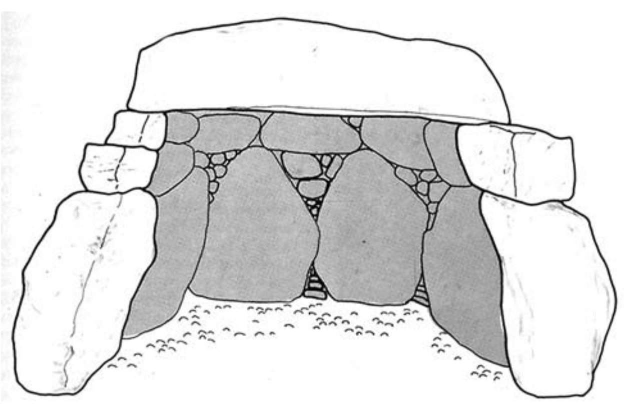


Fig. 9.16: The principle of an intermediate layer between the orthostats and the capstones. (Diagram: Jørgen Westphal)

Månehøj twin passage grave, two halves of a large split stone were found deeply buried in the mound behind the chamber (Fig. 9.13). Between the two halves was abundant charcoal and ash, indicating that fire may have been used to split the stone. Whether this stone was originally intended to be used as a pair of twin stones in the structure of the tomb is of course difficult to determine.

In fact, the general layout of a TRB passage grave in southern Scandinavia is based on a dualistic principle. The passage is attached at some point on the long side of the chamber: thus, when entering the chamber from the passage, there is always a right-hand side and a left-hand side. Capstones are always placed more or less perpendicular to the long axis of the chamber, no matter its length (Fig. 9.14). Symmetry, however, which might be seen as a higher order of duality, does not appear to be paramount. Very few passage graves have strictly symmetrical layouts, and more often several architectural elements point towards a deliberate deviation from symmetry. Most chambers have some kind of emphasis of the left side of the chamber: it is often either larger, taller, or built of more suitable or regular stones. This preference for the left side is usually also present in both double and twin passage graves. In one twin passage grave, Rævebakken on the island of Samsø, it is clear that the dividing orthostats between the two tombs were placed leaning inward towards the left-hand chamber with the same inclination as the other orthostats – giving the left-hand chamber a more regular shape than the right (Fig. 9.15).

The pinnacle of chamber architecture – intermediate layers and corbelled roofs

Almost all stones in Denmark are a result of glacial deposits, thus leaving the Neolithic constructors to work with whatever material past geomorphological processes brought to the area. As a general rule, few boulders have width-length ratios more than 1:2 and almost none approach ratios in the region of 1:3. Ratios between 1:1 and 1:1.5 are much more common. This phenomenon leads to a dearth of suitable building materials, which is further exacerbated by the fact that few stones also have a flat surface that can be placed inwards. Having reserved the longest stones for capstones, builders would only have a selection of relatively short stones for orthostats. One way to work around this problem is, of course, to add an extra layer of orthostats, the so-called intermediate layer, in order to increase ceiling height (Fig. 9.16). Simple as it sounds, this is an extremely difficult and dangerous constructional principle. Nevertheless, the method was used in a large number of passage graves, predominantly in western and northern Zealand (Fig. 9.17). In addition to creating taller chambers, this method also gives them the appearance of corbelled vaults. Since the stones of the intermediate layer are much smaller than the underlying orthostats,

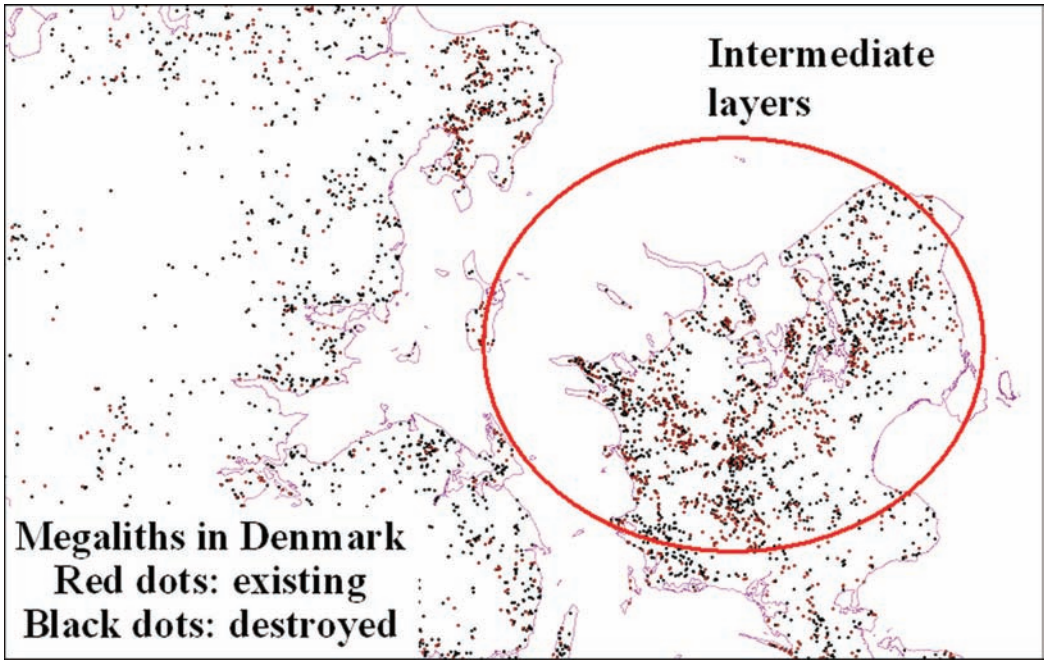


Fig. 9.17: Approximate distribution of passage graves with intermediate layers in Denmark. (Map: Jørgen Westphal)

an optical illusion is created that further increases the visitor's experience of space. Usually there is only a single intermediate layer, but in one case, Rævehøj at Dalby, three intermediate layers are present. The length of the chamber is, of course, a matter of available resources and how much time and effort the builders wished to invest. The construction of intermediate layers is, however, a genuine display of technical skill. Anybody with sufficient resources could build a passage grave with a very long chamber, but only those with access to the best builders and their superior skills and knowledge could build a chamber such as that of Troldstuerne (Fig. 9.18).

The island of Samsø stands at the periphery of this area of megalithic brilliance. Megalithic tombs on the western and northern part of the island may have looked towards the western part of Denmark: Jutland. The eastern part of Samsø, on the other hand, shows architectural evidence of contact with western Zealand. This part of Samsø has two twin passage graves. The first one, the Pillemark passage grave (regrettably in a very ruinous state), has an intermediate layer that looks very similar to that at Troldstuerne on Zealand (Fig. 9.19). The second one, the Rævebakken passage grave (Fig. 9.20), has a much lower standard of construction than Pillemark. Shorter and thinner orthostats were used, and the remains show that it had a relatively low intermediate layer. Perhaps Rævebakken was an inferior copy of Pillemark, made by the locals, after the skilled craftsmen who engineered Pillemark had returned home to Zealand.

Fig. 9.18: One of the chambers at the Troldstuerne twin passage grave (listed monument number 2823:5), illustrating the very distinct intermediate layer. (Photo: Jørgen Westphal)

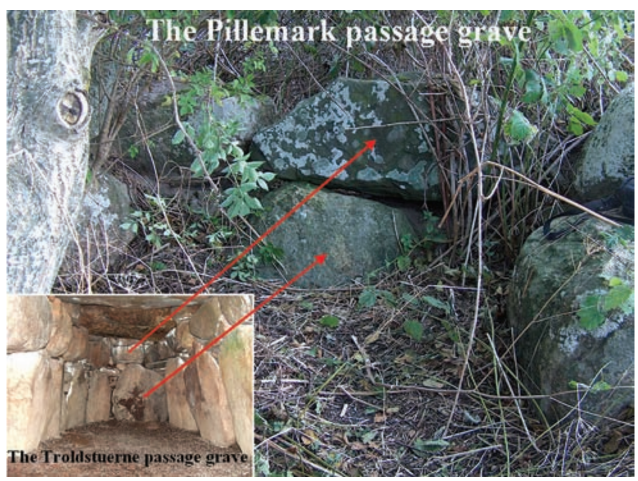


Fig. 9.19: The ruinous Pillemark twin passage grave (listed monument number 2917:25), with an intermediate layer of a quality resembling that of the Troldstuerne passage grave. (Image: Jørgen Westphal)

Fig. 9.20: Restored twin passage grave of Rævebakken (listed monument number 3017:37). (Photo: Jørgen Westphal)

Fig. 9.21: Deposit of white burnt flint in the Strids Mølle passage grave (listed monument number 3724:18). (Photo: Jørgen Westphal)

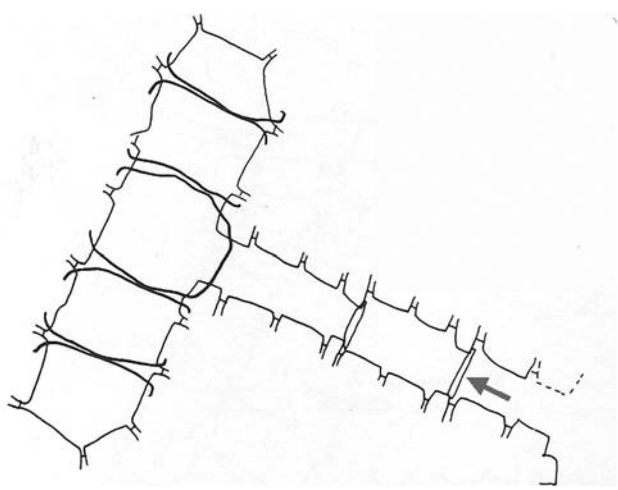


Fig. 9.22: Typical position of a narrow band of white burnt flint in front of one of the thresholds within the passage. (Diagram: Jørgen Westphal)

White burnt flint

White burnt flint is a common sight in passage graves in Denmark. It usually appears in large quantities in the chambers, either more or less evenly distributed, or in small piles (Fig. 9.21). In fact, burnt flint is often the marker that offers hints to field-walking archaeologists that they have encountered the last remains of a long vanished megalith. It is not straightforward to determine whether the very first users of the passage grave deposited this flint, or if it derives from rituals performed much later. White burnt flint also occurs in contexts more securely tied to the construction of the tombs, namely as a part of the drainage and sealing systems behind the dry walling in many passage graves and great dolmens in eastern and northern Jutland. Therefore, we do at least know that this material was not unfamiliar to or undesired by the builders. In two cases, Jordhøj and Svebølle, the mound surfaces may have been partly or even completely covered with white burnt flint.

In the course of restoration projects during recent decades, white burnt flint has been observed in a new context: as a narrow band across the floor of the passage, usually immediately in front of one of the threshold stones (Fig. 9.22). When sectioned, these bands appear as shallow ditches, 1–5cm deep and 10–20cm wide, filled with finely crushed white burnt flint. The purpose of the brightly reflective white flint could have been as both a ritual and a practical marker of a boundary that should not be crossed. Moreover, when found in front of a threshold, it could also be the remains of material used for sealing a door stone tightly in place. A recent discovery supports this interpretation. At the Mogenstrup passage grave, two smaller stones that were tossed aside when the chamber was plundered in the 19th century have been

Fig. 9.23: White burnt flint in front of one of the possible door stones in the inner part of the passage at the Mogenstrup passage grave (listed monument number 2017:54). (Photo: Jørgen Westphal)

identified as door stones. They fitted remarkably well when mounted in the opening between the corner stones that gave access from the passage to the chamber. Patches of clay still remained on the door stones and on the sides of the corner stones, as well as on the floor underneath. Within the clay on the floor there was a large amount of white burnt flint – much more than seen in flint bands elsewhere (Fig. 9.23). Whether the clay and the white burnt flint indeed are sealing materials and how they relate to the original use of the chamber is, of course, uncertain. Nevertheless, ceramics from the site point to a rather short history of usage with no material from the Single Grave period (2800–2350 BC) or the Late Neolithic (2350–1700 BC). The elaborate doorframe and threshold systems may indicate that chambers were actually meant to be closed tightly between rituals or burials, efficiently isolating the chamber and the antechamber from the outside world.

Conclusion

The overall layout of a passage grave is by no means coincidentally guided by the shapes of the unworked blocks. The passage itself has distinctive features, such as variations in height and width, an antechamber, thresholds, and doorframes. The solution to the technically challenging transition between the passage and the chamber shows regional differences, as does the solution to the desire for an increased ceiling height. This may point to a geographical core area of passage grave construction where the builders were particularly skilled in comparison to neighbouring areas. The construction of the chamber seems to revolve around a principle of duality that is reflected both in the overall design and in the frequent use of split stones. In some cases, this duality is even expressed as double chambered and twin chambered passage graves. The use of coloured materials such as white burnt flint complements the architectural expression of the passage grave structure itself. Besides the visual properties of this material, this flint along with clay may also have served the purpose of sealing doorstones in place to isolate the chamber and the antechamber from the outside world. These architectural features that have so far been noted may yet be joined by others, as researchers spend more time observing the passage graves from the inside, both as visitors and as participants in restoration projects. It is by this means, and not by studying only maps, drawings, and artefacts, that new ideas about the intentions of the Neolithic builders may be generated.

Note

[1] Further information on monuments mentioned in the text can be found in the "finds & monuments" database at the Danish Agency for Culture: www.kulturarv.dk/fundogfortidsminder/

References

Dehn, T., Hansen, S. and Kaul, F. 2000. *Klekkendehøj og Jordehøj, Restaureringer og undersøgelser 1985-1990. Stenaldergrave i Danmark* 2. Nationalmuseet & Skov- og Naturstyrelsen: København.

Dehn, T., Engberg, N., Etting, V., Frandsen, J., Hansen, S. I., Vesth, K. B. and Westphal, J. 2008. *Bevaring og restaurering af fortidsminder*. Nationalmuseets Arbejdsmark 1807–2007. Nationalmuseet: København

Hansen, S. 1993. *Jættestuer i Danmark, Konstruktion og restaurering*. Skov- og Naturstyrelsen: København.

Kaul, F. 2010. Erik Pontoppidans og Ove Høegh-Guldbergs udgravninger af jættestuer – Jægerspris 1744 og 1776. *Aarbøger for Nordisk Oldkyndighed og Historie* 2007, pp. 37–56.

Section 2

Cemeteries and sequences

10

Building forever or just for the time being? A view from north-western Iberia

Ramón Fábregas Valcarce and Xosé Ignacio Vilaseco Vázquez

Abstract

The existence of a "building project" is difficult to ascertain in the megalithic tombs of north-western Iberia, although in certain cases we have some evidence of planned execution from a kind of blueprint. On a larger scale, we can make some observations about the setting of the megalithic mounds, and the way in which they tend to cluster in cemeteries. Focusing on the tombs themselves, we observe similarities in structural design and constructional sequences that suggest the builders were following a certain set of rules, particularly in the case of passage graves. Two main issues will be mentioned: changes in the construction design (and use?) at certain sites, and the specific outline of the chamber within a regional group of passage graves. At the level of construction, the range of variation detected is enormous. It is probably linked to shifts in ritual and the purpose of the mounds. Three distinct life-histories for these monuments can nonetheless be proposed: i) a relatively static model, where tombs were the result of a single construction episode, without further alterations; ii) a more dynamic life history, characteristic of certain monuments that started as a single-chamber mound but subsequently underwent an aggrandising process; iii) a deconstructive pattern, experienced by a number of mounds where stone chambers were partially or totally dismantled, to be replaced by other structures.

Two questions may be posed with respect to those trends, neither of which has a straightforward answer: how much are they a by-product of chronology, and how far were changes in design the consequence of shifts in funerary ritual?

Keywords: NW Iberia; megalith biographies; passage grave; monument closing; building blueprints

Intentions versus conditions

When one approaches the issue of intentionality or the eventual existence of a predetermined design, it is crucial to have access to a regular set of data on which interpretations or sequences may be based. It is, therefore, fundamental to have in mind what the conditions of the research are in a given area, for the characteristics of the latter can play a significant role in the richness and reliability of the information at our disposal.

With respect to the investigation of the megaliths of north-western Iberia we enjoy, on one hand, a deep tradition that goes back to the 19th century but, on the other, the introduction of modern research techniques took longer than in other European regions, severely hindering the quality of the available data set. A "scatter gun" approach was predominant in our study area and, with a few exceptions (the most notable being the long-term project developed by the University of Porto at Serra da Aboboreira, northern Portugal), excavations were limited to just one monument, studied in splendid isolation without regard for others or the surrounding landscape.

A second feature of most research, until very recent decades, was the concentration of archaeologists' efforts on the stone internal structure (i.e. the tomb chamber), in this way disregarding not only the potentially interesting information that could be surmised from the mound as a whole, but also the material evidence lying in the areas beside the tombs.

When, in the 1980s, radiocarbon dating became standard for dating our megaliths, it was usually done on a single mound/single date basis, with only a few monuments dispensing more than one radiometric date. This left the chronology of these monuments subject to haphazard sampling or instrument error, and also concealed the complex history of the constructions. Dombate is one of the few examples of a multi-dated passage grave in north-western Iberia, and that circumstance led to interesting conclusions, about which we shall speak below.

The north-western region of Iberia is particularly unfavourable for the preservation of any kind of organic remains: an unfortunate combination of humidity, mild temperatures, and predominantly acidic soils have devastating effects on evidence of that kind. As a result, one of the most relevant data sources (human bones) for assessing the use of megalithic tombs is currently irretrievable.

When, in addition to the factors just mentioned, we add a fairly catastrophic record regarding publication of archaeological interventions dealing with megaliths, particularly in the Galician territory (Vilaseco 2001), we are left with an extremely biased perspective about these kinds of monuments. It is hardly surprising that there has been little reflection on the internal sequencing of the individual mounds, or the intentions behind the construction/utilisation of these tombs, since the dominant perspective was one of

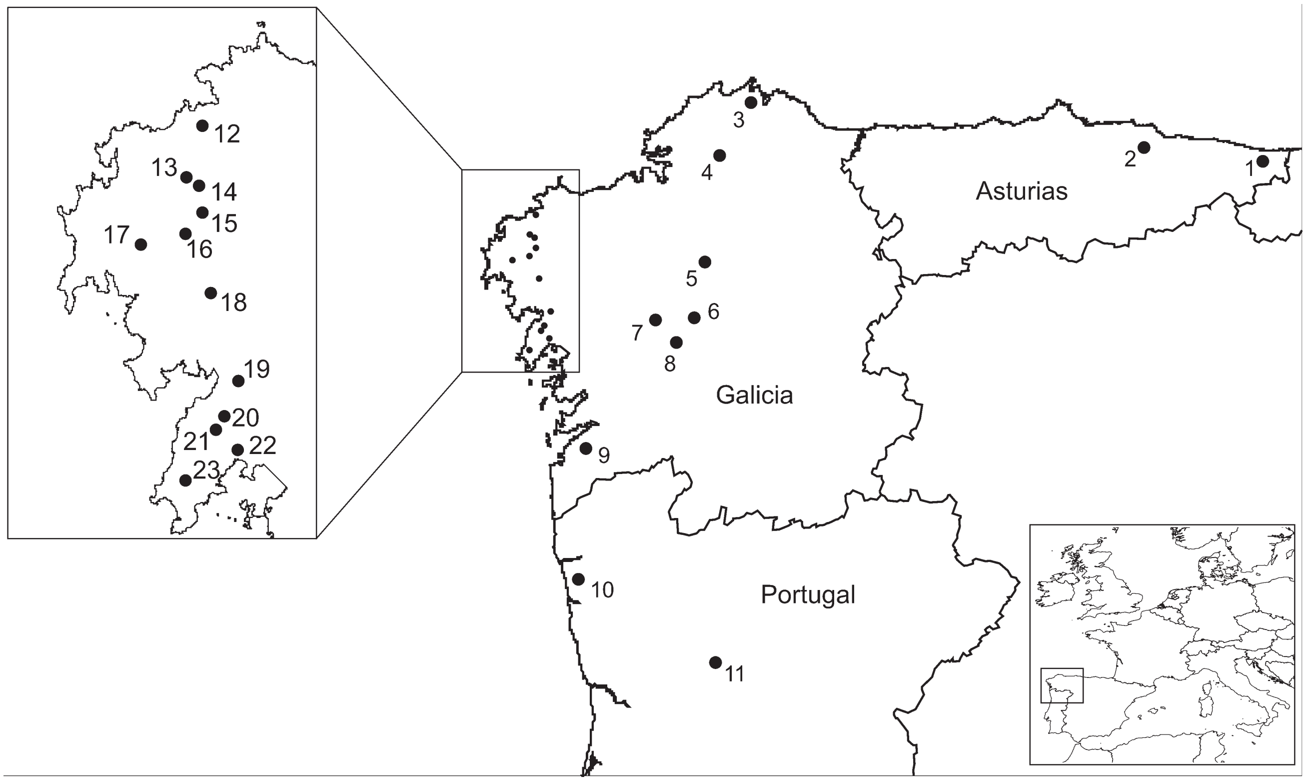


Fig. 10.1: Location of the main sites mentioned in the text: 1. Sierra Plana de la Borbolla. 2. Llaguna de Niévares. 3. Forno dos Mouros V. 4. Illade, Ponte da Pedra and Reboredo 1 (As Pontes). 5. Forno dos Mouros. 6. Agro dos Muíños. 7. Chousa Nova 1. 8. Monte da Romea. 9. Cotogrande. 10. Mamoa da Cruzinha. 11. Outeiro de Gregos (Aboboreira). 12. Dombate. 13. Pedra Cuberta. 14. Pedra Moura. 15. Arca da Piosa. 16. Casa dos Mouros. 17. Pedra do Boi 3 and Prado do Rei 3. 18. A Mina de Parxubeira. 19. Argalo. 20. Casota do Páramo. 21. Arca do Barbanza. 22. Os Campiños. 23. Axeitos

monuments frozen in time. Still, there are some threads of evidence that we can explore in the search for interpretations regarding the setting of the dolmens in particular places, the changes in design (and use?) at certain sites, the types of chambers being built, and the specific life-histories of some megalithic mounds.

Taking possession of the place

The prehistoric mounds of north-western Iberia are found throughout the whole region, from the coastal plains to the eastern mountain ranges, over 1000m high. Yet, the densest concentrations of monuments are generally found on the flattened tops of eroded sierras, around or slightly over 500–600m. That is the case of the sierras O Bocelo and Santa Mariña (both in Galicia), and Aboboreira (Portugal), and those constituting the backbone of the peninsulas of Morrazo and Barbanza (Galicia). A particular situation can be observed in certain areas such as Sierra Plana de la Borbolla (Asturias) or As Pontes (Galicia), where clusters of monuments occur on low-lying ranges overlooking the plains below. Yet this apparent restriction against higher places should probably be reconsidered in light of recent survey work in regions like the Barbanza peninsula, which showed that a significant proportion of the mounds were located away from the highlands (Fábregas and Rodríguez 2012, 37). A similar observation can be made in the basin of As Pontes, where – in addition to the numerous mounds existing on the surrounding hills – a fairly large number were reported in the flat lands below, most of them quarried away in the last decades (Eguileta 2009, 13).

In spite of the necessary qualifications regarding the (pre)conception of a megalithic landscape confined to the highlands, there remains the obvious fact that in those zones a heavier density of megaliths exists. When considering the reasons for that clustering, the existence of lighter soils for agriculture has been put forward for some time (Criado 1989). However, leaving aside the sharp environmental changes of the last 6000 years, we must bear in mind that an increasing number of early Neolithic sites are located away from the higher sectors of the landscape (Fábregas *et al.* 2007; Prieto 2010). It is still feasible that high places could have had a special significance for some Neolithic communities that otherwise exploited different ecological niches. This symbolic role was apparently retained for long periods, judging by the few cases in which systematic excavation and radiocarbon dating are available for the megalithic necropolises, as we shall see further on. Last but not least, the level of attrition sustained by the mound sample would have been arguably

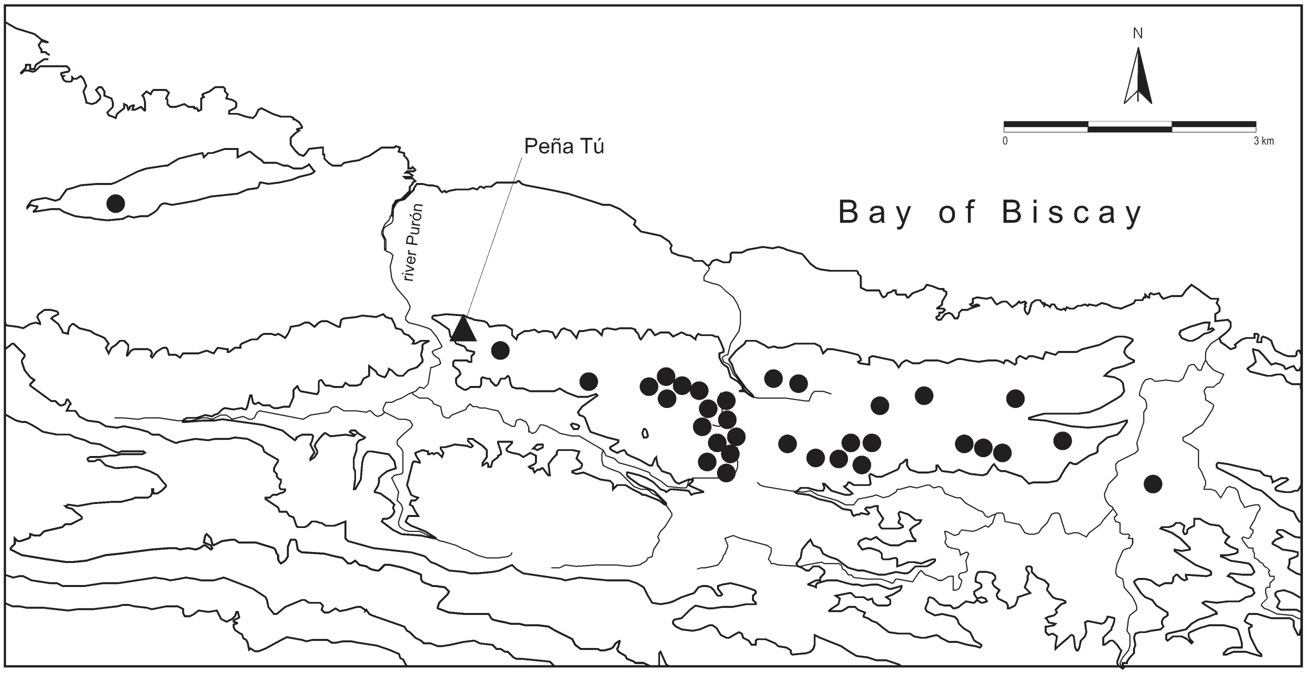


Fig. 10.2: Megalithic necropolis of Sierra Plana de la Borbolla and location of Peña Tú. (After Blas 2010)

heavier in the lower areas, due to the intense human activity there, as is well attested in the case of As Pontes.

If we slightly change the scale of the analysis, focusing on particular places, we may find that certain locations seem to continue the construction or modification of mounds – sometimes for 3000 years. This suggests that, beyond more or less functionalist explanations, particular *loci* maintained their special character throughout vast timespans. A good example of this situation has been put forward in a persuasive way by Professor Blas (2010): near the town of Llanes (Asturias), a low range runs in parallel to the coastal plain, divided into two sectors (Sierra Plana de la Borbolla and Purón) by the gorge of the river Purón (Fig. 10.2). To the east, a huge concentration of mounds (*c.* 52) is known, while on the opposite side none have been reported. Though no systematic excavations have been carried out there, one mound with an atypical stone chamber had a radiocarbon date of the late 5th millennium, with a reuse dated to the 3rd/2nd millennium transition, and it is likely that the rest of the mounds were built or used within that timespan. The sharp contrast between both sectors of the sierra cannot be attributed to geographical, economic or geological factors. There is some evidence that the Sierra Plana de la Borbolla could have acquired a particular meaning, perhaps even from Mesolithic times, due to the presence of a very conspicuous rock with a clear zoomorphic shape (Peña Tú) in its western tip, looking into the plain where mounds are located (Fig. 10.2). That this outcrop had a particular meaning is indicated by its decoration with carvings and paintings, potentially since the Neolithic, and certainly since the Bronze Age. This could be an elaborate example of the significant role played by singular rock formations in prehistory, or the association of these with megaliths, a relationship already observed in other areas of the Iberian north-west (Criado and Vaquero 1993; Blas 2012, 324) and elsewhere (Bradley 2000).

At Illade (A Coruña), we have an example of the remarkable durability of a funerary space, much smaller in scale than that of Borbolla, but well attested through C-14 dates, even if the excavations remain practically unpublished (Vaquero 1999). Here there was a cluster of seven mounds placed along the lower part of a spur leading into the basin of As Pontes. Four were excavated and C14 dates obtained, showing a timespan of around 3000 years. Unfortunately, we have only scant information about the characteristics of two monuments: Illade 0, with a wooden structure belonging to the late 5th millennium BC; and Illade 3, with a shallow pit sided by a vertical stone and a date in the second half of the 3rd millennium BC. Given that the excavator makes only the slightest reference to the artefacts recovered from those mounds, we cannot but wonder about the ultimate reason for the prolonged use of that funerary space from Neolithic times until well into the Bronze Age.

Following de Blas's insight, we could consider that in the case of Sierra Plana de la Borbolla, Neolithic groups opted to raise their tombs in a space already consecrated by the existence of a notable landmark like the Peña Tú outcrop. The seeming persistence of mound building into much later times could also relate to the conspicuous presence of the earlier mounds. This tendency towards creating monuments beside earlier ones is observed in a number of places: apart from Illade, we know of Cotogrande (Galicia) and Outeiro de Gregos (Portugal), with timespans of 1500 and 3000 years, respectively (Abad 2000; Jorge 1988; Cruz 1992). Several factors could account for the clustering trends, like the proximity to natural paths, economic resources, or preferential settlement areas, but it is also feasible that the weight of tradition and the legitimacy awarded by older constructions were at play as well.

Long-time projects

Occasionally there are hints of the existence of building projects, carried out after varying lengths of time. A recent example is found at the Galician mound of Chousa Nova 1 (Domínguez-Bella and Bóveda 2012), where initially a monument only 15m in diameter with a rectangular open tomb was built on an artificial platform, surrounded by a 34m circular trench. Shortly afterwards, the stone chamber collapsed due to structural problems and – while this was never restored – an earthen mound was raised, occupying part of the original platform.

Only in 1989 was the first case of an increasingly complex sequence in certain megalithic burials detected: excavation at the passage grave of Dombate revealed the remains of a single chamber beneath (Fig. 10.3). An evolution from a simpler to a more complex building took place there along a timespan of maybe a millennium, judging from the available C14 dates. First, a chamber was built within a mound of modest dimensions. Sometime later (we cannot determine the precise timespan), this dolmen was dismantled and a much larger passage grave raised: the earlier mound was merged into the new, bigger one. The passage grave remained in use from 3800 to 2900 BC, when access to the chamber was blocked,

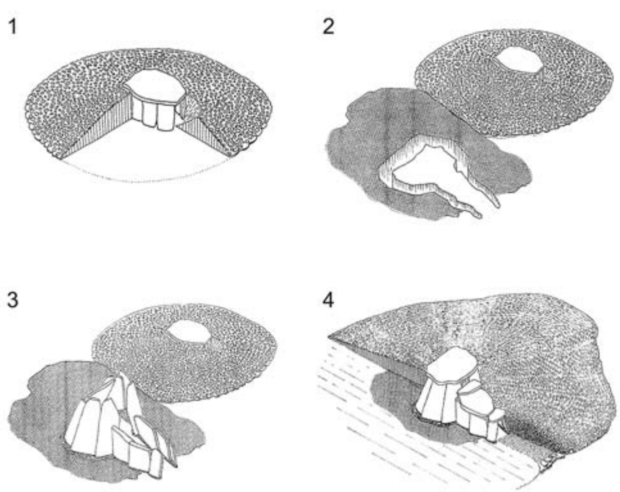


Fig. 10.3: Evolution of the monument at Dombate: 1 – Small mound with a polygonal chamber and a funnel-like access; 2 and 3 – Construction of a passage grave beside the previous monument; 4 – The passage grave finished: the older megalith has been buried by the new mound, but a bulge can be observed on plan as a memento of the earlier tomb. (After Bello 1992/93)

although later intrusions are recorded in Beaker and Bronze Age times (Bello 1995).

That replacement of a single chamber by a larger passage grave within the same monument has been reported, albeit in less detail, in at least three other sites: Forno dos Mouros 5 (Mañana 2005), Mámoa da Braña das Feallas (Lestón 1995), and Mamoa da Cruzinha (Silva 2003). While the last two are still unpublished, the first was severely disturbed and only the earlier dolmen showed fair preservation. Furthermore, a geophysical survey, carried out by ourselves (still unpublished) in the much-eroded mound of Axeitos (presently displaying a passage grave), suggests that underneath could lie the remains of an earlier, much smaller, stone grave.

In view of the available evidence, one may wonder if such a process of "internal growth" of the megalithic tombs was rather common, and not just an episodic feature. The reasons for that choice are another matter: why, in certain instances, did the megalith builders not follow the usual pattern of building new mounds *beside* the older ones? Was it that they were commemorating a particular individual or group buried in the earlier tomb? Or – going back to the initial question – is the limited number of excavations in Galician passage graves hiding what was perhaps a more common option than our present-day knowledge suggests?

A blueprint for passage graves?

A wide array of funerary chambers has been reported inside the north-western mounds: wooden tombs, shallow pits – sometimes edged by stones – and, of course, the so-called dolmens. When megalithic constructions are present, they are always roofed by capstones, as no tholoi have been found in the area. The building tradition is very similar at all the sites, and is shared throughout the rest of the western Iberian region. The first slab to be raised is the backstone facing the entrance that supports the entire structure: this is sometimes set in a markedly sloping position, or even, as in Dombate, in a socket 1.5m deeper than the floor of the tomb (Bello 1995). Then, one slab is leaned against each side of the backstone, and finally new ones are placed, leaning each on the previous one in order to build a rectangular, circular or polygonal-shaped chamber. This leads to the presence of an odd number of uprights, ranging from five to 11, although seven is the usual figure, as has long been observed (Fig. 10.4; Barros 1875).

No matter the differences in plans and sections, passage graves follow the same scheme. In fact, the seven-slab pattern, with a chamber usually wider than it is long, seems to be the most common model in western Iberia, from Galicia (Hoskin and Rodríguez 1998) to Alentejo in southern Portugal (Leisner and Leisner 1951). In the western-most part of Galicia, we could almost speak of the existence of a blueprint, because of the number of monuments that share a series of archaeological features. They are found in the counties of

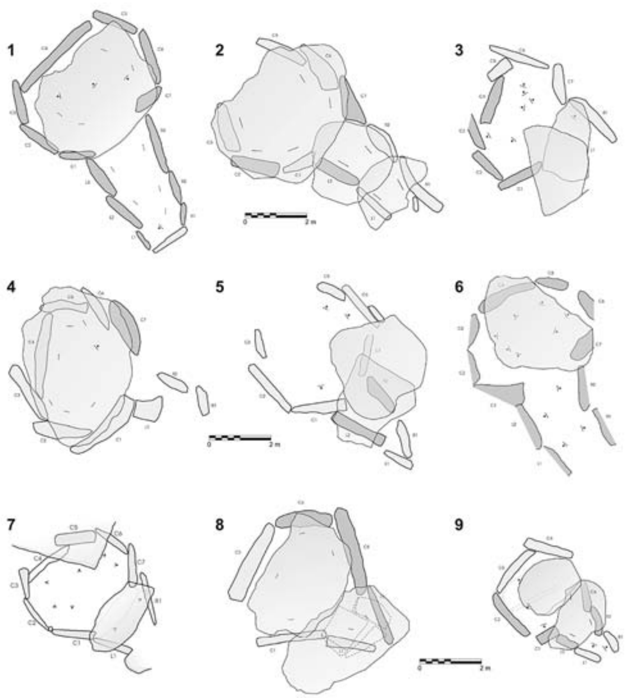


Fig. 10.4: Some of the seven-slab passage graves mentioned in the text (1. Dombate. 2. Casa dos Mouros. 3. Casota do Páramo. 4. Axeitos. 5. Forno dos Mouros. 6. Agro dos Muíños) and two contemporary monuments with fewer slabs (8. Arca da Piosa. 9. Pedra Moura). (All after Carrera 2011)

Costa da Morte (Dombate, Pedra Cuberta, Casa dos Mouros, and Mina de Parxubeira, just to mention the best preserved) and *Barbanza* (Argalo, Axeitos, Arca do Barbanza, and Casota do Páramo).

Despite the slight differences in the plans of the chambers, or in the length of their passages, the similarities go beyond the number of uprights. All have paintings on the inner sides of the slabs, mostly employing red and black pigments. Nowadays only small parts remain, but originally this decoration would have covered the entire surface inside the tomb so that the stone would not be visible at all (Carrera 2011). Furthermore, in those excavated (Dombate, Parxubeira and Argalo), a row of small stone anthropomorphic sculptures was reported at the entrance of the tomb (Fig. 10.5 and 10.6), likewise marking the limit of the mound, as though protecting the access to the funerary precinct (Bello 1992/93; Rodríguez 1988). In Axeitos, two pieces were collected in the altered mound, suggesting that a similar structure exists here too (Vilaseco 2004). They are between 10cm and 50cm long, most of them just boulders with incisions or notches representing the arms or shoulders of a person, or even a facial tattoo, but others have clearly a schematic human figure.

Chronology provides a final clue suggesting some forethought in the building of these seven-slab chambers. Excavation data (Dombate: Bello 1995) and AMS radiocarbon dating of charcoal identified in the black pigment of the paintings (Pedra Cuberta and Casota do Páramo: Carrera 2011) confirm that the decoration is contemporary with the erection of these monuments, taking place within a short time range (3960–3600 BC). Furthermore, two other passage graves with seven uprights (Forno dos Mouros and Agro dos Muíños), east of the studied area, have a similar chronology for their paintings.

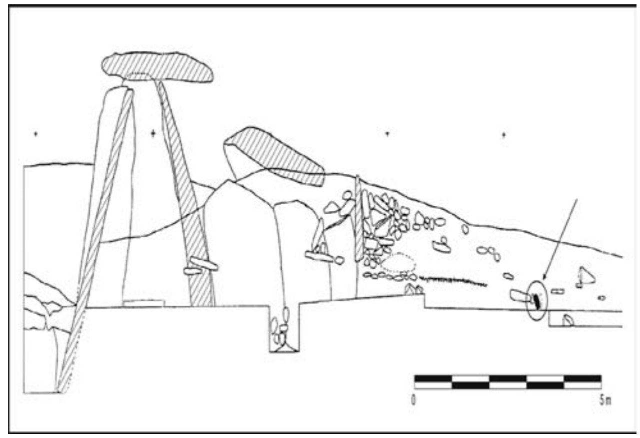


Fig. 10.5: Stratigraphic section of Dombate (after Bello 1995) showing the position of the row of anthropomorphic sculptures (circle)

Although the assembled evidence is compelling, seven slabs was not the only design chosen for passage graves in the area: in *Costa da Morte* we have chambers of five (Arca

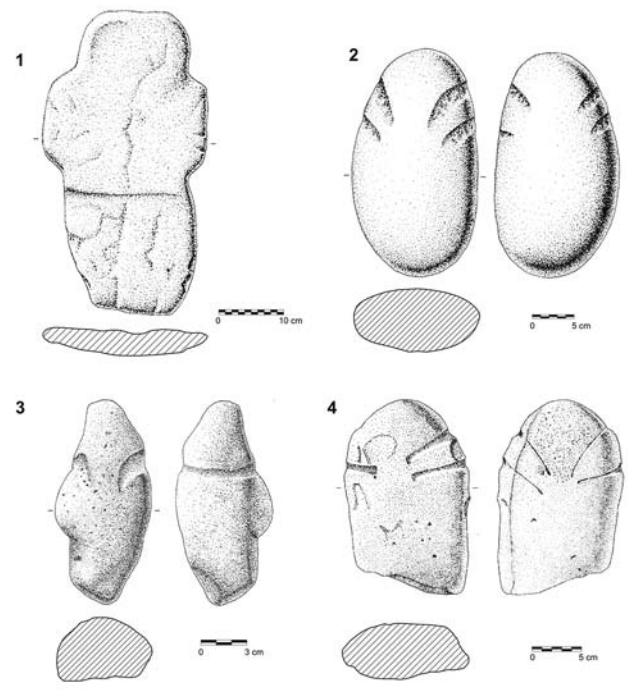


Fig. 10.6: Anthropomorphic statues from A Mina de Parxubeira (1), Argalo (2), Dombate (3) and Axeitos (4)

da Piosa) or six uprights (Pedra Moura), both with paintings, and the latter with a radiocarbon date similar to the seven-slab designs. So there was not a single, all-purpose model for building passage graves, although perhaps certain blueprints were more popular in given areas, always subjected to modifications according to the shape of the extracted slabs, the contingencies of the building process, or other factors.

Diverging life-histories

If we pay attention to the biographies of those megaliths that have been subject of a controlled excavation, we find that, far from staying in the mainstream, our monuments often follow rather different paths from their first construction to their final abandonment. Generally speaking, we might observe three life-histories in our study area that (very summarily) could be labelled as *static*, *dynamic*, or *deconstructive*. Of course, that biographical characterisation is heavily dependent on the availability of fine-grained information about the mounds, which is not, alas, a very common feature. We must also mention, however, that no chronological factor seems to be at play, as all three patterns are present throughout the more than 3000 years during which burial mounds were built and used in the area.

Static

Under this label we could include mounds that, once built, do not seem to undergo significant transformations at the structural level, or in their subsequent use. Well-documented examples of this pattern are found in the necropolis of Llaguna de Niévares (Blas 1992; 1995) where systematic excavations were carried out at four mounds, two of which were C14 dated (Fig. 10.7). Tumulus A had no proper chamber, only two uprights facing each other aligned on a north–south axis, displaying a stone paving behind the stone unaffected by a plunder pit. Tumulus D had a pseudo-chamber made up of four smallish uprights (the tallest being just 0.74m high).

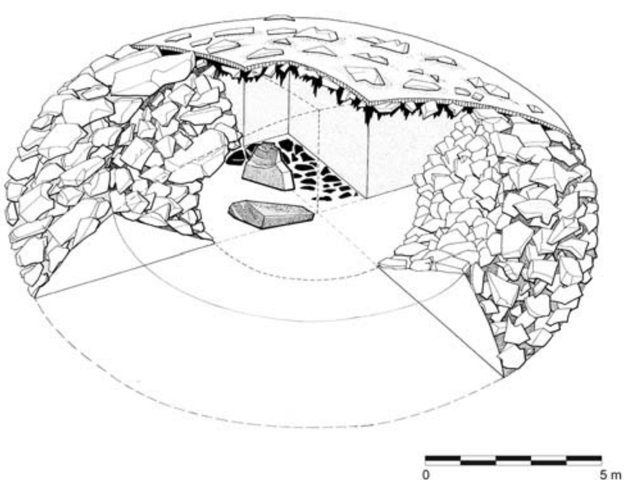


Fig. 10.7: Axonometric view of Llaguna de Niévares mound A. (After Blas 1992)

Both monuments had fairly huge earthen mounds that were not significantly altered by looters' attempts at getting to the "treasures" within the would-be chamber. Being almost contemporary (A was most likely built 4000–3950 BC, and D between 3990 and 3800 BC), they show a similarly poor, material culture; a few flint trapezes, and a micro-axe each. The design of the tumuli is such that once erected, it would not allow a further use of the stone chambers. This possibly restricted period of use does not necessarily imply an individual use, only a time-constricted employment.

We have examples of similar dynamics in mounds built 2000 years later, such as Reboredo 1, a small earthen mound with a shallow (barely 0.15m deep) pit, edged by a single upright. A few stone objects were retrieved from that feature, sealed with a layer of slate and quartz fragments and charcoal pieces, the latter providing a C14 date within the last third of the 3rd millennium BC, virtually identical to another obtained from a similar monument (Illade 3) not far away (Vaquero 1995 a; 1995b).

Two comments might be opportune: the fact that those monuments did not undergo significant modifications once built does not exclude activities (funerary or otherwise) being carried out on the site before actually raising the mounds. Also, beyond the fact that all the sites mentioned remained unaltered, their character is quite different: those in Llaguna de Niévares have large and structurally-complex tumuli, while Reboredo does not and, unlike the latter, occupied a very conspicuous position in the surrounding landscape.

Dynamic

The presence of dynamic constructions, where the funerary chamber undergoes multiple modifications over its lifetime, is a more common situation. To start with, there is the possibility, as reported in Brittany, that certain megalithic slabs are reused menhirs or stelae that pre-date the chambered tombs. Yet examples of this are not common. One is the presence of engraved decoration on some uprights that had to be carved before they were set within the tomb. The clearest cases are provided by a bulldozed megalithic mound at Os Campiños, and the dolmen of Dombate. In the first, a large stone was found with anthropomorphic features carved on both faces, thus suggesting that before being incorporated into the megalithic chamber, it was positioned elsewhere, possibly as a freestanding stela (Fuente and Fábregas 1994). In the latter, the motif present on some of the slabs, called *The Thing* (Shee 1981), has morphological similarities with others carved on Breton standing-stones, themselves sometimes incorporated in later megalithic chambers (Cassen and Vaquero 2003). The fact that in Dombate those images were carved before the actual erection of the uprights and probably covered with paint when the chamber was first built may endorse the possibility of those slabs being reused stelae.

Certainly the development of large monuments like

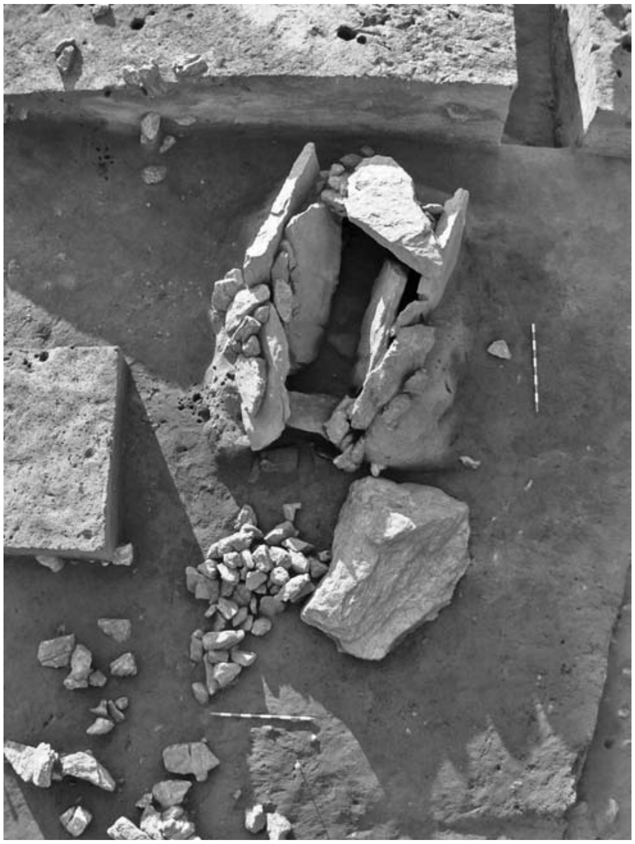


Fig. 10.8: Chamber of Chousa Nova 1 under excavation. Note the portion of the capstone in its original position, and two large fragments fallen inside the chamber (Photograph Mª José Bóveda)

Dombate was dynamic: they underwent an aggrandising process from single-chamber mounds to passage graves with huge mounds. The latter, moreover, show a long-term use, as those excavated in Galicia seem to have been raised between 3950 and 3650 BC, but were not blocked until the first half of the 3rd millennium (Fábregas and Vilaseco 2006). During this timespan they might experience modifications, such as the repainting of the inner decoration (Carrera 2011), or changes in the access through the mound to the tomb. Even after final closure they were sometimes reused, probably in Beaker times: pits were dug to access the chamber (Vaquero 1999, 185), or one of the passage capstones was displaced (Bello 1995).

More modest monuments also saw changes, for example the enlargement of the mound to increase its size and/or height. Unfortunately, in many cases we have no chronological clues, so we cannot rule out the possibility that two construction phases were in fact not distant in time. But there are two outstanding monuments where structural modification was clearly part of a process of closure. The first is Monte da Romea (Prieto 2007) where a dolmen nearly 2m in diameter was built *c.* 4000–3700 BC. It was originally surrounded by a small mound approximately 8m in diameter, barely covering the chamber uprights to a height of 0.5m. Towards 2970–2710 BC, once the access had been closed, the mound was significantly raised, reaching 18m in diameter and 1m in height, in what it looks like a closing of the monument, although this did not prevent its later reuse. Even more striking is the case of Chousa Nova 1 (mentioned above), a small monument erected around 4350–4240 BC with an open cist-like chamber whose capstone was not covered by the mound (Fig. 10.8). Despite having an open access through

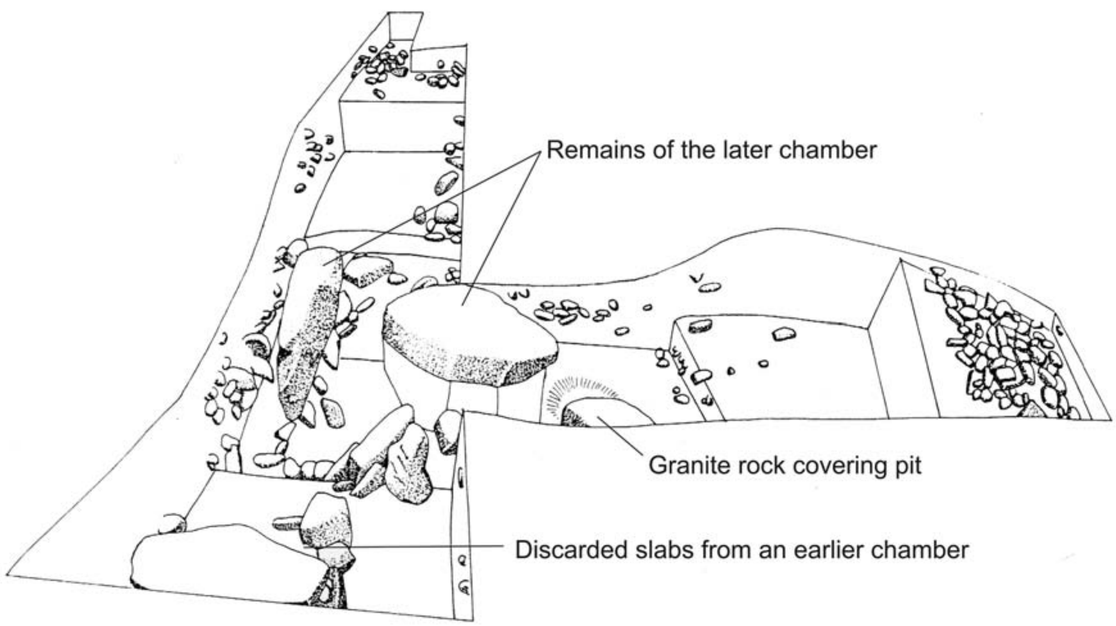


Fig. 10.9: Axonometric view of Cotogande 5. (After Abad 2000)

the mound allowing reuse of the tomb, it seems that only one individual was buried there, with a necklace composed of 35 variscite and amber beads, and three other polished tools. That limited use was probably a result of the collapse of the capstone owing to structural problems. It fractured into four pieces, one remaining in its original position while the rest fell inside the chamber. Thereafter, the mound was enlarged, growing nearly 40cm in height and 4m in diameter, filling the chamber over the fallen blocks with earth (Bóveda and Vilaseco forthcoming). A sealing function for the mound can also be mentioned in cases where a perishable structure is covered only at a later stage with an earthen mound, becoming the final stage in the history of the monument (Vaquero 1999).

We mentioned above that certain places preserved their symbolic and funerary meaning over more than 20 centuries, as shown by the construction of new tombs next to earlier ones, forming a necropolis (Jorge 1986). The distance between mounds may range from some tens of metres to a hundred, but in a few cases they are so close one to another that, as in Prado do Rei, we could talk of a kind of cell-like growth. At this site, mound 3, a Neolithic monument, is just 1.5m from mound 2, a small cairn possibly belonging to the Bronze Age. The space in between was filled with a line of plain slabs symbolically connecting the two monuments, very different in size and design, once the older was closed (Lestón 2009).

Deconstructive

This might be considered a particular version of the dynamic pattern, as a number of mounds in the process of modification have their chambers totally or partially destroyed, and replaced by newer structures. We have mentioned several times the example of Dombate, where the excavator suggests the possibility that some slabs from the dismantled earlier chamber were reused as capstones for the passage of the later passage grave (Bello 1992/93).

In Cotogrande 5, a three-tiered sequence of internal structures was proposed (Fig 10.9; Abad 2000), although with limited stratigraphic information supporting it. A pit – unexcavated – covered by a large granite slab, preceded the construction of the mound, which probably occurred between 3120-2900 BC. Then a cluster of thin tiny slabs, found at the eastern side of the mound together with some broken Chalcolithic material like Beaker pottery, was interpreted as the remains of the first real chamber. This would have been dismantled around 2700-2475 BC, but parts of it were set aside with the burial offerings as a votive deposit. Finally, a bigger polygonal chamber was built, poorly-preserved after historical plundering. An example of prehistoric looting has been detected at Guidoiro Areoso mound 2, whose peculiar chamber was emptied just before the Early Bronze Age, and the offerings thrown to the periphery of the monument (Rey and Vilaseco 2012).

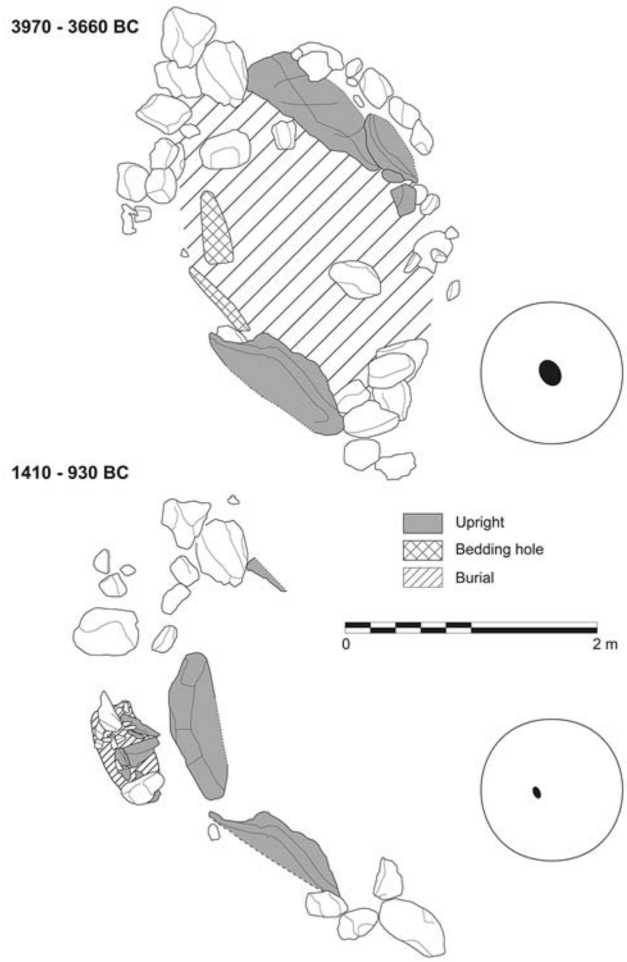


Fig. 10.10: The two burial moments in Ponte de Pedra, with (right) the position of the respective structures in the mound. (After Vaquero 1995a)

Also deconstructive would be the sequence at the monuments of Os Consellos and Pedra do Boi 3. The first has a complex evolution that involves, in one of its phases, the presence of a small orthostatic chamber dismantled prior to the building of the mound (Cano et al. 2000). In the second case, the transformation also necessitated extending the diameter of the tumulus from 10 to 15m, in parallel to the redesign of the earlier tomb to a point that makes it impossible to recognize it at all (Lestón 2009). However, in the latter we also have a first example of possible destruction of the mound, as the stone covering overlying it seems to have been partially dismantled at a certain point to build a low wall that surrounds the mound.

Alterations also happened in other kind of burial structures, with Ponte da Pedra the best known example (Fig. 10.10; Vaquero 1999). In the original grave, the tomb was a level surface edged by uprights, placed sideways and slightly inclined towards the interior, under which the body was laid between 3970-3660 BC. Only after this – maybe some centuries afterwards – was the mound built. More than 2000 years later, by 1410-930 BC, one of the uprights was removed, and a new slab was placed in approximately the same spot, but on the surface of the mound. At the same time, a pit was excavated to its west, where a funerary deposit was placed. The occurrence of this kind of shallow pit has been reported in other Galician mounds belonging to the Middle Bronze Age (Prieto 2007).

Summing up

We have dealt here with design and biographical issues regarding a phenomenon that is widely spread and whose numbers range into the thousands. (Nearly 1600 mounds are reported in Pontevedra alone, one of the four Galician provinces with just 4495 km^2 of surface; Fig. 10.11). With a wide variety of sizes and internal designs, these constructions have been dated anywhere between the late 5th millennium BC and the end of the 2nd. Furthermore, even if single dolmens appear to be slightly older than passage graves, a remarkable polymorphism has been reported among roughly contemporary burial mounds. That said, we were able to perceive an interesting dialectic continuity-change pervading the megalithic phenomenon of north-western Iberia.

As for the continuity, we have shown several examples (others also exist, though not so well documented) of the enduring importance of certain places that retained their funerary function across the millennia. This resilience is reported at the scale of the individual tomb as well: it is not unusual for Neolithic mounds to be reused as late as the Middle Bronze Age.

However, beneath the apparent continuity there is an undertow of change and, within a given necropolis, newly designed tombs were built. Even more tellingly, older mounds underwent significant structural modifications to better suit new needs or customs. The megalithic sites of Dombate or Cotogrande 5 offer good examples of these shifting schemes and complex biographies, in sharp contrast with other mounds that saw no modification of their original layout.

Remarkably, in north-western Iberia the shifts in size, design or use for nearly 3000 years are hidden beneath the unshakable mantle of the earthen mound with roughly circular plan and a hemispherical profile. This resilience of the circular mound throughout time is a particular feature of our study area, and contrasts with the pattern of variability reported in other European regions. We might consider this phenomenon the result of northwestern societies sticking to a time-honoured tradition with respect to the external appearance of the burial mound. After all, the absolute pre-eminence of the circular plan is shared with most megalithic areas of the western façade of Iberia. Alternatively, we might wonder whether the architectural conservatism was an intentional attempt to assert the unchangeable character of

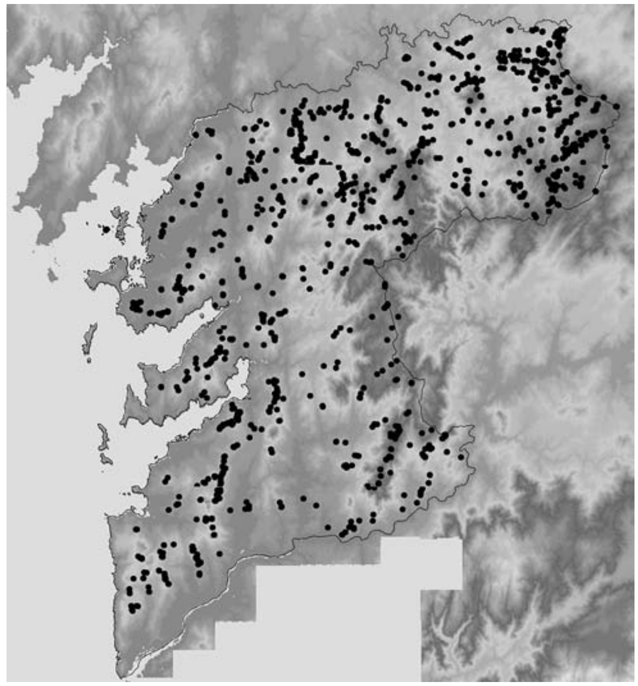


Fig. 10.11: Distribution of the mounds in Pontevedra province known to the end of 2011

the traditional burial mores, no matter how much these (and the internal structures linked to those ritual shifts) underwent significant modifications throughout the time.

References

Abad, X. C. 2000. Actuaciones arqueológicas en la necrópolis tumular de Cotogrande (Cabral–Vigo). Campañas 1989–1992. *Brigantium* 12, pp. 75–84.

Barros Sivelo, R. 1875. *Antigüedades de Galicia*. A Coruña

Bello, J. M. 1992/93. El monumento de Dombate en el marco del megalitismo del noroeste peninsular. Aspectos arquitectónicos. *Portugália, Nova Série* 13–14, pp.139–148.

Bello, J. M. 1995. Arquitectura, arte parietal y manifestaciones escultóricas en el megalitismo noroccidental. In: Pérez, F., and Castro, L. (eds) *Arqueoloxía e arte na Galicia prehistórica e romana*. Museo Arqueolóxico e Histórico: A Coruña, pp. 29–98.

de Blas, M. A. 1992. Arquitecturas megalíticas en la Llaguna de Niévares (Villaviciosa). Excavaciones de 1988 a 1990. *Excavaciones Arqueológicas en Asturias 1987–90*. Principado de Asturias: Oviedo, pp. 111–128.

de Blas, M. A. 1995. Destino y tiempo de los túmulos de estructura "atípica": los monumentos A y D de la estación megalítica de la Llaguna de Niévares. In: Gorrochategui, J.; Yarritu, M. J.; Zapata, L. (comp.). *Primeros agricultores y ganaderos en el Cantábrico y Alto Ebro*. Eusko Ikaskuntza: San Sebastián, pp. 55–79.

de Blas, M. A. 2010. Poder ancestral y territorio neolítico: en torno a Peña Tú y los túmulos de la costa oriental de Asturias. *Actas del Congreso Internacional sobre Megalitismo y otras manifestaciones funerarias contemporáneas en su contexto social, económico y cultural. Munibe suplemento* 32, pp. 94–118.

de Blas, M. A. 2012. Beneficio y consagración de las cumbres: el caso de Los Fitos y la concurrencia Neolítico-Bronce antiguo en el área megalítica de La Cobertoria, Asturias. In: Muñiz, J. R.

(ed.) *Ad Orientem. Del final del Paleolítico en el Norte de España a las primeras civilizaciones del Oriente Próximo*. Universidad de Oviedo: Oviedo, pp. 307–347.

Bóveda, M. J. and Vilaseco, X. I. forthcoming. La cámara megalítica de Chousa Nova 1 (Silleda, Pontevedra): ¿rotura intencional o colapso? *Actas do 5.º Congresso do Neolítico Peninsular (Lisboa, 2011)*. Câmara Municipal: Cascais.

Bradley, R. 2000. *An Archaeology of Natural Places*. Routledge: London.

Cano, J., Vidal, M. and Vázquez, P. 2000. El túmulo de Os Consellos (Nigrán, Pontevedra), *Brigantium* 12, pp. 85–92.

Carrera, F. 2011. *El arte parietal en monumentos megalíticos del Noroeste Peninsular. Dimensión del fenómeno y propuestas de conservación.* BAR S2190. Archaeopress: Oxford.

Cassen, S. and Vaquero, J. 2003. "Cosas fabulosas". In: Gonçalves, V. (ed.) *Muita gente, poucas antas? Origens, espaços e contextos do Megalitismo. Actas do II Colóquio Internacional sobre Megalitismo (Reguengos de Monsaraz, 2000)*. Ministério da Cultura: Lisbon, pp. 449–508.

Criado, F. 1989. Asentamiento megalítico y asentamiento castreño: una propuesta de síntesis. *Gallaecia* 11, pp. 109–137.

Criado, F. and Vaquero, J. 1993. Monumentos, nudos en el pañuelo. Megalitos, nudos en el espacio: Análisis del emplazamiento de los monumentos tumulares gallegos. *Espacio, Tiempo y Forma. Serie I, Prehistoria y Arqueología* 6, pp. 205–248.

da Cruz, D. J. 1992. *A mamoa 1 de Chã de Carvalhal (Serra da Aboboreira).* Universidade de Coimbra: Coimbra.

Domínguez-Bella, S. and Bóveda, Mª. J. 2011. Variscita y ámbar en el Neolítico gallego. Análisis arqueométrico del collar del Túmulo 1 de Chousa Nova, Silleda (Pontevedra). *Trabajos de Prehistoria* 68 (2), pp. 369–380.

Eguileta, J. M. 2009. O fenómeno megalítico na depresión de As Pontes de García Rodríguez (A Coruña): apuntes para un estado da cuestión. In: Bonilla, A. and Fábregas, R. (eds) *Círculo de engaños: Excavación del crómlech de A Mourela (As Pontes de García Rodríguez, A Coruña*. Andavira: Santiago de Compostela, pp. 37–58.

Fábregas, R., Bonilla, A. and Cesar, M. 2007. *Monte dos Remedios (Moaña, Pontevedra). Un asentamiento de la Prehistoria reciente*. Tórculo: Santiago de Compostela.

Fábregas, R. and Rodríguez, C. 2012. A prehistoria recente do Barbanza. In: Fábregas, R. and Rodríguez, C. (eds) *A arte rupestre no Norte do Barbanza*. Andavira: Santiago de Compostela, pp. 33–57.

Fábregas, R. and Vilaseco, X. I. 2006. En torno al megalitismo gallego. In: Fábregas, R. and Carrera, F. (eds.) *Arte Parietal Megalítico en el Noroeste Peninsular. Conocimiento y conservación.* Tórculo: Santiago de Compostela, pp. 11–36.

de la Fuente, F. and Fábregas, R. 1994. La laja decorada de Os Campiños. *Estudos Pré-Históricos* 2, pp. 305–310.

Hoskin, M. and Rodríguez, A. A. 1998. Studies in Iberian archaeoastronomy: (5) orientations of megalithic tombs of northern and western Iberia. D: Galicia. *Archaeoastronomy* 23, pp. 53–57.

Jorge, V. O. 1986. "Monumentalização" e "necropolização" no megalitismo europeu. *Trabalhos de Antropologia e Etnologia* 26 (1–4), pp. 233–237.

Jorge, V. O. 1988. Campo arqueológico da Serra da Aboboreira. Arqueologia do concelho de Baiâo. Resultado de 10 anos de trabalho. *Arqueologia* 17, pp. 5–27.

Leisner, G. and Leisner, V. 1951. *Antas do concelho de Reguengos de Monsaraz*. Lisboa. (Facsimile edition: Uniarch: Lisboa, 1985).

Lestón, M. 1995. *Informe Preliminar. Mámoa da Braña das Feallas (Zas, A Coruña)*. Unpublished report deposited in Servizo de Arqueoloxía, Xunta de Galicia.

Lestón, M. 2009. Escavación das mámoas de Prado do Rei e Pedra do Boi, Dumbría. In: Rodríguez, E. and Vázquez, A. (eds) *Atlas arqueolóxico de Galicia: comarca de Fisterra*. Xunta de Galicia: Santiago de Compostela, pp. 35–37.

Mañana, P. 2005. Túmulo 5 de Forno dos Mouros (Ortigueira, A Coruña). Primeiros resultados. *Cuadernos de Estudios Gallegos* 52, pp. 39–79.

Prieto, P. 2007. Volviendo a un mismo lugar: recipientes y espacios en un monumento megalítico gallego (NW de España). *Revista Portuguesa de Arqueologia* 10 (2), pp. 101–125.

Prieto, M. P. 2010. La cerámica de O Regueiriño (Moaña, Pontevedra): nueva luz sobre el Neolítico en Galicia. *Gallaecia* 29, pp. 63–82.

Rey, J. M., and Vilaseco, X. I. 2012. Guidoiro Areoso. Megalithic cemetry and prehistoric settlement in the Ría de Arousa (Galicia, NW Spain). In: Almeida, A. C., Bettencourt, Ana M. S., Moura, D., Monteiro-Rodrigues, S. and Alves, M. I. C. (eds) *Environmental Changes and Human Interaction Along the Western Atlantic Edge*. APEQ: Coimbra, 243–258.

Rodríguez, A. A. 1988. *La necrópolis megalítica de Parxubeira*. Museo Arqueolóxico e Histórico: A Coruña.

Shee, E. 1981. *The Megalithic Art of Western Europe.* Clarendon Press: Oxford.

da Silva, E. J. L. 2003. Novos dados sobre o megalitismo do Norte de Portugal. In: Gonçalves, V. S. (ed.) *Muita gente, poucas antas? Origens, espaços e contextos do Megalitismo*. Ministério da Cultura (Trabalhos de Arqueologia, 25): Lisbon, pp. 269–279.

Vaquero, J. 1995a. Túmulos del NW peninsular: escenas. *Actas del XXII Congreso Nacional de Arqueología. Vigo. 1993* (I), pp. 39–45.

Vaquero, J. 1995b. Túmulos tardíos en el NW. RB1: estructuras. *Actas del XXII Congreso Nacional de Arqueología. Vigo. 1993* (I), pp. 405–410.

Vaquero, J. 1999. *Les extrêmes distincts. La configuration de l´espace dans les sociétés ayant batî des tertres funéraires dans le Nord-Ouest Ibérique.* BAR S821. Archaeopress: Oxford

Vilaseco, X. I. 2001. As escavacións arqueolóxicas en monumentos tumulares de Galicia: 1965–1998. Cuestións metodolóxicas e bibliométricas. *Gallaecia* 20, pp. 61–95.

Vilaseco, X. I. 2004. Un novo seixo con trazos antropomórficos procedente do dolmen de Axeitos (Ribeira, A Coruña). *Gallaecia* 23, pp. 7–33.

11

The megalithic architecture of Huelva (Spain): typology, construction and technical traditions in eastern Andévalo

José Antonio Linares Catela

Abstract
The province of Huelva has megalithic structures dating from the 5th to the 2nd millennium BC: standing stones, stone circles, megalithic tombs, tholoi and hypogea. This paper analyses the architectural features of the megalithic tombs in eastern Andévalo, where groups with specific systems of construction, materials and technical traditions were located. In particular, we highlight the Los Llanetes group of the El Pozuelo cemetery. This group is composed of monumental megalithic enclosures with complex structures (terraces with retaining walls and pavements, ramps, ditches, etc.), and ritual elements (stelae, altars and hearths), built during different construction phases.

Keywords: Megalithic tombs, eastern Andévalo, El Pozuelo cemetery, Los Llanetes group, megalithic enclosure, building phases.

Introducing the megalithic monuments of Huelva

The province of Huelva stands out in south-western Iberia through the large number of megalithic monuments and the diversity of their typologies (Fig. 11.1). Standing stones, stone circles, megalithic tombs, corbelled vaulted tombs (*tholoi*), and rock-cut tombs or hypogea can all be highlighted (García Sanjuán and Linares 2009; Linares 2011b). This area has architectural features and systems of construction that are similar to others that appeared on the Atlantic façade in the later prehistoric period, from the 5th to the 2nd millennium BC (Briard 1995; Furholt *et al*. 2011; García Sanjuán *et al*. 2011; Joussame 1985; Joussaume *et al*. 2006; Scarre 2002; 2007). This is a traditional area of research on Iberian megalithic monuments: early work on the Dolmen de Soto was published in 1924 by Hugo Obermaier (1924), and publication has increased since the 1950s with works by Carlos Cerdán and Georg and Vera Leisner (Cerdán *et al.* 1952), continuing later with work by other researchers (for example, Cabrero 1985; 1986; Piñón Varela 1987; 2004; Balbín and Bueno 1996; Nocete 2001; Nocete *et al*. 2002; 2004).

For the last ten years I have been carrying out archaeological excavations and conservation work at several megalithic complexes in eastern Andévalo (Fig. 11.2). This area has megalithic funerary architecture of the 4th and 3rd millennia BC, characterised by the presence of compact groups of megalithic tombs that were built and used by farming communities. These may have been considered as sacred spaces that legitimised the physical and symbolic appropriation of areas within this megalithic territory. The pattern continued until the early Bronze Age, at the transition to the 2nd millennium BC, when the replacement of these megalithic tombs by individual cist graves was linked to hierarchical funerary practices and social inequality, although certain megalithic tombs were still re-used for burial at that time.

These processes will be illustrated in this paper by reference to recent excavation and architectural analysis at a series of megalithic tombs and cemeteries: Los Gabrieles, El Gallego-Hornueco and El Pozuelo (Linares 2006; 2010; 2011a).

Megalithic monuments and tomb groups in eastern Andévalo

Eastern Andévalo is a geographical region located at the south-western border of Sierra Morena. A distinctive megalithic funerary monumentality exists here, formed by groups of tombs that are distributed along the stream valleys feeding into the headwaters of the rivers Tinto and Odiel, within an area of approximately 40km by 30km. In particular, the following groups can be highlighted: El Pozuelo, El Villar, Los Gabrieles, El Gallego-Hornueco and Las Huecas (Fig. 11.2).

According to palaeoenvironmental data and archaeological research, these megalithic structures were erected and used by farming communities who inhabited small, scattered settlements (Nocete *et al.* 2004; Linares 2010; Stevenson and Harrison 1985). In this context, megalithic tombs could be considered as sacred spaces that legitimised the physical and symbolic appropriation of the different parts of this megalithic territory. This megalithic tradition may be the result of a funerary ideology based on the commemoration and worship of ancestors, embodied in the construction of megalithic tombs. They were often erected on places with earlier Neolithic occupation and activity, around which different and complex ritual practices developed.

The oldest radiocarbon-dated megalithic tombs come from the second half of the 4th millennium BC – the dolmen of El Casullo, for instance (3263–2923 cal BC) (Table 11.1; Linares and García Sanjuán 2010). The beginning of the 3rd

Period	*Site and laboratory*	*Age BP*	*Age cal BC 1σ*	*Age cal BC 2σ*	*Reference*
Neolíthic	Casullo (Cna-346)	4410±50	3263–2923	3332–2909	1
Copper Age	Dolmen De La Paloma (Beta-150153)	4220±40	2890–2700	2910–2660	2
	Dolmen De La Venta (Beta-150157)	4200±70	2890–2660	2920–2570	2
	Dolmen De La Paloma (Beta-150154)	4070±70	2860–2490	2880–2460	2
	Puerto De Los Huertos (Cna-342)	4050±50	2833–2487	2862–2467	1
	Puerto De Los Huertos (Cna-344)	4940±45	2548–2346	2570–2293	1
	Los Gabrieles Dolmen 4 (Beta-185649)	3920±50	2470–2300	2570–2200	3
	Los Gabrieles Dolmen 4 (Beta-185648)	3850±40	2410–2200	2460–2200	3
	Dolmen De La Venta (Beta-150158)	3820±50	2400–2140	2460–2130	4
Bronze Age	Los Gabrieles Dolmen 4 (Beta-185650)	3700±50	2200–1980	2280–1940	3
	Puerto De Los Huertos (Cna-341)	3680±50	2137–1979	2200–1931	1
	El Pozuelo Dolmen 6 (Teledyne 19080)	3580±120	2130–2080	2300–1600	2
	Casullo (Cna-345)	2890±50	1190–998	1258–925	1
Iron Age	El Pozuelo (Teledyne 19078)	2595±75	836–552	912–418	2
Middle Age	Mascotejo (Cna-343)	835±40	AD 1172–1253	AD 1051–1273	1

References: 1 = Linares and García Sanjuán 2010; 2 = Nocete *et al.* 2004; 3 = Linares Catela 2006; 4 = Nocete Calvo y Otros 2004

Table 11.1: Radiocarbon dates from megalithic tombs in Eastern Andévalo

millennium BC saw the rapid expansion and concentration of different groups, leading to the building of elongated passage tombs with a predominantly funerary use. As the millennium progressed, a gradual monumentalisation of these monuments occurred, resulting in megalithic tombs of larger dimensions and with greater architectural complexity. Some had several chambers (El Pozuelo, Las Huecas or Los Gabrieles, for example) and varied ritual apparatus: altars, stelae, hearths, etc.

This tradition prevailed until the end of the Early Bronze Age, the transition from the 3rd to the 2nd millennium BC. At this time, individual graves (cists) relating to hierarchical and unequal burial rites were introduced, breaking with the megalithic tradition. At this period, we observe:

- the reuse of megalithic tombs as burial sites and sacred places**,** demonstrated by evidence dated to this period at Los Gabrieles 4, El Casullo, El Pozuelo 6, etc.;
- the destruction or closure of some of the monuments. Here we may highlight the group of El Gallego-Hornueco, and most specifically the megalithic tombs in Puerto de los Huertos and El Casullo, where a process of deliberate damage in the Early Bronze Age has been documented. This included the dismantling of the mound, removal of the capstones, and systematic destruction of the orthostats down to ground level. Radiocarbon dates from the socket of the dolmen of Puerto de los Huertos point to the transition from the 3rd to the 2nd millennium BC (2137–1979 BC) as the date of this destruction (Linares and García Sanjuán 2010).

These destructive acts might have turned these megaliths into practically imperceptible structures in the landscapes in which they are located, maybe with the purpose of stripping away their function as physical cohesive elements of social groups, and thus condemning their memory as sacred places.

A series of general aspects in the architectural features of these tomb groups can be emphasised (Linares 2011a):

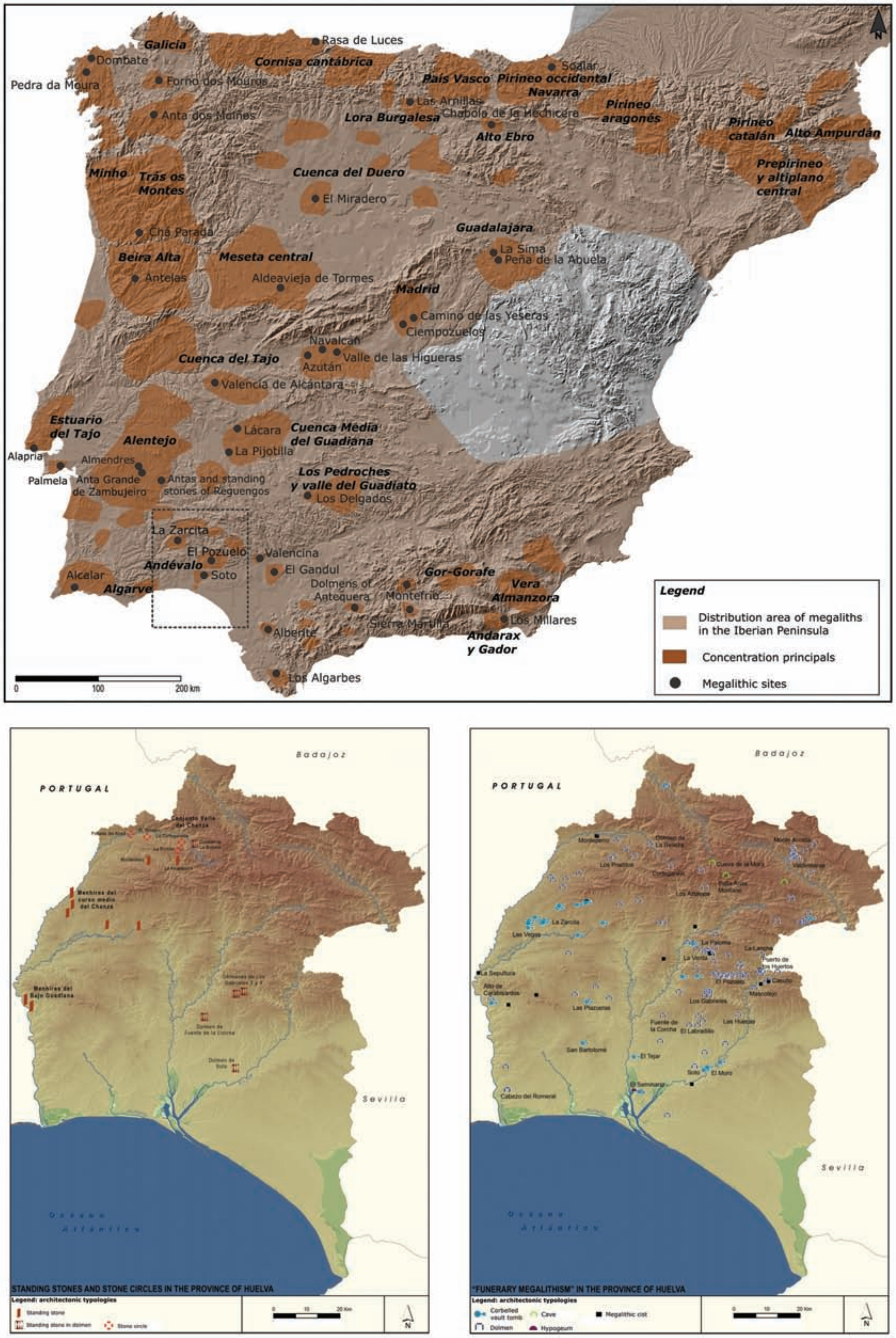


Fig. 11.1: (above) Location of the study area in the Iberian Peninsula: (below) megalithic monuments in the province of Huelva

- *Specific features may reflect expressions of the cultural identities and building traditions* of every community or group that inhabited this territory as each group exhibits specific features in their topographic location, architecture, systems of construction, and working techniques.
- *Megalithic landscapes* are created where the spatial distribution of every group is expressed in organised sets of associated monuments, arranged hierarchically according to their size. Thus the largest and most complex structures are in the most preeminent and significant places: that is, in the middle. Conversely, the smallest megalithic tombs and those with the simplest structure are usually in the least prominent areas around the periphery of the most monumental structures. This pattern of territorial distribution may point to issues related to the spatial organisation of the social groups and, probably, to behaviour patterns of social inequality in the use of these burial structures and ritual spaces.
- *Territorial associations may exist between chambered tombs and rock engravings*, located on significant outcrops close to livestock trails and traditional paths (Linares 2011b). The rock engravings could be spatial markers of transit areas and/or essential ceremonial spaces within the megalithic landscapes. Important examples of rock engravings are those in Los Aulagares (Amo 1974) related to the group of tombs at El Villar, and the petroglyphs from El Riscal (Iglesias *et al.* 1992), belonging to the El Gallego-Hornueco complex.
- *Different typologies of tomb architecture exist*, with a wide range of formal variations in internal megalithic structures, mounds, kerbstones, etc., as will be described below.
- *Materials from the local geological environment were used* for the construction of these megaliths, with a supply system and the selective quarrying of the most suitable raw materials for each structural element. There may even have been a direct relationship between the choice of environmental setting and the availability of suitable rocks for the manufacture of slabs, capstones, kerbstones, stelae, symbolically important blocks, etc. This has been documented for the phyllite elements in the El Pozuelo group, and the volcanic-sedimentary rocks (rhyodacitics) at Los Gabrieles.
- *A complex spatial articulation of open-air ritual practices existed* (atria, access areas and vestibules), where stelae and altars, together with deposits of artefactual material (for example, pieces of pottery, knapped stone blades, axes of stone, and so on), could be placed as offerings. There is also evidence for the same phenomenon in the materials found associated with the individuals recovered inside the burial chambers. Green stone necklaces and adornments (Linares and Odriozola 2011), products of important symbolic value and votive objects such as plaque "idols", cruciform "idols" and biconic figurines with breasts were removed from circulation by placement in the tombs.

Architectural typologies, systems of construction and technical identities

Within the tomb groups of eastern Andévalo there exist a number of common features and specific cases related to architectural typologies and systems of construction. These characterise the building traditions and the technical styles that can be identified as "working processes" ("*chaînes operatoires*"), resulting from a "know-how" ("*savoir faire*") that defines each ensemble. The following are the generic architectural features of eastern Andévalo tombs.

- The construction of the chambered tombs demonstrates *the implementation of preparatory work at the specific locations:* planning, rock cutting, and levelling of outcrops at the site.
- *Foundation sockets* are usually continuous and deep: they fit the base of each individual orthostat, fixing their arrangement.
- The *orthostats* and the *capstones* are made from blocks of stone from the local environment (phyllite, slate, and volcanic-sedimentary rocks) using different procedures and working techniques: scraping, carving, hammering, polishing, etc. Orthostats with a long and flat morphology stand out, being narrower in the base (a V shape) in order to sit better in the foundation ditches. In many cases, they feature engravings and traces of pigments or red painting on their surfaces. In some cases they were former Neolithic stelae that were reused and integrated as orthostats in the tomb structure. For instance, the Los Gabrieles (tombs 1 and 4) and El Pozuelo (tombs 3, 4, 6, and 13) groups had orthostats with carvings manifesting shapes and techniques similar to the images and decorative motifs that appear in Neolithic art in the southern Iberia Peninsula (Bueno *et al.* 2004; 2007; 2009).
- The orthostats were interlocked using *internal packing stonees and external shoring slabs*. The packing stones consist of pebbles, cobbles, and boulders of high hardness and consistency: quartz, quartzite, and volcanic rocks.
- The megaliths used *diverse internal structures***:** simple longitudinal passages; tombs with an angled passage; tombs with supporting pillars and compartments; passage graves with multiple chambers, etc. (Fig. 11.3). These structures have special partitioning of the internal spaces: passages, antechambers, and even chambers containing altars within them.
- The *mounds* are made up of several rings of stones for internal reinforcement and/or superimposed layers of stone blocks and clay. They are of round or oval morphology, and rise prominently above the surrounding environment.
- The *kerbs* are made of blocks and integrate rock outcrops or slabs that are obliquely thrust into the ground.
- The *external spaces* (atria and vestibules) display a variety

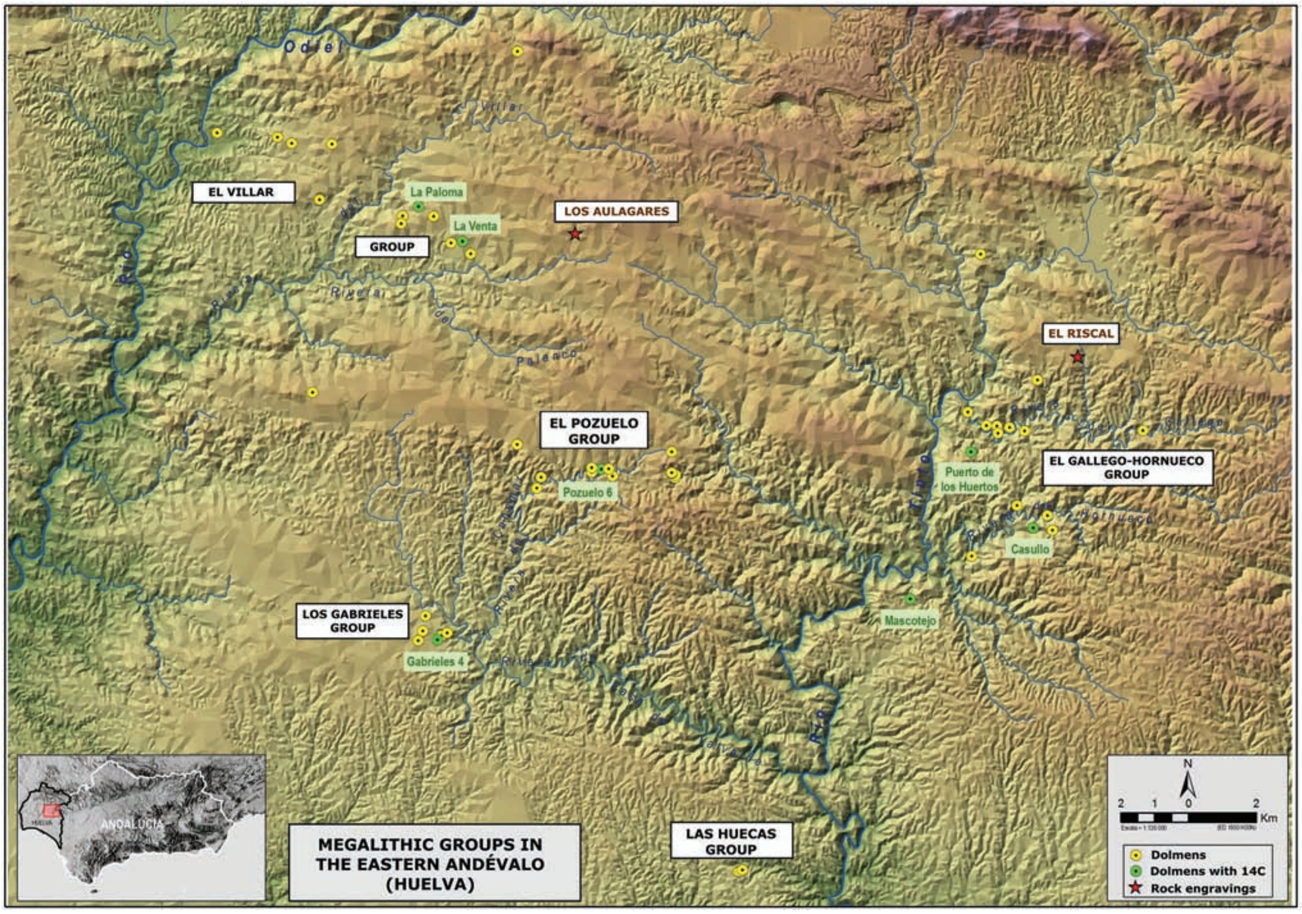


Fig. 11.2: Distribution of tomb groups in eastern Andévalo (Huelva)

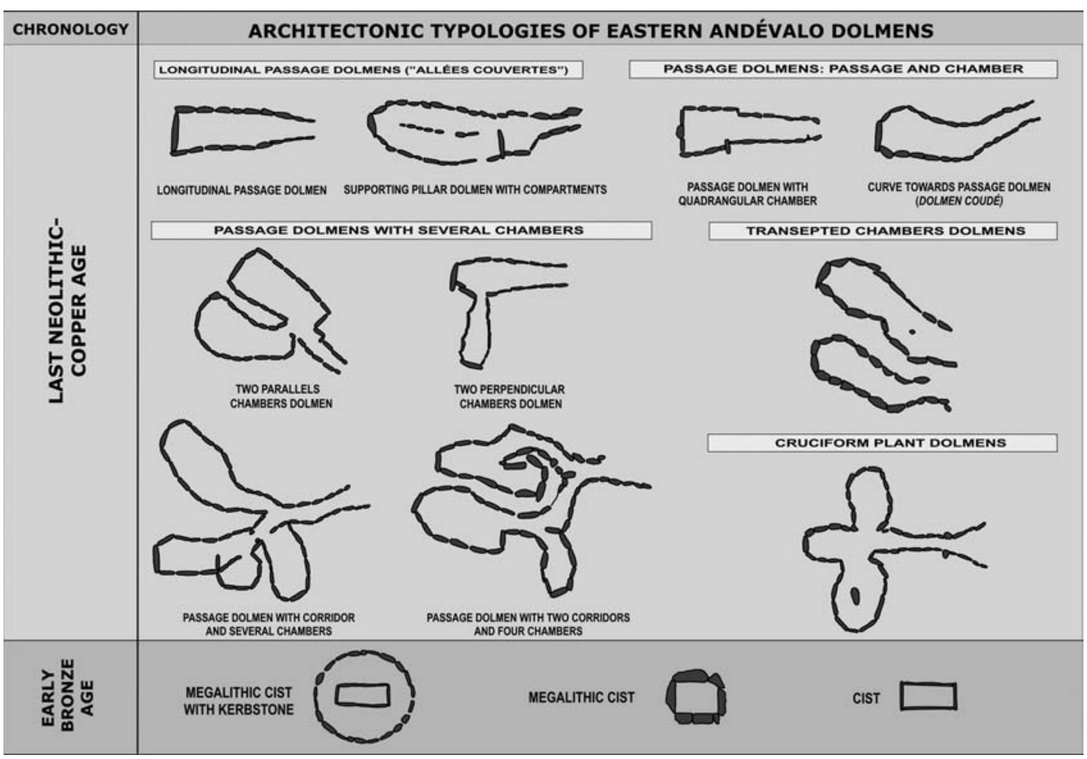


Fig. 11.3: Architectural typologies of eastern Andévalo tombs

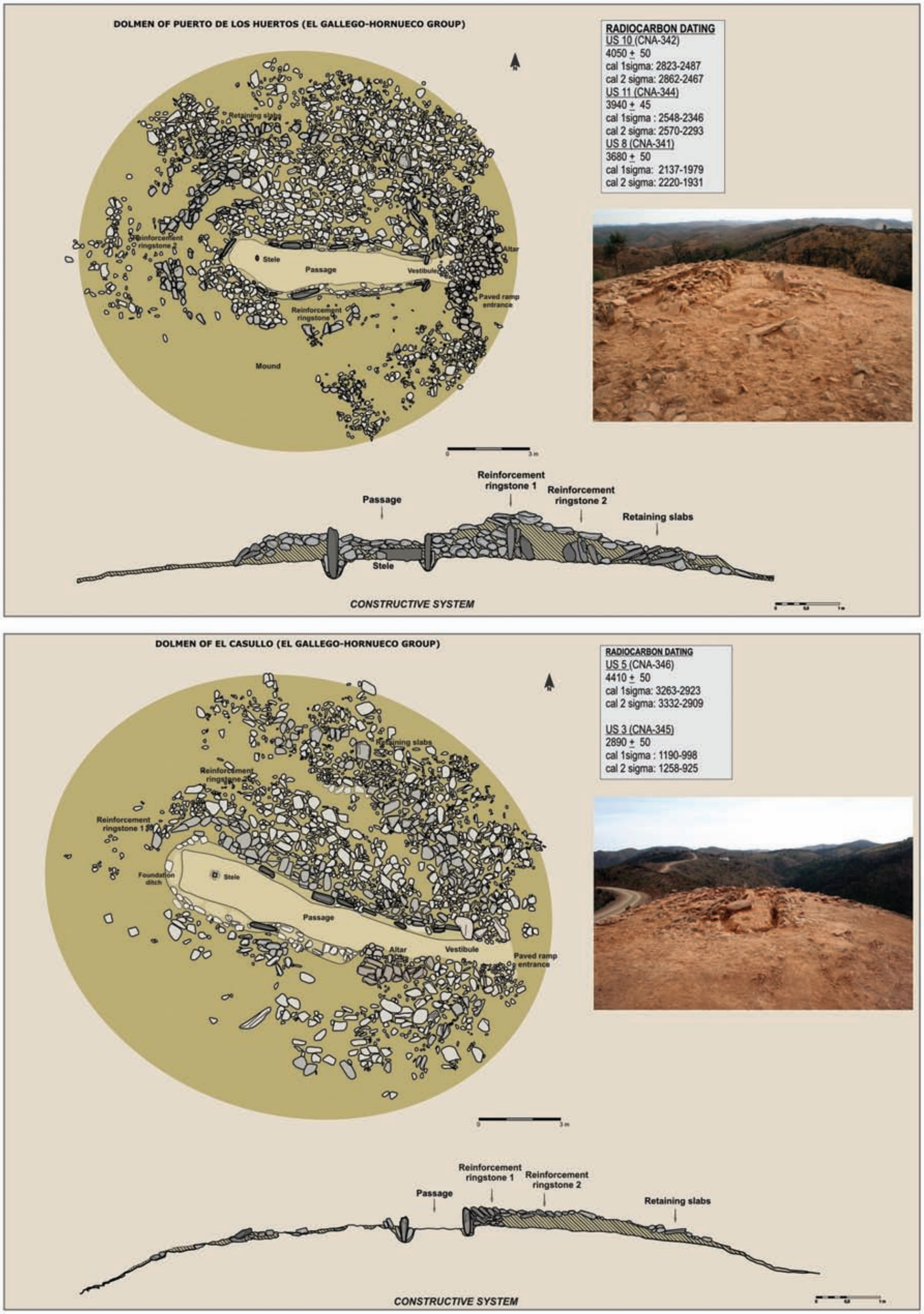


Fig. 11.4: Tombs of the El Gallego-Hornueco group showing architectural features and systems of construction

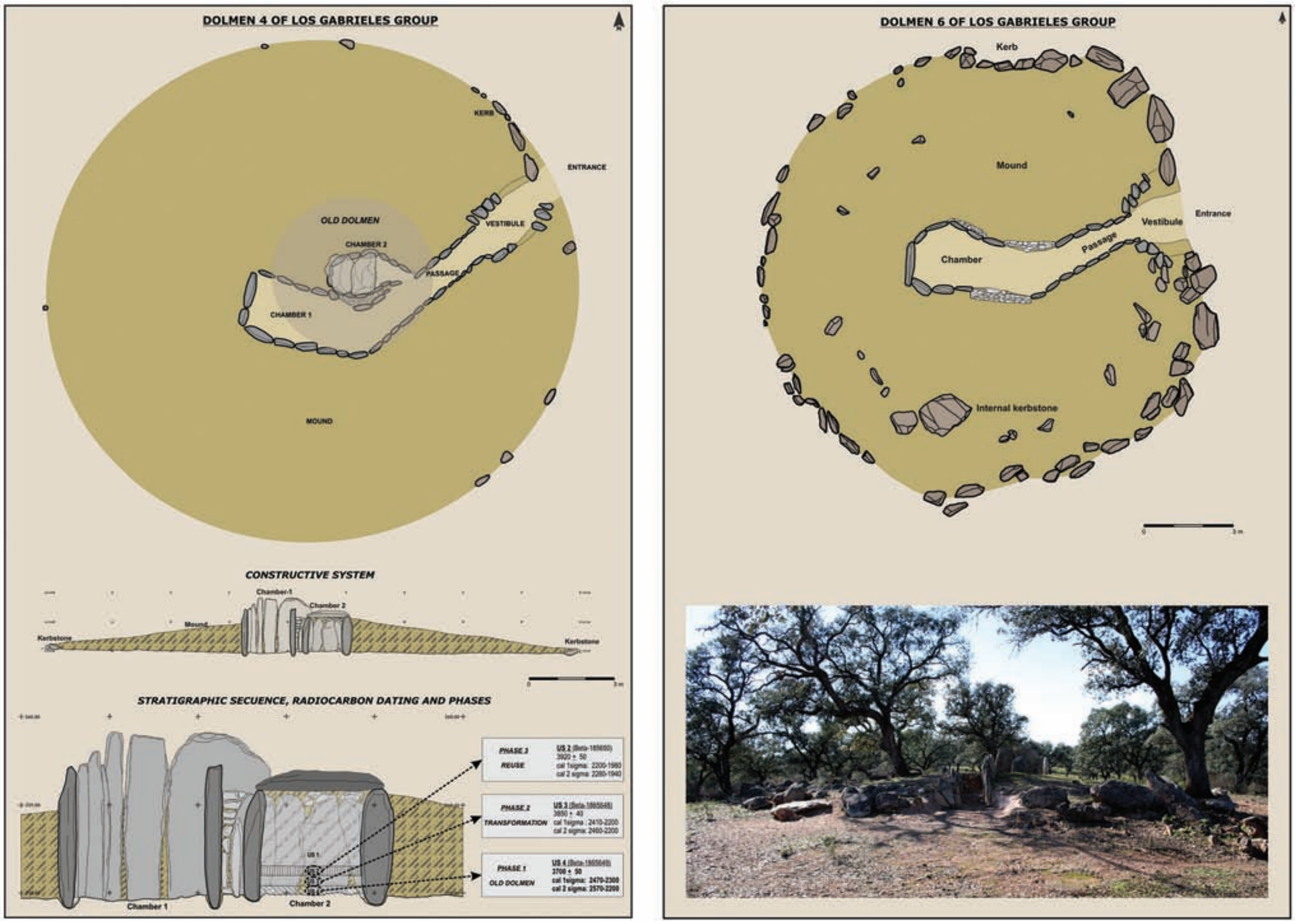


Fig. 11.5: Tombs of the Los Gabrieles group showing architectural features and systems of construction

of different structures including *altars* and stelae, placed in the entrance façade and associated with ritual practices.

Three examples in particular may be analysed: the tombs of El Gallego-Hornueco, Los Gabrieles and El Pozuelo.

The El Gallego-Hornueco Group

The most remarkable architectural features in the group of tombs at El Gallego-Hornueco (Linares 2010) (Fig. 11.4) are:

- The existence of elongated galleries 7.5–10m long facing east, with stelae at their terminals, and altars in the outer parts. They are formed of phyllite orthostats, anchored with wedges and packing stones in deep foundation sockets that have been dug into the slate bedrock.
- The access areas outside the tombs have paved ramps and transit vestibules.
- The mounds incorporate two reinforcing rings and an outer layer of retaining slabs. The reinforcing rings surrounding the orthostatic structure are made of stones placed vertically. The space between them is filled with multiple layers of stone and clay. The retaining slabs are placed at the external edge of the mound, serving as a structural element for the formation of the mound.

The Los Gabrieles Group

In the Los Gabrieles group, seven megalithic tombs that form two groups with different typologies and constructional features: group 1 (tombs 1, 2, and 7) and group 2 (tombs 3, 4, 5, and 6). In group 2, tombs 3 and 5 are passage tombs of small size (3–5m), low in height. Tombs 4 and 6 stand out with internal orthostatic structures curving towards the passage, entrance passages and chambers of similar size, and two slabs forming the rear wall of the chamber (Fig. 11.5). Access is via a descending ramp with a funnel-shaped vestibule facing northeast. This design results from the evolutionary transformation of the megalithic group: it was monumentalised in the second half of the 3rd millennium BC, as documented by the excavation of tomb 4.

According to radiocarbon dates from chamber 2 of tomb 4, these three structures may have been constructed and used until the middle of the 3rd millennium BC (Table 11.1). In the last third of the 3rd millennium, tomb 4 was transformed and monumentalised. The entrance passage was built, along with the main chamber (much taller than the previous one),

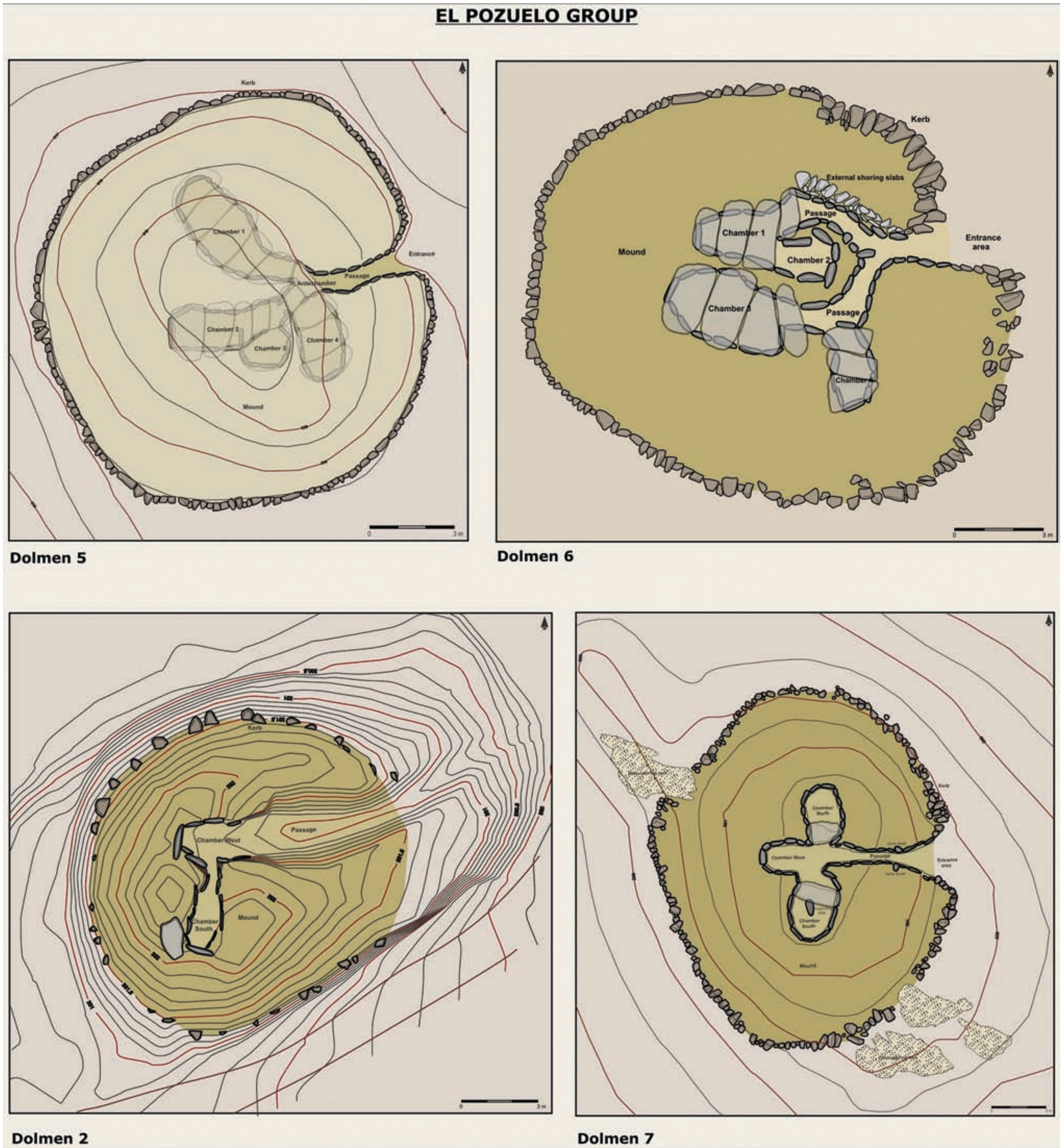


Fig. 11.6: Tombs of the El Pozuelo group showing architectural features and systems of construction

and a new mound: the pre-existing tomb remained integrated in the middle of the monument (chamber 2). As a result of its enlargement, tomb 4 became the central structure in the group, and was used for funerals and rituals until the transition to the 2nd millennium BC. Tomb 6 may have been erected in parallel to the transformation of tomb 4, following the same construction parameters (Linares 2006; 2010).

The El Pozuelo Group

In the case of the El Pozuelo group, a number of archaeologists have emphasised the individuality of the different architectural typologies (Cerdán and Leisner 1952; Piñón Varela 1987;

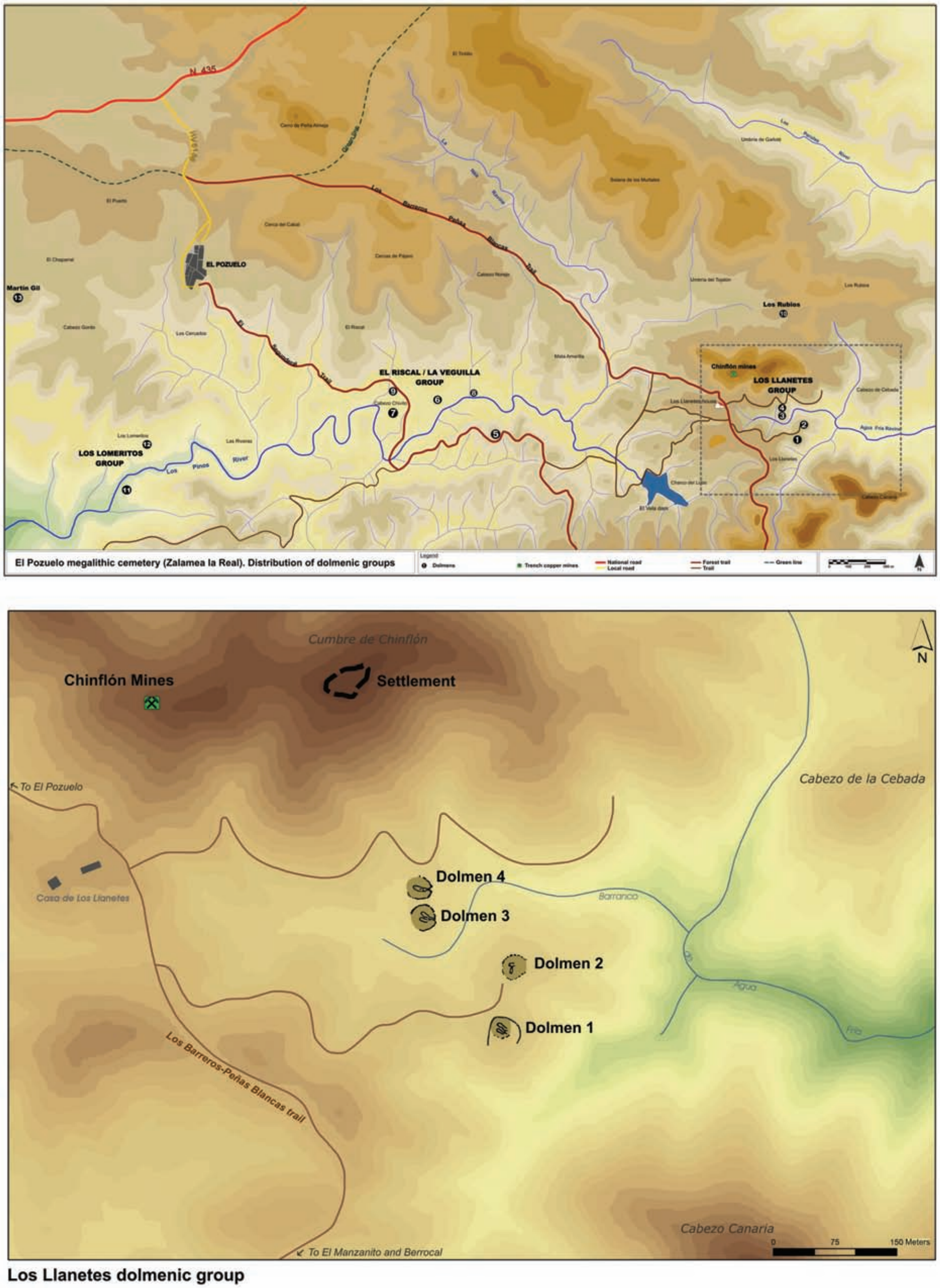


Fig. 11.7: (above) Groupings of tombs in the El Pozuelo cemetery: (below) plan of the Los Llanetes tomb group

Fig. 11.8: (above) View towards the Los Llanetes group (El Pozuelo tombs 1–4); (below) the megalithic enclosure and tombs 3 and 4

2004). Here we highlight the existence of specific systems of construction, architectural elements and working techniques in the broader group (Fig. 11.6), including:

- Construction of passage tombs with central supporting pillars (tomb 4);
- Construction of access passages and multiple chambers, such as
  - Tombs with two chambers (tombs 1, 2, and 3);
  - Tombs with cruciform plans and three chambers (tomb 7);
  - Tombs with four chambers (tombs 5 and 6);
- A number of superimposed layers of stone blocks and slabs bound with clay in the mounds, placed in a specific order and sequence. These slabs are fairly prominent and of similar size (15–20m in diameter);
- The demarcation of the mounds by an external kerb made of large slabs, placed obliquely and resting on supporting platforms to better contain the mound formation.

The Los Llanetes group of the El Pozuelo cemetery: the phasing and construction of the monumental megalithic enclosure

The Los Llanetes group belongs to the megalithic cemetery of El Pozuelo at Zalamea la Real, and was partially excavated in 1946 by Cerdán (Cerdán *et al.* 1952) and Nocete from 1998–1999 (Nocete *et al.* 1999). Here we have recently conducted the first stage of archaeological excavation, conservation and landscape improvement in order to mitigate the damage caused by modern eucalyptus plantations. Information is currently incomplete as research and analysis continue. The interpretations offered here should thus be understood as working hypotheses to be confirmed by later archaeological studies and scientific analyses (such as radiocarbon dates).

The Los Llanetes group is formed of 4 tombs located at the eastern end of the El Pozuelo group (Fig. 11.7), under the shelter of the southern slope of the hilltop of El Chinflón. Also located there are the well-known copper trench-mines (Blanco and Rothemberg 1981), and several settlement areas dating from the Late Neolithic to the Bronze Age. The existence of a fortified prehistoric settlement has also been established, providing an impressive view over the megaliths and the surrounding territory. It is one of the most remarkable vantage points of eastern Andévalo.

The megalithic tombs are distributed in pairs, in different topographic locations on the right and left sides at the head of the Agua Fría ravine, a tributary watercourse of the Río Tinto. Tombs 1 and 2 are located on the tops of two hills, and tombs 3 and 4 are on a promontory on the slope of El Chinflón, surrounded by foothills of greater height that hide them except from specific directions (Fig. 11.7). The only external vista faces east: on that side the tombs there have an open and clear view of the horizon in the direction of sunrise.

The tombs are also located in the centre of the contact zone between two geological formations in the Iberian Pyrite Belt: the Volcanic Sedimentary Complex (CVS), with volcanic rocks (andesite, dolerite and gabbro), green phyllite and slate; and the Slate and Quartzite Group (PQ), with slate, and sandstone with a high density of quartz. Geoarchaeological study shows that raw materials from the local geology were used in the construction of the enclosure, and that their special features and symbolic value were taken into account when they were chosen, procured, and worked. These include the use of:

- *Slate outcrops within the enclosures and tombs***,** sometimes subjected to preparatory working: cut back, carved, and evened out, ready for the construction of the tombs and external structures.
- *Green phyllite* as the main raw material, taking advantage of its characteristics. 1) A high proportion could be removed from outcrops as blocks and slabs, and used for the ring stones, mounds, etc. 2) In addition, the fracture properties of the stone allow easier extraction of large, long blocks for the manufacture of orthostats and capstones when the material is being extracted from the quarry faces. The source areas of the quarried stone and the outcrops were mainly located east of the tombs, within the watercourse of the Agua Fría ravine, at distances ranging from 50m to 300m.
- *Slate* as an infill material for the mounds and paving, coming from quarries in the same area.
- *Andesite* in the mounds and paving, also collected from the Agua Fría ravine, more than 300m down the watercourse.
- *Quartz*, which was already present in the surroundings, for packing stones around orthostats and stelae, for supporting platforms for the kerbstones, and for external paving around the tombs. In some cases even medium sized blocks were used (as in the case of tomb 4).
- *Clay***,** from the paleosol in the area, for the construction of mounds, and as mortar and filling material in different structural elements

The archaeological excavations carried out in tombs 3 and 4 in 2010 allowed us to identify the existence of a monumental megalithic enclosure containing highly complex structures and spaces (Figs 11.8 and 11.9), erected in different constructional phases (Fig. 11.10). The morphology and topography of the site was deliberately transformed in order to monumentalise this megalithic enclosure, and to create a spatial perception within the architectural complex that would define a ritual landscape or sacred scenario. The consequence of an "architectural project" that was built in different "construction phases" was that this enclosure became a long-term monument and saw repeated use. This implies the continuous transformation of the architecture and the external spaces, as documented in other megalithic

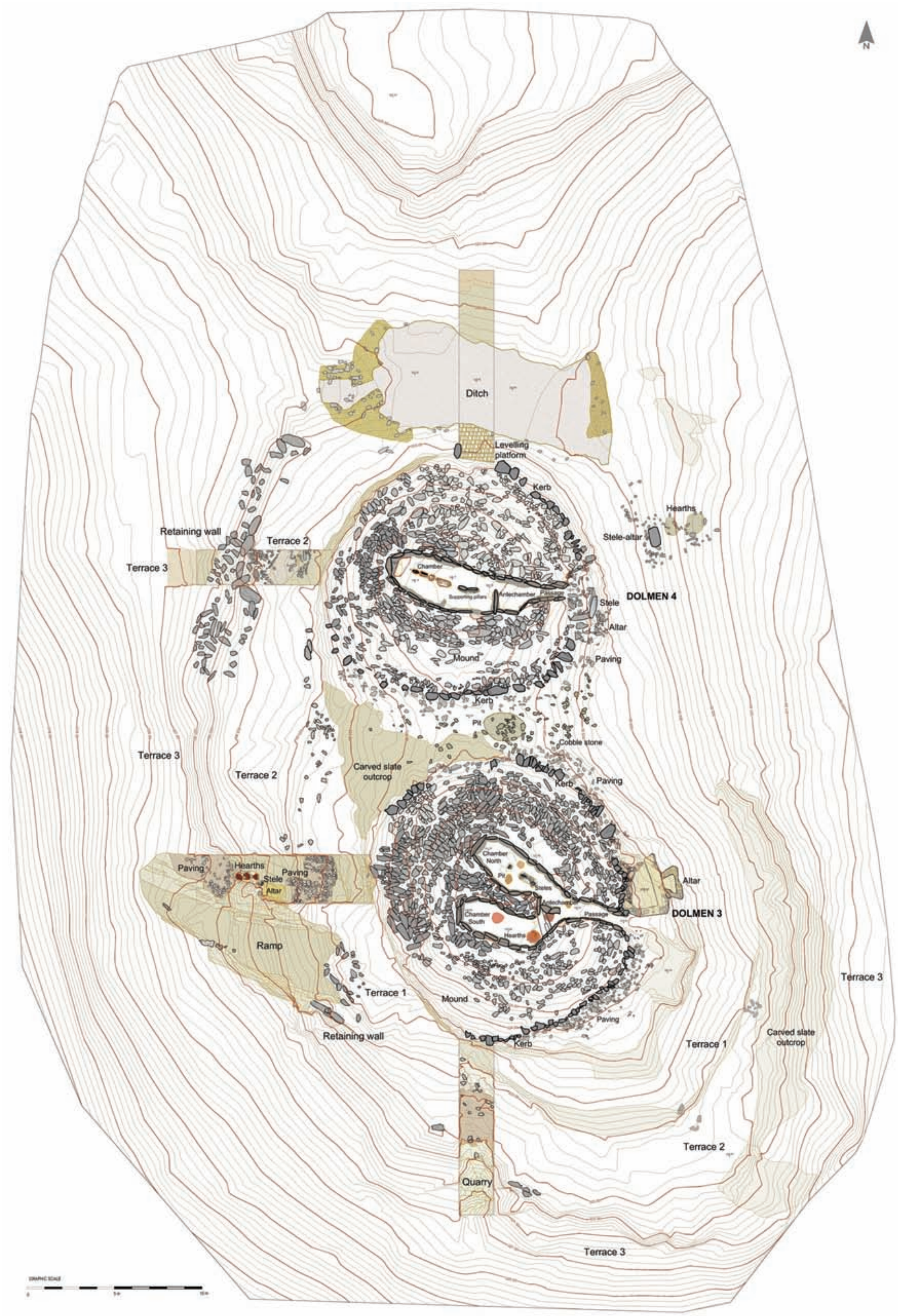


Fig. 11.9. Plan of megalithic enclosure around El Pozuelo tombs 3 and 4

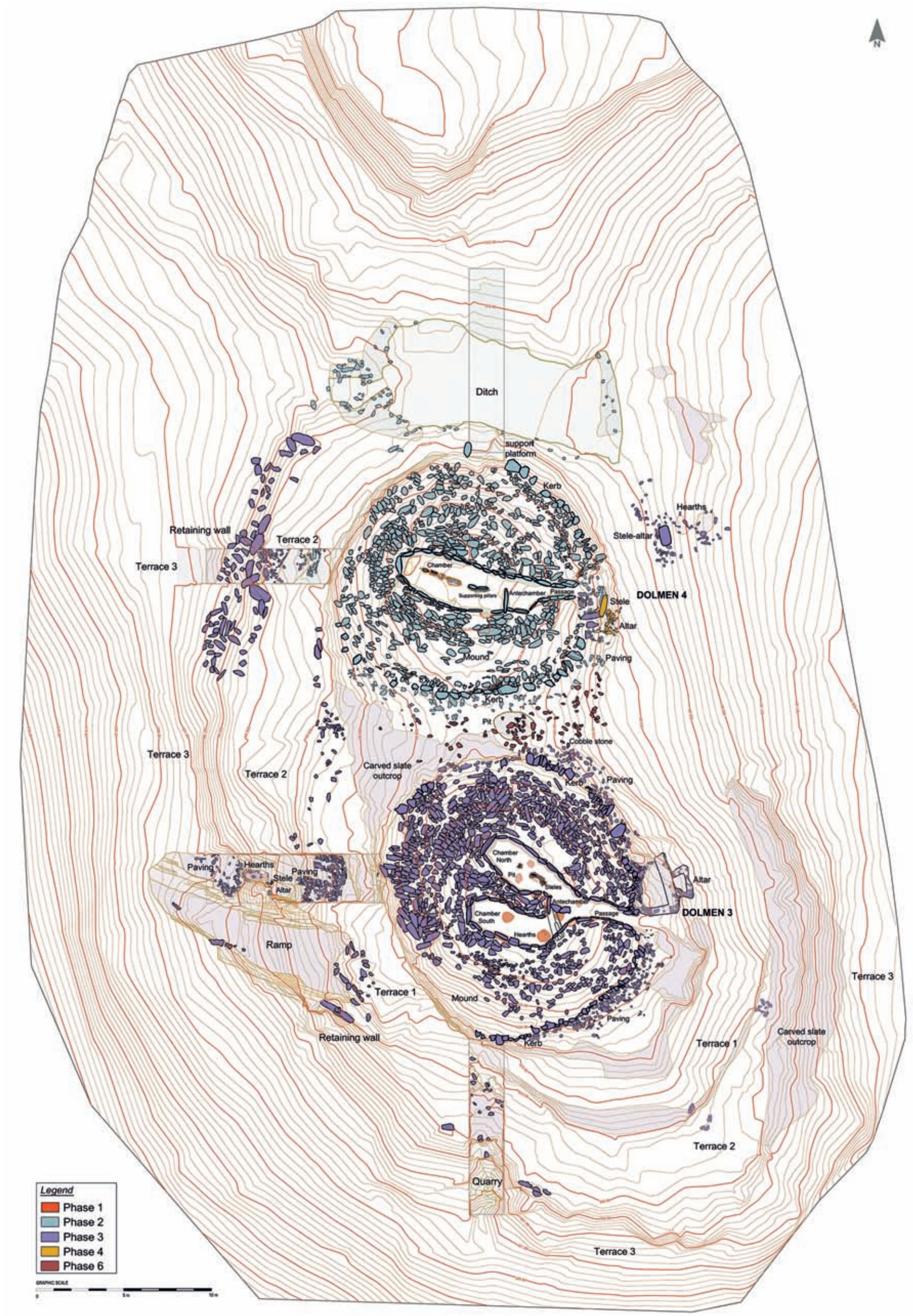


Fig. 11.10: Construction phases of the megalithic enclosure around El Pozuelo tombs 3 and 4

monuments of the French Atlantic façade: Prissé-la-Charrière, Er-Grah, Barnenez, etc. (Laporte *et al.* 2002).

The Los Llanetes enclosure has an irregular oval morphology, with its widest part at the southern end and a main north–south orientation. It has a total length of 65m on its major axis, a width that ranges between 48m and 35m, and a maximum height of around 6–7m. The promontory has been completely carved to form a stepped site, composed of three levels of open and discontinuous terraces, connected by access ramps, and converging on a ditch excavated into the bedrock in the northern side. The tombs occupy the central and highest space of this enclosure: they were built on the supporting platform at a higher level than the external soil that is built from the same knapped rock outcrop augmented by sandstone walls (Figs 11.8 and 11.9).

The terraces are curved, and edged by retaining walls on the western and southern flanks and by the knapped slate outcrop itself on the eastern flank. Inside are paving stones carved from the bedrock or made of small phyllite and quartz flagstones. These form transit areas along with other elements such as altars, stelae, hearths located in the atria, external spaces, and specific sites related to ritual practices and funerary rites. The western and southern flanks have a strongly stepped topography, with a ramp on the south-west corner behind tomb 3 that connects the terraces. The eastern flank presents a different topographic profile. In front of tomb 3, the slate outcrop has been knapped to form three terraces. The frontal façade of tomb 4 has a smoother contour, and here a stele altar and an associated hearth have been documented.

The first stage of archaeological investigation highlighted the following principal construction phases (Fig. 11.10):

- 1st phase: megalithic monuments (Neolithic).
- 2nd phase: construction of tomb 4.
- 3rd phase: monumentalisation of the megalithic enclosure, including the building of tomb 3 and the external terrace-platforms.
- 4th phase: transformations undertaken within the megalithic enclosure.
- 6th phase: reuse in the Early Bronze Age.

1st phase: Megalithic monuments (beginning of 4th millennium BC)

So far, the remains of several phyllite stelae have been documented beneath the funerary level of tomb 3, aligned on a north-west to south-east axis that faces the winter solstice. They are of different sizes and morphologies, and have hearths and small pits associated with them.

The stelae have fractured bases, since some of them were reused as orthostats or shoring slabs during the later construction of the tomb. They are small, long, and of varied height and width (about 1.20m and 20–40cm respectively). The faces are pitted, and they are anchored using quartz pebbles in pits and foundation ditches that are narrow and shallow.

2nd phase: Construction of tomb 4 (middle or second half of 4th millennium BC)

Tomb 4 contains an internal megalithic structure with three spatially differentiated elements: the passage, the antechamber and the chamber. The latter reaches 10.5m long, with a floor carved from the slate bedrock and access steps. It is distinguished by three elements in particular:

(1) The regularity in form and typology of its phyllite orthostats, made through customary working: hand scraped edges, knapped sides and regularly hammered surfaces.
(2) The use of supporting pillars as a structural solution to improve the spatial division and the stability of the capstones of the large chamber (6m long and up to 2.60m wide in its central section). A similar solution was used in the dolmen of Menga at Antequera (Málaga) (see García Sanjuán and Lozano Rodríguez 2015).
(3) Reused stelae, with two notable examples: a) an extremely large stele, possibly older than the tomb, with deeply carved engravings on one side; it has been broken so that it could be used to support the capstone; b) an anthropomorphic stele, with carved round eyes, of similar typology to certain plaque-idols found elsewhere in the Iberian Peninsula.

This structure was incorporated into a medium-sized oval mound made of clay and stone, delimited by an outer stone perimeter that is supported on a platform measuring 16m across its widest axis.

It may have been at that time that a large ditch was dug to the north from the tomb. It could have had multiple functions: a slate quarry for the building material for tomb 4, or a spatial boundary, as with the great mound of Er Grah in Brittany (Le Roux 2006), or some other purpose.

3rd phase: Monumentalisation of the megalithic enclosure (beginning of 3rd millennium BC)

In this phase, construction was carried out with the aim of monumentalising and increasing the size of the megalithic enclosure. Activity included the construction of tomb 3; the creation of the surrounding terraces with retaining walls and the south-west access ramp; the opening of the slate quarry to extract material to build the mound of tomb 3; and the transformation of the entrance to tomb 4.

Tomb 3 has a peculiar internal structure. A passage facing south-east gives access to an antechamber leading to two large and spacious chambers. Orthostats, jambs, and stelae show engravings and remains of red paint. It is set within a prominent round mound delimited by a 16.5m kerb: this implies the opening of a slate quarry south of the tomb. Surrounding the external kerb is a pavement made of three raw materials: phyllite, andesite, and quartz. The entrance area used to contain a quadrangular stepped altar, attached to the north-east section of the kerb. At this point in the kerb, the thin, long flagstones were placed in a more upright position, forming a type of entrance façade.

The perimeter terraces were created in this period, and their retaining walls were built**.** This was documented in the western flank, where three levels of terrace were carved in the rock outcrop. The retaining walls are built with rough stone and clay with a very wide slope: they have an average width of 2–3m and are up to 1.10m high. The terraces are 3m wide, and are defined by a pavement knapped from the rock, by paving made of small phyllite and quartz stones, or paving of compacted clay. The south-west corner behind tomb 3 contains a ramp cut into a slate outcrop to improve connections between the terraces.

Two changes were also made to tomb 4: the construction of stone paving and a small quadrangular altar in the entrance; and a stele/altar placed in association with a hearth located a few metres away northeast in the external space, both delimited by stone structures.

4th phase: Transformations in the megalithic enclosure (middle or second half of 3rd millennium BC)

Repeated, continuous use led to further modifications in the tomb entrances and façades.

Firstly, the atrium of tomb 4 was modified: a vertical stele was placed on the left side in a foundation socket. A small quadrangular altar was attached to it, and paving made of compacted clay. Secondly, the altar in tomb 3 was modified**:** a stone structure was added next to the kerb and some episodes of burning were documented.

5th phase: Abandonment (Early Bronze Age)

The megalithic enclosure was abandoned at some point during the Early Bronze Age.

6th phase: Reuse (Late Bronze Age)

The period of reuse at the end of the Bronze Age should be highlighted, as it coincides with a time of intense exploitation of the copper mines in Chinflón. This had two consequences for the megalithic enclosure. The megalithic tombs were robbed and destroyed: the capstones were removed, the orthostats were broken, and so on, as indicated by the presence of mining hammer-stones with a central groove in the levels corresponding to the phase of alteration and destruction. In addition, there was reuse of the site for funerary purposes and renewed veneration, indicated by the existence of a large ditch covered with cobbles between the megalithic tombs, which may have been a funerary pit from this period.

Conclusions

The province of Huelva is an area of great importance for research on the megalithic monuments of the Iberian Peninsula and their connection to the European Atlantic façade during later prehistory. In that context, I conclude this paper with three basic ideas:

(1) Eastern Andévalo is a megalithic territory, characterised by the existence of tomb groups with their own architectural typologies, systems of construction and materials.
(2) Several communities existed in this area with very long established *cultural identities,* who built megaliths using very distinct traditional techniques, presumably dating from the Neolithic period.
(3) Megalithic enclosures can be recorded that define specific megalithic landscapes**.** We have highlighted the example of the Los Llanetes group, where the complex of elements (the topography, the raw materials, the ravine, the settlement and the megalithic architecture) portray a ritual scenario. This must be understood as a sacred space, created for various purposes (as a funerary site, for worship, for astronomical observation, etc.). It was in use for millennia, although the 3rd millennium BC was the era when the greatest monumentalisation occurred, as witnessed by the construction of the megalithic enclosure and by tombs 3 and 4. Thus it may have acted as a cohesive central place for a number of settlements, a place where collective burial rituals related to death and belief systems were developed. These may have included the burials of certain individuals together with commemorative ceremonies, practices of ancestor worship and other rites. Construction and maintenance of this enclosure must have entailed community participation by the inhabitants of the surrounding settlements. This required knowledgeable individuals to transmit the construction traditions and techniques, as well as information regarding their ancestral and genealogical significance.

References

Amo, M. 1974. Los grabados rupestres de “Los Aulagares” (Zalamea la Real, Huelva). *Miscelanea Ampuritana*, *XXV aniversario de los cursos internacionales de Prehistoria y Arqueología de Ampurias, 1947–1971*, pp. 69–86.

Balbín Behrmann, R. and Bueno Ramírez, P. 1996. Soto, un ejemplo de arte megalítico al Suroeste de la Península Ibérica. In: Mouré, A. (ed.) *El Hombre Fósil ochenta años después*. Servicio de Publicaciones, Universidad de Cantabria: Santander, pp.467–505.

Blanco Freijeiro, A. and Rothemberg, B. 1981. *Exploración Arqueometalúrgica de Huelva*. Río Tinto Minera-Labor: Barcelona.

Briard, J. 1995. *Les Mégalithes de l’Europe Atlantique. Architecture et art funéraire (5000–2000 avant J.-C.).* Editions Errance: Paris.

Bueno Ramírez, P. and Balbín Behrmann, R. 1997. Arte megalítico en el Suroeste de la Península Ibérica. ¿Grupos de Arte Megalítico Ibérico? *Saguntum* 30, pp. 53–161.

Bueno Ramírez, P., Balbín Behrmann, R. and Barroso, R. 2004. Arte megalítico en Andalucía: una propuesta para su valoración global en el ámbito de las grafías de los pueblos productores del Sur de Europa. *Mainake* XXVI, pp. 29–62.

Bueno Ramírez, P., Balbín Behrmann, R. and Barroso, R. 2007. Chronologie de l'art mégalithique ibérique: C14 et contextes archeológiques. *L'Anthropologie* 111, pp. 590–654.

Bueno Ramírez, P., Balbín Behrmann, R. and Barroso, R. 2009. Pintura megalítica en Andalucía. In: Cruz-Auñón, R. and Ferrer Albelda, E. (eds) *Estudios de Prehistoria y Arqueología en Homenaje a Pilar Acosta Martínez*. Universidad de Sevilla: Sevilla, pp. 141–170.

Cabrero García, R. 1985. Tipología de los sepulcros calcolíticos de Andalucía Occidental. *Huelva Arqueológica* VII, pp. 207–263.

Cabrero García, R. 1986. El megalitismo en la provincia de Huelva I: aportaciones de nuevos datos y estudio de la arquitectura. *Huelva en su Historia* 1, pp. 83–147.

Cerdán, C., Leisner, G. and Leisner, V. 1952. *Los sepulcros megalíticos de Huelva*. Informes y Memorias de la Comisaría General de Excavaciones Arqueológicas 26, Ministerio de Educación Nacional: Madrid.

Furholt, M., Lüth, F. and Müller, J. (eds) 2011. *Megaliths and Identities*. Dr Rudolf Habelt GmbH: Bonn.

García Sanjuán, L. and Linares Catela, J. A. 2009. Huelva. In: García Sanjuán, L. and Ruiz González, B. (eds) *Las grandes piedras de la Prehistoria. Sitios y paisajes megalíticos de Andalucía*. Consejería de Cultura, Junta de Andalucía: Sevilla, pp. 143–185.

Garcia Sanjuan, L. and Lozano Rodríguez, J. A. 2015. Menga (Andalucia, Spain): biography of an exceptional megalithic monument. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 3–16.

García Sanjuán, L., Scarre, C. and Weathley, D. (eds) 2011. *Exploring Time and Matter in Prehistoric Monuments: absolute chronology and rare rocks in Europe megaliths*. *Journal of Andalusian Prehistory* Monograph 1. Consejería de Cultura, Junta de Andalucía: Sevilla.

Iglesias, l., Queipo de Llano, G. and Chacón, J. M. 1992. Grabados rupestres inéditos en el Cerro de El Riscal. *SPAL* 1, pp. 209–218.

Joussaume, R. 1985. *Des dolmens pour les morts. Les mégalithismes á travers le monde*. Hachette: Paris.

Joussaume, R., Laporte, L. and Scarre, C. (eds) 2006. *Origin and Development of the Megalithic Monuments of Western Europe.* Musée des Tumulus de Bougon (Deux- Sévres): Bougon.

Laporte, L., Joussaume, R. and Scarre, C. 2002. The perception of space and geometry. Megalithic monuments of west-central France in their relationship to the landscape. In: Scarre, C. (ed.) *Monuments and Landscape in Atlantic Europe. Perception and Society during the Neolithic and Early Bronze Age*. Routledge: London, pp. 73–83.

Le Roux, C. T. (ed.) 2006. *Monuments mégalithiques á Locmariaquer (Morbihan). Le long tumulus d'Er Grah dans son environnement*. CNRS editions: Paris.

Linares Catela, J. A. 2006. Documentación, consolidación y puesta en valor del Conjunto Dolménico de Los Gabrieles (Valverde del Camino, Huelva). 2ª Fase. *Anuario Arqueológico de Andalucía/2003* III, pp. 200–214.

Linares Catela, J. A. 2010. Análisis arquitectónico y territorial de los conjuntos megalíticos de Los Gabrieles (Valverde del Camino) y El Gallego-Hornueco (Berrocal-El Madroño). El megalitismo en el Andévalo oriental. In: Pérez Macías, J. A. and Romero Bomba, E. (eds) *Actas del IV Encuentro de Arqueología de Suroeste Peninsular (Aracena, 2008)*. Universidad de Huelva: Huelva, pp. 209–248.

Linares Catela, J. A. 2011a. El megalitismo funerario en el Andévalo Oriental (Huelva). Características básicas sobre el territorio, las arquitecturas y los contextos de las prácticas rituales en el III milenio a.n.e. In: Sánchez Romero, M. (ed.) *Memorial Luis Siret. I Congreso de Prehistoria de Andalucía, la tutela del patrimonio prehistórico*. Consejería de Cultura, Junta de Andalucía: Sevilla, pp. 567–570.

Linares Catela, J. A. 2011b. *Guía del megalitismo en la provincia de Huelva. Territorios, paisajes y arquitecturas megalíticas.* Junta de Andalucía-Ediciones SM: Madrid.

Linares Catela, J. A. and García Sanjuán, L. 2010. Contribuciones a la cronología absoluta del megalitismo andaluz. Nuevas fechas radiocarbónicas de sitios megalíticos del Andévalo oriental (Huelva). *MENGA, Revista de Prehistoria de Andalucía* 1, pp. 135–151.

Linares Catela J. A. and Odriozola, C. 2011. Necklace beads made from variscite and other green stones in megalithic tombs in the southwest of the Iberian Peninsula. Questions relating to their production, distribution and presence in funerary contexts. In: García Sanjuán, L., Scarre, C. and Weathley, D. (eds) *Exploring Time and Matter in Prehistoric Monuments: absolute chronology and rare rocks in Europe megaliths*. *Journal of Andalusian Prehistory*, Monograph: Consejería de Cultura, Junta de Andalucía: Sevilla, pp. 335–369.

Nocete, F. 2001. *Tercer milenio antes de nuestra era. Relaciones y contradiciones centro/periferia en el Valle del Guadalquivir*. Bellaterra: Barcelona.

Nocete, F., Lizcano, R. and Bolaños, C. 1999. *Más que grandes piedras. Patrimonio, Arqueología e Historia desde la Primera Fase del programa de puesta en valor del Conjunto Megalítico de El Pozuelo (Zalamea la Real, Huelva).* Consejería de Cultura, Junta de Andalucía: Sevilla.

Nocete, F., Linares, J. A., Nieto, J. M. and Sáez, R. 2002. Información preliminar de apoyo a la difusión en los dólmenes de La Paloma y La Venta (El Villar-Zalamea la Real). *Anuario Arqueológico de Andalucía 1999* II, pp. 149–164.

Nocete, F., Lizcano, R., Nieto, J. M., Sáez, R., Linares, J. A., Orihuela, A. and Rodríguez, M. O. 2004. El desarrollo del proceso interno: el territorio megalífico en el Andévalo oriental. En F. Nocete (ed.) *Odiel. Proyecto de investigación arqueológica para el análisis del origen de la desigualdad social en el Suroeste de la Península Ibérica***.** Consejería de Cultura, Junta de Andalucía: Sevilla, pp. 47–77.

Obermaier, H. 1924. *El Dolmen de Soto (Trigueros; Huelva)*. *Boletín de la Sociedad Española de Excursiones XXXII*. Hauser and Menet: Madrid, pp. 1–31.

Piñón Varela, F. 1987. Constructores de sepulcros megalíticos en Huelva: problemas de una implantación. *El Megalitismo en la Península Ibérica.* Ministerio de Cultura: Madrid, pp. 45–72.

Piñón Varela, F. 2004. *El horizonte cultural megalítico en el área de Huelva*. Consejería de Cultura, Junta de Andalucía: Sevilla.

Scarre, C. (ed.) 2002. *Monuments and Landscape in Atlantic Europe. Perception and Society during the Neolithic and Early Bronze Age*. Routledge: London.

Scarre, C. 2007. *The Megalithic Monuments of Britain and Ireland*. Thames and Hudson: London.

Stevenson, A. C. and Harrison, R. J. 1992. Ancient forest in Spain: a model for land-use and dry forest management in South-West Spain from 4000 BC to 1900 AD. *Proceeding of the Prehistoric Society* 58, pp. 227–247.

12

The clustering of megalithic monuments around the causewayed enclosures at Sarup on Funen, Denmark

Niels H. Andersen

Abstract
Studies of the settlement pattern of the Funnel Beaker culture in the area around Sarup in south-west Funen, Denmark, have been ongoing since 1971. They began with the exposure and partial excavation of two causewayed enclosures on a sandy promontory covering 9ha at Sarup. The earlier of the two, referred to as Sarup I, was constructed during the Fuchsberg phase – *c.* 3400 cal BC, i.e., the time when dolmens were built. The later structure, referred to as Sarup II, was constructed during the Klintebakke phase – *c.* 3200 cal BC, i.e., when passage graves were built. The finds from the first phases of both monuments are modest, but they do show that specially selected items were deposited here. The silting lines that would have formed naturally had the ditches stood open for only a few days are missing in the ditches. This must mean that the ditch segments were dug very rapidly and then, shortly afterwards, backfilled just as swiftly. The extremely short duration of use of these monuments must mean that a large number of individuals, perhaps in excess of a thousand, gathered there in order to engage in their communal construction, then deposited the special items they apparently had brought with them.

After the excavations at the Sarup causewayed enclosures came to an end in 1984, studies continued within an area of 4 × 5km around Sarup, aimed at locating and excavating contemporaneous megalithic structures and settlements. Prior to these investigations, only a couple of megalithic monuments were known from the area, but this subsequent work demonstrated the existence of at least 125 (now demolished) megalithic structures, and about 80 settlements. Thirty-one megalithic monuments, two early Neolithic Barkær structures, and several settlements were investigated over the course of 16 excavation campaigns. As the megalithic structures often formed clusters, a high priority was given to the excavation of entire complexes. Findings are presented here from three of the investigated clusters. Moreover, we found considerable variation between the clusters, in spite of their close proximity to each other. A common feature of all the clusters was that each had its origin in the time of the earliest dolmens, i.e., during the Fuchsberg phase, corresponding to Sarup I. It was also evident that people had returned to the cluster at intervals of about every 50 years in order to build a new megalithic monument. At the most recently investigated megalithic cluster – Damsbo – remains of two-aisled houses were found beneath three of the monuments, and in two of these the dolmen chamber clearly lay midway between the roof-bearing posts of the houses.

Keywords: Causewayed enclosures, megaliths in clusters, houses covered by megaliths,

Introduction

In the 5th and 4th millennia BC, the European Neolithic was characterised by the widespread construction of monumental structures such as megalithic tombs and causewayed enclosures. Some areas had only one type of these monuments, whilst elsewhere both were in use simultaneously. Both types of structure often show clear regional variations, but the form and functions of each of them demonstrate that there must have been common ideas behind their construction and use.

Since the beginning of the 1970s, a research project has been in progress in the Sarup area, in southwestern Funen, Denmark, with the primary aim of investigating the first causewayed enclosure found from the Nordic Funnel Beaker culture. (*c.* 4000–2800 cal BC). Subsequently, the project was expanded in order to contextualise this monument relative to the contemporaneous remains of settlements and megalithic tombs in the local area (Andersen 1997; 2009; 2012; 2013a).

Sarup

Between 1971 and 1984, it proved possible to uncover and investigate 6ha of the 9ha sandy promontory at Sarup, which is bordered by a watercourse on two of its three sides. The excavations revealed the remains of numerous periods of activity, five of which were associated with the Funnel Beaker culture (Midgley 1992). The first two episodes were each linked to the clear remains of two causewayed enclosures. The characteristic feature of these structures is the presence of one or more parallel rows of system-ditches that may or may not be accompanied along their inner edge by traces of one or more palisades (Fig. 12.1).

The earlier of the two causewayed enclosures found at Sarup dates from the Fuchsberg phase, *c.* 3400 cal BC, and is referred to as Sarup I. This was the period when dolmens were built. The later structure, referred to as Sarup II, has been dated to the Klintebakken phase, *c.* 3200 cal BC. This was

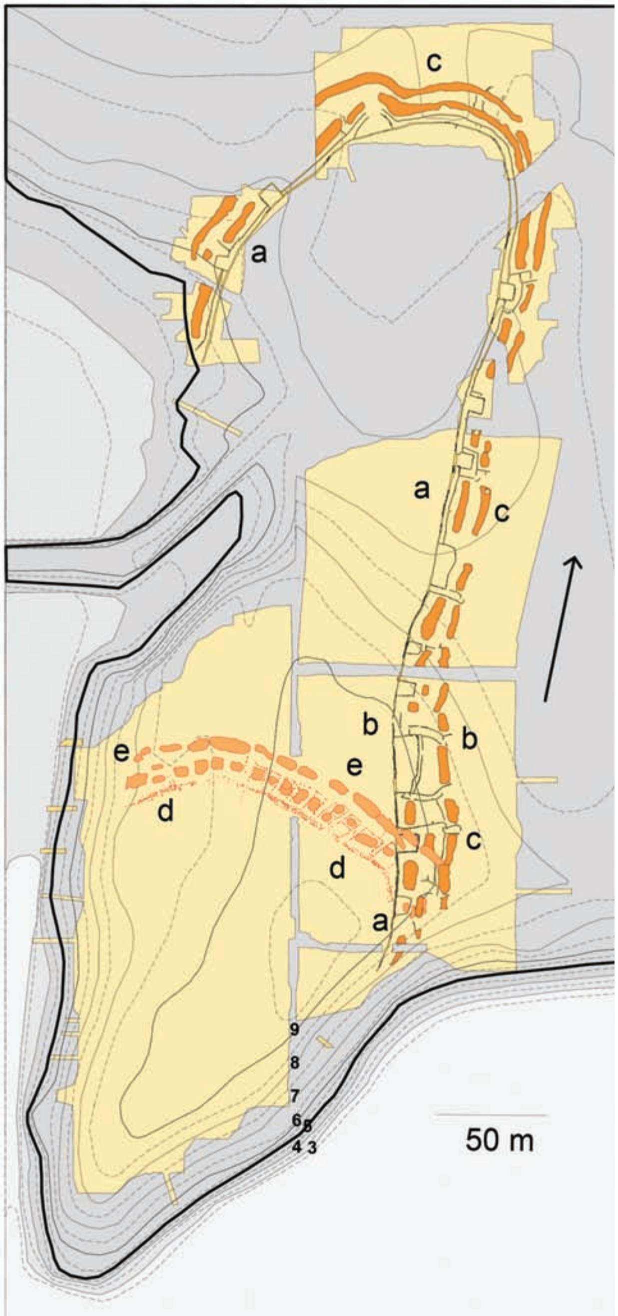


Fig. 12.1: Plan of the two causewayed enclosures at Sarup. Sarup I, which is dated to the Fuchsberg phase – c. 3400 cal BC, had an elongated oval form enclosing c. 8.5ha. It consisted of: a palisade (a); an entrance area (b) with a narrow 1.6m wide passage; and two rows of ditch segments (c), to which were attached a number of enclosures. Sarup II, which is dated to the Klintebakke phase – c. 3200 cal BC, had a triangular form, framing the point of the sandy promontory. It consisted of a broad belt of posts (d) and two rows of ditch segments (e), the inner row of which was framed by enclosures

when the passage graves, much more complicated megalithic structures than the simpler dolmens, were constructed.

The ditch systems – the characteristic feature of causewayed enclosures – were rectangular in form, usually 5m wide on the surface, 5–20m long, and with an average depth of *c.* 1m. Their base was always horizontal with a width of at least 1m. The depth could, however, vary considerably from 0.2m to almost 2m, even in ditches located in the same area. There appears to have been a requirement for an approximately uniform size in plan, but great flexibility with respect to how deep the ditches should be dug (Andersen 1997, 47, fig. 47, 71, fig. 87).

A remarkable discovery resulting from our studies of sections through the ditch systems was that only one out of more than 80 ditches showed evidence of silting lines, i.e. fine layers formed by sand that had trickled down the side walls (Andersen 1997, 48, fig. 49). These silting lines are the result of the effects of wind, rain or desiccation by the sun on the side walls of the ditch systems, loosening the sand and causing it to run down and be deposited at the base. Our experience from archaeological excavations shows that these layers can be formed in the course of only a few hours. Why did we not find traces of these silting lines in more system-ditches? All the ditches did, however, show clear evidence of intentional backfilling, with the fills comprised of a heterogeneous mixture of the sand and gravel that had been dug out when they were cut. The layers of backfill showed no traces of natural, long-term accumulation and no silting lines, and must therefore be interpreted as the result of an intentional, short-term activity.

In the author's opinion, these observations must indicate that the ditch systems were cut very rapidly and, significantly, also quickly backfilled with the earth that was dug from them. The absence of silting lines shows that these activities must have taken place over the course of only a few days, in which case the work could only have been accomplished through the involvement of a large number of individuals. The ditch segments appear to have been back-filled completely as a single operation. Some of them were subsequently recut, but here too, there is no evidence of silting lines and it must therefore be presumed that they again only stood open for a very short period of time.

Only a few objects were deposited at the bottom of the ditch segments at Sarup. These included human and animal bones, both of which are poorly preserved due to the sandy soils, as well as fragments of pottery vessels, deliberately selected potsherds, axes and fragments of quern stones. In some places, there were also the remains of fires.

The swiftly backfilled ditch segments were subsequently subjected to repeated episodes of recutting, after which depositions also took place before the ditches were again quickly backfilled. These recutting episodes continued until the end of the Funnel Beaker culture, *c.* 2800 BC. Each recut lay within the original confines of the ditch segment and none of them went deeper than any previous cuts. In some way or other there must have been a clear recollection of the history of each ditch segment that extended over centuries. The ditch segments were laid out initially according to a strict pre-determined ground plan; they were then swiftly backfilled and subsequently enjoyed a long afterlife involving many individual episodes of recutting.

The 572m long palisade associated with Sarup I also had a remarkable history as its many posts were left leaning in different directions. This shows that the earth had not been compacted around them when the palisade was abandoned and the 1290 radially-cloven posts, each weighing perhaps 250kg, remained in the excavated trench (Andersen 1997, 29–34). Fragments of numerous pottery vessels, lumps of burnt remains of fires and of heavily burnt bones, including a human bone, had been placed by the palisade.

During excavation, two-thirds of the internal surface of Sarup I was exposed and Sarup II was uncovered in its entirety. In both areas, pits were found containing items including complete vessels, intentionally fragmented pots, flint axes, a ceremonial axe, charred grain and burnt bones. Two large postholes on the surface within Sarup II contained the burnt bones of a young woman (Andersen 1997, 86; 1999, 250–251). These were very fragmented and only comprised one-tenth of the expected quantity from the skeleton. The bones were dry when they were burnt, indicating that the girl's corpse had been defleshed many years prior to the burning of her skeleton, perhaps more than ten years before (Wahl 2009, 730). Here, we see the remains of a young woman that, before being burnt and finally deposited at Sarup II, were buried for a number of years in one or more other places. Her bones must have been distributed between several different localities and they provide evidence of a complicated and protracted burial ritual.

The construction of Sarup I must have required long-term planning and the participation of hundreds of people. It has been calculated that 2000m^3 of earth were excavated from the ditch segments and palisade trenches, and 3400 tree trunks were procured and prepared. As almost no contemporary flint axes were found at the site, the posts must have been worked elsewhere and then brought there. If we assume that a Neolithic person could excavate 1m^3 of earth a day, then 1500m^3 alone were dug out of the ditch systems at Sarup. Then, over the course of a brief period (probably only a few days), this material was quickly thrown back into the ditches. At least 1000 people must have taken part in this activity. In addition, further work was required to obtain the many wooden posts for the palisade, and dig their post-pits, as well as clearing vegetation, tree stumps, etc., from the sandy promontory.

The excavations at Sarup have demonstrated that the periods of dolmen and passage grave construction also saw the building of very large and complex causewayed enclosures, which required the involvement, organisation, and coordination of numerous individuals. They also showed that a number of spectacular activities took place at the site. These must have involved long-term planning, together with the gathering and final deposition of a number of often intentionally fragmented objects that could previously have been part of ceremonies carried out elsewhere. The activities at Sarup, involving the brief gathering of a large body of people who were to carry out a number of special and physically demanding activities, must have given the participants a kind of "flashbulb memory", that is: a vivid collective memory, common to a large number of people, of a brief but very striking event, which is both very clear and remains in their consciousness for a very long time, perhaps for generations. Modern-day examples are the assassination of President John F. Kennedy or 9/11 (Noble 2006, 70).

The Sarup area

After concluding the excavations at Sarup in 1984, it was decided to investigate the nature of the relationship between the site and the megalithic structures and possible settlements within the local Sarup area. Consequently, an area of 4 × 5km, with Sarup at the centre, was selected for a regional study. The watercourse Hårby Å flows through the middle of the area, in a river valley with flat, sandy terrain and extensive wetlands. To the east and west, areas of high ground delimit the area (Fig. 12.2).

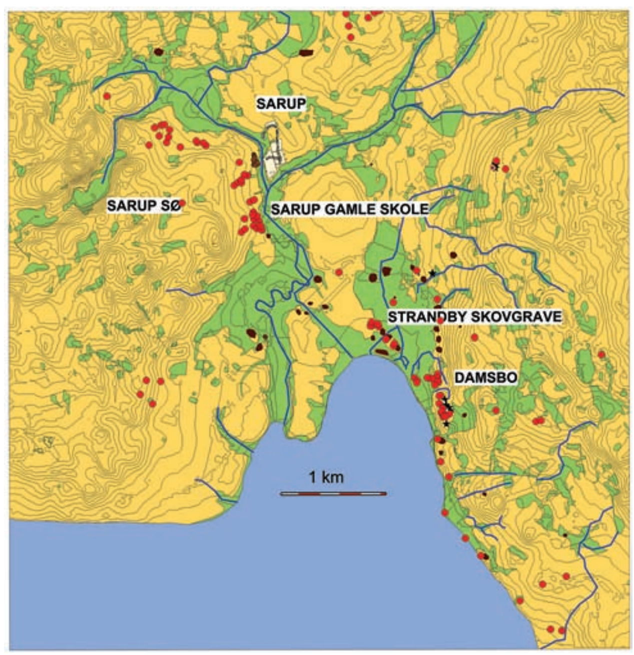


Fig. 12.2: The study area for the Sarup project, showing the location of the Sarup site, the 125 damaged megalithic monuments (red dots), contemporary settlements (brown areas) and significant localities mentioned in the text

Studies of the area began with an examination of previously recorded monuments reported to the national register of ancient monuments. For the Neolithic, this comprised a scheduled dolmen, two damaged megalithic structures, a stone cist from the Late Neolithic, and a Neolithic settlement (the actual Sarup site). We then began a field-walking survey of all accessible areas and studied aerial photographs, some taken by ourselves and others from public archives. Antiquarian collectors and farmers with collections of artefacts were visited and their finds from the area were recorded. Most recently, we have used geomagnetic survey, which appears to be well-suited to locating megalithic structures. Samples were taken from a nearby lake, Sarup Sø, for pollen analysis, providing vegetation data for the entire area (Rasmussen *et al.* 2002).

In the course of this data collection, almost 10,000 artefacts have been recorded from the *c.* 20km^2 area, and just under 1000 prehistoric structures have been noted, ranging in date from the Late Palaeolithic to the Viking Age. Of particular interest is the fact that about 80 settlements belonging to the Funnel Beaker culture have been located. Half of these can be dated to the same period as Sarup I and II, and traces of 125 ploughed-out megalithic structures have been found, compared to previous records of only three.

Between 1985 and 2012, 16 excavation campaigns were completed, some of which extended over several years. Traces of 31 megalithic structures were uncovered and examined, in addition to two early Neolithic long barrows – barkær structures – parts of numerous settlements, and a sacrificial site. This extensive body of material is now under investigation. Just over 410,000 Neolithic artefacts, including the finds from Sarup, have now been recorded from this area.

The field surveys revealed that the megalithic structures appeared to lie in clusters. Consequently, when selecting sites for excavation, it was decided to give the highest priority to uncovering entire complexes. The intention was to find out which types of megalithic structure were located together, how they related to one another, and also how they related to structures in other areas covered by the project and to the findings from the Sarup site. In the following section, preliminary results will be presented from three of the investigated areas.

1: Sarup Gamle Skole

Directly to the south of the Sarup causewayed enclosures are several clusters of megalithic structures, one of which we uncovered (location shown on Fig. 12.2, and detail on Fig. 12.3). It lies on a slope running down to Hårby Å, and our field-walking identified evidence of three megalithic structures. On excavation, however, we found remains of a non-megalithic grave (A 1), three dolmen chambers (A 2, A 3, and A 34), a trapezoid post-built enclosure (A 4), ditch segments from a causewayed enclosure (A 33) and a couple of small passage-grave chambers in a long barrow (B). These represent very different types of structure, and they produced a finds assemblage contemporary with Sarup I and II.

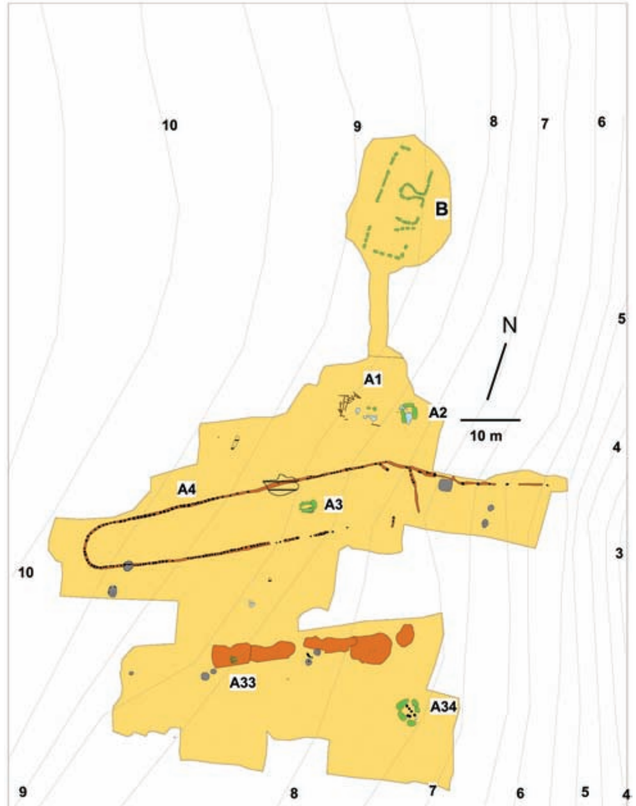


Fig. 12.3. The locality of Sarup Gamle Skole, where traces were uncovered of: an earthen grave (A 1); three dolmens (A 2, A 3, and A 34); a post-built enclosure (A 4) with a fence running to the watercourse Hårby Å; two passage graves in a long barrow (B); and ditch segments belonging to a causewayed enclosure (A 33)

The earliest structure in the complex is the non-megalithic grave (A 1); unfortunately, there are no finds associated with this. From the Fuchsberg phase, the time of Sarup I, *c.* 3400 cal BC, there is the trapezoid enclosure (A 4) that had surrounded a small dolmen chamber of early type (A 3). The trapezoid enclosure consisted of a foundation trench with clear traces of posts. The enclosure was 58m long, 7.2m wide at the west, and 11.2m wide at the east. A 23m long foundation trench connected it with wetland areas along Hårby Å. In several places, pottery from the Fuchsberg phase was placed up against the enclosure. The enclosure corresponds to a type of structure that was widespread in parts of Northern and Western Europe, i.e. the *Niedzwiedz* type (Rzepecki 2011). There was no earthen mound within the enclosure, but at its centre was a small dolmen (A 3).

Coeval with this enclosure were the ditch segments of another causewayed enclosure (A 33). On the base of one of the ditch segments, a small stone dolmen was found with external dimensions of 0.68 × 1.09m and internal dimensions

Fig. 12.4: Mini dolmen with an extent of c. 1m, positioned on the base of system-ditch A 33 at Sarup Gamle Skole. Seen from the west

of 0.31 × 0.57m (Fig. 12.4). The capstone of the dolmen was missing but its base was covered, as at other dolmens, with a layer of burnt flint. The fill of the chamber contained three potsherds, and along the outer western side of the dolmen a further 148 sherds from the same vessel were found at various levels. These sherds came from one quarter of a funnel beaker that originally stood 23.5cm tall. They mostly measured *c.* 2 × 3cm: that is, they were intentionally fragmented (Fig. 12.5). It is remarkable that a quarter of a pottery vessel, intentionally broken down into small pieces, was taken to this small dolmen

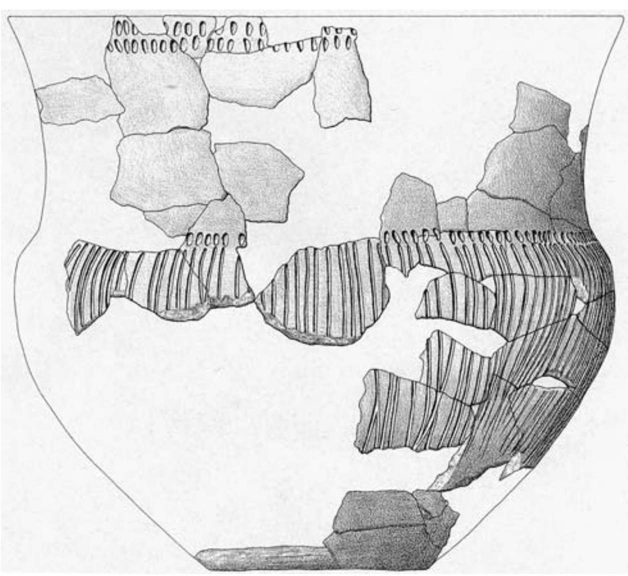


Fig. 12.5: Reconstruction drawing of a quarter of a 23.5cm tall funnel-necked beaker found in the form of many small sherds that, lay particularly along the west side of the mini dolmen – see Fig. 12.4. (Drawing: Louise Hilmar, Moesgård)

in order to be placed along its western side while it was being covered with earth (Andersen 2009, 30–32, figs 7–19; 2012, 15–16, Figs 7–8). Here, we see evidence of activities of a type that also took place at the Sarup causewayed site, i.e. rapid backfilling of ditch segments, but here the backfilling apparently took place around a small dolmen up against which small potsherds from the same vessel were placed during the course of the process. These finds demonstrate close contact between ditch segments and dolmens.

Subsequently, two dolmens, A 2 and A 34, were constructed at the site. Both of these stood in isolation and there was no mound or barrow around them. The sherds found associated with the dolmens show that they were reused during a later part of the Funnel Beaker culture. Finally, in the northern part, a couple of small, round passage-grave chambers were built that were covered by an elongated earthen mound with kerbstones (Fig. 12.3B).

At this location, therefore, we see that from the Fuchsberg phase until the Klintebakken phase, people returned repeatedly to construct various types of structures.

2: Strandby Skovgrave

Field-walking indicated the presence of two megalithic structures, but on excavation we found four megalithic monuments on a low sandy promontory, surrounded by wetlands, located a couple of kilometres southeast of Sarup (location see Fig. 12.2; detailed plan Fig. 12.6). To the east was an isolated dolmen with a short passage (D I). Eight metres to the west of this was a 9 × 37m long barrow with earthen fill, enclosing a small circular passage grave (D II), and in its northern part traces of a small cist (D IIN). Ten metres further west, and parallel with it, was another long barrow. This had no earthen fill, but it was bounded by kerbstones and at its centre had once stood a dolmen (D III); 3.8m to the west of this there was a large isolated polygonal dolmen chamber without earthen mound (D IV).

Excavations revealed that an extremely complex sequence that could be separated into several construction phases. The first building activity comprised a rectangular post-built enclosure, measuring 8.5 × 25m, located in D III. In the middle of this enclosure, there was a straight row of head-sized stones. On the outside of the enclosure, a couple of pottery vessels were found belonging to the Fuchsberg phase: these are probably of the same date as the construction. It seems that the cist (D IIN) in the north end of long barrow D II is contemporary with the enclosure. The cist contained a few sherds from a funnel-necked beaker, corresponding to those of the Fuchsberg phase. This construction was surrounded by a circle of head-sized stones.

The next activity to take place was the construction of a stone setting – a kerb – in D III, encompassing the area of the earlier post-built enclosure. At the centre with this structure, which was not covered by an earthen mound, a dolmen

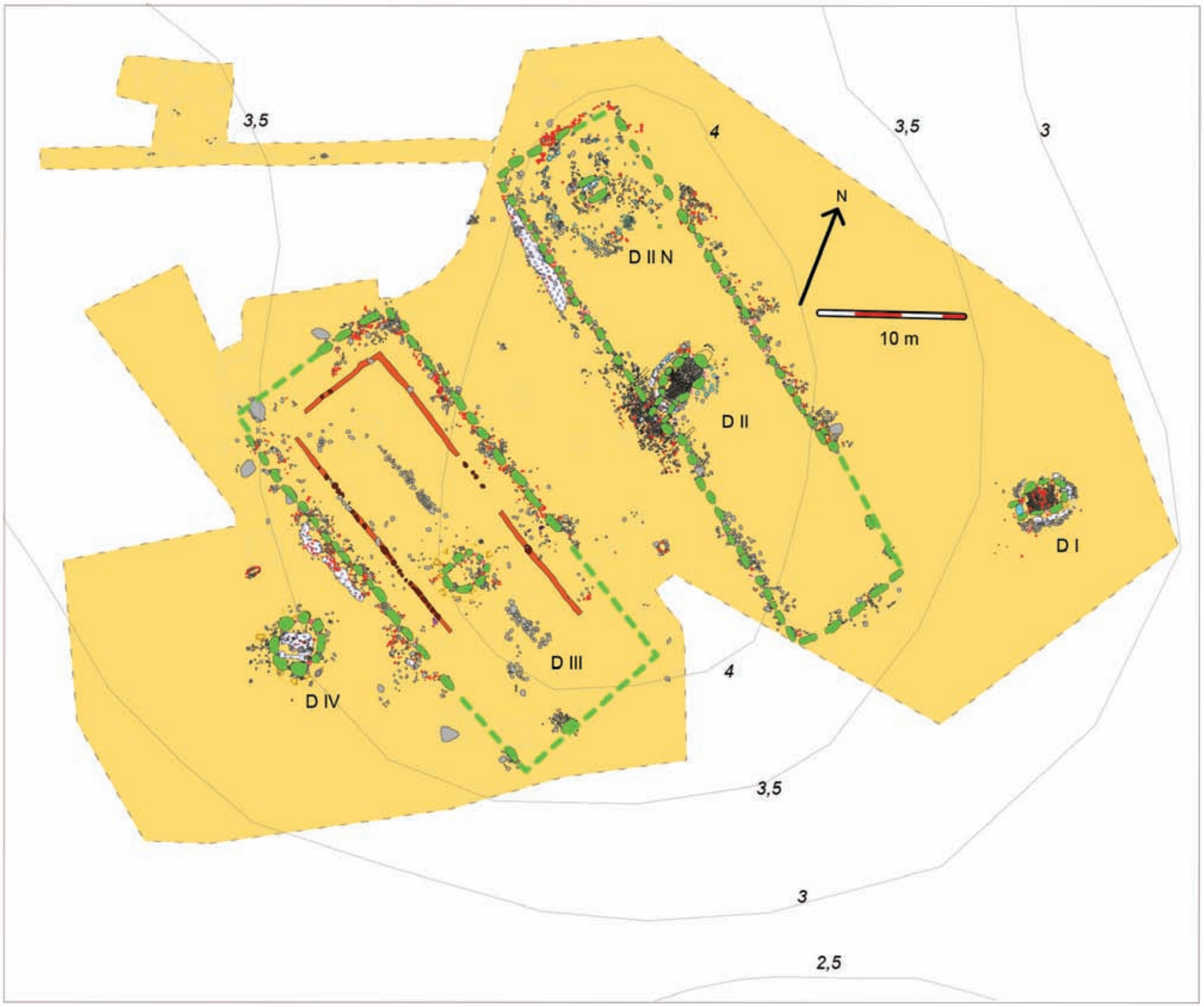


Fig. 12.6: The locality of Strandby Skovgrave, situated on a low islet surrounded by wetlands. To the east were the remains of a dolmen with a passage (D I); to the west of this a stone-set long barrow with a small passage-grave chamber (D II) and parts of a cist (D IIN). Further to the west was an elongated construction bounded by large stones that, in turn, enclosed an earlier post-built enclosure. In the middle of this were traces of a dolmen (D III), and to the west of it traces of a polygonal dolmen (D IV)

chamber was built. Over the course of several hundred years, a number of beautifully decorated pottery vessels were deposited on both sides of the kerb. Concurrently with this construction, dolmen chamber D IV was possibly built to the west of it.

The dolmen located towards the east, D I, which has a passage, is typologically later than the two aforementioned chambers. Similarly, the earliest pottery from the structure dates from the Klintebakken phase, i.e. from the time of Sarup II, or 3200 cal BC. Also dating from this time is the small passage grave that was positioned in an earthen long barrow framed with a kerb – D II.

As at Sarup Gamle Skole, we see yet again that, over the course of a couple of hundred years, people returned to the same place in order to extend megalithic structures, or to build new ones from scratch.

3: Damsbo

This locality lies on steep westward-sloping terrain facing open water where, between 2003 and 2008, it proved possible to uncover and excavate an area of 1.5ha (for location see Fig. 12.2; detailed plan Fig. 12.7). Prior to excavation, field-walking located traces of five megalithic structures, but excavation revealed the presence of nine monuments. These comprised: three long dolmens (A 2, A 6, and A 121); four isolated dolmens (A 3, A 5, A 32, and A 38); and two passage graves (A 1 and A 4). Due to soil erosion and cultivation, the structures were very badly

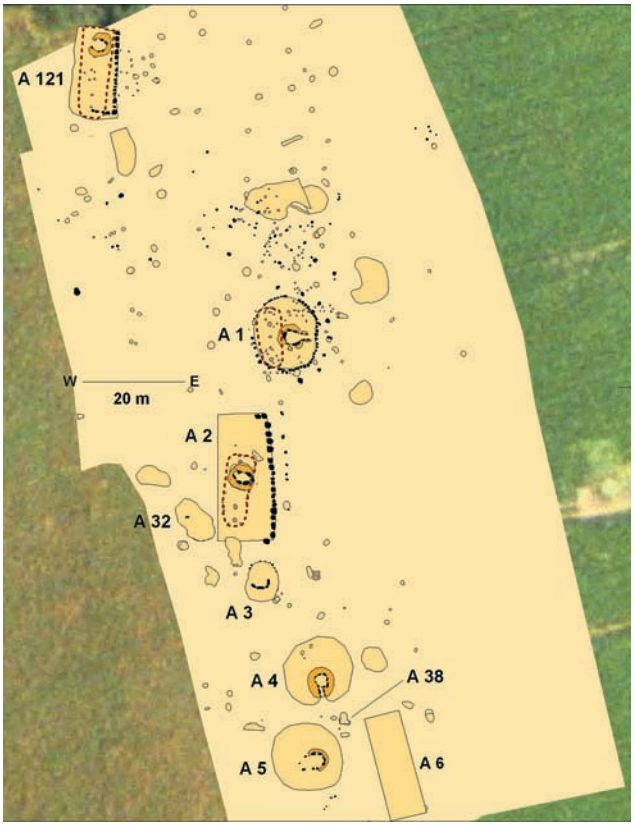


Fig. 12.7: The investigated area at Damsbo where traces were found of: three long dolmens (A 2, A 6, and A 121); four isolated dolmens (A 3, A 5, A 32, and A 38); and two passage graves (A 1 and A 4). Structures A 1, A 2, and A 121 were placed on the sites of earlier two-aisled longhouses

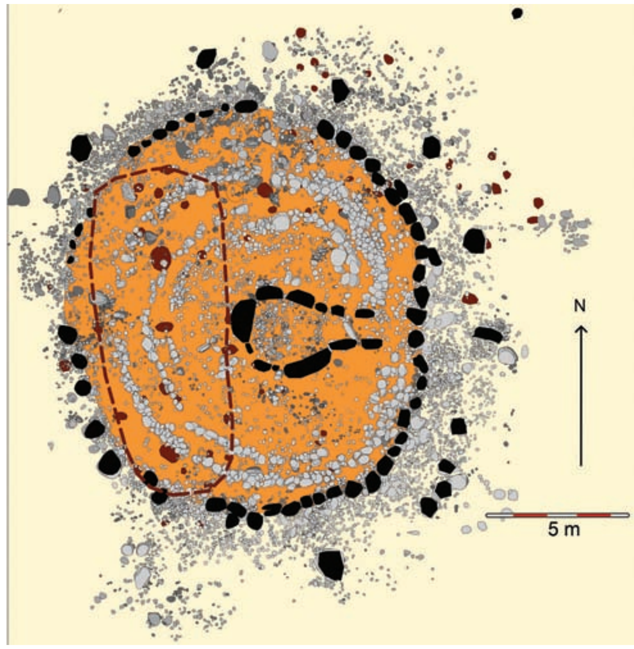


Fig. 12.8: The site of passage grave A 1 at Damsbo. The chamber of the central passage grave was surrounded by a spiral of head-sized stones (grey) that, in turn, was bounded by a row of kerbstones (black). Outside the mound traces of a ring of monoliths were seen (black) – only preserved in the eastern half. The passage grave had been placed over the post-holes (pink) of a two-aisled longhouse (dotted line)

damaged, especially on their western sides, whereas the east was better preserved.

During the course of extended and meticulous excavations it became apparent that two of the long dolmens (A 2 and A 121), as well as one of the passage graves (A 1), had been constructed on the sites of Neolithic longhouses. The house remains were difficult to recognise, and it is possible that we have overlooked these very faint post traces in other excavations. All three houses yielded finds from the Fuchsberg phase, although these were few in number, in contrast to other sites with, dark, cultural deposits rich in finds. It is remarkable that the chambers in long dolmens A 2 and A 121 were each positioned between a pair of roof-bearing posts. This is a phenomenon also seen in the non-megalithic earthen graves located in slightly earlier long barrows (Eriksen and Andersen 2014, chap. 9; Andersen 2015).

Another exciting discovery during the excavation was the remains of passage grave A 1 (Fig. 12.8). This covered the traces of a house that lay immediately west of the chamber. It is interesting that a kind of spiral of head-sized stones had been laid around the chamber of the passage grave. Next to some of these stones lay sherds of beautifully decorated pottery vessels. These had been intentionally brought to the spot as parts of vessels that subsequently were fragmented into small pieces and placed here, as a rule with the vessel's handle or lug positioned uppermost in the sherd heap (Andersen 2013b). It is also interesting that there was a circle of monoliths outside the kerbstones, as seen for example at the Irish site of Newgrange and the Scottish site of Clava (Bradley 2011).

The excavation of Damsbo, with its 47,800 finds, has not yet been processed and analysed. Nevertheless, developments seem to have occurred along virtually the same lines as at the two previously-mentioned localities, Sarup and Strandby, although Damsbo has no traces of post-built enclosures. There are, however, remains of three houses that are contemporary with post-built structures elsewhere. Damsbo appears to include two groups of megalithic structures, each of which consists of a long dolmen, two isolated chambers and a passage grave. The southernmost is a cluster consisting of structures A 6, A 5, A 38, and A 4, and to the north of these is a cluster comprised of structures A 2, A 3, A 32, and A 1. The northernmost long dolmen A 121 has been only partially excavated and could actually be part of a cluster of structures in the neighbouring field.

The megalithic structures of the Sarup area

The investigations at these three localities, Sarup Gamle Skole, Strandby Skovgrave, and Damsbo, show that in each case there was a cluster of megalithic structures, and that they lay very close together, even though there was ample room for them to be much more widely spaced. All the investigated clusters are also close to wetland areas that they either face towards, down-slope, or are enclosed within.

In two of the areas, the sequence of monuments begins with a post-built elongated enclosure, while at the third, Damsbo, there are several longhouses. Subsequently, elongated structures, marked out with large stones, were built around the houses at Damsbo and the post-built enclosure at Strandby Skovgrave: at the centre of these was placed a dolmen chamber. There were no earthen mounds within these stone settings. The next construction phase at all the localities appears to have comprised the building of two isolated dolmens, also without an earthen mound. Finally, a passage grave was added to each cluster. At Damsbo, this lay within an earthen round barrow, while at the two other localities there were stone-enclosed earthen long barrows. It is important to note that only the passage-grave structures were located within earthen mounds.

Even though this project was restricted to a limited area around Sarup, it did reveal individual differences between both the clusters and the individual structures. However, a pattern also emerged whereby people returned to the same place approximately every 50 years in order to engage – jointly – in the building of a megalithic structure. It is important to point out that each cluster was established during or a little before the time when the earliest dolmens were constructed and that their positions were then maintained over 200 years of building activity. This pattern of territorial organisation seems to have been very constant and consistent, and may have been associated with the idea(s) that lay at the very foundation of the centrally located causewayed enclosures.

The ditch segments at Sarup saw a corresponding pattern of repeated behaviour, with people returning to the same ditch. It is hoped that future analyses, not least of the richly decorated pottery, will be able to provide some hints as to how the structures and the relationships between them should be interpreted.

The investigations at Sarup demonstrate that important information can be obtained when large areas are stripped around megalithic structures that are discovered during fieldwalking. On the excavation of sites identified by field survey, we discovered several additional features and structures that were not initially visible, thereby obtaining a very different picture of these monuments and their mutual interrelationships.

It seems likely that the same pattern that has emerged for the Sarup area occurs elsewhere, but intensive studies are required to confirm this supposition. Fieldwalking and geophysical survey carried out at Snave, *c.* 5km west of Sarup, has shown the similar occurrence of a series of clusters comprised of long barrows, free-standing dolmens and passage graves.

In the light of the results from the Sarup area, we need to recognise that we are only just beginning to gain insight into the settlement patterns associated with megalithic monuments. Extensive excavation activity and detailed analyses are required to provide an appropriate and satisfactory body of evidence that can be used as a basis for further interpretations of the social and territorial significance of these monuments. The Sarup area should probably not be seen as anything extraordinary, but simply as a reminder of how much material evidence is required before we have an adequate basis for a description of these Neolithic monuments and their mutual interrelationships.

The causewayed enclosures and megalithic structures of the Sarup area – conclusion

A brief account has been given above of the preliminary findings of the Sarup project. These reveal an area in which three causewayed enclosures were built between about 3400 and 3200 cal BC, and where about 125 megalithic monuments were constructed. The investigations show that a number of activities took place at these monuments. In the case of the causewayed enclosures, those appear to have been of very short duration but also very spectacular, commanding the active involvement of at least a thousand individuals, as explained above. Subsequently, the sites lay unused for long periods. However, it should be noted that selected ditch segments saw repeated recutting, during which new material was deposited and then quickly covered when the ditches were backfilled. The finds from causewayed enclosures often appear to have been intentionally fragmented, and some of them were in circulation for a long time prior to their final deposition at these sites. These causewayed enclosures were places to which people returned, even after intervals of several centuries.

In contrast to causewayed enclosures, which were built of earth and wood, the megalithic monuments were built of more durable materials, namely large stones and earth. In the Sarup area, we can see that they were divided into numerous clusters. Each of these had a long history during which, over the course of a couple of hundred years, the same restricted area was repeatedly returned to in order to construct a new megalithic monument. Within and beside the megalithic monuments we find evidence that intentionally fragmented material, most often pottery, was deposited. Here people did not, as has been assumed elsewhere, deposit intact pottery vessels containing food for their dead relatives who were interred in the megalithic chambers.

There is also the question of the extent to which complete corpses were originally interred in the megalithic chambers. There is much evidence to suggest that only parts of the deceased individuals were deposited, and that these parts could have been in circulation for quite a while before their transfer to a megalithic monument (Eriksen and Andersen 2014, chap. 21; Mischka 2011).

Gradually, we see the emergence of conformity between some of the activities that took place at the causewayed enclosures and those that were carried out at the megalithic monuments. In both places, parts of corpses appear to have been deposited that could already have been of some considerable age prior to deposition, and activities involving intentional fragmentation of the material also appear to be the same. Causewayed enclosures were, not least, used by a large number of people gathered for one major memorable ceremony, whereas megalithic monuments probably saw repeated gatherings of more local groups drawn from a more restricted area.

Acknowledgements
Translated by Anne Bloch and David Earle Robinson

References

Andersen, N. H. 1997. *Sarup Vol. 1, The Sarup Enclosures. The Funnel Beaker Culture of the Sarup Site Including Two Causewayed Camps Compared to the Contemporary Settlements in the Area and Other European Enclosures.* Jutland Archaeological Publication XXXIII(1). Jysk Arkæologisk Selskab: Århus.

Andersen, N.H., 1999. *Sarup vol. 2 og 3, Saruppladsen*. Jutland Archaeological Publications XXXIII(2 & 3). Århus 1999.

Andersen, N. H. 2009. Sarupområdet på Sydvestfyn i slutningen af 4. årtusinde f.Kr. In: Schülke, A. (ed.) *Plads og rum i tragtbægerkulturen*. Nordiske Fortidsminder, Series C, Bind 6: København, pp. 25–44.

Andersen, N. H. 2012. La culture des Vases à Col en Entonnoir au Danemark à la fin du quatrième millénarire avant Jésus-Christ. In: Sohn, M. and Vaquer, J. (eds) *Sépultures collectives et mobiliers funéraires de la fin de Néolithique en Europe occodentale*. Archives d´Écologie Préhistorique: Toulouse, pp. 6–32.

Andersen, N. H. 2013a. The causewayed enclosures and their settlement landscape at Sarup, Denmark. In: Bakker, J. A., Bloo, S. B. C. and Dütting, M. K. (eds) *From Funeral Monuments to Household Pottery – Current Advances in Funnel Beaker Culture (TRB/TBK) Research. Proceedings of the BorgerMeetings 2009, The Netherlands. BAR S2474.* Archaeopress: Oxford, pp. 111–120.

Andersen, N. H. 2013b. A view from Denmark. In: O`Sullivan, M., Scarre, C. and Doyle, M. (eds) *Tara – from the Past to the Future. Towards a New Research Agenda*. Wordwell: Dublin, pp. 515–526.

Andersen, N.H. 2015. Frydenlund – Early Neolithic settlement and 'barkaer' structures in the Sarup area. In: Brink, K., Hydén, S., Jennbert, K., Larsson, L. & Olausson, D. (eds.). *Neolithic diversities. Perspectives from a conference in Lund, Sweden*. Acta Archaeologica Lundensia, Series In 8, No. 65. Lund, pp. 117 – 127.

Bradley, R. 2011. Passage graves, statues and standing stones: megaliths and social identities in prehistoric Scotland and Ireland. In: Furholt, M., Lüth, F. and Müller, J. (eds. *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic*. Rudolf Habelt GmbH: Bonn, pp. 47–52.

Eriksen, P. and Andersen, N. H. In press. *Dysserne – vor ældste arkitektur i sten*. Jysk Arkæologisk Selskab: Århus.

Midgley, M. S. 1992. *TRB Culture. The First Farmers of the North European Plain.* Edinburgh University Press: Edinburgh.

Mischka, D. 2011. Flintbek LA 3, biography of a monument. In: Furholt, M., Lüth, F. and Müller, J. (eds) *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic*. Rudolf Habelt Gmb: Bonn, pp. 67–94.

Noble, G. 2006. *Neolithic Scotland. Timber, Stone, Earth and Fire.* Edinburgh University Press: Edinburgh.

Rasmussen, P., Bradshaw, E. and Andersen, N. H. 2002. Et nyt forskningsprojekt og et overraskende fund af laminerede søsedimenter. *Geologi – Nyt fra GEUS* 2, pp .2–6.

Rzepecki, S. 2011. *The Roots of Megalithism in the TRB Culture*. Instytut Archeologii Uniwersytetu Lodzkiego: Lodz.

Wahl, J. 2008. Profan oder kultisch – bestattet oder entsorgt*? Materialhefte zur Archäologie in Bade-Württemberg, Heft* 81 (3), pp. 703–848.

13

Two types of megaliths and an unusual dolmen at Lønt, Denmark

Anne Birgitte Gebauer

Abstract

This paper considers the architecture at the megalithic cemetery of Lønt, located on the south shore of Haderslev Fjord in south-eastern Jutland. First, it is argued that two levels of social identity may be reflected in the spatial distribution of the tombs, as well as in construction techniques and use of raw materials, occurring at both a cemetery wide level, and in relation to groups of tombs within the cemetery. Secondly, an unusual dolmen with a hut-like superstructure is presented. The dolmen was covered by a sand and stone pavement, but no mound.

Finally, it is suggested that a more competitive social environment developed during the construction period of the cemetery. Following a period of gradual erection of the earlier monuments, about half of the eleven tombs at the Lønt cemetery were built during the Middle Neolithic A period Ib. At the same time, the size of the monuments and the amount of labour invested in them increased. In addition, the burial rituals changed from being public and short-term into more extended rituals that took place inside the chambers, hidden from the public, suggesting a changing relationship between the living and the dead.

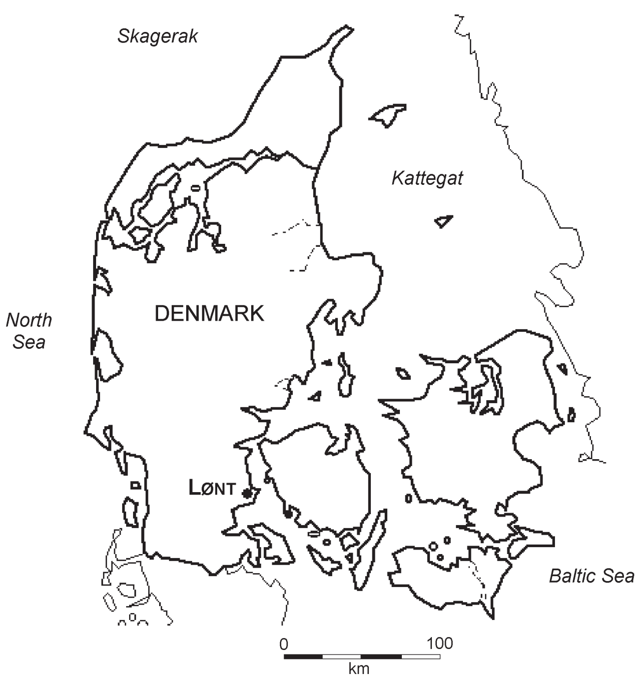


Fig. 13.1: Map of Denmark showing the location of Lønt

Keywords: Neolithic, Funnel Beaker period, Denmark. Lønt, megalithic cemetery, construction techniques, use of raw materials, dolmen without a mound, social identity, social competition

Megaliths at Lønt

Megalithic monuments are a particular type of architecture that embody or materialise different aspects of a belief and thought system. Megalithic tombs are also ritual structures erected to connect the tangible world of the living with the intangible world of spiritual forces. This paper will consider the architecture at a megalithic cemetery called Lønt, located on the south shore of Haderslev Fjord in south-eastern Jutland (Fig. 13.1). Firstly, it is argued that the choices in design and raw materials express the social identity of the group using the cemetery. Secondly, we note the presence of an unusual dolmen at the site; and, thirdly, it is argued that the accessibility of the monuments and the complexity of rites materialised in the architecture indicate a change in the funerary ceremonies and in the relationship between the living and the dead. This change in the social dynamics towards a more competitive social environment is also reflected in the increasing investment of labour in the later monuments.

Lønt is located in an area rich in megalithic graves: 150 tombs are recorded in the region of Haderslev Næs (Jørgensen 1983a, 50). Adjacent to the megalithic tombs are two causewayed enclosures: the Lønt enclosure situated on a promontory below the megaliths about 250m to the north, and the Langelandsvej enclosure 600m to the west (Fig. 13.2). Five of the Lønt tombs were investigated during the 19th century. Between the years 1973 and 1987, Jørgensen excavated all of the tombs, as well as parts of the causewayed enclosure (Jørgensen 1983; 1983b; 1988a; 1988b; 1994; 2000; 2003). The tight cluster of 11 tombs at Lønt forms a distinct megalithic necropolis with a maximum distance between any two tombs of 180m. In comparison, the three nearest megaliths in the area are located between 1.5km and 3km away. The cemetery itself is divided into four groups of tombs. The structures are located on gentle elevations in the landscape without any indication that the topography dictated

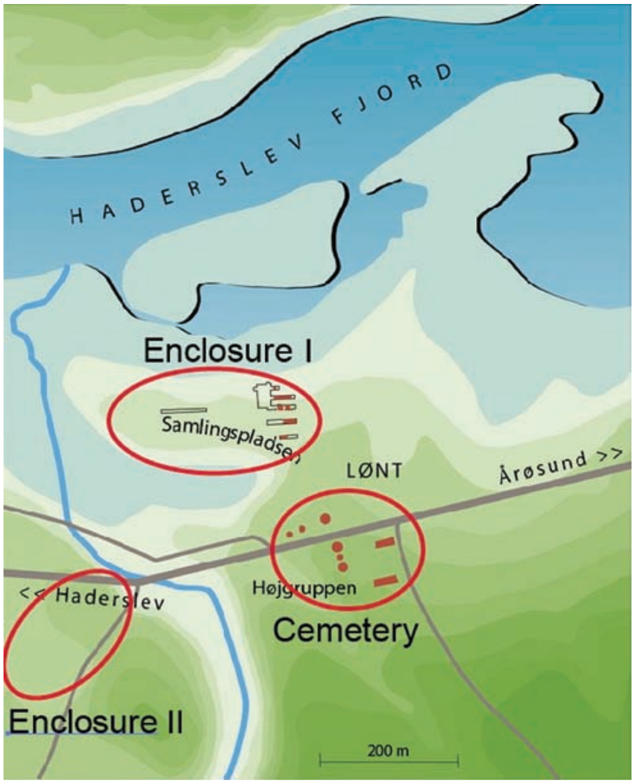


Fig. 13.2: Map of the Lønt area showing the megalithic cemetery. Lønt enclosure no. I: 250m to the north. Langelandsvej enclosure no. II: 600m west of Lønt. (Based on Jørgensen 2000, 102 fig. 56. Drawing: Jørgen Andersen, Museum Sønderjylland)

this spatial arrangement of the tombs (Fig. 13.3). The northern group (tombs 8–10, Fig. 13.4) and the middle group (tombs 11–12, Fig. 13.5) are both made up of two round dolmens and a passage grave. The southern group of tombs is a long dolmen integrating two round dolmens, a great dolmen, and a small passage grave (tomb 13.1–4, Fig. 13.6) (Bradley 1998, 65; Ebbesen 2011, 141; Jørgensen 1988; 1988b; 2000, 95; Midgley 1992, 345; Skaarup 1993, 109). The fourth unit at Lønt is a passage grave, tomb 14, placed centrally in a long mound and located by itself at some distance from the other tombs (Fig. 13.3).

The chronology of the cemetery is based on the typology of the chambers and the pottery styles, although the analysis of the ceramic depositions at the tombs is ongoing. The first construction at the cemetery begins with the building of tombs 8 and 9 in the northern group and tomb 12 in the middle group, in the late early Neolithic, EN II, between 3500 and 3300 BC. During the period of MNA Ia, 3300–3200 BC, two more tombs are added: number 11a in the middle group, and the first grave in the southern group, number 13.1. The second round dolmen in the southern group, tomb 13.2, was built either in period MNA Ia or Ib. Finally in MNA Ib, 3200–3100 BC, five chambers with a passage are constructed (Fig. 13.3).

Expressions of common identity at cemetery level

The immediate visual impression of the cemetery is that of an entity with four subdivisions (Fig. 13.3). The most obvious interpretation of this spatial pattern is that the cemetery as a whole, and the individual units, reflect two levels of social organisation. This assumption is supported by micro-traditions in the architecture (Table 13.1) (Gebauer in prep.). Features that characterise the entire cemetery include: a similar orientation of all entrances between south-south-east and south; the use of drywall in all chambers; the sinking of the floors into the ground by 0.2–0.5m; and the paving of all floors with burned flint, supplemented in a few chambers with red sandstone tiles and clay. In addition the packing surrounding all of the chambers includes clay, either pure clay or a combination of clay, stones and flint.

None of these features is unique to Lønt: they are within the range of building techniques and materials normally used for megalith construction in Denmark (Gebauer in prep.). However, the uniformity of these features among 11 monuments is unusual. Similar selections of raw materials for the packing around the chambers occur at only 11% of Danish megalithic tombs (Ebbesen 2011, 268). Likewise, the same choice of floor materials is only found at one-third of Danish megaliths (Ebbesen 2011, 276). Similar local traditions in the choice of floor materials are also found in megalithic tombs in Schleswig-Holstein (Schafferer 2011).

Expressions of group identity

A couple of architectural features relate to only one of the subgroups at Lønt. Probably the strongest expression of group identity is the integration of all four tombs in the southern group into one big monument (Fig. 13.6). The chambers in this group share a floor design involving a step down of 0.2–0.5m at the entrance to the chambers, demarcating a

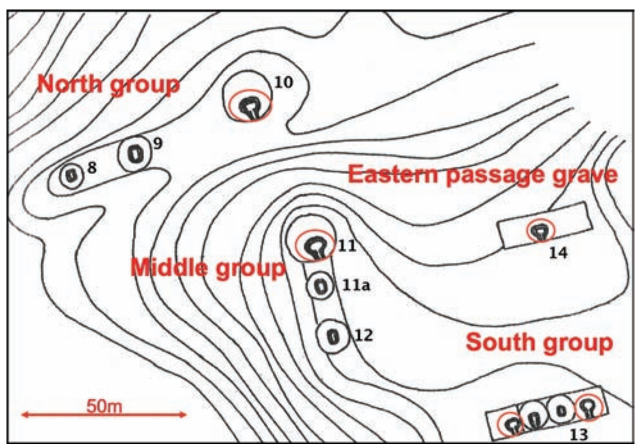


Fig. 13.3: The Lønt cemetery with four groups of tombs. To the north – tombs 8–10; in the middle – tombs 11, 11a, 12; and to the south – tomb 13.1–4; in addition to the eastern passage grave (tomb 14). Tombs built in MNA Ib 3200–3100 BC are circled. (Based on drawing by E. Jørgensen, graphics by T. D. Price)

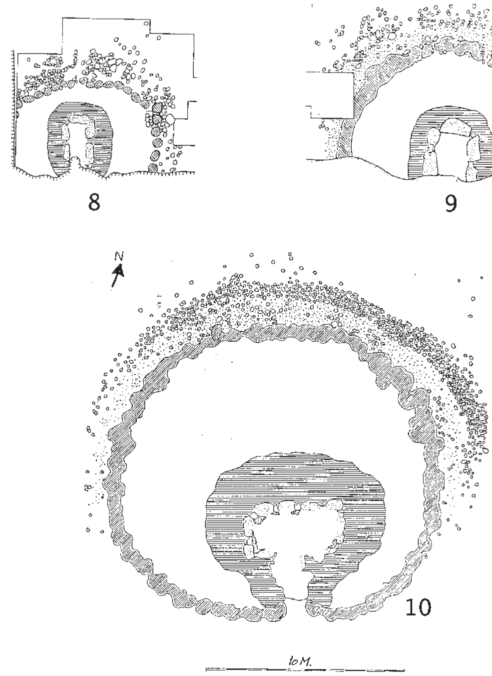


Fig. 13.4: The northern group: two round dolmens, tombs 8 and 9; and a passage grave tomb 10. Pavements of crushed flint surround tombs 9 and 10. (Drawing by E. Jørgensen)

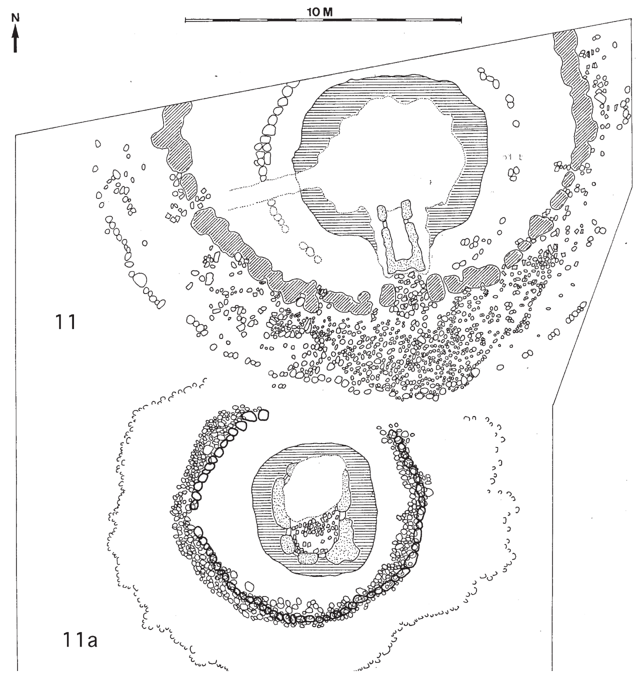


Fig. 13.5: The middle group: above – a passage grave, tomb 11; below – the dolmen with the circular wooden structure, tomb 11a. (Drawing by E. Jørgensen)

sunken area for the ancestors. This special design is related to the interior of the tombs, invisible to the outside world and perhaps only known to the builders and users of the tombs (Sjögren 2003, 287). Only a few other Danish megaliths have a similar entrance to the chamber (Ebbesen 2011, 256). Furthermore, red sandstone tiles were only used in addition to burned flint as flooring material in the two dolmens in the middle group and at the eastern passage grave. Lastly, rare phenomena in the form of sidewalks of crushed flint were surrounding tombs 9 and 10 in the northern group (Fig. 13.4). A stone layer around tomb 8 might represent a similar pavement or perhaps stones eroded from the original mound surface.

Thus, interior as well as exterior design features of the tombs and the choice of raw materials might express identity at the level of the individual tomb groups, but might also serve as an indication of a shared cemetery-wide identity.

The unusual dolmen

The central monument in the middle group (tomb 11a) is an unusual tomb combining both wood and stone constructions (Fig. 13.5). The large chamber, measuring 5 × 2m in size, was sealed: it was constructed of eight stones, two on each side, with a floor made of clay, red sandstone tiles, and white burned flint (Jørgensen 2000, 96; 2003). Grave goods included a polished, thin-butted flint axe, a transverse arrowhead, a blade knife, and a couple of amber beads, as well as a few non-descript potsherds: these objects date from EN–MNA I. The chamber was supported by a 1m thick wall of pure clay, and surrounded by a low mound and a stone circle, 8m in diameter. A timber fence was detected about 2m outside of the stone circle (Figs 13.7 and 13.8). In the area between the stone circle and the fence, about 29 pots were placed at regular intervals in a ring around the tomb. Some of the pots were pedestalled bowls in Troldebjerg style, dating the tomb to MNA Ia (3300–3200 BC).

The circular pattern of the pottery deposition is unique to tomb 11a and tomb 13.1 at Lønt (Figs 13.6 and 13.7) (Jørgensen 1988a). Moreover, the combination of a sealed chamber and pottery offerings is beyond the norm elsewhere, even more so because pedestalled bowls are primarily related to rites at passage graves and cult houses (Andersen 1999, 142).

A circular, hut-like structure with wattle-and-daub walls surrounded the chamber on top of the low mound (Figs 13.7 and 13.8) (Jørgensen 2000, 96; 2003). The wall was evidenced by a narrow foundation trench with traces of woodwork and lumps of daub and raw clay. A patch of charcoal with a radiating structure was interpreted as part of a straw roof, but could also be part of the wall structure. Three fragments of burned, thin-butted, flint axes were found inside. The hut-like structure was eventually burned down and sealed with a pile of sand and a stone pavement, 12–14m in diameter.

Apparently the tomb was forgotten during the Neolithic: the northern side of the structure was disturbed by the passage grave, tomb 11 (Fig. 13.5). When other megaliths at Lønt were recorded in the nineteenth century, this tomb likewise

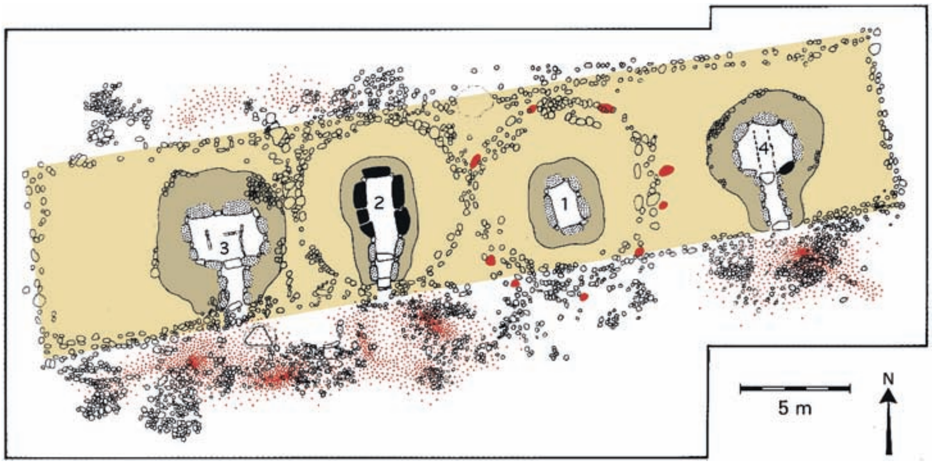


Fig. 13.6: The southern group: long dolmen no. 13 with four chambers, tomb 13.1–4. Distribution of pottery depositions is marked by red dots. Note the circular pottery deposition along the perimeter of tomb 13.1. (Jørgensen 1988a, 13. Drawing by Jørgen Kraglund, Skalk)

went undetected. It was only discovered in 1987, in the course of excavation of tomb 11.

The circular shape of the hut-like structure is peculiar and without parallels in the Southern Scandinavian Funnel Beaker Culture. Laporte and Trinevez (2004) have suggested that domestic houses and grain silos might – at certain times – be the model for houses for the dead. Contemporary domestic houses in southern Scandinavia are, however, oval to rectangular, and the cult houses are U-shaped or square (Anderson *et al.* 2004, 149; Becker 1996, 321; Jensen 2001, 285ff). The grain silo model also finds no other example in the Danish Neolithic. At Sarup, wattle and daub structures are only associated with a few ovens, but not with grain silos (Andersen 1999, 76f, 80f, 254f).

The excavator interpreted all the features as part of one monument (Jørgensen 2000, 96; 2003). However, it is difficult to verify the non-lithic structures. In contrast to the interpretation suggested in the reconstructions (Figs 13.7 and 13.8), the stone pavement surrounding the chamber was actually asymmetrical in relation to the circle of kerbstones (Fig. 13.5). Thus the stone pavement might represent a younger phase of the monument, possibly including the circular wattle-and-daub structure. Circular, but more substantial, wooden structures are found in relation to some graves from the Battle Axe culture (Andersen 1999, 357f, 374; Hansen and Rostholm 1993, 118) as well as some Late Neolithic and Bronze Age mounds (Asingh 1987, 141ff). Neither period is, however, represented among the finds from this monument. Most likely the dolmen and the circular structure, which is centred at the chamber, are part of the same monument. Such a date is supported by the three fragments of burned, thin-butted, flint axes dating from EN–MNA II of the Funnel Beaker culture, found on top of the chamber packing but inside the circular structure.

The excavator has provided two different interpretations of the dolmen, tomb 11a. The circular structure might have formed the actual roof of a stone chamber without capstones (Fig. 13.7). In this case, the structure served as a death house while the deceased was prepared for the final journey to the other world: it may also have been a place for worship (Jørgensen 2000, 96). Alternatively, the megalithic chamber

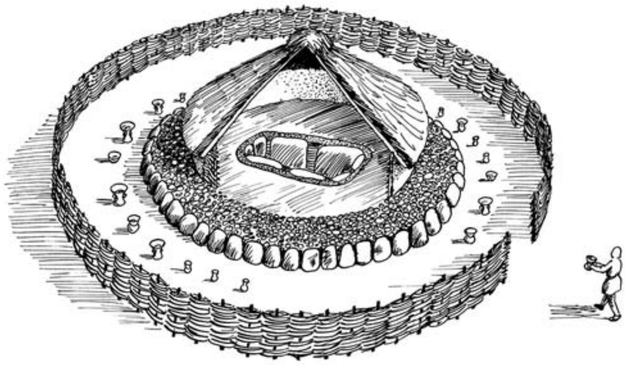


Fig. 13.7: Reconstruction of the dolmen, tomb 11a, without capstone. The circular wattle and daub structure serves as a roof. Note the circular pottery deposition and the surrounding wooden fence. (Jørgensen 2000, 96, fig. 49. Drawing by Jørgen Andersen, Museum Sønderjylland)

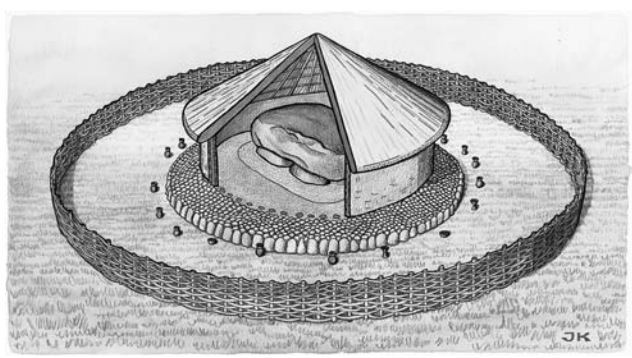


Fig. 13.8: Reconstruction of the dolmen, tomb 11a, with capstone. The circular wattle and daub structure is built around the capstone. (Jørgensen 2003, cover image of Skalk 2003(2). Drawing by Jørgen Kragelund, Skalk)

Tomb number	*8*	*9*	*10*	*11A*	*11*	*12*	*13.I*	*13.II*	*13.III*	*13.IV*	*14*
Group	*northern*	*northern*	*northern*	*middle*	*middle*	*middle*	*southern*	*southern*	*southern*	*southern*	*eastern*
Chamber											
Tomb type	Dolmen	Dolmen	Passage grave	Hybrid	Passage grave	Dolmen	Dolmen	Grand dolmen	Passage grave	Grand dolmen	Passage grave
Ebbesen 2011 Chamber type	Ib	IIb	A2	NA	A2	IIb	Ic	V	A1	V	A2
Open/closed	closed (?)	open (?)	open	closed	open	open	closed	open	open	open	open
Dry walls	x	x	x	x	x	x	x	x	x	x	NA
Area	1.5 m^2	NA	*c.* 8.0m^2	5.2m^2	NA	2.2m^2	2.1m^2	4.2m^2	6.2m^2	4.5m^2	*c.* 8.0m^2
Orientation of south end	162	167		178		204	160				
Chamber floors											
Sunken depth into subsoil	0.18m	0.15m	0.3m	0.10m	0.3m	0.4m	0.25m	0.20m	0.30m	0.5m	0.3-4m
White burned flint	x	x	x	x	x	x	x	x	x	x	x
Stone tiles				x		x					x
Clay layer				x			x				
Chamber packing											
Size of packing area	7.2 m^2	NA	67.5 m^2	22.5 m^2	57.7 m^2	31.4 m^2	13.7 m^2	14.4 m^2	138 m^2	33.4 m^2	*c.* 38.5 m^2
Pure clay	x			x							
Clay and stones		x	x			x	x	x			
Clay, stones and flint					x				x	x	x
Chamber passage											
Length	none	none	*c.* 3.0m	none	2.7m	none	none	1.0m	2.1m	2.6m	*c.* 2.0m
Orientation			158		168			178	177	166	NA
White burned flint floor			NA		x			x	x	x	NA
Threshold stone		NA	none		none	x		x	x	x	NA
Possible door stone			none		none	none		x	x	x	NA
Mound											
Size of mound area	38.5 m^2	95.0 m^2	201.0 m^2	58.0 m^2	213.7 m^2	132.7 m^2	63.6 m^2	50.2 m^2	96.0 m^2	88.0 m^2	270.0 m^2
Kerb stones	x	x	x	x	x	x	x	x	x	x	x
Dry wall		x	x		x	NA					NA
Side walk	x(?)	x	x								NA
Stone pavement				113.0 m^2							NA

Table 13.1: Construction details of the 11 tombs at Lønt

might be covered by capstones: the circular structure was then built on top of the finished dolmen as a temporary cult house to the ancestor(s) (Fig. 13.8) (Jørgensen 2003). In both cases a final severance of the deceased person(s) from the world of the living was marked by destruction of the house by fire. The monument was sealed off with a sand pile and stone pavement, but no mound was built to cover the site similar to that seen at several other dolmens (Eriksen and Andersen 2015).

Regardless of which role the circular structure played in the funerary rites, the construction of this hut-like enclosure indicates a prolonged burial ritual, including a liminal phase, before the final departure of the deceased to the other world. A similar tradition is reflected in wooden structures found at a number of early Neolithic long barrows (Madsen 1979). These wooden constructions include tent-like or box-like superstructures over rectangular graves (such as at Asnæs (Gebauer 1990, 49f) and Skibshøj (Madsen 1979, no. 9)), as well as U-shaped constructions (such as Rustrup 2 (Fischer 1975, 54) and Strynø (Skaarup 1985, 337)), and rectangular wooden structures (such as Storgård IV (Kristensen and Kjaer 1989, 72) and Bygholm Nørremark (Rønne 1979, 5, 7)) that might relate to neighbouring graves. The primary grave at Bygholm was placed inside a small oval house similar to the domestic houses (Rønne 1979, 5, 7). These structures all have that they only served a temporary purpose in the funerary rites in common: after some time, they were destroyed and the site was sealed with a pavement and/or a mound. A similar procedure was followed at the middle Neolithic cult houses from MNA I–III (Becker 1996, 340). The Lønt dolmen, tomb 11a, forms a part of this tradition, but is unusual because of the relatively large megalithic chamber and the circular shape of the wooden structure, as well as the location of the hut-like arrangement on top of the chamber.

Simple and complex tombs

Differences in both the accessibility of the monuments, and in the complexity of the architecture, suggest that the Lønt tombs can be divided into two groups: a group of simple rectangular chambers without a passage, and a group of larger tombs with a passage, with the unusual dolmen and perhaps tomb 13.2 as intermediate forms (Table 13.1).

The group of simple tombs includes four monuments with small rectangular chambers 1.5–2.2m^2 in size (Tombs 8, 9, 12, 13.1). The size of the floor area and lack of any structural divisions of the floor indicate that the entire floor area was intended for funerary purposes. These chambers have no passage: they may have been sealed or semi-open, with a high threshold stone at one end of the chamber. Access to the chamber was from above (Eriksen 1980; Ebbesen 2011, 176; 196). Closing the chamber with capstone(s) and erecting a mound surrounded by a stone circle marked the conclusion of the burial. As the final part of the funerary rites, pottery was deposited along the perimeter of the mound. The regular pattern of a circle of pots found at two of the monuments at Lønt (tomb 11a and 13.1) suggests that this was a one-time event, possibly celebrating the integration of the dead in the other world.

The primary function of these modest monuments was as a place of burial. The sequence of monument construction and funerary ceremonies seems to have been brief and continuous. Only two ritual zones were used: the funerary area in the centre, and the ceremonial area around the perimeter of the mound. Activities in both of these zones were public, in the sense that the central zone would be visible to mourners in the funerary party, and later attendance at the grave would be visible to the public in general.

The second group of monuments is more complex, including six tombs with a passage, and large chambers covering 4.5–8m^2. The greater size and the presence of subdivisions of the floor area indicate a differentiation of the funerary functions. Combined with the permanent access through the passage, this suggests that the chambers were intended not only for funerary purposes, but also for worship and offerings. Although access was always possible, the long narrow crawl through a passage marked with intermittent thresholds shows that the dead were, in general, supposed to be left in peace (Holten 2009, 171). Probably only a select group of people were in charge of the continued relationship with the dead, perhaps with the use of relics to materialise the memory of the dead.

A couple of architectural features reveal multistage construction of some or all of these monuments (Dehn 2015). The perimeter of the packing around three chambers was lined with bigger stones (tomb 10, 13.3, and 4). These could be a means of stabilising the packing, but it might also provide a kind of embellishment. Together with the substantial size of the packing, the larger stones suggest that the chambers were left freestanding for some time before the mound was constructed (Eriksen and Andersen 2015; Scarre 2015).

At two passage graves, a wall-like circle of smaller stones was placed around the chamber in the area that was later covered by a mound (tomb 11 and 14) (Fig. 13.5). Similar concentric stone circles have been found at several other passage graves at different levels in the mound. The stone circles might be a means of controlling the processes of different stages of mound construction, as well as stabilising the mound fill. At the Tårup dolmen, in eastern Jutland in Denmark, the chamber might have been freestanding for some time prior to the building of a small, low mound lined with a wall-like construction of up to four layers of stones. The outer ring of kerbstones might have already been in place at this stage, before the final phase of the mound covered the chamber and the entire area inside the kerbstone circle (Holst 2006). At Klekkendehøj, Møn, Denmark, a stepwise mound construction was kept in place by pavements of smaller stones and circles of larger stones (Dehn *et al.* 2000, 48). Elsewhere, interior stone and timber circles clearly relate to activities prior to the mound building. At Vroue III, in northern Jutland in Denmark, two circles of burned timber logs surrounded the chamber (Jørgensen 1977, 107). At a passage grave at Damsbo Mark, in southern Funen, Denmark, pottery depositions were made at three concentric stone circles surrounding the chamber (Andersen 2010, 12 fig. 5). Burning of timber logs and depositions of pottery suggest that these circular structures were features incorporated in ceremonies related to sanctifying the monument or to some transitory rites, rather than functional aspects of the mound. No depositions were made at the stone circles found at two of the Lønt tombs: most likely they represent an intermediate stage in the mound construction.

Eventually the monuments were completed with the final phase of the mound and a circle of kerbstones. Drywall presumably acted as an added support for the mound fill. Its use in relation to the kerbstones at some of the larger monuments suggests that these stone circles were erected in connection with the final mound phase (see Eriksen and Andersen 2015 for a different opinion). Large pottery offerings were deposited at the entrance, and sometimes opposite the entrance and towards the east as well (Fig. 13.6). At some of the tombs, a pavement of crushed flint defined a ceremonial area along the mound perimeter, similar to the way a timber fence marked the area around the unusual dolmen (Figs 13.4 and 13.7).

The multistage construction process shows that both the monuments, and probably the ceremonies related to these tombs, have become more prolonged and complex. The extended construction process might reflect a liminal period similar to the hut-like structure on top of the dolmen, tomb 11a. The architecture of these monuments embodies changes in the relationship between the living and the dead by creating a permanent passage from the world of the living to the spiritual world (Holten 2009). At the same time, the secluded character of the chamber created an increased spatial distance between ordinary people and the tombs. Deposition of the dead was no longer public. Most likely knowledge of the funerary ceremonies had become more restricted, just as a more select segment of the population might have been buried in the larger tombs.

Construction effort in each group

A similar trend towards more elitist monuments is seen in the work effort invested in the different monuments (Gebauer in prep.). Construction at the Lønt cemetery followed two different strategies to achieve a monumental appearance during the final phase of construction in MNA Ib. One strategy focused on increasing the size and enhancing the tombs through a demarcation of the outer perimeter. The increased size in square metres of the chamber, the packing, and the mound, seen in the northern and the middle group are examples of this strategy (Fig. 13.9). In addition to increased size, tombs 9 and 10 in the northern group were enhanced with pavements along the mound perimeter (Fig. 13.4). The long mound erected in relation to the eastern passage grave, tomb 14, exceeds all others in terms of work effort invested in the monument of a single tomb: no doubt this tomb is the most costly monument at Lønt.

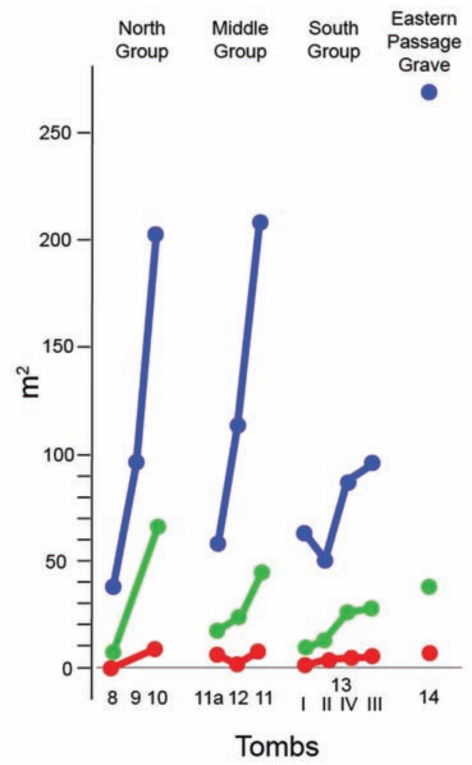


Fig. 13.9: Construction effort for each group, measured in terms of square metres of: red – the area of the chamber floor; green – the chamber packing; and blue – mound area. Only the area of the chamber floor and the mound is available for the eastern passage grave (Graphics by T. D. Price)

The other strategy was based on agglomerating smaller tombs into one large monument, as seen in the southern group, tomb 13.1-4 (Fig. 13.6). Aside from the similar floor designs mentioned earlier, this low-cost strategy of achieving monumentality is another example of the shared values among the builders of the southern tomb group. Both strategies indicate that an impressive external appearance of the monument had become paramount at the time when the passage graves were built. In contrast, the primary concern at the start of the cemetery was to be buried in a megalithic chamber, however modest, at this specific location. The changing perspective suggests a situation of increased social rivalry in society during the final period of construction at the cemetery.

Cemetery expansion

The sequence of expansion of the cemetery is still tentative, as no C14 dates are available and the pottery analyses are ongoing. However, the final construction period at Lønt seems to represent a short-term burst of activity in MNA Ib following the earlier, more gradual growth of the cemetery (Fig. 13.3). Scarre (2010) has suggested that the building of megaliths could be a sequence of short-term events, rather than a continuous process. Construction at Lønt might fit this description, certainly in the final period of tomb construction during MNA Ib from 3200 to 3100 BC. This is a period of intense celebration of the ancestors: in addition to funerals in newly built monuments, burials are still taking place at almost all of the old tombs as well.

Conclusion

The megalithic architecture at Lønt embodies a number of different aspects of social dynamics of Neolithic society, as well as beliefs about relations with the dead and the other world. The spatial distribution of the tombs is maintained in distinct groups, reflecting a remarkably stable and long-term structure for the social groups involved with the cemetery. This is also supported by the architectural traditions used: both the construction techniques and the choice of raw materials are related to the cemetery as a whole and to individual groups of tombs. Also, the three groups of tombs are uniformly built of two round dolmens and a passage grave. One group has an extra, later chamber. A similar lasting burial tradition is found at Damsbo Mark near Sarup, where every cluster of megaliths had a typological and chronological range of monuments, from simple dolmens to developed passage graves (Eriksen and Andersen 2015). At the Lønt cemetery, only the eastern passage grave, tomb 14, represents a dramatic change in the stable tripartite structure. Either, a new group, a splinter group, or perhaps a final unification of the three groups, was behind the most impressive monument in the cemetery.

A gradual build-up of the cemetery appears to have been succeeded by a burst of construction within the relatively short period in MNA Ib, suggesting that monument building became increasingly competitive and an arena of social rivalry. The increased labour investment involved in the passage graves from period MNA Ib reflects a similar competitive trend towards more impressive monumentality. At the same time, changes in the architecture implied that the funerary rites became less visible and less public, as well as more complex, perhaps involving a liminal period. Such change indicates a different relationship between the living and the dead, but also that the use of megalithic tombs had become more selective.

Interestingly, at both Sarup and at Lønt, the construction period of the passage graves coincided with a second construction phase at the adjacent causewayed enclosure. However, at least at Sarup, the investment of resources in the second enclosure was heavily reduced. Only a fifth of the workforce required to build the first enclosure at Sarup was necessary to build the second one (Andersen 1999, 275, 284). Construction of megaliths and celebration of the ancestors might have become the prime means of legitimising power in this increasingly stratified society. Apparently, the architecture of the megaliths had become the sublime expression of power and permanence in both the world of the living and the other world.

Acknowledgement

I would like to thank Poul Otto Nielsen and the National Museum for providing me with the opportunity to analyse the Lønt megaliths. I am also grateful to *Skalk* for allowing me to reproduce the illustrations in Figures 13.6–8.

References

Andersen, N. H. 1999. *The Sarup Enclosures* 2. Aarhus University Press: Aarhus.

Andersen, N. H. 2009. Sarupområdet på Sydvestfyn i slutningen af 4. Årtusinde f. Kr. In: Schülke, A. (ed.) *Plads og rum i Tragtbægerkulturen*. Det Kongelige Nordiske Oldskriftselskab: Copenhagen, pp. 25–44.

Andersen, N. H. 2010. *Causewayed Enclosures and Megalithic Monuments as Media for Shaping Neolithic Identities*. Available: www.Jungsteinzeit.de [Accessed 29/01/2013].

Anderson, M., Karsten, P., Knarrström, B. and Svensson, M. 2004. *Stone Age Scania. Significant Places Dug and Read by Contract Archaeology*. Riksantikvarämbetets Förlag. Skrifter 52. National Heritage Board: Lund.

Asingh, P. 1987. Diverhøj. The excavation of a complex burial mound and a Neolithic settlement. *Journal of Danish Archaeology* 6, pp. 130–153.

Becker, C. J. 1996. Tragtbægerkulturens mellemneolitiske kulthuse. In: Fabricius, K. and Becker, C. J. *Stendyngegrave og Kulthuse. Studier over Tragtbægerkulturen i Nord- og Vestjylland*. Arkæologiske Studier XI. Akademisk forlag: Copenhagen, pp. 277–342.

Bradley, R. 1998. *The Significance of Monuments*. Routledge: London.

Dehn, T. The megalithic construction process and the building of passage graves in Denmark. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 59–68.

Ebbesen, K. 2011. *Danmarks Megalitgrave* 1.1 and 1.2. Catalogue 2008. Attika: Copenhagen.

Eriksen, P. 1980. Capeshøj på Tåsinge. En langdysse dækket af en bronzealderhøj. *Antikvariske Studier* 4, pp. 31–48.

Eriksen, P. and Andersen, N. H. 2015. Dolmens without mounds in Denmark. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 79–87.

Fischer, C. 1976 . Tidlig-neolitiske anlæg ved Rustrup. *Kuml* 1975, pp. 29–72.

Gebauer, A. B. 1990. The long dolmen at Asnæs Forskov, West Zealand. *Journal of Danish Archaeology* 7, 1988, pp. 40–52.

Hansen, M. and Rostholm, H. 1993. Single graves and Late Neolithic graves. In: Hvass, S. and Storgård, B. (eds.) *Digging the Past: 25 years of archaeology in Denmark*. Jysk arkæologisk Selskab, pp. 104–109.

Holst, M. 2006. Tårup. 1988. A round dolmen and its secondary burials. *Journal of Danish Archaeology* 14, pp. 7–21.

Holten, L. 2009. Doorways to another reality. Megalithic monuments as mediators between here and hereafter. In: Schülke, A. (ed.) *Plads og rum i Tragtbægerkulturen*. Det Kongelige Nordiske Oldskriftselskab: Copenhagen, pp. 159–177.

Jensen, J. 2001. *Danmarks Oldtid. Stenalderen 13.000–2000 f. Kr*. Gyldendal: Copenhagen.

Jørgensen, E. 1977. *Hagebrogård – Vroue – Koldkur. Neolitische Gräberfelder aus Nordwest-Jutland*. Arkæologiske Studier IV. Copenhagen.

Jørgensen, E. 1983a. Lønt. En gammelkendt stenalderlokalitet. *Nordslesvigske Museer* 10, pp. 29–52.

Jørgensen, E. 1983b. Høje og hegnet næs. *Skalk* 5, pp. 3–8.

Jørgensen, E. 1988a. Stengravens fire trin. *Skalk* 2, pp. 10–13.

Jørgensen, E. 1988b. Fire storstensgrave i en højtomt ved Lønt. Om en gammelkendt stenalderlokalitet i ny belysning. *Nationalmuseets Arbejdsmark 1988*: Copenhagen, pp. 195–208.

Jørgensen, E. 2000. Yngre stenalder. In: Ethelberg, P., Jørgensen, E., Meyer, D. and Robinson, D. *Det Sønderjyske Landbrugs Historie: Sten- og Bronzealder*. Historisk samfund for Sønderjylland. Haderslev, pp. 80–84, 95–96, 102–104, 109.

Jørgensen, E. 2003. Højene ved Lønt. *Skalk* 2, pp. 5–10.

Kristensen, I. Kjær. 1989. Storgård IV. An early Neolithic long barrow near Fjelsø, North Jutland. *Journal of Danish Archaeology* 8, pp. 72–87.

Laporte, L., and Tinevez, J.-Y. 2004. Neolithic houses and chambered tombs of western France. *Cambridge Archaeological Journal* 14(2), pp. 217–234.

Madsen, T. 1979. Earthen long barrows and timber structures: aspects of early Neolithic mortuary practice in Denmark. *Proceedings of the Prehistoric Society* 45, pp. 301–320.

Midgley, M. S. 1992. *TRB Culture. The First Farmers of the North European Plain*. Edinburgh University Press: Edinburgh.

Rønne, P. 1979. Høj over Høj. *Skalk* 5, pp. 3–8.

Scarre, C. 2010 . Rocks of ages: tempo and time in megalithic monuments. *European Journal of Archaeology* 13(2), pp. 175–193.

Scarre, C. 2015. Accident or design? Chambers, cairns, and funerary practices in Neolithic western Europe. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 69–78.

Schafferer, G. 2011. Megaliths and landscapes – grave architecture as spatial manifestation of tradition and social identities in northern Germany. In: Furholt, M., Hinz, M., Mischka, D., Noble, G., and Olausson, D. *Landscapes, Histories and Societies in the Northern European Neolithic*. Habelt: Bonn, pp. 91-100.

Sjögren, K. G. 2003. *"Mångfallige uhrminnes grafvar…" Megalitgravar och samhälle i Västsverige*. Gotarc Series B. Gothenburg Archaeological These 27. Coast to Coast Books 9, Göteborgs universitet Institutionen för arkeologi: Gothenburg

Skaarup, J. 1985. *Yngre stenalder på øerne syd for Fyn*. Meddelser fra Langelands Museum: Rudkøbing

Skaarup, J. 1993. Megalithic graves. In: Hvass, S. and Storgård, B. (eds) *Digging the Past: 25 years of archaeology in Denmark*. Jysk arkæologisk Selskab: Aarhus, pp. 104–109.

14

Common motivation, different intentions? A multiscalar approach to the megalithic architecture of the Funnel Beaker North Group

Franziska Hage, Georg Schafferer and Martin Hinz

Abstract

In this paper we try to identify two levels of intention that were responsible for the variations that can be observed in the construction of megalithic burials, at least in northern Germany. On the one hand, there may have been shared or divergent ideas about the function of megalithic tombs within a social or ritual landscape. On the other hand, at a local scale this idea may have been implemented in various forms, probably in response to very different individual situations under which the actual practice of construction took place. This suggestion is demonstrated through the example of a single group of monuments (Borgstedt) and through the investigation of differences in the construction of such monuments in the area of present-day Mecklenburg-Vorpommern and Schleswig-Holstein.

Keywords: megalithic architecture, Funnel Beaker societies, ritual landscapes, site distributions, architectural features, intentions, practices

Attitude vs practice

If we want to understand why individuals or groups in the Neolithic built the monumental structures that we denote as megalithic tombs, we have to distinguish between basic attitudes and practices. A common basic attitude in a society towards certain forms of practices or behaviour results from commonly experienced conditions, and the resulting common and shared needs and attitudes. In contrast, the actual process of decision-making, i.e. the realisation of a motive or an intention, depends on the individual conditions and circumstances (Ajzen 1991). A shared basic attitude in the sense of an ideal type (Max Weber's *Gedankenbild*: Weber 1904) describes a form that is never fully realised in the real world: rather it controls the actual practices. Certain activities become more preferred, while they have an aim that is fairly unspecific and abstract. Because of this, basic attitudes only become comprehensible through overarching analysis, or even clearer in the combination of different scales of research. Intentionality, on the other hand, is an ability of the mind, and is therefore linked to an individual. It represents a specific purpose in performing a particular action. Thus, the intentions themselves can only be reconstructed via very detailed investigations of single monuments, if at all. However, structural differences demonstrating the realisation of intentions can be evaluated by comparing different sites and different scales.

The paper presented here is derived from the current research of the Priority Program 1400 "*Early Monumentality and Social Differentiation*" of the Deutsche Forschungsgemeinschaft, and considers the intentions and constructions of megalithic architecture. There are at least two levels to the term "intentions". On the one hand, we would like to reflect on the question whether there was a basic attitude in the societies with Funnel Beaker ceramics that induced the construction of these specific monuments at that precise moment in history. On the other hand, we would like to show that different intentions can be deduced by comparing local and regional phenomena. This can only be accomplished by the integration of various scales of inquiry.

In the first part of this paper, we will present a case study from the site of Büdelsdorf-Borgstedt, where the burial area contains a remarkable diversity of monumental forms. This site is therefore of major importance for understanding the architectural planning process, not only due to its heterogeneous architecture and the varying size of the tombs, but particularly from their connection to the associated ditched enclosure and its long history of use. We will then widen our view and concentrate, from a macro-scale perspective, on the results from our investigation, looking at the connection between possible settlement areas, areas of availability of building material, and the placement of megalithic burials in Schleswig-Holstein and Mecklenburg-Vorpommern. By doing so, we will also shed light on the fact that the less obvious elements of architectural tomb design, such as chamber flooring, probably had a specific meaning and importance for the builders.

Monumentality in Büdelsdorf and Borgstedt: an enclosure and a burial ground

The region around Büdelsdorf was already subject to intensive land use during the time of the Funnel Beaker Complex (4100–2800 cal BC) examined here. Some smaller settlements, the numerous megalithic tombs, and the enclosure Büdelsdorf LA 1 prove this. The enclosure itself (several phases spanning *c.* 3900–2900 cal BC) is favourably located on a naturally protected area on the northern spur of the steep bank of the

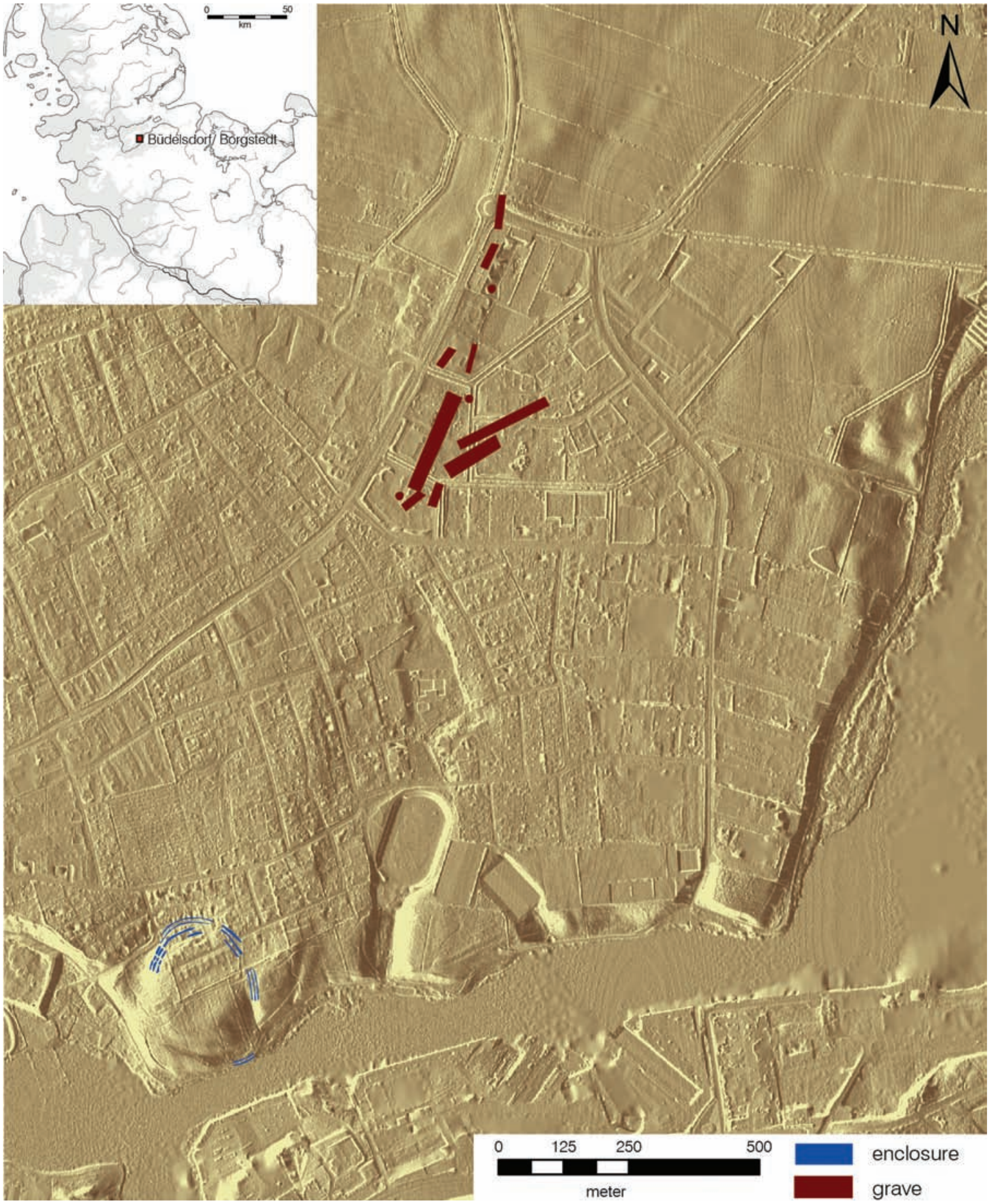


Fig. 14.1: LiDAR scan showing the enclosure Büdelsdorf LA 1 and the Borgstedt burial complex. (Image copyright: LVermGeo sh)

Eider River in the municipality of Büdelsdorf (Fig. 14.1). This position is also advantageous due to its location at an important junction between the main east-west connection within Schleswig-Holstein along the Eider, and the main north-south route from Scandinavia to the far south. In addition, Büdelsdorf is one of the only three enclosures known so far, and Borgstedt represents one of the largest concentrations of monumental burial sites in Schleswig-Holstein. This underlines the importance of the site from the perspective of infrastructure. Some 20% of the approximately 4.5ha enclosure was excavated in several rescue campaigns between 1968 and 1974. These excavations unearthed an impressive multi-row

Fig. 14.2: Borgstedt tombs: a: LA31; b: LA22; c: LA26; d: LA29; e: LA28; f: miniature dolmens south of LA27. The six examples show the diversity of the tombs in size and architecture

ditch system, with accompanying palisades, internal structures, and a huge amount of archaeological material. But where is the associated burial ground? That question was posed repeatedly during the excavations. Just under 800m to the north, a group of 11 tombs was discovered, consisting of nine long and two round mounds (Hage 2011). Their orientation towards the enclosure gives the impression of a possible connection with Büdelsdorf LA 1.

The first excavation at the cemetery began in 1973 in the centre of a circular mound. It revealed that the mound contained the remains of an enlarged dolmen. The chamber floor was still intact, except for disturbance by a subsequent burial of the Single Grave Culture. Even in the early 1970s, the mounds were hardly visible above ground due to farming and stone robbing, and could only be located by aerial photography. In the mid-1980s, further utilisation of the area was planned, so rescue excavations were conducted at nine other monuments, uncovering a hitherto unknown tomb (LA 69).

The different grave structures, including the tombs in the long mounds, are very heterogeneous in their architecture (Fig.

14.2). The sheer size of the long mounds varies considerably: long mound LA 27 is about 200m long and 22m wide, and by far the largest tomb of the group. Conversely, the remaining long mounds vary in length from 40m to 180m and in width from 7m to 22m. Only in the case of the round mound LA 28 could the diameter (12.5m) be determined. Besides the mound dimensions, specific architectural elements also vary. Only in two cases, again LA 28 and LA 26, are the typical TRB surrounding kerb stones present. Four long barrows (LA 27, 29, 31, 32) are surrounded by a series of pits around their circumference. These pits were only open for a short time: several ceramic deposits were discovered in them. It is striking that those tombs with this kind of surround were located in the south and – with the exception of LA 29 – also represent the largest of the group. By contrast, the tombs in the north (LA 22 and LA 30) had a series of posts as boundary markers, in the case of LA 22 even double posts. These tombs also seem to have lacked mounds.

All 11 tombs showed intensive disturbance. No chamber had all the orthostats still in place, and in most cases they were completely absent. Nevertheless, their former appearance could usually be reconstructed from the traces left by the stones. When this was not possible, the position of the chambers could at least be determined from the pavement and certain find patterns. Where the burial chambers could be reconstructed, they appeared to be extended dolmens dug into the ground. There was also a passage tomb, located on the eastern periphery, roughly in the middle of long barrow LA 26. The dimensions of the chambers range between 1.4m and 1.8m in width, and 3m in length. In all chambers, it appears that there was a cobble pavement: in some cases this was covered by a layer of burned flint. As far as could be determined, the entrances of the tombs lay to the northeast. In all long barrows, the chambers were not placed in the centre. In five cases, only one chamber could be detected, whereas for the long barrows LA 26, LA 25 and LA 30, two chambers have been confirmed.

Between the long barrows and the round mounds, as well as in long barrows LA 26 and LA 29, several simple flat graves were found. Since no typologically or chronologically relevant material was recovered, their dating is difficult. In the north-east part of long barrow LA 29, two miniature dolmens were discovered. The cists of granite and flint measured 0.25–0.4m in width and had a length of 0.6m and 1m. They were dug about 0.3m into the ground, and had a flint gravel pavement. No burial goods or other items were recovered: the same is true for most of the other flat graves.

The find material is generally heavily fragmented. Almost 70% of the finds were recovered from long barrow LA 30. Most of the objects were found in fan-shaped zones at the chamber entrances. Because of their shape, and the fact that the ceramic material found here is heavily fragmented and mixed with burned flint, it can be safely assumed that these zones represent the results of chamber clearing activities. Only very small pieces of material were found inside the chambers. This is especially true for the majority of amber finds, and for almost all bones. These have mostly been destroyed due to the very lime-deficient soil: they are present almost exclusively in the form of chips. The high degree of fragmentation of the ceramics also hampered the reconstruction of ceramic vessel forms and typological and chronological identification.

Nevertheless, it was still possible to date some of the ceramics, and on this basis, a use-model of the tomb group was developed. The cemetery was in use from the MN I to the MN V, but the main phase was dated to the beginning of the middle Neolithic (MN I–II). Towards the end of the middle Neolithic, the number of ceramics decreased significantly. Indications of subsequent re-use of tombs are present only at LA 28, which contained a secondary burial of the Single Grave Culture.

The first of a new series of radiocarbon dates show, however, that at least a part of the burial area was in use significantly earlier. The oldest C14 date originates from the chamber of the round mound LA 28 and dates to 4000–3900 cal BC. However, the context of the dated material – charcoal found on the chamber floor – cannot be securely connected with the building of the megalithic tomb. Things are different in the case of burial monument LA 22: here a dated charcoal sample from the secure context of a posthole of a timber construction framing the initial non-megalithic long barrow indicated that it also was originally built in 4000–3900 cal BC. The integration of a dolmen, and, the transformation in this way of the non-megalithic long barrow to a megalithic structure, could be radiometrically dated to approximately 3650 cal BC. Together, these dates indicate a long history of use of the site. It might still be argued that both samples come from earlier activities prior the construction of the monuments. Although we think that this scenario is unlikely given the two early dates, and the direct association of the sample with construction activities in case of LA 22, it would still mean that the site was in use at the beginning of the 4th millennium BC. Such an early time frame for the building of the burial monuments could not be deduced from a typological or chronological perspective, or an analysis of the ceramic material. The previous sequence of construction and use of the burial area (Hage 2012) has had therefore to be revised. According to current research, the earliest use of the burial site of Borgstedt must be placed around 4000–3900 cal BC.

Together with the long history of use at the site, the diversity of the architectural spectrum is remarkable, and highlights the importance of Borgstedt as an example that shows the range of forms of monumental architecture realized by one local community. With this in mind, it seems unlikely that the specific (diverse) architectural quality of the structures at Büdelsdorf and Borgstedt played an important function in expressing or producing a coherent identity. On that level it was not the dolmen, passage tomb, long, or round mound that had meaning for the collective – it was the fact that these monumental tombs existed as such. Which funeral architectural form was realised was probably a result of local intentions, whose drivers or triggers are hard to reconstruct. In Schleswig-Holstein, the typological differences can hardly be specifically associated with particular local identities. Nevertheless, it appears that areas of tradition existed in which communication networks were responsible for the distribution of isochrestic variations. Yet if we compare the situation with Mecklenburg-Vorpommern, and adopt a supra-regional perspective, that is far less obviously the case.

Structuring landscapes through monumental burial architecture

The Büdelsdorf example illustrates the representation of the megalithic phenomenon at the level of single monuments and tomb groups within a locally limited area. This concept of the monumentalisation of burial architecture, however, and the establishment of specific architectural traditions – including rituals, collective activities and processes – is also visible on a wider scale beyond the individual megalithic tomb or burial site. Distinctive patterns in the spatial distribution of tombs throughout northern Germany are evident (Fritsch *et al.* 2010; Rassmann and Schafferer 2012, 116–119). Comprehensive research on megalithic tombs and their architecture has resulted in a multitude of typologies that were meant not only to order them, but to describe them in time and space (fundamental for several regions of northern Germany: Aner 1963; 1968; Beier 1991; Hoika 1990; Laux 1991; Schuldt 1972; Sprockhoff 1938). These schemes have their limitations, however as pointed out in a summarising critique by Pingel (1999). Most of the classification systems were established from relatively small areas of investigation, and are not adequate to comprehend the whole scope of the Funnel Beaker Complex. Secondly, the definition of tomb types, which was based on varying preferences for features considered significant and diagnostic and represented by exemplary monuments, tends to mask a number of patterns of architectural rules and concepts. Together, these shortcomings led to non-comparable and non-connectable regional and sub-regional studies (for two of the rare exceptions see Fischer 1956; 1979). This was illustrated in a study of the German Baltic coast (Rassmann and Schafferer 2012, 113–114, figs 4 and 5). Within the borders of the states of Mecklenburg-Vorpommern and Schleswig-Holstein, Schuldt (1972) and Roß (1992), respectively, analysed the spatial patterns of megalithic tombs. Both referred to the earlier typology of Sprockhoff (1938). Their slight but decisive alterations resulted in two different distribution patterns divided by the political border between their respective study areas. Schuldt, from his classification, identified several distinctive groups of specific architectural traditions (Schuldt 1972, 97–105). Roß's classification led to no such result (Roß 1992, 149–174). It even partially disagreed with the earlier results of Aner (1963; 1968), who was able to identify spatial groupings according to different architectural features. Newer analyses of the data show that the Baltic coastal region, including the Danish islands and parts of the Jutland peninsula, should be seen as a coherent area of communication, sharing both common basic concepts of burial architecture and the use of distinctive constructional features (Schafferer in preparation).

To overcome the limitations of the previous classification systems, a new formalised system called MegaForm has been established (Furholt *et al.* 2010). It implements standardised recording of the individual features of tombs on a fundamental level, and is trans-regionally applicable. As pointed out, traditional typological systems hinder the analytical comparability of features between different research areas. The previous classifications operate with ideally formulated types (often referring to an exemplary monument) mainly based on the layouts of the tomb chambers. Further architectural features (e.g. the design of the mound, the details of a potential kerb or passage, the dimensions, or the materials used) are fitted hierarchically into this system. Considering the wide variety of architecture in megalithic tombs, these systems tend to mask other spatial patterns. MegaForm, however, provides an opportunity to step away from the regionally applied and fundamentally descriptive typologies, and turn to a feature-based approach. Through establishing a database of all individual features of a monument, it enables analytical progress since multivariate statistics can then be used to reveal the prevalent and significant combinations and correlations of the features. Detailed data on up to 500 megalithic tombs within Germany is being collected (from a total of *c.* 6000 known monuments: cf. Fritsch *et al.* 2010).

To test and evaluate the possibilities of a feature-based analysis, and to compare two areas with different research traditions, megalithic tombs within the two above-mentioned states of Mecklenburg-Vorpommern and Schleswig-Holstein were recorded as a pilot study. Published results of detailed excavations of more than 200 tombs (from a total of *c.* 2000) delivered a primary database (Roß 1992; Schuldt 1972). Mapping the overall and the regional distribution of the tombs showed distinctive spatial patterns. The distribution pattern was not even, but showed regional and local clusters separated by intervening areas without any megalithic architecture.

It must be borne in mind that this picture covers the entire time span of the construction of megalithic tombs – at least *c.* 500 years. In comparison to almost any other kind of archaeological monument in Europe, megalithic tombs are the most conspicuous remains of early societies. It was impossible for the following generations and epochs not to perceive them in their environment. Therefore, whilst the chronology behind the distribution of the tombs must not be underestimated, it also can never be viewed as its main

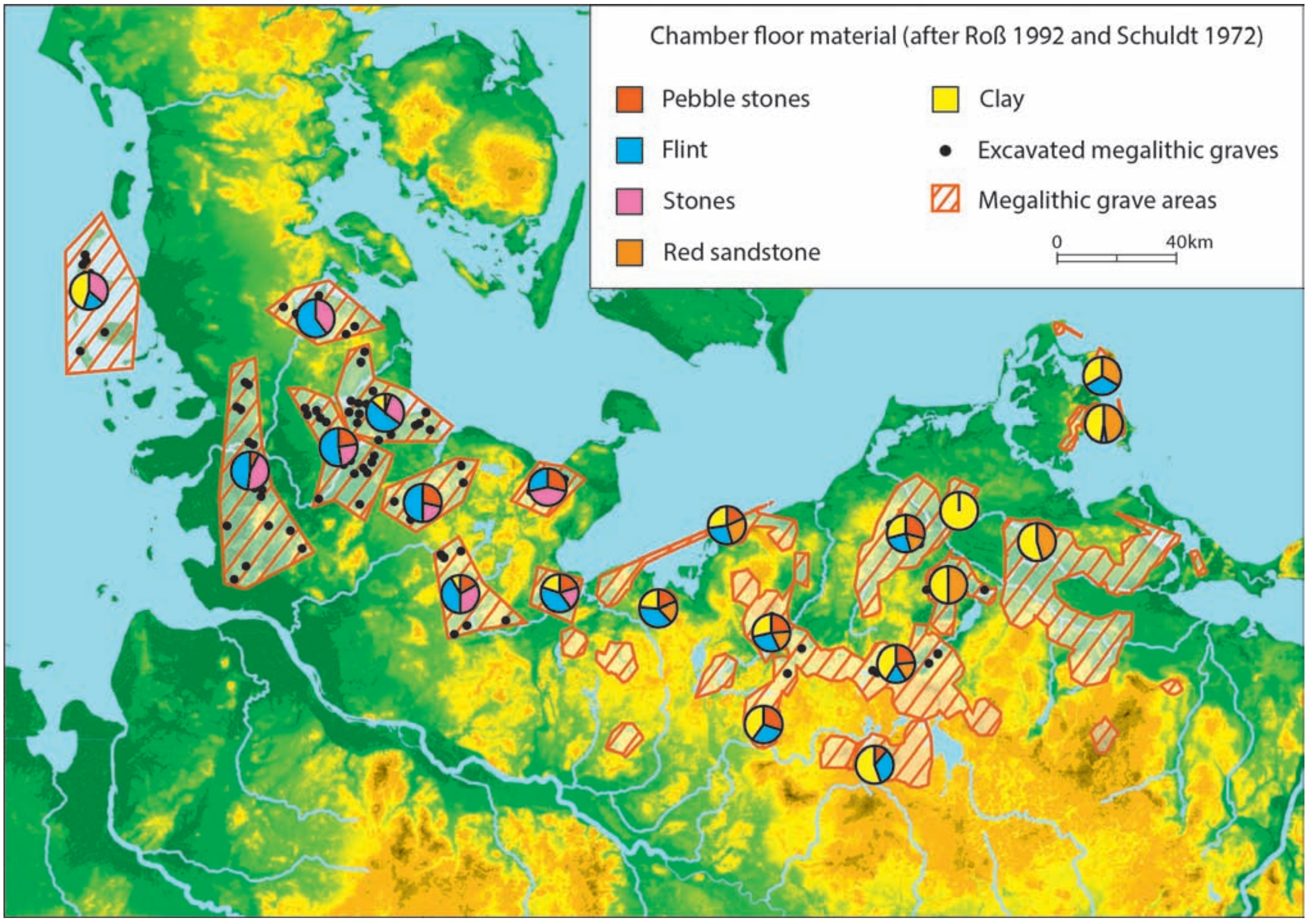


Fig. 14.3: Materials used for the chamber floors of megalithic tombs in Mecklenburg-Vorpommern and Schleswig-Holstein. The pie charts show the presence of the different materials and combinations of materials for each tomb area. The tomb areas in Mecklenburg-Vorpommern are based on the largest empty circle algorithm. The tomb areas in Schleswig-Holstein are based on their spatial clustering

structuring factor. Visibility, amongst other factors, may have also been significant.

As chronology is very unlikely to be the core reason for the distribution patterns of the tombs, an alternative explanation may be sought in the occurrence and use of glacial erratics as the principal building material. Comparison with the mapping of the terminal moraines and with the occurrence of large erratic boulders in northeast Germany shows that the location of megalithic tombs mainly reflects those spatial patterns (Rassmann and Schafferer 2012, 116–117). Tombs are grouped more densely where the required stone slabs were naturally and easily available. However, this picture is not ubiquitous. Megalithic tombs also regularly occur in areas where building material does not seem to be available. Thus, the ready accessibility of the required materials merely seemed to define the location of a megalithic tomb at a general level – the whole phenomenon within the Funnel Beaker Complex is tied to the erratics of the glacial cover of north-central Europe. When we add in the classification of natural landscapes as another spatial factor, it is evident that border zones (often represented by rivers and ridges) were preferentially chosen as sites for megalithic tombs (Schafferer 2014).

In a further step, we must consider to what extent the modern destruction of megalithic tombs led to the current distribution (for estimations of loss rates see Fansa 2000, 24; Fritsch and Mittag 2006, 16–19; Hoika 1990, 55, Tab. 1; Richter 2002, 153, 178; Rassmann and Schafferer 2012, 110; Schiesberg 2012, 125). In particular, the construction of roads and the intensification of mechanised farming during the 19th century were responsible for a severe decrease in the number of surviving megalithic tombs. Cartographic records of the 18th and early 19th century suggest additional megalithic tombs in several regions and districts of northern Germany. For north-eastern Germany, the possible re-use of megalithic materials can be traced through stone structures (e.g. churches, barns, or wells). Their spatial distribution coincides with that of the megalithic tombs. Firstly, this gives us a rough estimate of the ratio of preserved tombs to those that originally existed. Secondly, it shows that their reduction happened not selectively, but systematically. Synthesis of the different estimations of loss rates indicates that approximately only a ninth of the megalithic tombs have been preserved today: their current distribution, however, still reflects the prehistoric spatial distribution (Rassmann and Schafferer 2012, 110).

Natural landscapes and the availability of erratics defined the spatial distribution. However, within this outline, perceptions of the environment led to intentional decisions as to where to build the megalithic tombs, and how to structure the landscape through them. Furthermore, formal divisions of the landscape can be observed. Comparing potential dwelling areas (based on fragments of flint adzes) and the areas of megalithic tombs in Mecklenburg-Vorpommern illustrates an almost regular mutual exclusion of both (Rassmann and Schafferer 2012, 109, fig. 1). A similar observation has been made for eastern Holstein (Mennenga 2011, 57; in prep.). Although the clarity of this picture is regionally attenuated, it nonetheless reflects a general concept of structuring landscapes through the monumentalisation of burial customs and burial architecture, leading to a dichotomous perception by the prehistoric communities that divided their environment into areas of tombs and areas of settlements.

It is not only the division of the landscape into different areas that needs closer examination in the future, but also the internal structure and genesis of the burial landscapes. Within the megalithic phenomenon, different templates of monumentalisation and different megalithic traditions existed. These are reflected in the various biographies of the tombs at different spatial scales, incorporated in the architectural features. They range from single megalithic tombs, to local tomb groups, to whole tomb regions. Sites and regions such as Büdelsdorf (see above), Flintbek (Mischka 2011), Lüdelsen (Demnick *et al.* 2008), Friedrichsruhe (unpub.), Bohuslän, Falbygden, and Scania (Blomquist 1989; Sjögren 2003; 2011a; 2011b; Andersson 2004) or Sarup (Andersen 2011), illustrate the differences and common features of these templates and traditions within the Funnel Beaker Complex as a whole.

A feature analysis of the architectural traits of the monuments may help to understand these templates better. In previous research, monothetically (sensu Clarke 1978, 35–36) defined tomb types served as evidence for trans-regional traditions of megalithic tomb architecture. Concrete spatial patterns are however visible even at the level of previously overlooked individual features, such as chamber floor designs and the materials used for them, In the eastern part of the German Baltic region, a combination of clay and red sandstone was used, while in the western part stones (especially pebbles) and flint are observed (Fig. 14.3). Between the two regions, these patterns were mixed and more diverse. Furthermore, at a sub-regional level, combinations of materials with greater levels of differentiation existed. In particular, the varied use of flint is very interesting. Although it was easily available everywhere (as were the other materials, compare e.g. Kaufhold *et al.* 2011), it was used predominately in Holstein, southern Schleswig, and Mecklenburg (Rassmann and Schafferer 2012, 117–118). This observation contrasts with the customary more approximate spatial patterns derived from the classification of dolmens, passage tombs, and long barrows, as well as their respective (and regionally specific) subdivisions. Applying statistical correspondence analysis, the results also show that, in the case of Mecklenburg-Vorpommern (Fig. 14.4), the architectural traditions are spatially divergent. Apart from the chamber floor design, a distinction between chambers with a porch (island of Rügen) or an anteroom (Vorpommern) was also observed. In Schleswig-Holstein (Fig. 14.5), regional patterns based on individual features or their combinations are not obvious. Specific traditions in mound shapes and chamber flooring nevertheless existed, but spatial factors do not explain them. An interesting consideration is that the patterns do not coincide, but rather suggest a polythetic perception of megalithic tomb architecture. This range of variation at the macro-scale can perhaps be seen also at the micro-scale: the case of Büdelsdorf shows the simultaneous occurrence of different architectural concepts at a single site, as well as their change through time. Alternatively, there is the contrast of a long-lasting and distinct architectural tradition, such as the almost exclusive erection of the so-called great dolmens on the island of Rügen and the adjacent mainland (Behrens and Reichler 2012, 193–194). Previous excavations on the island of Rügen had not suggested any significant difference in architectural traditions.

The second point indicates that environmental conditions (i.e. ecological, economic, social conditions) may have

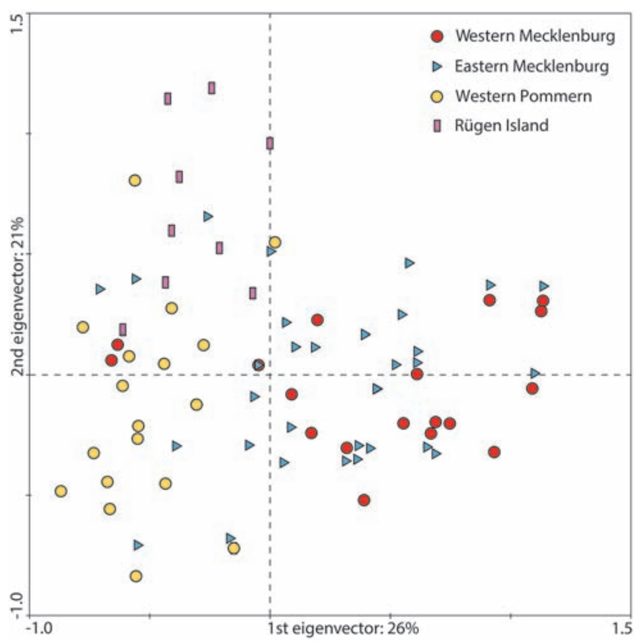


Fig. 14.4: Correspondence analysis of individual features of 106 megalithic tombs in Mecklenburg-Vorpommern

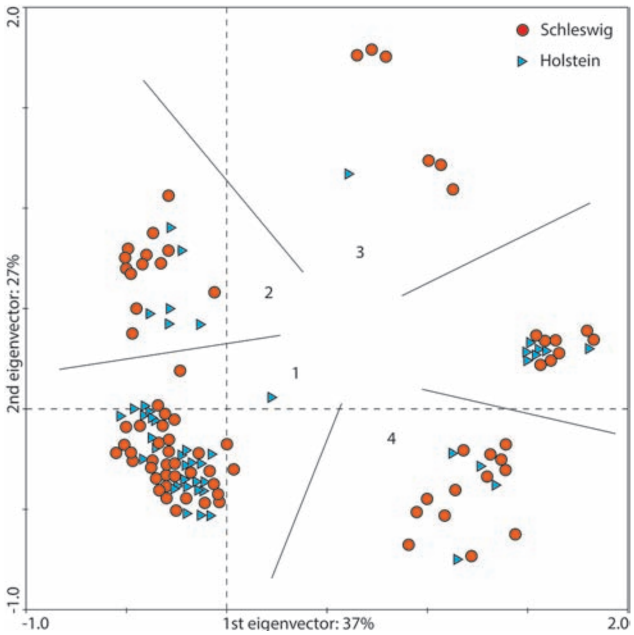


Fig. 14.5: Correspondence analysis of individual features of 126 megalithic tombs in Schleswig-Holstein

structured the spatial patterns, but it was the impact of definitively conscious decisions that led to the existing picture. Specific concepts existed concerning where to build the structures, what materials to use, and how to design and alter the monuments. The recurring architectural concepts and templates embody underlying systems of social organisation, areas of tradition, and structures of communication. We can assume that while the general idea and template was consistent throughout at least the south Baltic area, the actual realisation of that template differed, and also the perceived meaning of those differences. That would imply that while the basic conditions and general motivations and attitudes were probably the same, the subjective norms of the communities differed regionally.

When interpreting this pattern, if we understand such norms as expressions of different cultural practices, we must conclude that within what we normally conceive as the "Northern Group of the Funnel Beaker Culture" we can in fact identify multiple different societies. It has already been noted that the traditions concerning shapes and decorations of vessels during the megalithic period of Mecklenburg-Vorpommern display clear differences from those of the Jutland peninsula, including Schleswig-Holstein, and show stronger connections with the Danish islands (Furholt 2012).

Finally, through the megalithic tombs a spatial division of community environments into a sphere of the living and a sphere of the dead was realised. While the former was the space where change took place, the latter represented an area of stability that was even more pronounced by the fact that this spatial division was present.

Conclusion

In the light of these results, it becomes evident that a distinction between the general idea and the actual practice is a helpful tool for the interpretation of the megalithic burials. The result is a more differentiated understanding of the intentions of the builders. The motivation for the construction of a certain kind of burial (visible, monumental, collective) was probably common throughout northern Germany, perhaps throughout the whole sphere of Neolithic megalithic architecture in Europe. The actual implementation of this idea can vary significantly, and was probably related more to the actual conditions under which the construction took place, and under which the creators of those monuments lived.

At the local scale of Büdelsdorf/Borgstedt, including the enclosure, it is possible to reconstruct a whole ritual landscape, showing the relationship between the spheres of the living and the spheres of the dead in a fine-grained and diachronic picture. The obvious association of the burials with the enclosure provides even more evidence for the specific character of both types of archaeological feature, at least at this site. We would argue that the fact that we see very different architectural forms, and therefore very different intentions, at one site, is highly relevant. The same is true elsewhere, for example at Flintbek (Mischka in prep.). The variety of forms observed at particular sites seems to indicate that it was not the specific architectural layout and method of construction that was important for the role of the structures in society (or their meaning for individuals), but the fact that the constructions were collective investments of effort, resulting in collective monuments.

Such granularity can probably not be reached via a supra-regional investigation. That scale of analysis is probably better suited to investigate the causes behind specific forms of architecture. These incorporated both regularities and deviations, and conditioning factors, such as the proximity of similar structures (indicating communication networks and traditions), the proximity of different structures (linking the world of the living and world of the dead), and also the accessibility of building materials (amount of labour invested). In general, a number of regional regularities seem to exist, but by way of less conspicuous details (such as the flooring material), or small variations in architectural form. These attributes are best associated with spatial patterns, or perhaps areas of tradition: we are here dealing more with isochrestic variations than with intentionally produced signs of different identities. In specific areas, such as Mecklenburg-Vorpommern, the choice of architectural features is so stable and consistent that it has to be associated with intentional decisions. These mark exclusive identities in the sense that the societies in question consciously distinguished themselves from others. There are strong differences with areas such as Schleswig-Holstein, where there is a considerable variation in the choice of forms. We can therefore deduce that, in

Mecklenburg-Vorpommern, we are dealing with distinct and differently organised social groups inside the Funnel Beaker North Group. Beyond this, the size of the burial monumentals expresses a link to the past is relevant for the whole region. This is visible in both their nature as tombs and in the bodily presence of the ancestors. In addition, at a different level, there is a general pattern of spatial distinction that implies that the world of the dead was separated from, but still connected to, the world of the living.

Acknowledgements
We would like to thank Johannes Müller and Martin Furholt for helpful comments and critiques, as well as Eileen Kücükkaraca for the English proof reading. All remaining errors and omissions are of course ours.

References

Ajzen, I. 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50(2), pp. 179–211.
Andersson, M. 2004. *Making Place in the Landscape. Early and Middle Neolithic Societies in Two West Scanian Valleys*. Archaeological Excavations Department, National Heritage Board, UV Syd: Lund.
Aner, E. 1963. Die Stellung der Dolmen Schleswig-Holsteins in der nordischen Megalithkultur. *Offa* 20, pp. 9–38.
Aner, E. 1968. Die Groß-Steingräber Schleswig-Holsteins. In: Römisch-Germanisches Zentralmuseum, Mainz, in Verbindung mit d. Nordwestdt. u.d. West- u. Süddt. Verb. für Altertumsforschung (ed.), *Schleswig, Haithabu, Sylt*. Führer zu vor- und frühgeschichtlichen Denkmälern 9: Mainz, pp. 46–69.
Andersen, N. H. 2011. Causewayed enclosures and megalithic monuments as media for shaping Neolithic identities. In: Furholt, M. Lüth, F. and Müller, J. (eds). *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic.* Frühe Monumentalität und soziale Differenzierung 1. Habelt: Bonn, pp. 143–154.
Behrens, A. and Reichler, S. 2012. Neue Grabungsergebnisse zur Baugeschichte trichterbecherzeitlicher Großsteingräber auf Rügen. In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 193–209.
Beier, H.-J. 1991. *Die megalithischen, submegalithischen und pseudomegalithischen Bauten sowie die Menhire zwischen Ostsee und Thüringer Wald.* Beiträge zur Ur- und Frühgeschichte Mitteleuropas 1. Beier & Beran: Wilkau-Haßlau.
Blomquist, L. 1989. *Megalitgravarna i Sverige. Typ, tid, rum och social miljö*. Theses and Papers in Archaeology 1. Stockholm, University: Stockholm.
Clarke, D. L. 1978. *Analytical Archaeology* (2nd edn, edited by R.Chapman). Columbia University Press: New York.
Demnick, D., Diers, S., Bork, H.-R., Fritsch, B. and Müller, J. 2008. *Der Großdolmen Lüdelsen 3 in der westlichen Altmark (Sachsen-Anhalt) – Baugeschichte, Rituale und Landschaftsrekonstruktion*. www.jungsteinsite.de.
Fansa, M. 2000. *Großsteingräber zwischen Weser und Ems.* Archäologische Mitteilungen aus Nordwestdeutschland Beiheft 33. Isensee: Oldenburg.
Fischer, U. 1956. *Die Gräber der Steinzeit im Saalegebiet: Studien über neolithische und frühbronzezeitliche Grab- und Bestattungsformen in Sachsen-Thüringen*. Vorgeschichtliche Forschungen 15. de Gruyter: Berlin.
Fischer, U. 1979. Europäische Verbindungen der niedersächsischen Großsteingräber. In: Schirnig, H. (ed.) *Großsteingräber in Niedersachsen*. Lax: Hildesheim, pp. 43–58.
Fritsch, B. and Mittag, L. 2006. Forschungs- und Zerstörungsgeschichte. In: Bock, H., Fritsch, B. and Mittag, L. (eds) *Großsteingräber der Altmark.* Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt mit Landesmuseum für Vorgeschichte: Halle[Saale], pp. 13–29.
Fritsch, B., Furholt, M., Hinz. M., Lorenz, L., Nelson, H., Schafferer, G., Schiesberg, S. and Sjögren, K.-G. 2010. Dichtezentren und lokale Gruppierungen – Eine Karte zu den Großsteingräbern Mittel- und Nordeuropas. *www.jungsteinsite.de*, article from 20 October 2010.
Furholt, M., Mischka, D., Rassmann, K. and Schafferer, G. 2010. MegaForm – Ein Formalisierungssystem für die Analyse monumentaler Baustrukturen des Neolithikums im nördlichen Mitteleuropa. *www.jungsteinsite.de* Document12, arcticle from 25 November 2010.
Furholt, M. 2012. Die räumliche Struktur der entwickelten Trichterbecherkeramik: Eine quantitative Analyse stilistischer Ähnlichkeitsmuster. In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 473–484.
Hage, F. 2011. Borgstedt diachron – Ein trichterbecherzeitliches Gräberfeld. *Archäologische Nachrichten aus Schleswig-Holstein* 17, pp. 39–42.
Hage, F. 2012. Das trichterbecherzeitliche Gräberfeld von Borgstedt. In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Habelt: Bonn, pp. 227–246.
Hinz, M. and Müller, J. (eds) 2012. *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn.
Hoika, J. 1990. Megalithic graves in the Funnel Beaker Culture in Schleswig-Holstein. *Przegląd Archaeologiczny* 37, pp. 53–119.
Kaufhold, H., Hable, R., Liebsch-Dörschner, T., Thomsen, C. and Taugs, R. 2011. Verbreitung und Eigenschaften mesozoischer Sandsteine sowie überlagernder Barrieregesteine in Schleswig-Holstein und Hamburg. Basisinformationen zur energiewirtschaftlichen Nutzung des tieferen Untergrundes. *Schriftenreihe der Deutschen Gesellschaft für Geowissenschaften* 74, pp. 38–60.
Laux, F. 1991. Überlegungen zu den Großsteingräbern in Niedersachsen und Westfalen. *Neue Ausgrabungen und Forschungen in Niedersachsen* 19, pp. 21–99.
Mennenga, M. 2011. Sein oder Nichtsein – Archäoprognose in Ostholstein. *Archäologische Nachrichten aus Schleswig-Holstein*, pp. 54–58.
Mischka, D. 2011. Flintbek LA 3, biography of a monument. In: Furholt, M., Lüth, F. and Müller, J. (eds.) *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic.* Frühe Monumentalität und soziale Differenzierung 1. Habelt: Bonn , pp. 67–94.
Rassmann, K. and Schafferer, G. 2012. Demography, social identities, and the architecture of megalithic graves in the south-western Baltic area, In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*.

Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 107–120.

Richter, P. B. 2002. *Das neolithische Erdwerk von Walmstorf, Ldkr. Uelzen. Studien zur Besiedlungsgeschichte der Trichterbecherkultur im südlichen Ilmenautal*. Veröffentlichungen der Urgeschichtlichen Sammlungen des Landesmuseums zu Hannover 49. Isensee: Oldenburg.

Schafferer, G. 2014. Megaliths and landscapes – Grave architecture as spatial manifestations of tradition and social identities in Northern Germany. In: Furholt, M., Hinz, M., Mischka, D., Noble, G. and Olausson, D. (eds) *Landscapes, Histories and Societies in the Northern European Neolithic*. Frühe Monumentalität und soziale Differenzierung 4. Habelt: Bonn, pp. 91–100.

Schiesberg, S. 2012. Bevölkerungsdichten und Populationsgrößen in der Trichterbecherzeit. Eine hermeneutische Diskussion. In: Hinz, M. and Müller, J. (eds)*Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft,Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 121–141.

Schuldt, E. 1972. *Die mecklenburgischen Megalithgräber. Untersuchungen zur ihrer Architektur und Funktion.* Beiträge zur Ur- und Frühgeschichte im Bezirk Rostock 6. Dt. Verl. der Wiss.: Berlin.

Sjögren, K.-G. 2003. *"Mångfalldige uhrminnes grafvar…". Megalitgravar och samhälle i Västsverige*. GOTARC Series B 27. Universitet Institionen för Arkeologi: Göteborg.

Sjögren, K.-G. 2011a. Megaliths, landscapes and identities: the case of Falbygden, Sweden. In: Furholt, M., Lüth, F. and Müller, J. (eds.) *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic.* Frühe Monumentalität und soziale Differenzierung 1. Habelt: Bonn, pp. 155–166.

Sjögren, K.-G. 2011b. Megalithic landscapes in Sweden. In: Hansen, S. and Müller, J. (eds) *Sozialarchäologische Perspektiven: Gesellschaftlicher Wandel 5000–1500 v. Chr. zwischen Atlantik und Kaukasus. Internationale Tagung 15.–18. Oktober 2007 in Kiel. Archäologie in Eurasien 24*. von Zabern: Mainz, pp. 125–138.

Sprockhoff, E. 1938. *Die Nordische Megalithkultur. Handbuch der Urgeschichte Deutschlands 3*. de Gruyter: Berlin.

Sprockhoff, E. 1965/66. *Atlas der Megalithgräber Deutschlands. Teil 1: Schleswig-Holstein*. Habelt: Bonn.

Sprockhoff, E. 1967. *Atlas der Megalithgräber Deutschlands. Teil 2: Mecklenburg, Brandenburg, Pommern.* Habelt: Bonn.

Sprockhoff, E. 1975. *Atlas der Megalithgräber Deutschlands. Teil 3: Niedersachsen, Westfalen.* Habelt: Bonn.

Weber, M. 1904. Die "Objektivität" sozialwissenschaftlicher und sozialpolitischer Erkenntnis. *Archiv für Sozialwissenschaft und Sozialpolitik* 19, pp. 22–87

Section 3

Chronologies and context

15

Between east and west: megaliths in the centre of the Iberian Peninsula

Primitiva Bueno Ramírez, Rosa Barroso Bermejo and Rodrigo de Balbín Behrmann

Abstract

The megalithic burial monuments of the interior of the Iberian Peninsula, together with those of Brittany, are amongst the oldest in Europe. They are exceptional because they are so clearly interwoven with early farming settlements, the latter providing occupational sequences that are topographically and ideologically linked to those of the megalith builders. The use of stonework and clay, the system of building burial mounds in concentric circles, and even the spatulae idols of the San Martin-El Miradero type are clear antecedents of classical Millaran forms. The megalithic tradition of the Iberian interior is a fundamental component of the Iberian megalithic tradition more generally. It occupied a key geographical position in relation to the rest of Europe, and will yield greater insights as research projects continue.

Keywords: Megaliths, southern Europe, radiocarbon dates, ritual, skeletal remains, Beaker

The Iberian megalithic tradition

Study of the origins and development of megalithic monuments in the Iberian Peninsula initially focused on evolutionary trajectories, just as in the rest of Europe. Arnaud (1978) proposed a connection between coastal fishermen and the evolutionary sequence applied to the megalithic tradition of south-western Iberia by the Leisners (1959), following the Breton model (smaller monuments developing into larger monuments). New data and new theoretical perspectives have led to more rigorous studies of the megalithic monuments of Iberia that now embrace geographical distribution, architectural diversity, chronological estimates and cultural relations. These studies have revealed an unexpected role for the megalithic tradition of central Iberia.

Relations between central Iberia and the Atlantic world persisted over a considerable period, as confirmed by evidence from the Upper Paleolithic; the Neolithic (Bueno *et al.* 2009; 2012a: 521); the Chalcolithic with its famous Bell Beaker pottery (Delibes 1977; Garrido 2000); the Bronze Age and its metal types; and the well-known cultures of the

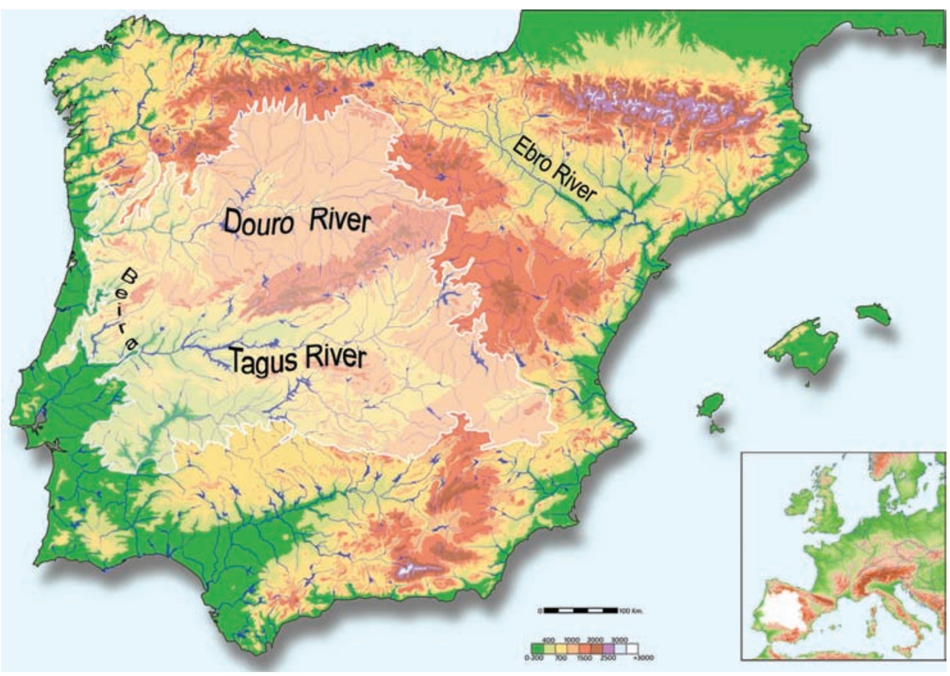


Fig. 15.1: Map showing the study area in the Iberian Peninsula

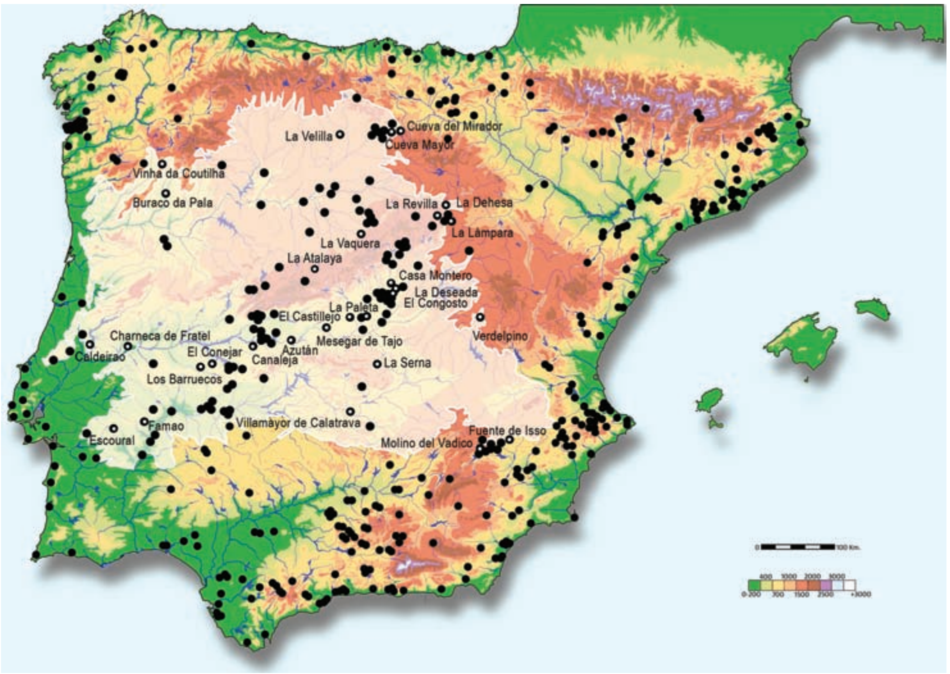


Fig. 15.2: Map showing the location of Early Neolithic sites in the Iberian Peninsula, and the principal sites in Central Iberia mentioned in the text

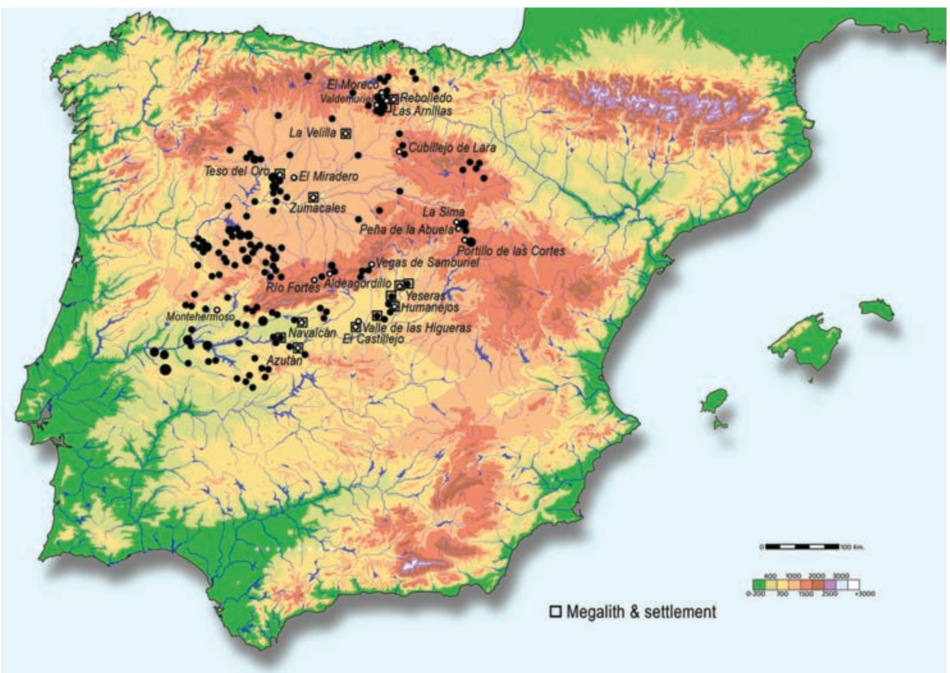


Fig. 15.3: Distribution of megalithic monuments in Central Iberia, showing location of principal monuments and monuments with associated settlement evidence mentioned in the text

Iron Age (Harbison 1971). In the context of this paper the most significant development in the region during this long period was the creation of dolmens. Here we will discuss the monuments located near the rivers Douro and Tagus as evidence of an architectural tradition that connected the interior of the peninsula with Portuguese Beira and the lower reaches of the Ebro river (Fig. 15.1). It is the two extremities of the megalithic sequence that are of greatest interest: the beginning of the sequence, and the relationship between the first farmers and megalith builders (Fig. 15.2) and at the end of the megalithic sequence, the relationship between megalith builders and Bell Beaker material. Recent developments in archaeological research mean that, for both of these discussions, reference to megalithic monuments in central Iberia is essential.

Megaliths in the major valley systems of the Iberian Peninsula

The Douro and Tagus river regions contain more than 400 megalithic structures, all built with large stones, as well as burial mounds that lack large stone structures within them.

Fig. 15.4: Passage tombs of the centre of the Iberian Peninsula: (above) Prado de las Cruces (Ávila) (left) and La Cotorrita (Burgos) (right); below: La Cabaña (Burgos)

This variety in funerary structures reflects a polymorphism that is rooted in the 5th millennium cal BC (Bueno *et al.* 2005a; 2006; 2012). Megalithic monuments are found equally distributed throughout the Meseta, the Ebro River area and in Spanish Extremadura and Andalucía (Bueno 2000) (Fig. 15.3). They were constructed using orthostats placed edge-to-edge (as opposed to the overlapping orthostats seen in the western Peninsula) (Fig. 15.4). The chambers tend to be circular (3–5m in diameter) and consist of more than nine orthostats, and occasionally as many as 14. They were roofed by a single flat slab or by several medium-sized stones (a technique also used in some of the older megalithic monuments of Atlantic Europe), or by corbelled vaults. The chambers were accessed by passages oriented towards the east. Some chambers have separately defined internal areas, for example the stone cists occupying the southern side of the chamber of the Azután dolmen in Toledo, in the Areita dolmen in Portugal, or in the Sima II chamber in Soria (Gomes *et al.* 1998; Rojo *et al.* 2005). The stone cist in the southern side of the chamber at Peña de la Abuela might be the remains of an earlier monument, like those recently discovered in Catalonia and Andalucía (Molist and Clop 2010; Vijande 2009). The repetition of chamber and mound dimensions confirms the existence of constructional modules, and also indicates the presence of specialists with knowledge of monument construction (Bueno 1991, 105). Burial mounds or *tumuli* are formed by three concentric rings of large rocks, between which a filling of smaller stones is deposited. Passages and forecourts provide access through the mound to the chamber and in some cases were blocked once the monument was no longer in use.

The majority of those monuments without chambers constructed of megalithic blocks are found in the Meseta, although there are outliers elsewhere (Alday *et al.* 2008; Sanches 1987). The burial mounds in these cases show a variety of structural features. Some, such as the monument of Rebolledo in Valladolid, lack any clearly defined internal burial space (Delibes and Rojo 1997). There is no evidence

Fig. 15.5: Valle de las Higueras (Toledo): grave goods and reconstruction of cave 3 (from Bueno et al*. 2012)*

for the shape or size of the chamber, although the possibility of wooden or mud-brick walls cannot be excluded. Other monuments include circular spaces within which several bodies might be placed. These chambers are demarcated by low stone footings, clay walls, lines of small stones and mud, or small limestone structures, such as those at Los Zumacales in Valladolid, El Castillejo in Toledo or Peña de la Abuela in Soria (Delibes *et al.* 1987; Bueno *et al.* 1999; Rojo *et al.* 2005). Short passages have also been found at Los Zumacales and Castillejo.

The role of small and medium-size dry-stone and mud construction is important. One interpretation is that this kind of architecture was intended to be burned (Rojo *et al.* 2005). That would explain the use of limestone seen, for example, in Peña de la Abuela. Evidence of fire is undeniable, but it cannot be assumed that structures were always built with the intention of being burned (Delibes and Etxeberría 2002).

Chambers of dry stone construction later became more common. They are particularly numerous in the Meseta, e.g. the Tumulus de Valle de las Higueras (TVH), and in Extremadura and the whole Iberian south and west. They occur both with passages, as at La Sima, or without, as at TVH. During the same period, cemeteries throughout the Meseta, and in the south and west of the Peninsula, included small monuments with typologies emulating those of the classic dolmens, having chambers both with and without passages as well as gallery graves. "Parasite" cists are occasionally found in these cemeteries, revealing the complexity of collective and individual burial practices seen in the advanced stages of the megalithic tradition (Bueno *et al.* 2004).

The monument group that has been most intensively studied, particularly in recent years, are the underground structures (artificial caves and hypogea) known in the western area and specifically in the Lisbon peninsula (Soares 2003). The hypogea are dug into the limestone and gypsum common to central Iberia and are occasionally completed with dry stonework and mud, defining chambers, niches, passages and forecourts. Skeletal remains of men, women, and children have been found in these collective tombs, sometimes associated with Bell Beaker material, and with gold, ivory, amber, variscite, and metal offerings. Primary and secondary burials reveal the complex organization of human remains within the structures. In the Valle de las Higueras, evidence has been found for the exposure of bones and their selective removal, alongside complete articulated burials (Bueno *et al.* 2012b). Currently, few cemeteries are known, typified by sites such as Camino de las Yeseras and Salmedina (Ríos 2011; Berzosa and Flores 2005). The number of examples is likely to increase, however, when the hills surrounding the centres of settlement in the plains are surveyed.

The cemeteries described here are characterized by collective burials, but belong to the point in time when individual burials with Bell Beaker deposits are believed to have started. The number of individuals in these collective burials remains significant: up to 30 were found in Cave 3 of Valle de las Higueras. Burial ritual highlighting the power of the ancestors appears to have persisted over many years following a prescribed pattern, thus forming part of a legitimation strategy with clear ideological links to the past.

Despite changes over time, traditional architecture played a funerary role for considerable period (Bueno 2000, 69; Bueno *et al.* 2010, 179). The Meseta offers continuous sequences of older and more recent megaliths forming complexes that are associated chronologically with Neolithic settlements. This supports the idea of permanence of settlement in some farming areas. At Sima, in Soria, a corbel vaulted burial (Sima II) was constructed on top of a mound of Neolithic age (Sima I), similar to those described above (Rojo *et al.* 2005). Above these again was an orthostatic circular structure with Bell Beaker material (Sima III). Its position and content are very similar to those of the *microtholos* located at the southeastern edge of the Castillejo mound in Toledo, a small chamber where Bell Beaker material was also found (Bueno *et al.* 1999).

Burial assemblages (Fig. 15.5) appear identical regardless of whether or not the tombs incorporate megalithic structures. They consist of microliths, flint blades, pottery, polished ware, ornaments, and occasionally San Martin-El Miradero type spatulae (Bueno *et al.* 2006). The remains of large numbers of men, women and children are found interred within the monuments. However, some chambers hold concentrations of young individuals, as is the case at Castillejo and at Las Arnillas (Garcia 1992). The prominence of children in these contexts is reminiscent of European Neolithic cemeteries (Jeunesse 1997). In some cases there are special grave goods or specific spaces for the burial of children. Long before the appearance of Bell Beaker pottery, differentiation between buried individuals was present in both types of tomb. The human bone spatula found at Los Zumacales at Valladolid and the human bone dagger from the Las Arnillas dolmen at Burgos (Delibes and de Paz 2000; Mujika 2008, 561) suggest a symbolic relationship with Paleolithic ancestral references.

Some grave goods, such as ornaments made of exotic raw materials, demonstrate exchange networks. In many cases, however, these objects are absent from contexts with Beaker pottery (Bueno *et al.* 2005b, 84). The ceramic vessels held food and drink. The contents of plain and Bell Beaker pottery at the Valle de las Higueras cemetery in Toledo include ears of wheat, meat, fish stew, mead, and beer. This shows a wider variety of contents than the alcoholic drink previously linked to Bell Beakers (Rojo *et al.* 2008). A complicated ritual of commensality formed part of the activities associated with these funerary deposits: it most likely had its roots in the older monuments of the region (Bueno *et al.* 2012c, 346).

Marks in the land

A diverse system of graphical expression including paintings, engravings, and sculptures is present amongst the Meseta megaliths. They must be related in this respect to the megaliths of Beira, which contains one of the largest concentrations of decorated monuments in the Iberian Peninsula. The decoration, some of which is applied to the stones that form the chamber walls, creates imagery that was sometimes modified and maintained for generations, perhaps in an attempt to capture the spirit of more ancient deposits. The incorporation of older stelae and menhirs further embody an image of the past that the megalithic structures project.

Fig. 15.6: Reused menhirs from the dolmen of Navalcán, Toledo (from Bueno et al. *2007)*

Perhaps the most conspicuous elements in these funerary displays were the menhirs (Fig. 15.6). Whether moved from previous positions, as at the Navalcán dolmen in Toledo province, erected above dolmens, as in Peña de la Abuela or las Vegas de Samburiel, connected with complex structures such as the Menhir de Alcubilla in Soria, or associated with routeways like those in Palencia, they represent another distinct element of the megalithic tradition of the Iberian interior, reiterating patterns of the western megalithic tradition (Bueno *et al.* 2007, 627; Rojo *et al.* 2005; Jiménez 2008; Moreno and Delibes 2007). They are not just Iberian, they are Atlantic.

A note on chronology

The number of available C14 dates in central Iberia has recently increased in consequence of ongoing research. Yet compared to the number of dates available in other areas of European megaliths (Furholt and Müller 2011) they remain few. Charcoal samples were preferred to other materials in the dating programmes of the 1980s and 1990s (Cruz 1995; Cassen *et al.* 1993; Delibes 1984), but bone samples are more valuable when analysing the use-sequences of megalithic tombs, as it is often possible to obtain a contextually meaningful sample. Their results can also be usefully compared with those of charcoal samples. In fact, the dates from charcoal and bone from megaliths in central Iberia are reasonably consistent (Bueno *et al.* 2005a). Initial conclusions regarding the contemporaneity and polymorphism of the earliest monuments have been widely confirmed (Bueno *et*

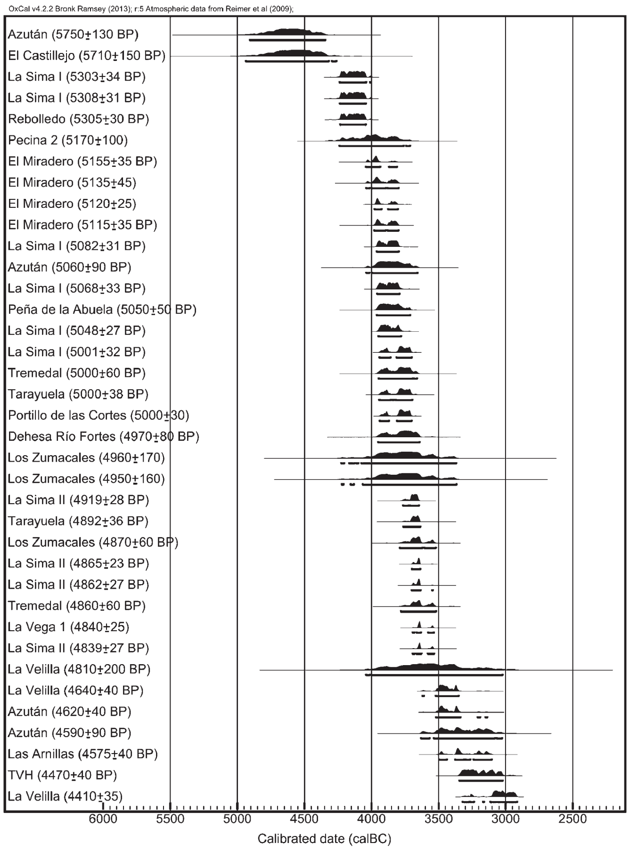


Fig. 15.7: Calibrated radiocarbon dates for megalithic tombs in Central Iberia (5th and 4th millennia cal BC)

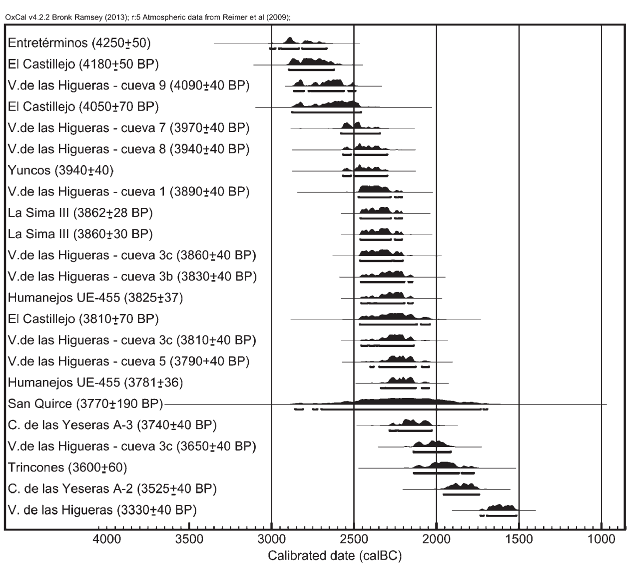


Fig. 15.8: Calibrated radiocarbon dates for megalithic tombs in Central Iberia (3rd millennium cal BC)

al. 2006; Delibes 2010) (Fig. 15.7). The large number of C14 sequences obtained from dolmens and from burial mounds without megalithic structures date the earliest of them to the second half of the 5th millennium BC, with a significant concentration at the beginning of the 4th millennium cal BC. This confirms the hypothesis of a "high" chronology, establishing that these funerary traditions flourished during the first centuries of the 4th millennium cal BC. Azután in Toledo province offers a good example. The excavation below the burial mound provided a C14 date of 5250±40 BP (4230–3973 cal BC at 95.4% confidence: OxCal 4.2). The construction of the monument must fall between that date and 5060±90 BP (4039–3657 cal BC), the date obtained from human skeletal material in the chamber. The date for a burial from Portillo de las Cortes (Beta 334952: 5000±30 BP: 3939–3702 cal BC) also suggests a far earlier origin than has sometimes been supposed for human deposits in the dolmens of central Iberia.

There are two even earlier dates from Azután and El Castillejo (see Fig. 15.7). This phenomenon of outlying early dates is not restricted to dolmens: some of the burials from the natural caves in western Iberia also yield older dates. The hypothesis that human remains from older structures were incorporated alongside new burial deposits is linked to another practice that re-used older objects: the menhir. Some of the latter date to the beginning of the 5th or even the 6th millennium cal BC. Their re-use in later burial contexts, either whole or fragmented, may perhaps link to the practice of recovering and reburying human remains, whether whole or fragmented (Jones 2005). This movement of bones, stones, and ancestors seems to end when they are deposited in burials dating from the second half of the 5th millennium cal BC onward, although the association between stones and ancestors continues beyond the end of the first phase of European megalithic tradition (Bueno *et al.* 2007).

The use and construction of dolmens and burial mounds continued in the third millennium cal BC (Fig. 15.8). Moreover, increased construction of hypogea is evident, particularly from the second half of the millennium onward. To place these sequences in context, two factors must be taken into account: first their contemporaneity with the development of Ciempozuelos-type Bell Beaker pottery, and second, their contemporaneity with the first Argaric funerary manifestations.

Although the evidence is still not confirmed, there are several indications that these dolmens and burial mound remained in use. For example, dating evidence from both the Valle de las Higueras and Camino de las Yeseras cemeteries gives similar chronologies to those documented in the south and west of the Peninsula, as at the Loma de las Puercas cemetery in Cádiz,Alcaide in Malaga, and in southern Portugal (Giles *et al.* 1994; Marques *et al.* 2004; Alves *et al.* 2010). This perspective, showing how a ritual practice with deep and early roots was manifest widely in different ways over a long

Fig. 15.9: Bone spatulae of Saint Martin – El Miradero type: a) El Miradero, Valladolid, (from Delibes et al. 1986); b) La Velilla, Palencia (detail of a female example; from Guerra et al. 2012); d) Portillo de las Cortes, Guadalajara; d) El Castillejo, Toledo

time period, exposes the tension between alternative funerary traditions during the later prehistory of the Iberian Peninsula. The flow of ideas relating to these rituals was caused by the remarkable intensification of exchange networks connecting Africa, the Atlantic and the Mediterranean at the end of the 4th millennium cal BC. This wider aspect needs to be explored more fully in future studies.

Conclusions

The monuments of the interior of the Iberian Peninsula together with those of Brittany are amongst the oldest megalithic tombs in Europe (Furholt and Müller 2011, fig. 2). They are exceptional because they are so clearly interwoven with the settlements of the first farmers, the latter providing occupational sequences that are topographically and ideologically linked to those of the megalithic builders. The style of burial mound that lacks a megalithic chamber is unique amongst other European monuments of similar age. This leads us to believe that the role of the mounds was especially important to the groups who were consolidating collective burial customs and the accompanying rituals. The use of stonework and clay walling, the system of building burial mounds in concentric circles, and even the spatulae idols of the San Martin–El Miradero type (Fig. 15.9), provide clear antecedents for the classical Millaran forms. The monuments of the interior Iberian Peninsula seem to have played a part in defining building methods in the form of construction modules: these spread throughout the southeast and the south-west in the 3rd millennium cal BC. Large stones are key to the first megalithic monuments but other kinds of chambers built with other materials also feature. In fact the polymorphism present in the European megalithic tradition is abundantly evidenced in central Iberia.

Prehistoric topography adds a whole new layer of meaning. Remains of early farming settlements can be found under dolmens; there is evidence that older menhirs were used as the initial components of many dolmens; and skeletal remains of earlier date are found inside later burial chambers. These examples all provide material evidence of reference to the past, confirming the weight of ideological constructs that underlay European megaliths and, of course, the strong continuity between the first farmers and the megalith builders. The spatial association between settlement and funerary sites is constant throughout the entire timespan of the megalithic tradition. It is illustrated by the case of Azután where two enclosures have recently been identified close by, in a research project conducted in collaboration with the University of Tübingen. There are sites beyond the funerary domain very similar to enclosures of the Perdigões type (Valera 2012).

The central position of the Meseta with respect to routes leading towards the north helps to explain some of these relationships. The San Martin–El Miradero spatulae were found in Meseta monuments from the 5th millennium cal BC, confirming the link to the Ebro route. These pieces are similar to spatulae discovered in cemeteries on the Danube (Jeunesse 1997, 87), indicating broader networks.

In addition, materials and the methods of manufacture suggest strong links between the megalith builders of the interior and those of western Iberia. These associations became more important from the second half of the 4th millennium cal BC. Some of the artefacts recovered are made of gold, probably alluvial gold mainly from the inner Tagus area (Barroso *et al.* 2003). Others are copper, especially daggers, awls and Palmela points. The Palmela points are all of very similar size and weight suggesting a common method of manufacture. Moreover, some ornaments have the same shape and were worked in a similar way, perhaps attesting to a single cultural tradition. An example is the golden appliqué from Valdehiguero in La Rioja (Luezas and Rovira 2004), which is identical to others found in Ermegeira .

Andalucía and the Algarve demonstrate a peak of surplus the growth of farming settlements relying on exchange networks to which they contributed materials such as variscite, copper, and gold. The presence of African ivory (Schumacher and Banerjee 2012) in grave assemblages from the second half of the 4th millennium cal BC points to another route whereby materials and ideas could travel. Here again the geographical position of the Meseta must have played an important role, as suggested by ivory ornaments found in the area of Madrid.

According to traditional hypotheses, the focus for the rise of

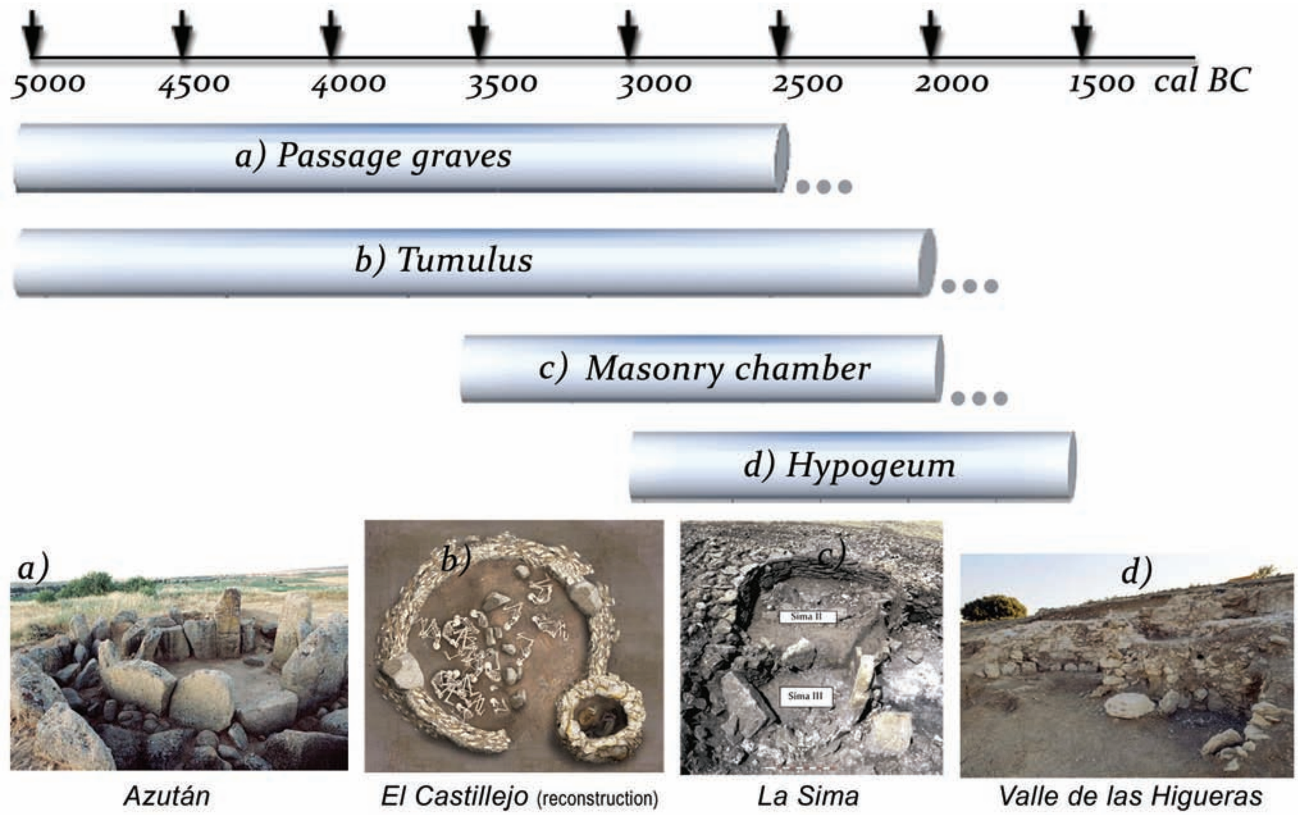


Fig. 15.10: Typology and chronology of collective burials in Central Iberia

the Iberian Chalcolithic lay at Los Millares. Chronologies have since been established, however, that indicate the development of powerful southwestern centres and earlier hypotheses are in need of revision and clarification (Valera 2012). The strong connection between these southwestern centres and the interior makes the role of the Meseta critical to understanding the networks that underlay the funerary systems associated with ancestor rituals in the Iberian Peninsula.

It is not possible to reach definite conclusions regarding the parallel use of the collective burials discussed here, and of individual burial. The latter play a role throughout the Neolithic, and are contemporary with the use of megaliths (Fig. 15.10).

In conclusion, within the complex framework that we have described, the megalithic tradition of the Iberian interior is clearly fundamental to the understanding of the Iberian megalithic tradition more generally. Its central position provides a platform that gives access to the rest of Europe. Further information will no doubt throw more light on these connections as research on the region continues.

References

Alday, A., Gundín, E., López Heredia, J., Soto, A. and Tarriño, A. 2008. El túmulo funerario Neolítico de San Quílez. San Martín Zar-Treviño: un dispositivo y unos ritos originales en el cuarto milenio a.C. *Munibe* 59, pp. 135–156.

Alves, C., Costeira, C., Estrela, S., Porfirio, E., Serra, M., Soares, A.M.M. and Moreno, M. 2010. Hipogeus funerários do Bronze Pleno da Torre Velha 3 (Serpa, Portugal). O Sudeste no Sudoeste?, *Zephyrus* LXVI, pp. 133–153.

Arnaud, J, M. 1978. Megalitismo em Portugal: problemas e perspectivas. *Actas das III Jornadas Arqueológicas* I, pp. 99–112.

Barroso, R., Bueno, P., and de Balbín, R. 2003. Primeras producciones metálicas en la cuenca interior del Tajo: Cáceres y Toledo. *Estudos Pré-históricos* 10, pp. 87–107.

Berzosa, R., and Flores, M. 2005. El conjunto funerario campaniforme del vertedero de La Salmedina (Distrito Villa de Vallecas, Madrid). In: Rojo, M., Garrido, R. and García, I. (eds) *El Campaniforme en la Península Ibérica y su contexto europeo.* Universidad de Valladolid: Valladolid, pp. 481–490.

Bueno, P., de Balbín, R. and Barroso, R. 2000. Valle de las Higueras (Huecas, Toledo, España). Una necrópolis Ciempozuelos con cuevas artificiales al interior de la Península. *Estudos Pré-históricos* VIII, pp. 49–80.

Bueno, P., Barroso, R. and de Balbín, R. 2004. Construcciones megalíticas avanzadas de la cuenca interior del Tajo. El núcleo cacereño. *Spal* 13, pp. 83–112.

Bueno, P., de Balbín, R. and Barroso, R. 2005a. *El dolmen de Azután (Toledo) Áreas de habitación y áreas funerarias en la cuenca interior del Tajo.* Universidad de Alcalá – Diputación de Toledo Monografías 02: Toledo.

Bueno, P., Barroso, R. and de Balbín, R. 2005b. Ritual campaniforme, ritual colectivo: la necrópolis de cuevas artificiales del Valle de las Higueras, Huecas, Toledo. *Trabajos de Prehistoria* 62(2), pp. 67–90.

Bueno, P., Barroso, R. and de Balbín, R. 2006. Les mégalithes du centre de la Péninsule Ibérique: une perspective d'analyse à partir de la Meseta Sud. In: Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et développement du mégalithisme de l' Oueste de l' Europe* I, Actes du colloque international de Bougon, Musée des Tumulus, Octobre 2002: Bougon, pp. 435–450.

Bueno, P., de Balbín, R. and Barroso, R. 2007. Chronologie de'art Mégalithique ibérique: C14 et contextes archéologiques. *L' Anthropologie* 111, pp. 590–654.

Bueno, P., Barroso, R. and de Balbín, R. 2010. Megalitos en la cuenca interior del Tajo. *Munibe* suplemento 32, pp. 152–184.

Bueno, P., Barroso, R. and de Balbín, R. 2012a. Meseta Sur. In Rojo, M., Garrido, R. and García, I. (eds) *El Neolítico en la Península Ibérica y su contexto europeo*. Cátedra: Madrid, pp. 509–542.

Bueno, P., Barroso, R. and de Balbín, R. 2012b. Les grottes artificielles et les Campaniformes à l'intérieur de la péninsule ibérique: la nécropole de Valle de las Higueras. *Sépultures collectives et mobiliers funéraires de la fin du Néolithique en Europe occidentale*. Archives d'Écologie Préhistorique: Toulouse, pp. 359–381.

Bueno, P., Barroso, R. and de Balbín, R. 2012c. Mégalithes, statues, gravures et peintures dans le bassin intérieur du Tage, Espagne. Sépultures collectives et mobiliers funéraires de la fin du Néolithique en Europe occidentale. *Archives d'Écologie Préhistorique*: Toulouse, pp. 333–358.

Bueno, P., de Balbín, R., Barroso, R., López, J. C. and Guenaga, A. 2009. Frontières et art mégalithique. Une perspective depuis le monde pyrenéen. *L'Anthropologie* 113, pp. 882–929.

Bueno, P., Balbín, R. de., Barroso, R., Rojas, J. M., Villa, R. and Félix, R. 1999. Neolítico y Calcolítico en término de Huecas (Toledo). *Trabajos de Prehistoria* 56(2), pp. 141–160.

Bueno Ramírez, P. 1991. *Megalitos en la Meseta Sur: los dólmenes de Azután y La Estrella (Toledo)*. Excavaciones Arqueológicas en España 159. Ministerio de Cultura: Madrid.

Cassen, S., Garnier, B., and Rojo, M. 1993. Un programme informatique pour la représentation graphique des séries de dates C14 corrigées: application aux sépultures monumentales néolithiques de la Péninsule Ibérique. *Congrés nationale des Societés Historiques et Scientifiques* 118, pp. 499–520.

da Cruz, D. 1995. Cronología dos monumentos com "tumulus" do Noroeste peninsular e da Beira Alta. *Estudos Pré-históricos* 3, pp. 81–120.

Delibes, G. 1977. *El Vaso campaniforme en la Meseta Norte Española*. Studia Archeologica 41. Universidad de Valladolid: Valladolid.

Delibes, G. 2010. La investigación de las sepulturas colectivas monumentales del IV milenio A.C. en la Submeseta Norte Española. Horizonte 2007. *Munibe* suplemento 32, pp. 12–56.

Delibes, G. and Etxeberría, F. 2002. Fuego y cal en el sepulcro colectivo de "El Miradero" (Valladolid): ¿accidente, ritual o burocracia de la muerte? *Sobre el significado del fuego en los rituales funerarios del neolítico.* Universidad de Valladolid: Valladolid, pp. 38–58.

Delibes, G. and de Paz, F. 2000. Ídolo-espátula sobre radio humano en el ajuar de un sepulcro megalítico de La Meseta. *Spal* 9, pp. 341–349.

Delibes, G. and Rojo, M. 1997. C14 y secuencia megalítica en la Lora burgalesa: acotaciones a la problemática de las dataciones absolutas referentes a yacimientos dolménicos. In: Rodríguez Casal, A. (ed.) *O Neolítico atlántico e as orixes do megalitismo*. Universidad de Santiago de Compostela: Santiago de Compostela, pp. 391–414.

Delibes, G., Alonso, M. and Rojo, M. 1987. *Los sepulcros colectivos del Duero Medio y las Loras y su conexión con el foco dolménico riojano. El Megalitismo en la Península Ibérica.* Ministerio de Cultura: Madrid, pp. 181–197.

Furholt, M., Lüth, F. and Müller, J. (eds) 2011. *Megaliths and Identities. Early monuments and Neolitihic Societies from the Atlantic to the Baltic*. Frühe Monumentalität und soziale Differenzierung (1): Bonn.

Garrido, R. 2000. *El Campaniforme en la Meseta Central de la Península Ibérica (c. 2500–2000 a.C.)*. BAR S892. Archaeopress: Oxford.

Giles, F., Mata, E., Benitez R., González B. and Molina I. 1994. Fechas de radiocarbono 14 para la Prehistoria de Cádiz. *Boletín del Museo de Cádiz* 6, pp. 43–48.

Gomes, L. F. C., Carvalho, P. S., Perpetuo, J. M. A. and Marrafa, C. 1998. O dolmen de Areita (S. Joao de Pesqueira, Viseu). A Pré-historia da Beira interior. *Estudos Pré-históricos* 6, pp. 33–93.

Harbison, P. 1971. Wooden and stone Chevaux-de-frise in Central and Western Europe. *Proceedings of the Prehistoric Society* 37, pp. 195–225.

Herbault, F. and Querré, G. 2004. La parure néolithique en variscite dans le sud de l'Armorique. *Bulletin de la Societé Préhistorique Française* 10(3), pp. 497–520.

Jeunesse, C. 1997. *Pratiques funéraires et sociétés danubiennes au Neolithique ancien.* Errance: Paris.

Jiménez, J. 2008. El túmulo de las Vegas de Samburiel (El Boalo) y la cuestión del megalitismo en la Comunidad de Madrid. *Cuadernos de Estudio* 22, pp. 24–36.

Jones, A. 2005. Lives in fragments? Personhood and the European Neolithic. *Journal of Social Archaeology* 5(2), pp. 193–217.

Leisner, G. and Leisner V. 1959. *Die Megalithgräber der Iberischen Halbinsel. Der Westen*. Banu 113 Walter de Gruyter: Berlin

Luezas, R. A. and Rovira, S. 2004. El enterramiento eneolítico de Valdehiguera (Ribafrecha, La Rioja): estudio analítico de un elemento de adorno. *Berceo* 146, pp. 259–265.

Marques, I., Aguado L., Baldomero A. and Ferrer J. E. 2004 Proyectos sobre la Edad del Cobre en Antequera (Málaga). In: *III Simposium de Prehistoria Cueva de Nerja: Las primeras sociedades metalúrgicas en Andalucía*. Fundación cueva de Nerja: Málaga, pp. 238–260.

Molist, M, and Clop, X. 2010. *Los orígenes del megalitismo en Catalunya en el marco de las prácticas funerarias del Neolítico*. *Munibe* suplemento 32, pp. 212–224.

Moreno, M. and Delibes, G. 2007 Dataciones absolutas para un menhir del Valle de Valdelucios (Burgos): resultados de un sondeo en el túmulo de la Cuesta del Molino. *Zephyrus* 60, pp. 173–179.

Mujika, J. A. 2008 La gestión de la materia prima ósea en la fabricación de objetos durante la Prehistoria. *Veleia* 25, pp. 24–25.

Odriozola, C., Linares, J. A. and Hurtado, V. 2010. Variscite source and source analysis: testing assumptions at Pico Centeno (Encinasola, Spain). *Journal of Archaeological Science* 37, pp. 3146–3157.

Ríos, P. 2011. *Territorio y Sociedad en la Región de Madrid durante el III milenio a. C: el referente del yacimiento de Camino de las Yeseras*. Patrimonio arqueológico de Madrid 7. Universidad Autónoma de Madrid: Madrid

Rojo, M., Garrido, R. and García, I. 2008. No sólo cerveza. Nuevos tipos de bebidas alcohólicas identificados en análisis de contenidos de cerámicas campaniformes del Valle de Ambrona (Soria). *Cuadernos de Prehistoria y Arqueología de la Universidad de Granada* 18, pp. 91–105.

Rojo, M., Kunst, M., Garrido, R., García, I. and Morán, G. 2005. *Un desafío a la eternidad: Tumbas monumentales del Valle de Ambrona*. Arqueología en Castilla y León 14. Junta de Castilla y León: Valladolid

Sanches, M. J. 1987. A Mamoa 3 de Pena Mosqueira. *Arqueología* 15, pp. 94–115.

Schuhmacher, T. and Banerjee, A. 2012. Procedencia e intercambio de marfil en el calcolítico de la Península Ibérica. Xarxes al

Neolitic. *Rubricatum* 5, pp. 289–298

Soares, J. 2003. *Os hipogeus da Quinta do Anjo (Palmela) e as economías do simbólico.* Museo de Arqueología e Etnografia do Distrito do Setubal: Setúbal.

Valera, C. 2012. Ídolos almerienses provenientes de contextos neolíticos do complexo de recintos dos Perdigões. *Apontamentos de Arqueologia e Património* 8, pp. 19–28

Vijande, E. 2009. El poblado de Campo de Hockey (San Fernando, Cádiz): Resultados preliminares y líneas de investigación futuras para el conocimiento de las formaciones sociales tribales en la bahía de Cádiz (tránsito V–IV milenios A.N.E). *Rampas* 11, pp. 265–284.

16

Megalithic hollows: rock-cut tombs between the Tagus and the Guadiana

Leonor Rocha

Abstract

Neolithic monuments south of the Tagus, in Portugal, number over 1000. They are usually classified in four key types: standing stones (isolated or in groups); megalithic tombs (dolmens and passage graves); rock-cut tombs; and corbel vaulted tombs. In addition, there has been increasing evidence of an early and incipient monumentality at the late Mesolithic funerary shell mounds of the Tagus and Sado rivers. Some have timber features that may be considered to be monumental, not in terms of size but by being associated with memory.

The spatial experiences of these places are transformed by specific kinds of design and tectonics (and we use the term "tectonics" in the architectural sense). Therefore, from an alternative point of view, if we attempt to categorise the monuments in accordance with these different spatial experiences, they can be classified: as open air monuments (standing stones, timber features at shell mounds); closed monuments (shell mound cemeteries, closed megalithic chambers); and open tombs (passage graves and rock-cut tombs).

The available data concerning the region south of the Tagus and west of the Guadiana is still hampered by a number of difficulties in obtaining radiocarbon dates. However, it has been possible to show that the different types of monuments were probably sequential, most likely with chronological overlaps between the types: shell mounds (6000–5000 cal BC); then standing stones (5000–4000); then megalithic tombs (4500–3000); then rock-cut tombs (3500–3000); and lastly corbel vaulted tombs (3000–2500). However, this over-simplified scheme is still open to debate, and is obviously in need of refinement.

Keywords: megalithic tombs; rock-cut tombs; corbel vaulted tombs; Alentejo; Portugal

Looking back ...

From an early date, the monumentality of megalithic monuments attracted the attention and curiosity of people in Portugal, with whom they shared the same physical space. This often resulted in funerary reuse, or the use of the monuments as seasonal homes and shelters, most likely in prehistory, and documented in the archaeological excavations conducted since the second half of the 19th century in the south of Portugal. This first phase was led by a group of researchers who had a broad and diverse set of interests. They contributed to the identification of a remarkable number of megalithic monuments, many of them now destroyed. Carlos Ribeiro, Nery Delgado, Francisco Pereira da Costa, Estácio da Veiga, and Leite de Vasconcelos developed notable work in the inventorying (and excavating) of numerous monuments. The results of their research, often carried out at their own expense, were mainly published in national magazines.

Throughout the first half of the 20th century, knowledge of the megalithic monuments in the south of Portugal was closely connected to the actions taken by the Portuguese Ethnological Museum, through the investigations and inventories made by its directors and employees. The museum conducted a project aiming to collate a representative collection of the whole national territory. This led to the establishment of a network of regional informants/collaborators who collected or bought finds and collected information on existing monuments and sites, which they sent to their director.

However, the interest and the actions of Vergilio Correia and Manuel Heleno by far exceeded the institutional activity, as they carried out what we consider to be the first projects aimed at studying megalithic Alentejo (Correia 1921; Rocha 2005; 2012). In the following decades, researchers such as Georg and Vera Leisner, Philine Kalb, Jorge de Oliveira, Victor S. Gonçalves, Manuel Calado, Rui Parreira, João Luis Cardoso, Joaquina Soares, Carlos Tavares da Silva, Rui Boaventura, and others, inventoried or reassessed dozens of megalithic monuments. At the dawn of the 21st century, knowledge of megalithic architecture seemed well defined, therefore discussions mainly centred on the finds and their evolutionary timelines (Fig. 16.1). With specific regard to megalithic architecture, although there are some differences between the coast and inland, the following types were known at this point:

(a) *Hypogea,* located in the coastal districts of Lisbon, Setúbal and the Algarve (Fig. 16.2).These are funerary structures carved in the rock (in this case, soft limestone), typically consisting of a rounded chamber, antechamber, and access passage (Fig. 16.3). The top of the chamber has a round opening (like a "rabbit hutch"). Usually they

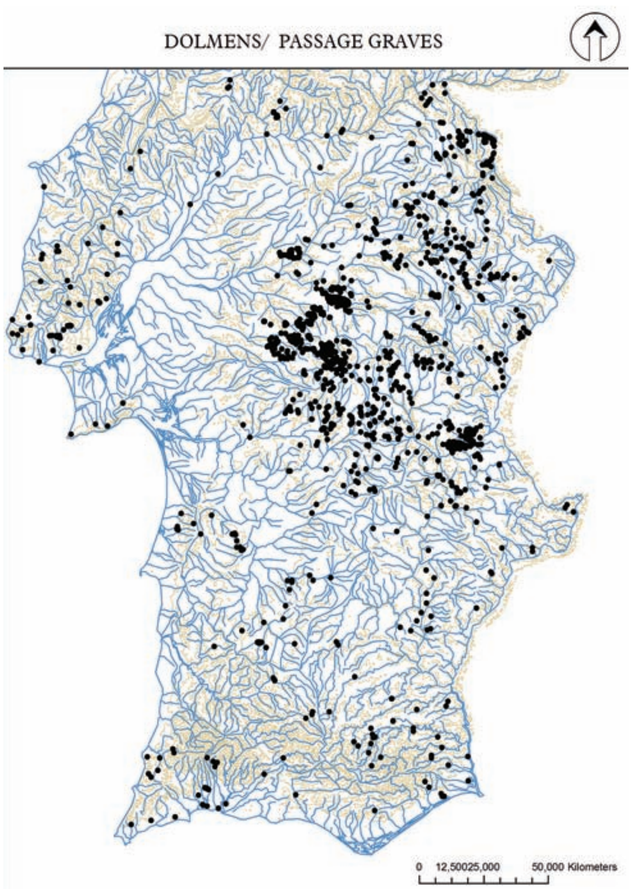


Fig. 16.1: Megalithic monuments in southern Portugal

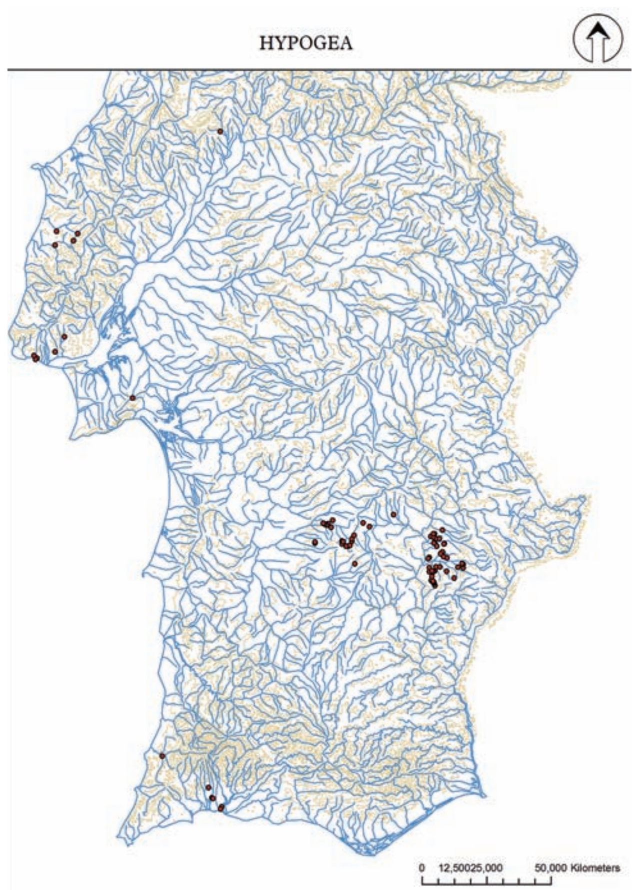


Fig. 16.2: Hypogea in southern Portugal

appear in groups (for example, at Alapraia, Carenque, S. Pedro do Estoril, Quinta do Anjo/Casal do Pardo, Monte Canelas).

(b) *Tholoi*, located in small numbers on the coast or inland. These are funerary structures whose architecture has some variation. Type 1: chambers built with orthostats upon which the false dome sits (such as OP2 at Escoural), and a passage of varied length, also built with orthostats. Type 2: chambers built with dry stone walls, upon which the false dome sits, and a passage of varied length, also built with dry stone walling (such as Pai Mogo, and Praia das Maças). Type 3: fully built chambers with a false dome system (e.g. Alcalar) and a passage built from dry stone walling. In the Alentejo, with the exception of the *tholos* at Escoural which is isolated, the identified *tholoi* are located in Reguengos de Monsaraz and are structurally related to the passage grave.

(c) *Megalithic graves*, mainly located in transition areas from the coast to inland, in the Alentejo and Algarve. They consist of small megalithic structures (closed, open, and/or with a small passage), built in schist or granite, with a very variable number of orthostats (3–11). Some are still covered by the tumulus (Fig. 16.4).

(d) *Passage graves*, (short, medium or long), located either on the coast or in land, although the greatest concentration is between the north and the centre of the Alentejo (Fig. 16.5). These megalithic structures have variable sizes in terms of height, number of pillars, and passage length.

(e) *Irregular structures*, located, just like the small graves, mainly in transition areas from the coast to inland, in natural passage areas. They present unique or less widespread forms of megalithic architecture, such as passage graves without a passage and rectangular graves.

Some of these monuments, especially the most monumental, may also exhibit greater structural complexity, with compartmentalisation in the chamber and/or passage, and the presence of niches, antechambers, annexed graves, atriums, burials and/or depositions outside (tumulus).

Understanding the invisible: new architecture

After rescue measures were undertaken during the building of the Alqueva Dam and its associated infrastructure, information regarding the known setting of funerary structures changed radically. A set of amazing new funerary monuments, unparalleled in this area but with some similarities to others

Fig. 16.3: Hypogeum of Quinta do Anjo (Palmela, Portugal)

Fig. 16.4: Small megalithic structures of Deserto (Montemor-o-Novo, Portugal)

Fig. 16.5: Passage grave of Brotas (Mora, Portugal)

identified in southern Spain (Bueno Ramírez *et al*. 2010) were identified and excavated, in the 19th and 20th centuries, as well as on the Portuguese coast, particularly in the Lisbon and Setúbal area (Soares 2003). These sites, which went unnoticed until the first decade of this century, are located in areas dominated by a smoothly undulating topography, with small elevations and excellent visibility over the surrounding area. They have a relatively dense hydrological system, with many small watercourses of irregular flow. The lands is heavily utilised for agriculture, especially for growing grain, olive groves and cattle grazing.

The hypogeum of Sobreira de Cima (Fig. 16.6) was the first to be identified (although partially destroyed) in 2006, during the construction work of the Alqueva Power Plant. It alerted the Portuguese archaeological community to the existence of funerary structures within the Alentejo region, excavated from the rock, and showing no surface evidence (Valera 2009).

This cemetery consists of seven *hypoge*a, five of which are located in the construction area. Three of these were already partially destroyed when they were identified, but two were fully excavated. Two other *hypoge*a were identified via geophysical prospecting outside the area designated for the dam: these have not been examined. However, this set had some differences between them in terms of their architecture.

- *Hypogea* 1 and 2 had circular chambers with a short passage and access through a vertical well. *Hypogeum* 1 also had an entrance sealed with mortared clay with bits of mixed amphibolites (in addition to the access well into the chamber).
- *Hypogeum* 3 had an oval and elongated chamber with a narrow entrance, with a well.
- *Hypogea* 4 and 5 had circular chambers with antechambers and an access passage with a ramp.
- *Hypogeum* 5 had small monoliths at the entrance of the passage: these seem to show the existence of a structure that indicated the entrance to this monument.

The good state of preservation of the osteological remains (a rare phenomenon in the Alentejo) recovered in this necropolis show a low number of burials, without overlap or reuse. The materials collected are very similar, and have a total lack of pottery (Valera and Philip 2012).

Further construction work for the channels of the Alqueva dam led to the continuation of archaeological work, revealing that this cemetery is part of a wide range of funerary structures (Fig. 16.7). This extended the funerary variety that had been recorded in southern Spain in recent decades into inland Portugal.

These monuments are normally grouped, and are located within settlements with hollows, in border areas, or seemingly isolated. Porto Torrão, one of the largest Chalcolithic settlements known in Europe, has a complex network of funerary structures both inside and outside the hollows. These include *hypogea*, pits, and other associated burials (Valera 2010). Some burials were identified in pits/dumps within the hollows. In the space between two hollows a *hypogeum* was

Fig. 16.6: Hypogeum of Sobreira de Cima (Vidigueira, Portugal)

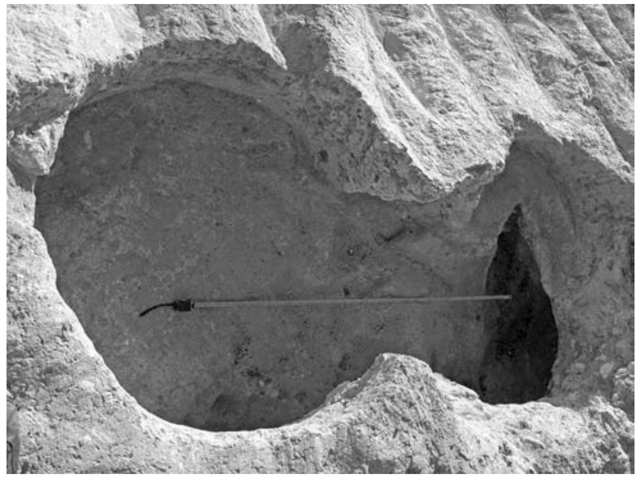


Fig. 16.7: Hypogeum of Beringel (Beja, Portugal)

also identified. As it partially overlaps the exterior hollow, its construction must have occurred at a later stage.

As an example, Monte do Carrascal 2, one of the necropolises associated with the Porto Torrão settlement, presents great diversity and complexity within the funerary architecture (Valera 2010). This includes the following features:

- A large ditch/hollow, excavated in the rock, with graves (*hypogea*) on both sides. It has a depth of about 2.10m and a width at the mouth of about 4m on the west side, narrowing to the east. The profile is generally trapezoidal, but somewhat irregular. The base of this hollow, by which the graves were accessed, was covered with red clay (Valera *et al*. 2010).
- *Hypogea* with a chamber and one or two access passages, with openings on the top like the *hypogea* on the coast. Parts of the chamber wall were built of stone, and they were closed by schist capstones. In addition, the entrances to the *hypogea* were closed with stones and, at hypogeum 1, two river pebbles, a conch and a whole pottery container were placed there.
- Collective burials.
- Secondary depositions of bones, some of which were burned at the entrance.
- The hollow/atrium filled by a succession of passage floors in beaten clay and a lot of rubble.

All materials in this set point to a Chalcolithic date.

Records of other sites correspond to large necropolises, with many *hypogea* and pits in the same area. For example, at Montinhos 6, at Brinches, Serpa, 14 *hypogea* and 130 pits were identified. In this case, there were also architectural differences. The *hypogea* had variations in: their antechambers (sub-circular or sub-rectangular); the number of chambers (one or two); and the possible presence of earlier pits that were incorporated into the new monument. In Alto de Brinches 3, out of the 231 negative structures like pits, only a few had burials. Given current knowledge, it seems that the *hypogea* usually contained adult burials, with associated objects. Conversely, the pits contain mostly sub-adult burials with no associated objects.

This diversity could correspond to prolonged use/construction over time, as the collected assemblages suggest monument use from the Neolithic to the Bronze Age.

Types of structures

Hypogea

Normally the *hypogea* have rectangular or quadrangular antechambers that give access to one or more circular or sub-circular chambers of different sizes. In addition, they are built on flat ground, with recessed or re-entrant walls (concave) that are more pronounced in the upper half. The entrance of the chamber is closed with vertical slabs (as seen as Sobreira de Cima, Outeiro Alto 2 – B nucleus). Some of the rooms have an opening in the ceiling, commonly referred to as "rabbit hutch" type structure: this is also common in the *hypogea* identified in the Lisbon and Setúbal areas. In some cases, access to the chambers is through a short passage and a more-or-less vertical well (such as at Sobreira de Cima 1 and 2, Outeiro Alto 2 – C nucleus). The passage area may be filled with soil and stones.

Hypogea are constructed on a reasonably soft, rocky substrate (calcareous or soft schist), from which sediments were probably removed. Structurally speaking, its construction could be complex work, especially if we consider the theories that identify the pit or the access passage as the starting point (Valera and Filipe 2012). In fact, when looking at the access side wells, these are, as a general rule, not very wide (around 1.5m diameter) and are more or less vertical. Given this, it seems to me that the idea developed by Pedro Alvim (pers. comm.) is more feasible. He suggests that the construction of this type of *hypogeum* must have started from the opening of the chamber ceiling. From there, it would have been much easier to broaden the chamber, remove the rock, and build the passage or the access well. In this way it would have been possible to control the entire construction process, which would not be the case if the construction had been started from the access well. There, the circulation of workers would be greatly hampered by the scarcity of space, the lack of light and the dust, particularly when reaching deeper levels.

Pits/silos

These have a wide mouth, and are built on narrower, flat or concave ground. They have a significantly a truncated-conical shape.

Complexes

Hypogeum complexes result from the transformation of previous structures. In the better documented cases (such as Ourém 7), the transformation of pits into *hypogea* can be seen. These structures may be connected by tunnels.

Absolute dating

A brief analysis was conducted of the available dating of these negative structures (*hypogea*) between Lisbon and the Algarve (Table 16.1). We note that the dating obtained for the Sobreira de Cima *hypogea* (the only ones so far with known dating) fits perfectly within the same cronology. As can be seen from Table 16.1, if we extend this comparison to the megalithic graves, we can see that the passage graves, *tholoi* and *hypogea* are being built and used in the south of Portugal in the same time period (Table 16.2).

Table 16.2 shows the chronological framework of the Quinta do Anjo artificial caves, according to the recently submitted proposals, are built at an initial stage from the Late Neolithic, during which these structures were built (as some *hypogea* of the Alentejo). This reading is based two forms of evidence: a comparative analysis of the cultural material recovered (for example, the presence of the schist plaques); and a comparison with contemporary structures used for shorter durations, such as *hypogeum* 1 of S. Paulo (Almada), or other artificial caves, such as Monte do Castelo (Oeiras) or Monte Canelas (Lagos). Their chronologies point to the second half of the 4th millennium BC. The area of the artificial caves was used throughout the Chalcolithic, although it was already abandoned in the Later Chalcolithic. The C14 dating from at Quinta do Anjo, obtained from a bone object and a human bone sample, gives beginning of the 5th milleniunn BC .

This chronology is similarly to that proposed for other carved structures in rock, such as S. Paulo (whose architectural typology and the material culture are similar). It is also shared by other artificial caves in Extremadura, such as Alapraia or Carenque (Gonçalves, 2005).

Built to show or hide?

Although it has been proven that the communities of southern Portugal had contact with each other, and exchanged various materials, their megalithic monuments show that they opted for different construction techniques to bury their dead ... in different types of monumental structures.

The new information acquired from the projects in

Monument	*Site*	*Determination BP*	*Date cal Bc 1σ*	*Date cal BC 2 σ*	*Reference*
Monte do Castelo	Lisbon	4630±45	3497–3351	3509–3147	Cardoso 1991
Alapraia 4	Cascais	4110±40	2860–2580	2870–2500	Gonçalves 2005
S. Pedro do Estoril 1	Estoril	4720±40	3620–3380	3640–3770	Gonçalves 2005
S. Pedro do Estoril 2	Estoril	3850±40	2400–2220	2460–2200	Gonçalves 2005
S. Paulo 2	Almada	3960±190	2845–2200	2905–1950	Silva 2002
Quinta do Anjo	Palmela	4040±70	2836–2472	2873–2351	?
Sobreira Cima1	Vidigueira	4530±50	3360–3110/	3370–3030	Valera *et al.* 2008
Sobreira Cima 3	Vidigueira	4670±50	3520–3370	3630–3350	Valera *et al.* 2008
Monte Canelas	Alcalar	4420±60	3311–2923	3336–2911	?

Table 16.1: Radiocarbon dates from hypogea in southern Portugal

Monument	*Site*	*Determination BP*	*Date cal BC 1σ*	*Date cal BC 2 σ*	*Reference*
Verdelha dos Ruivos	Lisbon	4100±60	2859–2574	2876–2496	
Praia das Maças	Sintra	4260±60	3002–2701	3077–2638	
Bola da Cera	Marvâo	4360±50	3023–2910	3308–2887	
Pedra Branca	Grandola	4620±60	3518–3342	3629–3106	
Sta Margarida 3	Reguengos	4410±60	3265–2919	3335–2906	
Olival da Pega 2B	Reguengos	4290±100	3090–2699	3328–2586	
Sobreira Cima1	Vidigueira	4530±50	3360–3110	3370–3030	Valera *et al.* 2008
Sobreira Cima 3	Vidigueira	4670±50	3520–3370	3630–3350	Valera *et al.* 2008
Castro Marim	Castro Marim	4525± ??	3356–3105	3941–3024	

Table 16.2: Radiocarbon dates from megalithic monuments in southern Portugal

southern inland Portugal has shown significant differences within settlements and funerary spaces within this area, particularly during the 4th and 3rd millennium BC. With respect to the funerary world, we now have two new types of funerary structures:

(1) Type one occurs inside the settlements. The best examples are Perdigões and Porto Torrão, although they have different architectural designs. Perdigões contains tholoi, and Porto Torrão contains hypogea and pits. However, in both cases the osteological remains occur within a garbage context.
(2) Type two consists of more-or-less grouped funerary structures, in some cases constituting real "funerary cities". These occupy large areas and are constructed and occupied over a long period of time. The space management and architecture reflect an unprecedented situation in the southern peninsula, with clear links to the Mediterranean world. According to recent data (Valera and Filipe 2012), some of these structures might have had some sort of markers that made them easily identifiable within the landscape for these communities. It could have been stelae (Sobreira de Cima), wooden structures (Outeiro Alto 2), or landscape markers. In fact, the number and complexity of the existing structures, which had no spatial overlap, in some of the cemeteries, must have required some form of surface marker as they would not have all been built simultaneously.

Once all the new data has been studied and published, it will revitalise current research. At present, many of these sites are either not published, or have been given only short presentations at professional conferences and or in journals. Trying to understand what led these communities to perceive the space of the living as different from the space of the dead naturally requires further reflection and – above all – a reassessment of the existing models.

Acknowledgments
I am grateful to Clara de Oliveira and Pedro Alvim, the support given at different stages of this work. To CHAIA / University of Évora, the institutional support.

References

Bueno Ramírez, P., Barroso Bermejo, R. and Balbín Beharmann, R. 2010. Entre lo visible y lo invisible: registros funerarios de la Prehistoria reciente de la Meseta Sur. *Arqueología, Sociedad, Territorio y Paisaje. Estudios sobre prehistoria reciente, protohistoria y transición al mundo romano en homenaje a M.ª Dolores Fernández Posse*. Consejo Superior de Investigaciones Científicas. Instituto de Historia: Madrid, pp. 53–73.
Cruz-Auñon, R. and Rivero, E. 1988. Necropolis de Cuevas artificiales en Montegil (Moron de la Frontera, Sevilla). *Anuario Arqueológico de Andalucía 3*, pp. 279–291.
Dias, Mª I., Prudêncio, Mª I., Sanjurjo Sánchez, J., Cardoso, G.O. and Franco, D. 2008. Datação por luminescência de sedimentos de sepulcros artificiais da necrópole pré-histórica da Sobreira de Cima (Vidigueira, Beja). *Apontamentos de Arqueologia e Património* 2, pp. 31–40.
Godinho, R. 2008. Deposições funerárias em fossa nos Perdigões: dados antropológicos do Sector I. *Apontamentos de Arqueologia e Património* 3, pp. 29–34.
Martí Rosell, M., and PouCalvet, R. 1997. Los hipogeos neolíticos del NE peninsular: Las formas hipogeas del grupo "Sepulcros de Fosa". *Actas del II Congreso de Arqueologia Peninsular* II. Fundación Rei Afonso Henriques: Zamora, pp. 137–146.
Rivero, E. and Cruz-Auñon, R. 1988. Excavaciones de urgencia

en la Cueva artificial de Los Corrales (Gilena, Sevilla). *Anuario Arqueológico de Andalucía 3*, pp. 374–376.

Rocha, L. 2005. *As origens do megalitismo funerário no Alentejo Central: a contribuição de Manuel Heleno*. Lisboa: Faculdade de Letras de Lisboa. Tese de doutoramento policopiada: Lisboa

Rocha, L. 2012. Entre a vida e a morte: a perenidade dos espaços na pré-história recente no Alentejo (Portugal). *XI Conferência Internacional Antropologia 2012. Actas del 3 Simposium Internacional de Arte Rupestre*. Instituto Cubano de Antropología: Cuba, pp. 46–56.

Soares, J. 2003. *Os hipogeus pré-históricos da Quinta do Anjo (Palmela) e as economias do simbólico*. MAEDS: Setúbal.

Valera, A. 2008. Recinto calcolítico dos Perdigões: Fossos e Fossas do Sector 1. *Apontamentos de Arqueologia e Património* 3. NIA-ERA Arqueologia: Lisboa, pp. 19–27

Valera, A. 2009.Estratégias de identificação e recursos geológicos: o anfibolito e a necrópole da Sobreira de Cima, Vidigueira. In: Ana M., Bettencourt, S. and Bacelar Alves, L. (eds) *Dos montes, das pedras e das águas. Formas de interacção com o espaço natural da pré-história à actualidade*. CITCEM/APEQ: Braga, pp. 25–36.

Valera, A. 2010. Gestão da morte no 3º milénio A.C. no Porto Torrão (Ferreira do Alentejo): um primeiro contributo para a sua espacialidade. *Apontamentos de Arqueologia e Património* 5, pp. 57–62.

Valera, A. and Filipe, V. 2010.Outeiro Alto 2 (Brinches, Serpa): nota preliminary sobre um espaço funerário e de socialização do Neolítico final à Idade do Bronze. *Apontamentos de Arqueologia e Património* 5, pp. 49–56.

Valera, A. and Filipe, V. 2012. A necrópole de hipogeus do Neolítico Final do Outeiro Alto 2 (Brinches, Serpa). *Apontamentos de Arqueologia e Património* 8, pp. 29–41.

Valera, A., Soares, A.M. and Coelho, M. 2008.Primeiras datas de radiocarbono para a necrópole de hipogeus da Sobreira de Cima (Vidigueira, Beja). *Apontamentos de Arqueologia e Património* 2, pp. 27–30.

17

Houses of the dead and natural rocks: new evidence from western France

Philippe Gouézin

Abstract
Past and present inventories of megalithic monuments in the west of France note that some ancient graves were built into natural rock formations. This practice links the domain of the dead to that of the mineral world, and is evidence of how Neolithic populations related to their environment. These mixed graves blend into the immediate landscape, becoming part of it. No longer is there the obvious ostentation of earlier periods. The architecture seems to belong to the Later Neolithic. Some graves involve the manual placement of upright slabs against in-situ rock. Others are built directly on the granite or schist bedrock. It is as if the souls of the dead were entrusted to the stone in perfect symbiosis. A significant number of standing stones may also be found near these graves, or near to the natural rock formations. Whilst not spectacular, this practice is of undeniable cultural and symbolic interest, and merits detailed study and recording.

Keywords: Mortuary house, natural rocks, landscape, chaotic outcrop, Later Neolithic

Introduction
Studies over recent years have shown that some megalithic monuments are of mixed-architecture, combining artificial and natural elements. Observation of the landscape shows that natural rock formations are often associated with stone settings. Sometimes we can count in tens the number of blocks that have been artificially arranged within a chaotic outcrop of natural granite, or close to one. With the smaller blocks, erected without shaping, the packing around the base is sometimes visible yet these small monoliths have often gone unnoticed. Considering the scale of the discoveries, mapping and recording is now essential. In this paper, we will present a first account of these monuments of mixed architecture.

Modern geological knowledge enables us today to differentiate between human constructions and natural rock formations. This has not always been so, and despite the vast advances in modern science, megaliths and natural rock formations are still colonised by faiths, legends and superstitions which attribute to them particular powers of healing, love and fertility (Sebillot 1985). Here we will show how these mixed-architecture monuments were integrated into the landscape, drawing upon studies carried out by Cummings on the relationships between monuments and natural features, their visual aspects and their symbolism (Cummings 2002). We will consider whether these monuments were inspired by the natural rock formations, and at what period in prehistory (Bradley 1998). Information about standing stones will also be included. They seem inseparable from the mortuary houses, and we will consider whether the activities involved were all completed within the memory timespans of individuals or of social groups, the landscape thus being full of meaning and memories recalling the past (Tilley 2004).

De Cussé, in 1885, was the first to publish a report discussing a megalithic monument associated with natural rock formations. This was the exploration of the grave under the rock overhang of Men Guen Lanvaux in Saint Jean Brévelay, Morbihan (Cussé 1885). A few years later Le Rouzic also drew attention to the chambered tomb of Conguel at Quiberon, Morbihan, excavated in 1891 by the Comte de Lagrange and Gaillard (Gaillard 1892). In his study on the morphology and the chronology of the prehistoric graves of Morbihan, Le Rouzic classified this particular monument – a chambered tomb covered by a cairn with one side of the chamber formed by the in-situ bedrock – as belonging to a particular type (Le Rouzic 1933). L'Helgouach classified the structure as a dolmen with short passage (L'Helgouach 1962; 1965), commenting on the archaism or degeneration of the megalithic construction, and the opportunism or economising that it implied. On the eastern edge of the Armorican massif, in the Petit Vieux Sou dolmen at Brécé in Mayenne, the chamber has a lateral entrance approached by a covered passage. The end-wall and part of the floor of the burial chamber are formed by the natural rock (Bouillon 1989). Le Rouzic also suggested the presence of a natural rock support in Roc'h en Ezel at Crac'h, Morbihan in 1898 (Le Rouzic 1898). In 1927 the Péquarts investigated the dolmen of Brunec situated on island of Saint Nicolas in the Glénan archipelago off the coast of Finistère, but the results were unsatisfactory owing to lack of archaeological artefacts (Péquart and Péquart 1927). In 1987, the rescue excavation of a megalithic tomb in the commune of La Chapelle Neuve in Morbihan revealed that the floor of the cist was formed by a granite outcrop (Gouézin 1987).

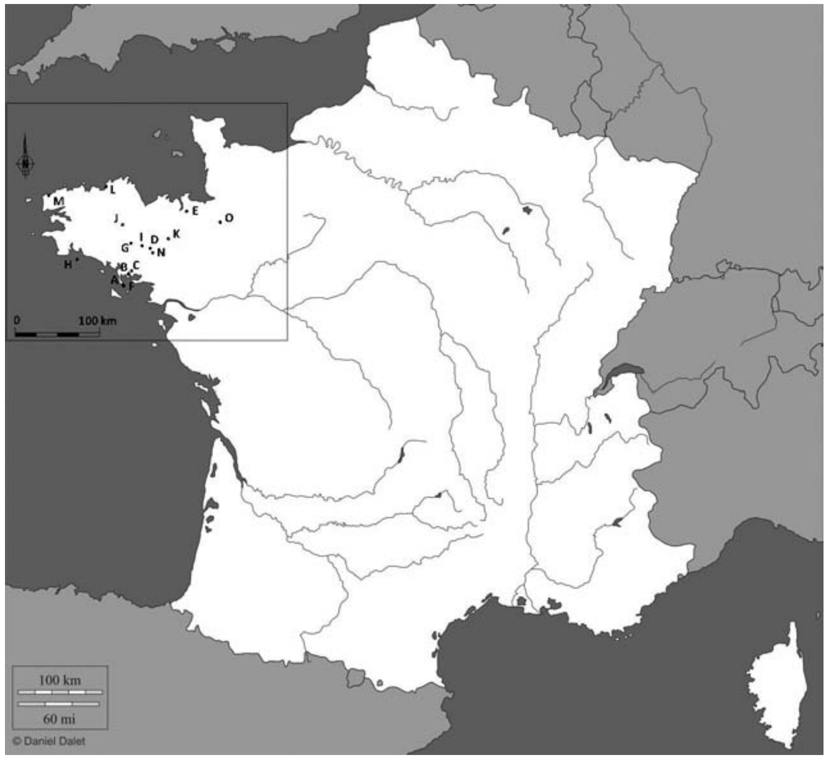


Fig. 17.1: Location of the study area : (A) Conguel at Quiberon; (B) Men Guen Lanvaux at Plaudren; (C) Pont-Bertho at Plaudren; (D) Roh Coh Coët at Saint Jean Brévelay; (E) Roch En Ezel at Crac'h; (F) La Coudraie; (G) Roh-Du B at La Chapelle Neuve; (H) Guilliguy at Ploudalmézeau; (I) Petit Vieux Sou at Brécé; (J) La Tougeais at Pleudihen sur Rance; (K) Bois de Gouarec at Plélauff; (L) Enez Bihan at Pleumeur Bodou; *(M) Brunec Île St. Nicolas, Les Glénans; (N) Toul Bras at Quiberon; (O) Bransquel at Pluneret*

The map of these mixed monuments (Fig. 17.1) shows a widespread distribution throughout Brittany. One geographical sector stands out, however: the granite massif of Les Landes de Lanvaux. It contains a very large number of megalithic monuments of every type, with some concentrated in necropolises like Coëby at Trédion in Morbihan, or Saint-Just in Ille-et-Vilaine.

Cists and megalithic tombs

Roh-Du (B) at La Chapelle Neuve (Morbihan)

In the centre of a forest, the Roh-Du group consists of three cists arranged in a "U" formation, each with three megalithic walls plus a drystone wall on the fourth side that probably corresponds to the entrance to the cist (Fig. 17.2, A). Roh-Du B, mapped in 1987 during rescue archaeology (Gouézin 1987; 1994), is bounded on the north and south by two longitudinal slabs. On the west, a low drystone wall is surmounted by a slab bringing the support up to the level of the other two uprights (1.80 ´ 0.80m). The capstone has not been found. An outcropping granite surface forms the floor of the cist. Despite its degraded state, one can observe that the sub-rectangular cairn had was defined by a stone facing and by a large block of granite. The artefacts found could be attributed to the Beaker culture.

Roc'h en Ezel at Crac'h (Morbihan)

Situated on a promontory along the river Crac'h, this slightly oval shaped chamber (2.80 ´ 3.20m) leans against the in situ rock (Fig. 17.2, B). This rock assumes the role of an orthostat. A gap to the south-south-east apparently corresponds to the entrance to the monument. It is presently covered by two capstones. There is no trace of any passage.

Bransquel at Pluneret (Morbihan)

This burial chamber was built on the top of a headland but blends perfectly into the landscape. Of modest size (2.56 ´ 1.95m) its south-west wall consists of an outcropping rock (Fig. 17.2, C). The north-west and north-east faces show four orthostats, one of which has fallen. The entrance seems to be at the southeast. A capstone is present, but tilted into the chamber.

Men Guen Lanvaux at Plaudren (Morbihan)

On the western slope of a small hill covered with outcrops, and in a cavity just south of an outcropping rock, this dolmen-under-rock was arranged with a covered passage (Fig. 17.2, D). The protruding natural granite which overhangs the site let the builders insert orthostats on the western, eastern and southern sides, and infill them with drystone walling. The north side is enclosed by the same natural rock, which also serves as the roof. The slab on the east side allows access to the chamber. The cairn material is still present on the east, west and south sides. Three small standing stones have been found close to this monument, in the middle of the natural rocks scattered all over the surface of the hill (Gouézin 1994).

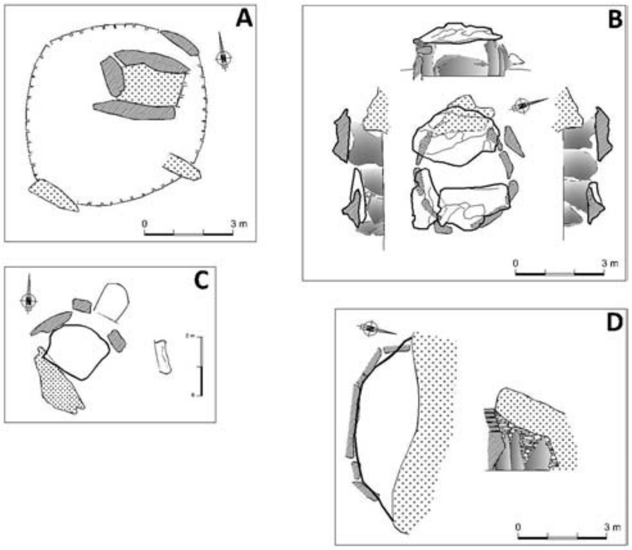


Fig. 17.2: Cists and megalithic tombs: (A) coffre du Roh-Du B at La Chapelle Neuve (56); (B) coffre de Roch En Ezel at Crac'h (56); (C) cist of Bransquel at Pluneret (56); (D) tomb under rock of Men Guen Lanvaux at Plaudren (56). (From Gouézin 2012)

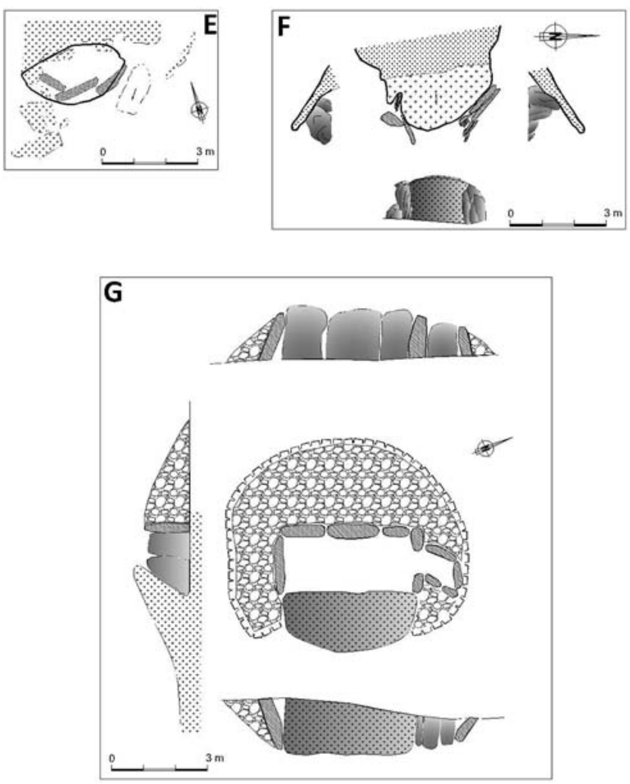


Fig. 17.3: Cists and megalithic tombs: (E) cist of La Tougeais at Pleudihen sur Rance (35) (from Gouézin 2012); (F) cist Toul Bras at Quiberon (from Gouézin 2013); (G) Conguel passage tomb at Quiberon (56). (From Le Rouzic 1926)

Bois de Tougeais at Pleudihen sur Rance (Ille-et-Vilaine)
Situated on the southwestern part of a dominant rocky outcrop, this chamber (3.00 ´ 1.00m) was created in a small natural cavity in granite outcrops and completely absorbed into the landscape (Fig. 17.3, E). Partly encircled by the natural rock on the north and west, the chamber is completed on the south by three overlapping orthostats. A gap on the east side gives access to the chamber, which is covered by a single capstone. Several other blocks visible to the east may be the kerb of an original covering mound.

Toul Bras at Quiberon (Morbihan)
This chamber-under-rock is situated on the south-west point of the island. The natural rock overhang was used to accommodate a chamber of trapezoidal shape (Fig. 17.3, F). Small upright slabs close off the northern and southern sides. The entrance seems to have been on the eastern side, as the mass of rock that overhangs the chamber also blocks the entire western side. The monument is visible only from the east, where there is a small accessible beach. The height of the entrance is 1.10m. diminishing towards the back of the chamber which is 2.20m wide.

Dolmen of Conguel at Quiberon (Morbihan)
This sub-rectangular burial chamber has on its south-eastern side a natural rock wall jutting out at an angle from the granite bedrock and overhanging part of the floor surface (Fig. 17.3, G). The other walls are formed by megalithic slabs. The monument seems to have been covered by a mass of stones, but the details of the cairn are unknown. The artefacts found here have made this the type-site for one variety of Late Neolithic ceramic found.

Dolmen of Brunec, Saint Nicholas Island, Glénans archipelago (Finistère)
This monument, on the northeast of the island, was excavated in 1927 (Péquart and Péquart 1927). The architecture remains badly defined but shows that one orthostat, the tallest, seems to be a natural outcrop (Hamon *et al.* 2007). No passage is visible.

Megalithic tombs with covered passage, including those with lateral entrance

Bois de Gouarec at Plélauff (Côtes-d'Armor)
This dolmen with covered passage is in ruins. Built of schist slabs, it is aligned north–south (Fig. 17.4, J). The northern extremity is supported by an outcropping rock which serves as an end-stone. The monument was dug slightly into the ground, so that the northern end was the same height as the top of the outcrop. This outcrop extends on either side of the covered passage for several tens of metres. Perfectly blended into the hillside, its entrance, situated to the south, looks out over a very wide valley.

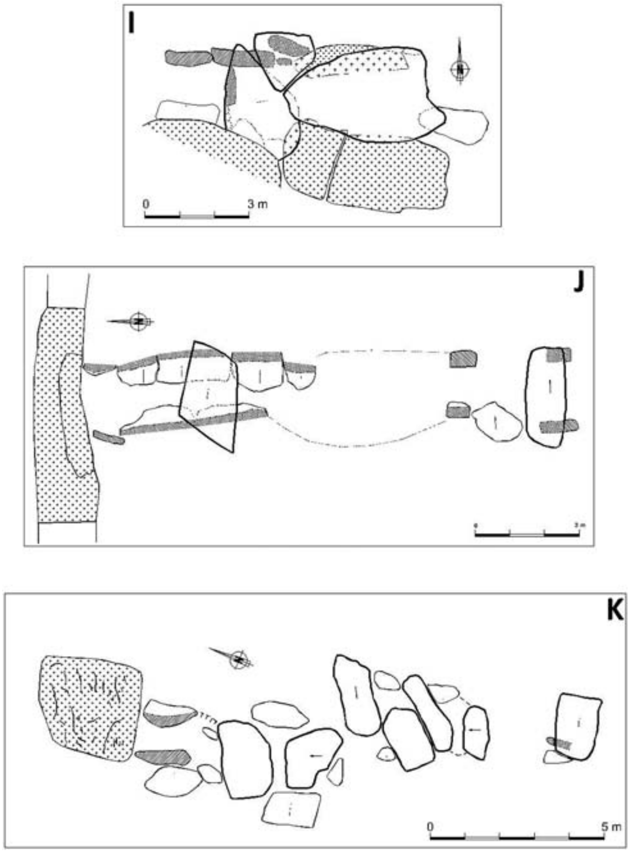


Fig. 17.4: Megalithic tombs with covered passages: (I) Roh Coh Coët at Saint Jean Brévelay (56); (J) Bois de Gouarec at Plélauff (22); (K) La Coudraie (56). (From Gouézin 2012)

La Coudraie at Augan (Morbihan)

Very degraded, this dolmen with covered passage uses a naturally outcropping stone at its northern end as support (Fig. 17.4, K). This impressive red schist rock, emerges about 1m from the ground, and presides over the 15m long burial chamber. The orientation is north–south with the entrance at the south. Close to this covered alley, immense natural rocks dominate the monument (Gouézin 1994).

Enez-Bihan in Pleumeur Bodou (Côtes-d'Armor)

Situated on the small island of Enez-Bihan, close to the mainland, but separated by the rise in sea level since the Neolithic, this dolmen has a covered passage and laterial entrance (Fig. 17.5, L). It is on a slope exposed to the south-west, and is built on outcropping granite (Daire and Le Page 1994). Part of the outcrop was used as the western wall of the tomb instead of orthostats. A narrowing is visible at the junction between the passage and the chamber. In the chamber four orthostats face a wall of natural rock. The capstones have disappeared. The external limits of the cairn appear to lie between the remains of a stone facing, and the natural rocks which protrude from the ground. One of these rocks has a series of cupules carved into a worked face.

Guilliguy at Ploudalmézeau (Finistère)

At the end of the inlet of Port Sall the rocky plateau of the same name rises to 29m. This plateau is adorned with a beautiful cross and a dolmen with covered passage and a lateral entrance to the south (Fig. 17.5, M). This monument was partially excavated in 1991/92 (Le Goffic and Peuziat 2001). The southern facade of the monument is represented by a kerb composed of several vertical stones alternating with drystone walling. The north-east face is bounded by a rock outcrop on which the monument leans. The north wall of the lateral cell is closed by this rock outcrop. A trial pit in the floor, in front of the end support, reached granite bedrock at a depth of 0.30m.

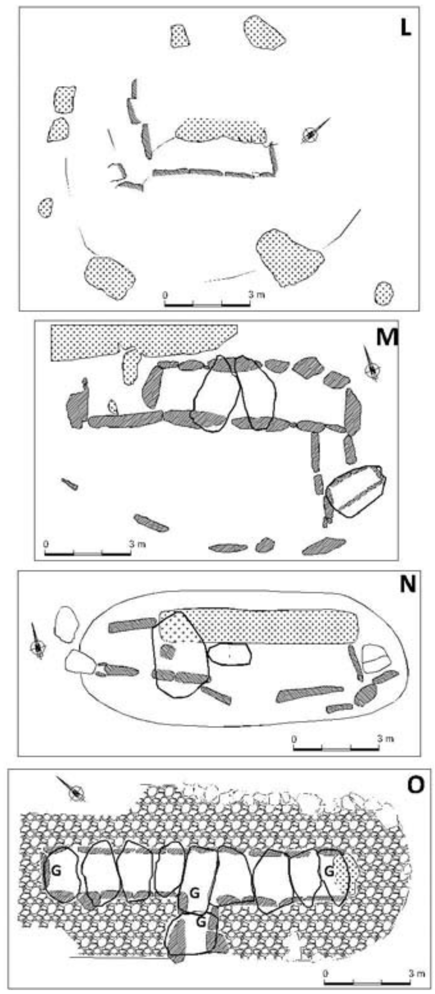


Fig. 17.5: Megalithic tombs with covered passages including those with lateral entrance : (L) Enez Bihan at Pleumeur Bodou (22) (from Daire and Le Page 1994); (M) Guilliguy at Ploudalmézeau (29) (from Le Goffic 2001); (N) Pont-Bertho at Plaudren (56) (from Gouézin 2012); (O) Petit Vieux Sou at Brécé (53) (from Bouillon 1989)

Fig. 17.6: Roh-Coh-Coët tomb with covered passage (I) and Neolithic megalithic quarry. (Photo: Philippe Gouézin)

Pont-Bertho at Plaudren (Morbihan)

Discovered in the 1990s (Gouézin 1994), this dolmen and covered passageway with side entrance has as its north wall an enormous block of natural granite outcropping from the underlying bedrock (Fig. 17.5, N). This block has several erosion bowls in its top. The south wall is formed by a series of standing stones with a gap between them in the middle that is probably the entrance. Only one capstone remains in place; a second has fallen inside the chamber. This monument has a terminal cell beyond the final upright at the western end. The whole structure blends perfectly into the environment, and its entrance faces part of the Arz valley. Not too far away, and very visible, there is a large accumulation of natural rocks. Within tens of metres a standing stone has been raised upright just on the periphery of some natural rocks. One face of this stone looks as if it has been split from the host rock; the other face carries all the scars of normal surface weathering.

Le Petit Vieux-Sou at Brécé (Mayenne)

At its south-eastern extremity, this dolmen with covered passage and lateral entrance has a naturally outcropping rock as its end wall (Fig. 17.5, O). The monument rests against a granite outcrop: its first orthostats, situated at the southeast, sit in sockets that have been dug into the bedrock. Bouillon suggested that "the Neolithic builders complicated their task by digging these sockets into the bedrock to get all the supporting uprights at the same height" (unless these sockets indicate stone quarried from them). This architectural implementation also shows that the natural rock rises markedly inside the burial chamber, close to the end upright on the southeast. A platform (1.50 ´ 2.00m) at the foot of the end wall could have served as an altar for offerings (or another use at which we can only guess). Whatever its purpose, it was formed by the chipping away of bedrock (Kerdivel and Mens 2010).

A tomb with covered passage in a megalithic quarry

Kerherne-Bodunan/Roh-Coh-Coët at Saint Jean Brévelay (Morbihan)

This megalithic monument is of the passage tomb type and was built in part by using slabs detached from a natural outcrop 7m long (Fig. 17.4, I). The length of this outcrop corresponds to the length of the chamber. A transverse internal rock plus some dry-stone walling seems to have been used as a chamber divider. Several orthostats and capstones completed this east–west aligned monument. The width inside is 1.7m and the headroom is 1.20m. It is impossible to see this monument from the western side of the promontory .

Roh Coh Coët (I) is without doubt the most spectacular monument in our analysis. It was essentially developed from one single natural rock outcrop. From this several slabs were split off and rearranged into a dolmen. Today, it is completely integrated into the landscape, and easily mistaken for one of the natural tors and other granite outcrops on the hillside. It enjoys a beautiful view over the valley. It is a wonderful example of architectural ingenuity by the builders: they obviously did not choose this site at random but could visualise the possibilities and potential in this outcrop. On our many visits with Luc Laporte we have also noticed, nearby and parallel to the tomb, a quarry for Neolithic stelae, (both unfinished stelae and negative marks where stone stelae had been removed) (Fig. 17.6).

Our first observations are that construction of the monument proceeded as follows (Fig. 17.7). The starting point was a natural slab of rock, 1m thick, at the top of the outcrop, which was aligned with and parallel to the neighbouring blocks. The first task was the detachment of the block and its removal 1.60m to the north. Next, the western part of the initial block was split transversely, and the part that was split off was pivoted and tilted. After that, the rest of the dolmen was built by adding orthostats and capstones. The most impressive of these has a beautiful cup

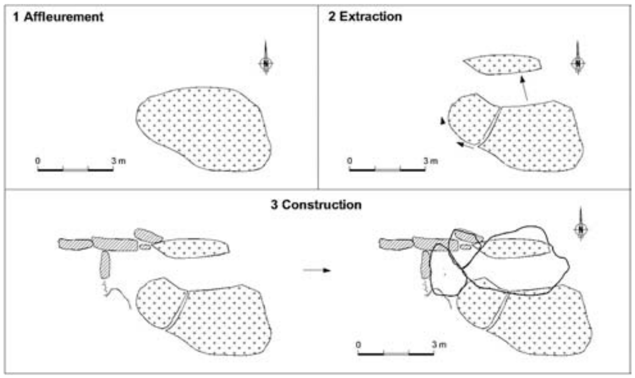


Fig. 17.7: Building phases of Roh-Coh-Coët passage tomb (I)

mark on top carved in its middle. Analysis shows, without doubt, that the first block that was split off came from the initial slab. The histogram obtained by 3-D photogrammetry shows that when the plotted envelopes of surface points are superimposed, the two faces match together exactly along the fracture (Fig. 17.8).

Architectural balance

Of the 15 monuments discussed, three are passage tombs, four are lateral entrance graves, five are chambered tombs, two are tombs under rock overhangs, and one is unclassified.

These monuments have been dated by their architecture, by the various archaeological artefacts found, or by details discovered in recent excavations. They all belong essentially to the Later Neolithic (Kérugou, Conguel, Croh Collé), and the Final Neolithic (Beaker). The sample shows the diversity of tomb types built in the Armorican massif during the Later and Final Neolithic, a phenomenon widespread in this territory. Outcrops were used either as the longitudinal wall of the burial chamber, (G, I, N, D, E, L, F); for the terminal cell of Guilliguy (M); for the end wall (K, O, J); as part of the end wall of the tomb (O, A); or as a "natural" orthostat (B, C)**.** Most of the natural rocks used as part of these structures were roofed by capstones except for La Coudraie (K), which had an end-stone much higher than the rest of the chamber, and the cist on the Island Saint Nicolas where the height of the natural outcrop exceeds the other supports by a large margin. The natural rock of Men Guen Lanvaux (D) acts as a capstone like that at Toul Bras (F). In the cist of Roch En Ezel (B), the presence of the natural outcrop in front of the entrance to the chamber calls to mind the in-situ rock used as the end-stone in certain passage graves and lateral entrance graves. All these monuments are integrated into very visible outcrops of granite or schist. It is possible that their cairns blended into the general aspect of the neighbouring terrain, but too little remains to be dogmatic on this. The Roh-Coh-Coët covered passage tomb (I) suggests the reoccupation of an older stelae quarry, or even the continued use of a site important to cult. If the re-use was not accidental, it may be evidence of the ongoing sacred character of certain locations, perhaps a sustained ancestral memory regarding places. The tomb under rock of Men Guen Lanvaux (D) reinforces this symbiosis between the natural and the anthropogenic.

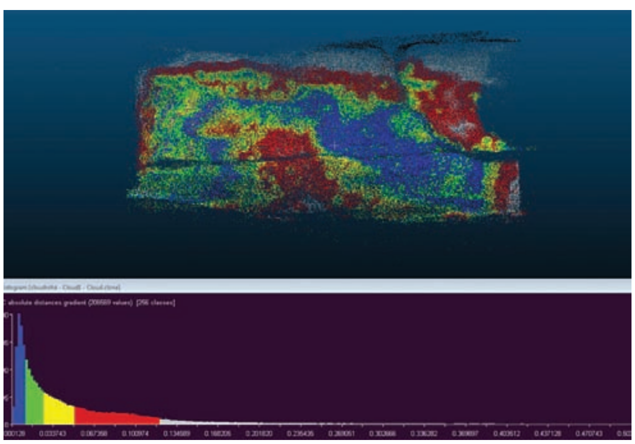


Fig. 17.8: Roh-Coh-Coët passage tomb (I): histogram from 3D scan demonstrating the bonding of two fractured faces. The software evaluates the correspondence between the two faces by matching their pointcloud. (Sofware: CloudCompare. Prepared by Conservatoire Numérique du Patrimoine Archéologique de l'Ouest: Jean-Baptiste Barreau Ingénieur d'Etude, Yann Bernard Infographiste and Florian Cousseau doctoral student, UMR 6566 Université de Rennes 1)

Discussion

The association of the domain of the dead and the mineral world emphasises the attachment Neolithic populations had with their environment. But what made them choose these particular places and rocky outcrops? Why did they hide these mortuary houses amongst these rocks with such calculated discretion, and at the same time position them to have, from the inside, such magnificent views? The answers may be found through visual observation of the landscape, and the topography around these monuments, together with an approach centred on the ways humans think (or may have thought), fine-tuned, of course, by phenomenology.

This goes beyond the classical observations of archaeological sites: as Tilley (2004) observes, it is important to try to understand the relations between populations and the characteristics of the area they inhabit. How did they perceive the environment in which they lived? What social memories did they associate with each site? Defaix cites examples from ethnographic as well as anthropological reports which "[register] the object studied and its relationship to the landscape, like a natural element in land management" (Defaix 2006, 185). He makes the distinction between a natural rock and a cultural stone. An impression is gained that the soul of the dead is entrusted to the stone in perfect symbiosis.

Bradley (1998) suggests that some monuments have been inspired by natural rock formations considered as the ruins of

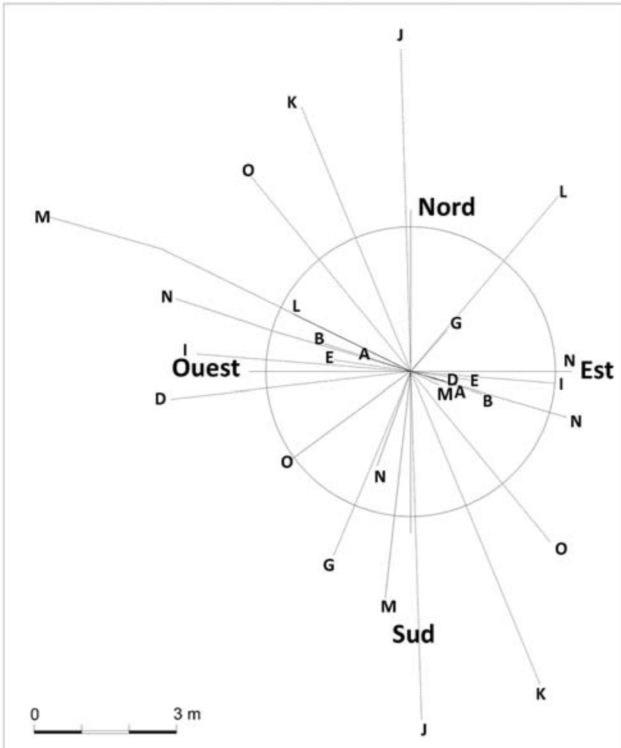


Fig. 17.9: Monument length and orientation. The length of the lines corresponds to the internal length of the monument and its passage

ancient ancestral graves. Incorporated in new monuments, the characteristics of monuments should be that they resembled natural landscape features. The monuments considered here, integrated amongst natural rocks, with their discretion – and in some cases their invisibility – does not fall in this category. Cummings (2002) mentions that, in south-west Wales, some monuments of the later Neolithic were carefully positioned in the landscape. It seems that many monuments of the later and final Neolithic adopt this kind of placement. Note, however, a special case – the site of Roh-Coh-Coët (I). This was a natural outcrop at the site that had already received extensive human attention during previous periods of the Neolithic.

These small hills, artificial and natural, are as one, without distinction. They impart a certain notion of disappearance. One finds this also with other graves of the Late Neolithic in the Paris basin or Champagne regions. The ostentatious setting so obvious in monuments of the previous periods is no longer appropriate. There is no longer co-visibility nor inter-visibility. The entrances of these tombs often look out over open panoramas (valley or ocean) some of would not leave one unmoved. It is worth considering this aspect in relation to other monuments of the Late and Final Neolithic. We note also that the orientation and the positioning of the natural rock is a major factor in setting the axis of construction; and furthermore the orientations of these tombs (Fig. 17.9), chambers and passages, does not indicate any preferred orientation (sunrise or sunset, moonrise or moonset, a fine view over the landscape).

Significant stone settings, whether or not they are near these mixed graves, may have been places for visitation and perhaps for particular rites. Scarre sees standing stones as markers of ordained places, having a particular connection with material things and natural reliefs. He considers that some of them have human forms "Not completely freed from their matrix and endowed with human features" (Scarre 2010, 9; 2011). It is true that a significant number of standing stones are raw blocks that have a sheared face as well as an eroded face, suggesting (for some) themes of fertility and growth, and even anthropomorphic forms (Tilley 2004). In the Iberian Peninsula, Calado refers to large, prehistoric sanctuaries at rock outcrops. The very suggestive but natural element of the outcrops of Barreira (Sintra, Portugal) makes one think of actual standing stones (Calado 2006). Did the people of the Neolithic associate the powers and the spirits of outcrops with the strange forms that developed due to weathering?

Conclusion

These tombs, integrated into the rock, become part of the mineral world while preserving a visual discretion, a discretion which applies equally to a large number of megalithic tombs with covered passages. In spite of modern techniques, it remains difficult to penetrate the mysteries of religious thought and forms of worship of the period. Prehistoric peoples transformed rocky outcrops into highly symbolic places, for the greater part bound up with funerary practices appropriate to their times and their environment. Their practice of implanting tombs in these landscapes and appropriating these outcrops of strange shape represents their way of seeing things. It strongly suggests that the mineral world and the geology around them influenced their religious behaviour and worship. This connection to the outcrops seems to date to the Late and Final Neolithic. It distances itself from older ostentatious concepts of burial monument. Standing stones, however, embody a different dynamic. Some seem to follow earlier norms, as they are small and discreet, while others, through their imposing size and engravings similar to those in Middle Neolithic tombs, could be earlier than these mixed monuments. The discovery of an important assemblage of ceramic material in a natural cavity in a granite outcrop at Castellic in Carnac is also a remarkable phenomenon to be noted (Gaillard 1893). A larger-scale study of a greater number of monuments from this period will be necessary to advance our knowledge further.

References

Bouillon, R. 1989. La sépulture mégalithique à entrée latérale du Petit Vieux-Son à Brécé (Mayenne). *Revue archéologique de l'ouest* 6, pp. 51–70.

Briard, J., Langouet, L. and Onnée, Y. 2004. *Les mégalithes de département d'Ille et Vilaine.* Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne, Institut Culturel de Bretagne: Rennes.

Calado, M. 2002. Standing stones and natural outcrop. The role of ritual monuments in the Néolithic transition of the Central Alentejo. In: Scarre, C. (ed.) *Monuments and Landscapes in Atlantic Europe: perception and society during the Neolithic and Early Bronze Age*. Routledge: London, pp. 17–35.

Calado, M. 2006. Les menhirs de la Péninsule Ibérique. In: Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et développement du mégalithisme de l'ouest de la France (Bougon, 26/30 octobre 2001)*. Musée des tumulus de Bougon: Bougon, pp. 613–635.

Cummings, V. 2002. All cultural things: actual and conceptual monuments in the Neolithic of western Britain. In Scarre, C. (ed.), *Monuments and Landscape in Atlantic Europe: perception and society during the Neolithic and Early Bronze Age*, Routledge: London, pp. 107–121.

De Cussé, F. 1885. Une sépulture sous roche. *Bulletin de la Société Polymathique du Morbihan* 1885, pp. 57–58.

Daire, M. Y. and Le Page, G. 1994. Un monument mégalithique sur Enez-Vihan en Pleumeur-Bodou (22). *Bulletin de l'Association Manche-Atlantique pour la Recherche Archéologique dans les Îles* 17, pp. 49–56.

Defaix, J. 2006. Mégalithes et espace : pour une approche anthropologique, In: Duhamel, P., (ed.) *Impacts interculturels au Néolithique moyen. Du terroir au territoire: sociétés et espaces, Actes du 25e colloque interrégional sur le Néolithique, Dijon, 20–21 Oct. 2001.* Revue Archéologique de l'Est: Dijon, pp. 185–190.

Gaillard, F. 1892. Le dolmen de la Pointe de Conguel à Quiberon. *Bulletin de la Société d'Anthropologie de Paris,* 1892, IV Série, pp. 37–48.

Gaillard, F., 1893. Gisement néolithique du Castellic-en-Carnac. *Bulletin de la Société d'Anthropologie de Paris* 1893, IV° Série, pp. 225-231.

Gouézin, P. 1987. *Fouille de sauvetage d'une sépulture mégalithique, le Roh-Du (B), commune de La Chapelle Neuve (Morbihan).* Rapport Scientifique, Service Régional de l'Archéologie: Rennes.

Gouézin, P. 1994. *Les mégalithes du Morbihan intérieur, des Landes de Lanvaux au nord du département.* Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne, Laboratoire d'Anthropologie Préhistoire (UPR 403 CNRS.), Université de Rennes 1: Rennes.

Gouézin, P. 2007. *Les mégalithes du Morbihan littoral.* Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne, Institut Culturel de Bretagne: Rennes.

Hamon, G., Lemoulan, Q., Mens, E. and Vissac, C. 2007**.** *L'Île St. Nicolas, fouille programmée du 9 au 21 septembre 2007*. Service Régional de l'Archéologie: Rennes.

Kerdivel, G. and Mens, E. 2010. *Sites d'acquisition et de transformation de la dolérite en Mayenne. Rapport de prospection thématique 2010*. Service Régional de l'Archéologie: Nantes.

Langouet, L. 2004. *Les mégalithes de l'arrondissement de Dinan.* Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne, Institut Culturel de Bretagne: Rennes.

Langouet, L. 2005. *Les mégalithes de l'arrondissement de Saint-Brieuc*. Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne: Rennes.

Langouet, L. 2006. *Les mégalithes de l'arrondissement de Guingamp.* Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne: Rennes.

Le Goffic, M. and Peuziat, J. 2001. *Le site de Guilliguy en Ploudalmézeau (Finistère), du mésolithique à l'Age du Bronze.* Revue Archéologique de l'Ouest, supplément 9: Rennes, pp. 43–62.

Le Rouzic, Z. 1898. Carnac, fouilles faites dans la région en 1897 et janvier 1898. Dolmen de Mané Rohenezel commune de Crac'h. *Bulletin de la Société Polymathique du Morbihan* 1898*,* pp. 67–68.

Le Rouzic, Z. 1933. Morphologie et chronologie des sépultures préhistoriques du Morbihan. *L'Anthropologie* 43 pp. 225–265.

Marchat, A. and Le Brozec M. 1991. *Les mégalithes de l'arrondissement de Lannion*. Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne: Rennes.

Péquart, M. and Péquart, St J. 1927. Dolmen de Brunec (Îles Glénans). *Bulletin de la Société Archéologique du Finistère* LIV, pp. 73–83.

Scarre, C. 2010. Stone people: monuments and identities in the Channel Islands. In: Furholt, M., Luth, F. and Müller, J. (eds), *Megaliths and Identities, Early Monuments and Neolithic Societes from the Atlantic to the Baltic. 3rd European Megaltihic Studies Group Meeting, 15 May 2010 at Kiel Universitiy.* Frühe Monumentalität und soziale Differenzierung 1: Habelt: Bonn, 95-104.

Scarre, C. 2011. *Landscapes of Neolithic Brittany*. Oxford University Press: Oxford.

Sebillot, P. 1985. *Le folklore de France, Les monuments*. (1st edn 1904–1906). Imago: Paris.

Sparfel, Y. and Pailler, Y. 2009. *Les mégalithes de l'arrondissement de Brest*. Collection Patrimoine Archéologique de Bretagne, Institut Culturel de Bretagne: Rennes.

Tilley, C. 1994. *A Phenomenology of Landscape, Places, Paths and Monuments*. Oxford: Berg.

Tilley, C. 2004**.** *The Materiality of Stone, Explorations in Landscape Phenomenology*. Berg: Oxford & New York.

18

The stone rows of Hoedic (Morbihan) and the construction of alignments in western France

Jean-Marc Large and Emmanuel Mens

Abstract
Rows of standing stones are emblematic monuments of early Neolithic societies in western Europe. In Brittany, the phenomenon is important, and there is continuing debate about when they were first erected, how they evolved, and, of course, their meaning. The authors have used the evidence provided by two island sites in southern Brittany to ponder the issues of the precise moment they appeared, their possible link with the last societies of hunter-gatherers present in the peninsula, and their structural evolution. However, very few similar sites have yielded dependable information.

Keywords: standing settings, alignment, Final Mesolithic, Neolithic, Brittany

Introduction

Over the last two decades the stone rows of Brittany have been repeatedly reinterpreted by different researchers in various fields. From standard excavation programmes (Moulin de Cojou, Locmariaquer, Monteneuf) to rescue excavations (Belz and La Trinité), using various methodological approaches (GIS, surface imaging, geophysical prospection, together with complex systemic studies such as geomorphology and megalithic technology), Brittany's standing stone alignments are once again the focus of scientific interest of the first order. Such structures pose a variety of problems. The first and most important is their significance. The second problem is the chronological and cultural attribution of the earliest evidence of the phenomenon, which research consistently dates to the second quarter of the 5th millennium BC. Its potential emergence in an previous period has yet to be proven. If the phenomenon is to be considered a local one, then the last populations of hunter-gatherers must be included in the debate. If it underwent external influences, which were they? Is it still relevant to refer once again to external influences that, even today, we are unable to define? Finally, it is on the structural features of these architectures that we are making progress. Systematic study of a number of features of these rows has resumed in the last twenty years, following a rare previous attempts. Standing stone rows now appear as complex evolving monuments whose use seems to have spanned over two millennia, albeit with interruptions.

This paper revisits a number of stone rows (Fig. 18.1) that will be compared to each other, in order to better grasp their structural complexity as well as their chronological and cultural framework. The discussion is supported by evidence from two rows we excavated on Hoedic island (Morbihan, France). To begin with, we will present monuments where the erection of single rows of standing stones is firmly dated to the second quarter of the 5th millennium BC (Moulin de Cojou at Saint-Just – Ille-et-Vilaine; Lannec er Gadouer at Erdeven – Morbihan; Le Grand Menhir alignment at Locmariaquer – Morbihan; and the G2 alignment of Le Bois de Fourgon at Avrillé – Vendée, a site located to the south of the Loire estuary). All of these rows present structural elements broadly comparable with what has recently been recognised in the recent excavations on Hoedic. Secondly, the geographical spread of the phenomenon will be presented with reference

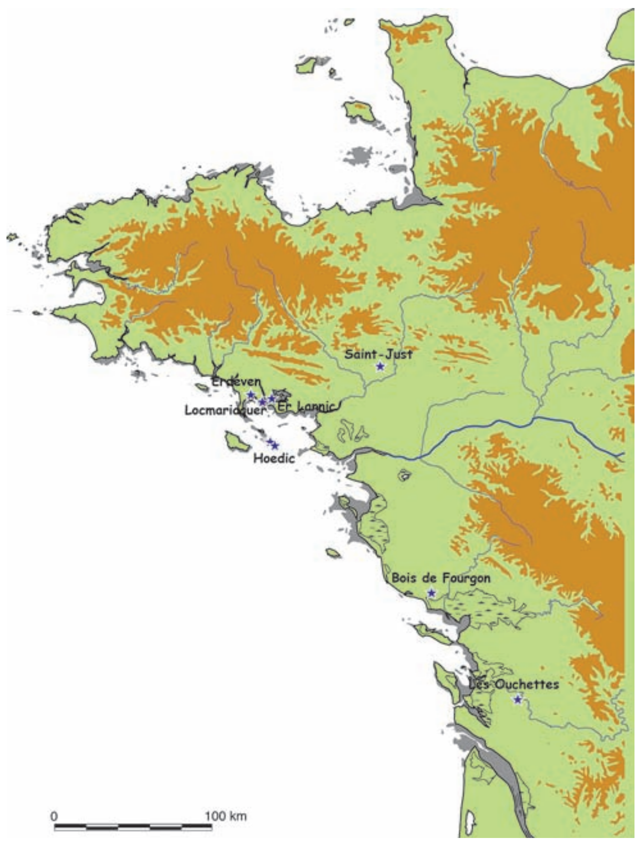


Fig. 18.1: Location map of sites mentioned in the text

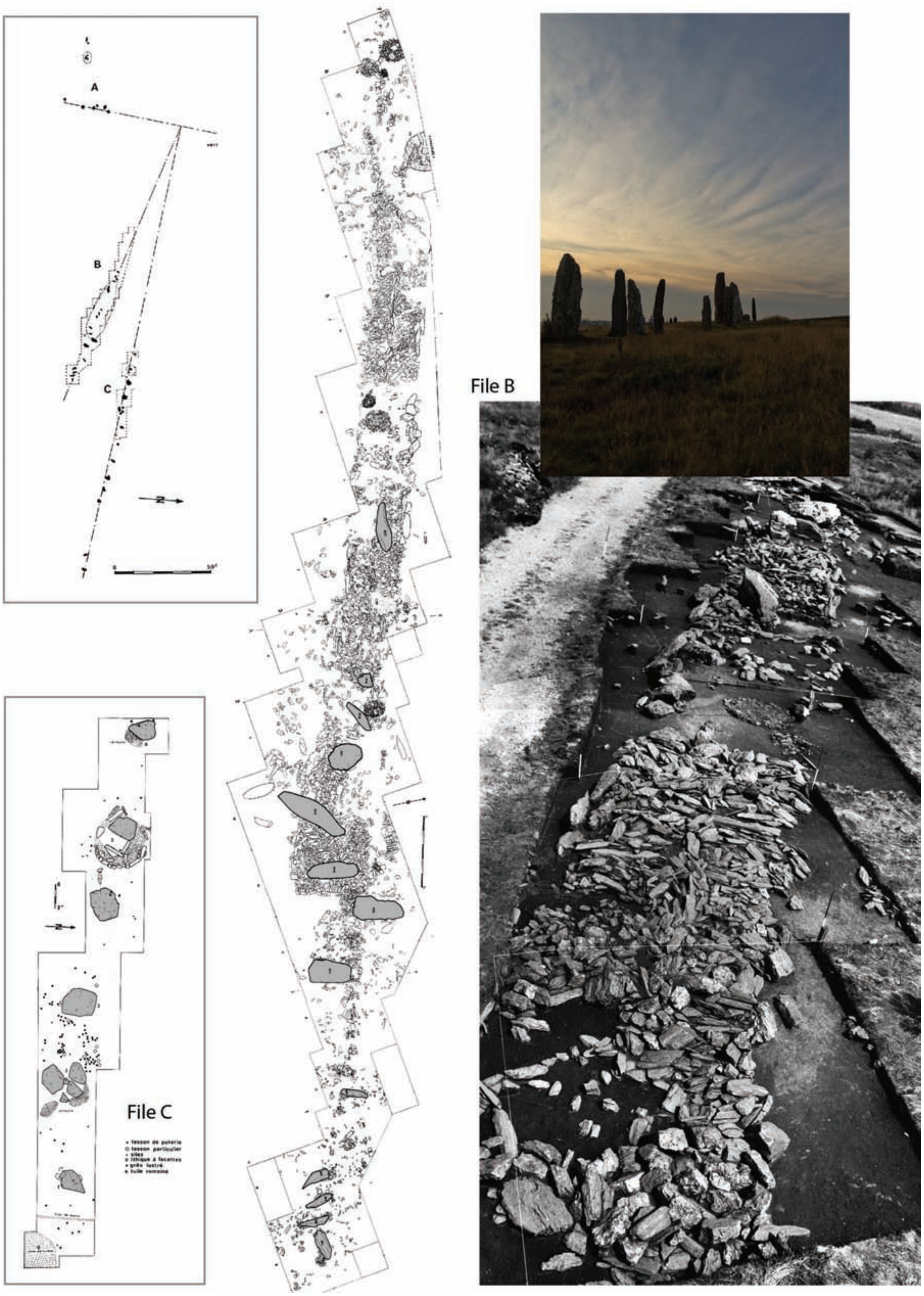


Fig. 18.2: Rows of Moulin de Cojou at Saint-Just (Ille-et-Vilaine, France). The site comprises three rows, of which only Rows B and C have been excavated. Row B includes, as at Groah Denn, a paved area and also traces of the presence of timber elements. (After Le Roux et al. *1989)*

to Les Ouchettes at Plassay in Charente-Maritime, far south of the Loire Valley. Finally, we will discuss the not-so-recent excavations and restorations of the northern half of the stone enclosure of Er-Lannic at Arzon, Morbihan, whose structure can be compared with similar sites in southern Portugal.

1: Moulin de Cojou at Saint-Just (Ille-et-Vilaine)

When, between 1978 and 1981, Charles-Tanguy Le Roux began studying the alignments of standing stones of Le Moulin de Cojou at Saint-Just, in an area threatened by repeated fires, he showed the same determination he had applied to the study of megalithic tombs. Using the methods of the time, he focused on a structural study of the whole site. He was able to integrate all the architecture associated with the standing stones thanks to their good state of conservation. The site of Moulin de Cojou consist of three rows (Fig. 18.2): two are orientated approximately east-west, with a slight difference such that they would converge at a point which lies on the alignment of another line of stones to the west (A). Only the east–west rows (B and C) have benefited from archaeological investigations (Le Roux *et al.* 1989).

The stone alignments of Moulin de Cojou provide an essential reference for the study of complex structures associated with stone rows. The exceptional preservation of Row B enables us to make reliable comparisons with the other sites. However, the lack of stratigraphic analysis for Row B, in particular, does not allow an accurate reading of the structural sequences. Whilst general phases have been proposed by Le Roux, the framework required to address these seriously is lacking.

For our purposes, several facts about Row B are worthy of attention. Two or the initial stones are indisputable: a third was removed but the packing around the base was preserved. The first important fact is the presence of hearths built prior to the erection of the line of upright stones, and dated to the middle of the 5th millennium BC. We would also point out that the construction of this series of standing stones was followed by the development of a paved area edged with vertically arranged slabs. This pavement seems to have been built in several stages. The excavator noted that the stone

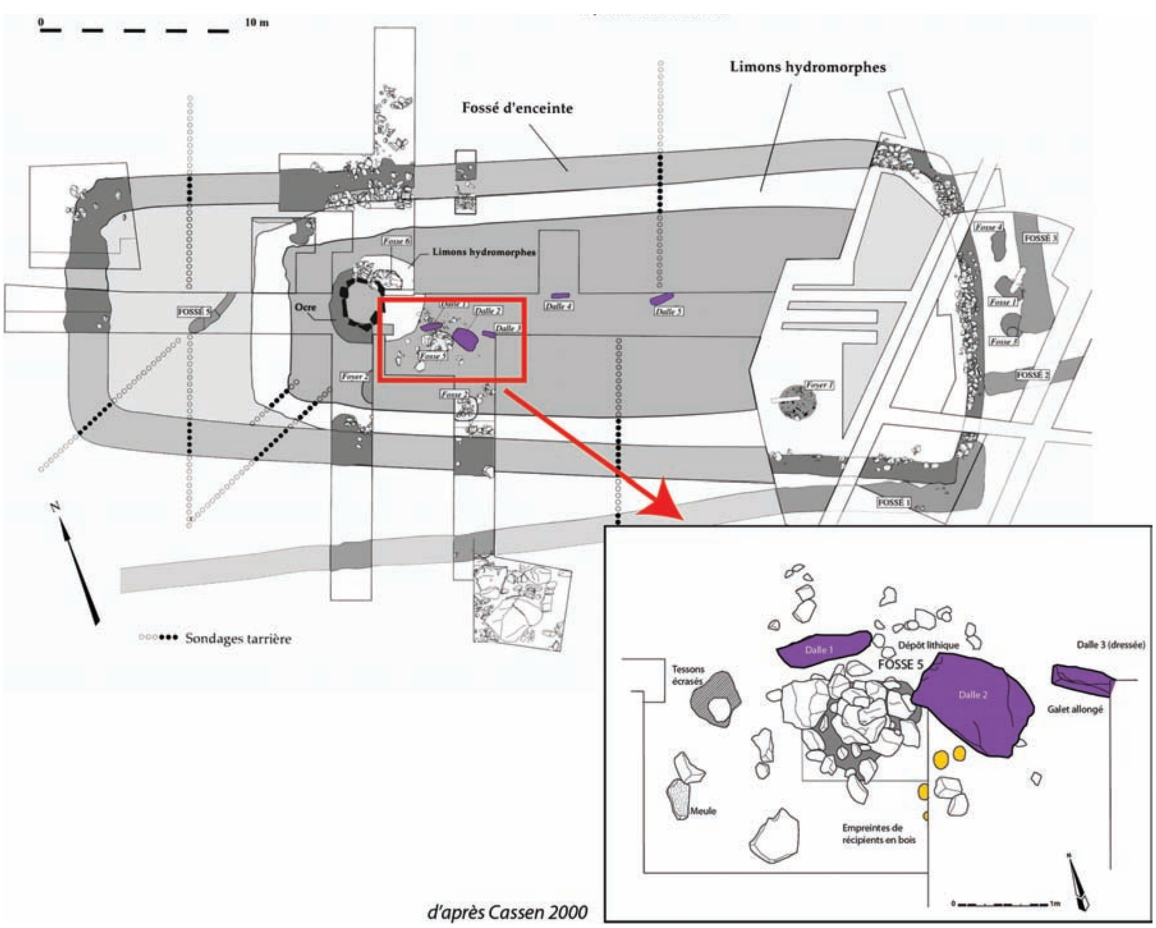


Fig. 18.3: Lannec er Gadouer at Erdeven (Morbihan, France). The layout of the burial mound, overlying the row of standing stones that it destroyed. Evidence of hearths, deposited objects and the imprints of timber remains are comparable to those found at Douet, Groah Denn, Le Bois de Fourgon and Moulin de Cojou. (After Cassen et al. *2000)*

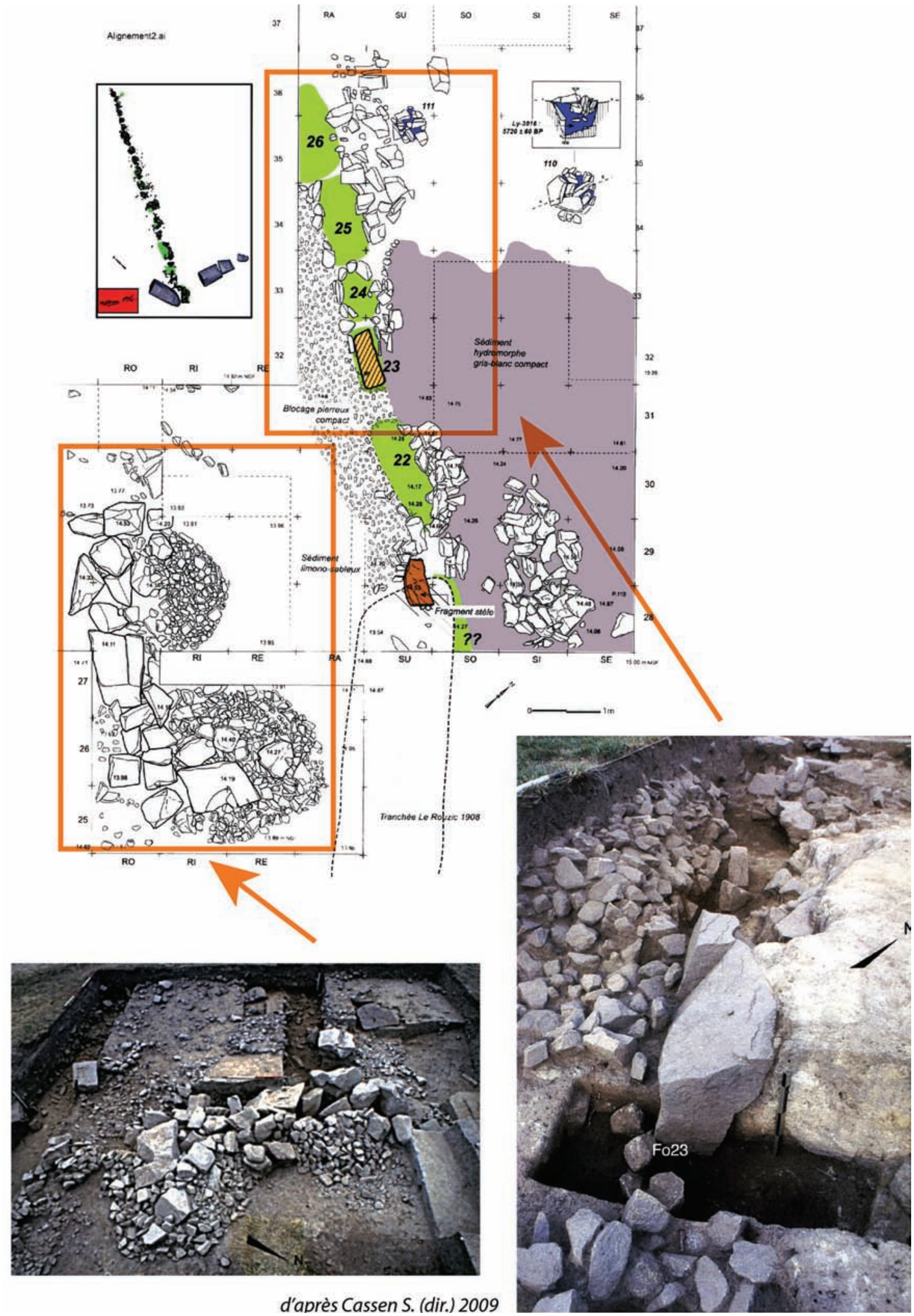


Fig. 18.4: Grand Menhir secondary row at Locmariaquer (Morbihan, France). The secondary row is almost orthogonal to the rest of the main line and is also marked by the presence of the Grand Menhir at one end. It was set within a linear pavement of massive stones. (After Cassen 2009)

alignment was constructed in several phases following the axis of the monument, with an the eastern extension consisting of further standing stones and timber uprights. A layer of earth covers this part. Other upright stones were added to the central section.

The archaeological material dates the initial phase of this alignment to the beginning of the middle Neolithic with ceramics related to the Cerny and Chambon cultures. A significant resumption of activities, together with development of what are interpreted as funerary structures, took place in the Beaker and Early Bronze Age periods.

2: Lannec er Gadouer at Erdeven (Morbihan)

The burial mound at Lannec er Gadouer was explored by Cassen and his team (Cassen *et al.* 2000). Five large stones were found overlain by the mass of the mound (Fig. 18.3). Two of them (3 and 4) were still upright. All these stones form an apparently single line in an east–west direction. Complementary structures (pits, hearths) were also found, probably related to the stone row set in a palaeosol. All of these features were covered by the mass of the burial mound, which implies that the alignment was built before the construction of the mound. This evidences the evolution of a stone row that had been erected in the first half of the 5th millennium BC. Pits near some of the slabs contained specially deposited objects (a flint blade, elongated pebble, and grindstone). The discovery of similar deposits at both Le Douet and Groah Denn on Hoedic inclines us to an attribute these to the middle Neolithic in its early phase. A short distance away, a series of three pits arranged on a north–south line was found about 15m east of the last block of the alignment. Deposits found at the bases of the pit are comparable with the others. Two hearths were also found. One has been partially studied (Hearth 2): it was located a few metres to the southwest of slab no. 1, the second is about 20m to the east. Pit 5, near slabs 1 and 2, has been dated by radiocarbon to between 4694 and 4375 cal BC, and Pit 2, a little further away, is dated to between 4845 and 4531 cal BC, which is consistent with the date obtained for hearth M1 at Le Douet.

The stone alignment therefore pre-dates the building of the burial mound of the Castellic Middle Neolithic which obliterated it completely. Hearths and pits with votive

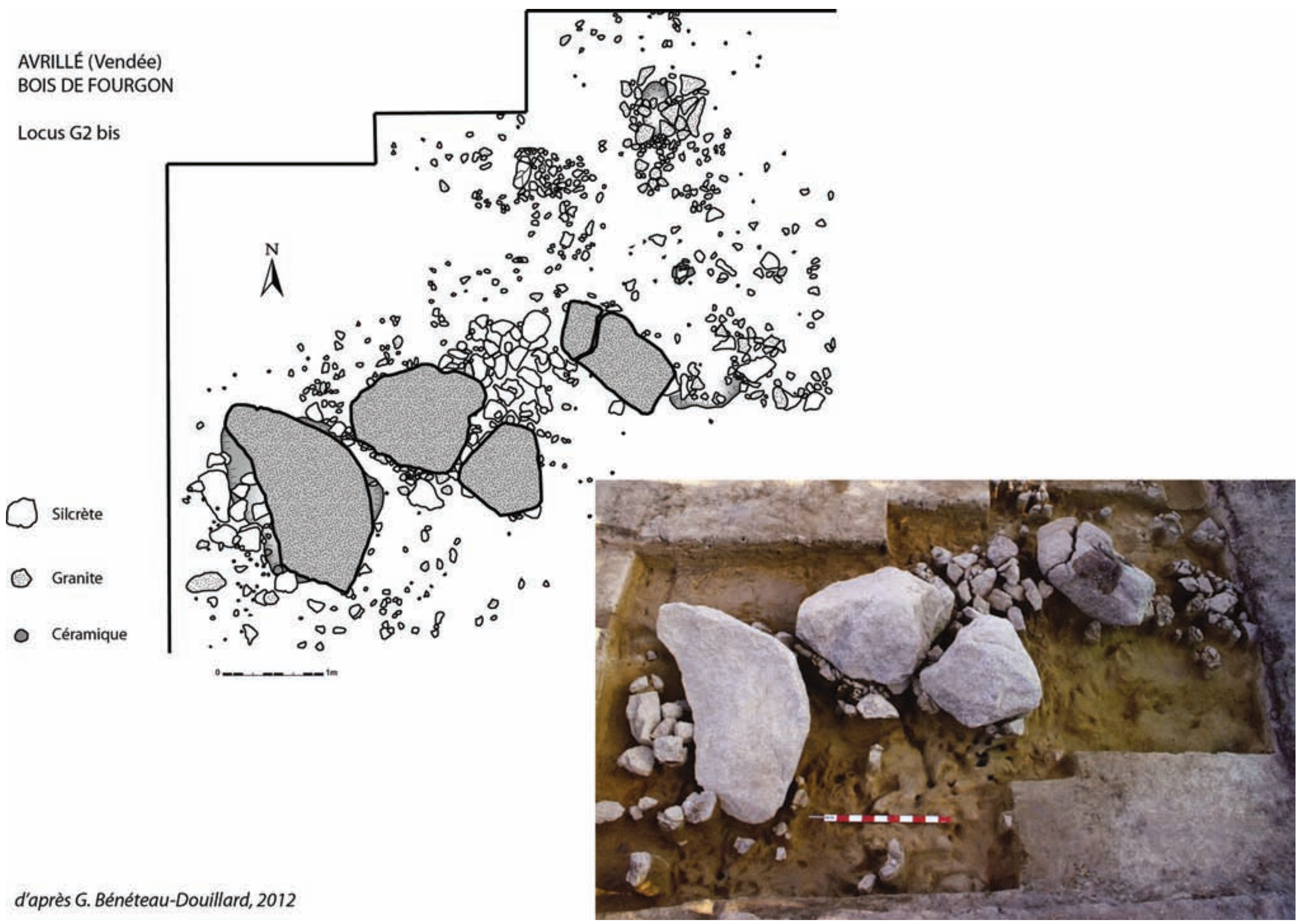


Fig. 18.5: Locus G2 bis at Le Bois de Fourgon at Avrillé (Vendée, France). The remains of a small line of stones that were originally erect, then pulled down and broken up. Deposits of ceramic and lithic artefacts dated to the 5th millennium were present. (After Bénéteau-Douillard 2012)

deposits, particularly a pebble, are associated with the stone row. The dating and archaeological evidence place the initial phase of construction of the row in the second quarter of the 5th millennium BC.

3: The secondary alignment of the Grand Menhir at Locmariaquer (Morbihan)

The two rows of standing stones that once existed near the Grand Menhir Brisé at Locmariaquer (Cassen 2009) require a fresh comparative perspective with other alignments of the same type (Fig. 18.4). For our purposes, we suggest an ancient occupation of the site, dated to the Early Neolithic by the presence of some pottery fragments. This evidence is supplemented by radiocarbon dates which place the building of the stone rows in the middle of the 5th millennium BC: this is consistent with what is known elsewhere. Hearths are found near the main north–south alignment. Several of them were identified in close proximity with the stone row, and one yielded two dates in the second half of the 5th millennium.

A formal distinction must be made between the main north–south alignment and the "secondary" one that is set at a right angle to the main line (see Fig. 18.9) and is oriented towards the north-west. The latter seems to have the Grand Menhir as its starting point (Fig. 18.4). Whereas the stones of the main row have relatively loose stone packing around their bases, the secondary row is different. Pits suggest that the stones were almost touching. On the south side, blocking stones with a notably compact appearance were uncovered.

This assembly is doubled by a parallel line of large quarried stones embedded in a stony matrix. The structuring of this part of the site is reminiscent of the double wall effect found at Groah Denn on Hoedic. Such a layout must have had a specific meaning.

4: The G2 bis alignment of Bois de Fourgon at Avrillé (Vendée)

The megalithic complex of Bois de Fourgon at Avrillé (Vendée) deserves its name: *complex*. It comprises a wide range of standing and lying megaliths, mounds or tumuli, and a Neolithic enclosure: it has been studied for some 20 years by Bénéteau-Douillard and his team (Bénéteau-Douillard 2012). Among the alignments of stones, which are mostly restored, one is unique (Fig. 18.5), looking rather different from the other stones laid out in the landscape. Three stones were lying in a white sandy area, later covered by a thick layer of sandy humus. They formed a single line that was later destroyed when the stones were deliberately pulled down. They were smaller in size than those remaining upright in other rows. We note that the original soil seems to have been scraped before the blocks were erected, but this is not proven. The stones are either set in pits dug into the granite substrate, or simply placed on the ground with the support of large stones lying on the surface. One menhir is set in a shallow pit with a packing of stones to ensure its stability. The presence of a coherent mass of stone rubble near a menhir suggests this was the base on which it was positioned. One stone seems to have been roughly carved to suggest female features, which is reminiscent of Stone M1 of the Douet alignment on Hoedic, and also of the Bonne Chère menhir of St Etienne at Malguénac, Morbihan.

Deposits found at the base of the three stones are characteristic of a ritual use of the site in the middle of the 5th millennium BC. The ceramic remains and two oval-mouth vessels support this chronology. These artefacts date to the beginning of the middle Neolithic: they are related to the cultural landscape of the Poitou and Centre regions and southern Brittany (Hamon 2012). The presence of a chisel made from polished fibrolite and a knife made of flint from Charente suggests strong links with that chronological and cultural complex. The age of the deposits and the erection of the stones is confirmed by radiocarbon dating carried out on charcoal discovered under Stone 1 (4708–4498 cal BC). The three stones were pulled down and two of them were broken. The director of the archaeological excavation believes this represents a deliberate separation of the "head" from the "body" of the stones, something noted at several other menhir sites, including the so-called "Serpent" megalithic arrangement on the same site.

5: Groah Denn and Le Douet on Hoedic, Morbihan

In our systematic surveys of the island complex of Houat and Hoedic, we identified a number of stone alignments. One, Le Douet, is located on the edge of a granite cliff such that the stratigraphy is visible. We observed that elements of ancient land surfaces were preserved due to a sandy cover that was established very early, with no subsequent erosion from agricultural activities. Furthermore, whereas, research on rows of standing stones was common, few such studies had been conducted on the original undisturbed soils. Therefore the Hoedic excavations provided an ideal opportunity to study the buried soils, and try to approach the meaning of the stone rows. Besides, whereas comparative analysis dated them to the 5th millennium, direct evidence remained scanty. Confirming the antiquity of the monuments was therefore an additional objective of the research undertaken in 2004.

The first study concerned the site of Le Douet, located on the edge of a cliff (Large and Mens 2009). A set of eight stones was exposed, standing in a single row. The prehistoric surfaces were well preserved, which made it possible to uncover traces of symbolic actions like object deposition, although the preservation of organic materials was virtually non-existent (only a few pieces of charcoal have provided radiocarbon dates). In addition, potsherds found on the original ground surface illustrate the earliest Neolithic occupation known on the island. Some of the standing stones have undergone human modification, so they can be classified as "stelae".

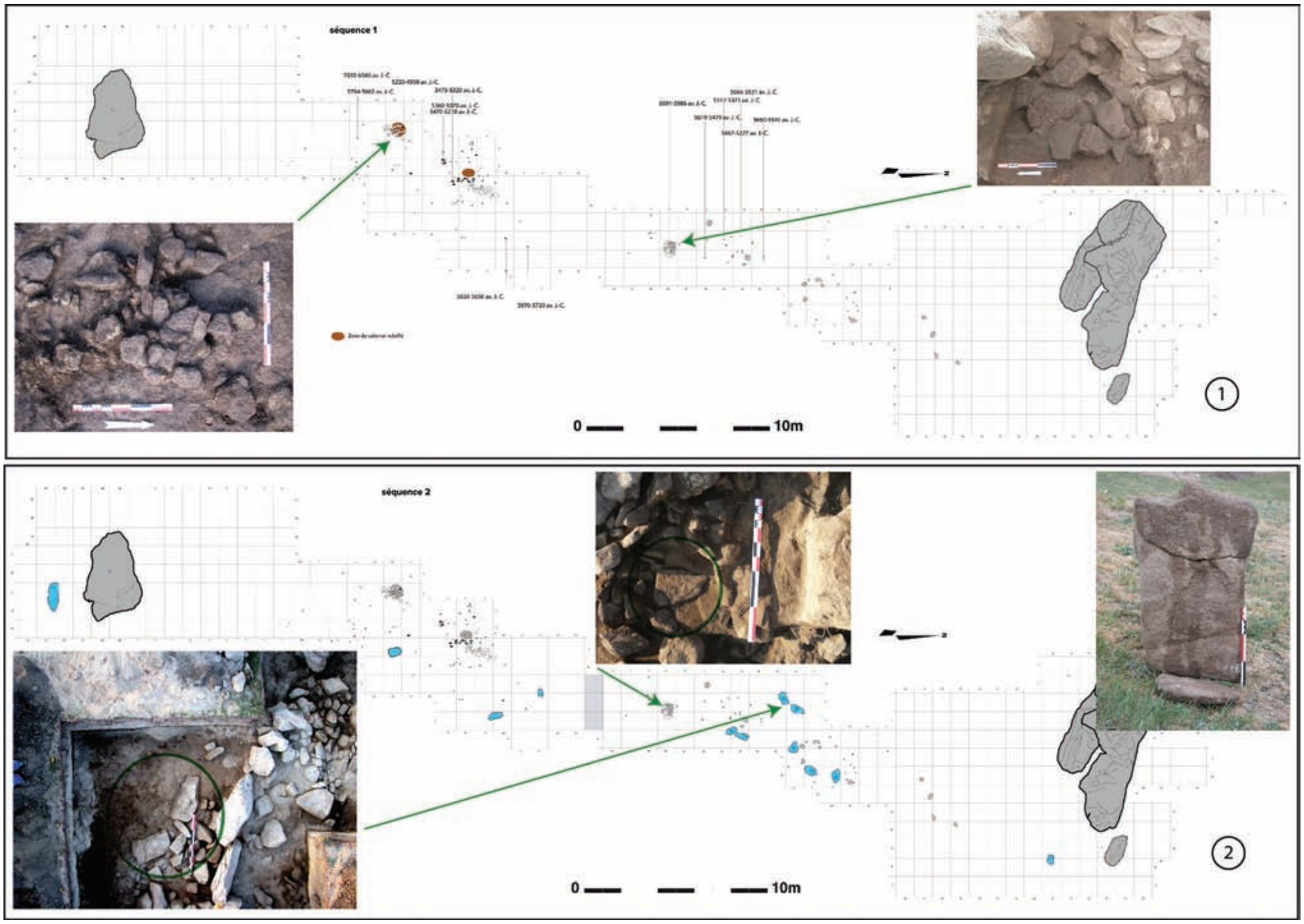


Fig. 18.6: Groah Denn on Hoedic (Brittany, France): 1: dismantled hearths dating from the mid-6th millennium BC. Some fire-reddened stones were reused as packing for the stones erected during the next phase. 2: slabs, some of which have been shaped, lying on the edge of the paved structure that surrounds the bases of the standing blocks. One shaped slab was found in the packing of a stone-hole, which proves that the shaped slabs predate the erection of the blocks

During the initial phase of activity, this alignment was used for symbolic purposes: a row of standing stones, some of them forming representations, were set up as a stage set. A drastic change occurred 1200 years later, when the stones were reused by the local population to delimit an activity area.

On the north coast of Hoedic, a few tens of metres to the west of Le Douet, another row of standing stones was just discernible within the covering sand dunes. Set between two huge natural stones that were highly visible from the sea, it seemed to complement the Douet alignment. In fact, a detailed study of the entire Groah Denn, between 2007 and 2012, revealed a more complex structure than that of Le Douet, developed through 14 successive stages over the period between the middle of the 6th to the end of the 4th millennium BC. During the initial phase, dated to the 5th millennium, a number of stones were erected in a single row, embedded in a linear stone matrix in a very complex arrangement. Deposits found at the base of some standing stones reveal the ritual nature of the place. This monument underwent several phases of erection of stones and resurfacing of the pavement. In a later phase, another paved area was built, near to which were found several accumulations of flint knapping waste.

At Groah Denn, the identification of as many as fourteen structural sequences raises the question of the evolutionary nature of this type of monument. Its complexity is such that we can no longer consider alignments as a single phenomenon, frozen and unstructured. Yet, Groah Denn is not a large monument. All indicators suggest that it was built by a small group of people, and that for each episode of construction only few people would have been mobilised. However, evidence from other human activities on this site suggests that a developed technology was not available, and the construction techniques identified are similar to those found at the Douet stone row.

The initial construction sequences clearly indicate intentional architecture. The monument was built upon a prior occupation of late Mesolithic date, characterised by

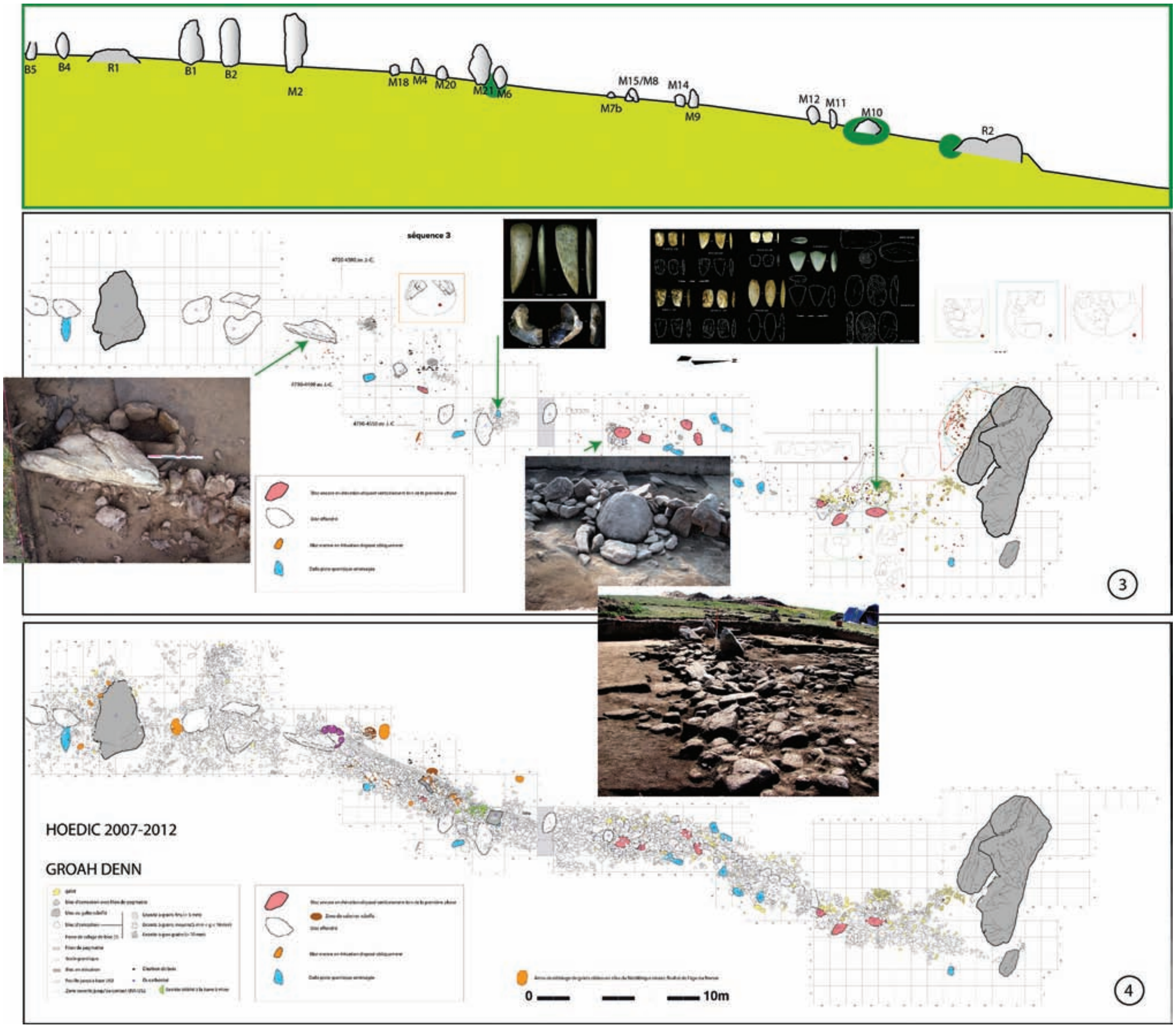


Fig. 18.7: Groah Denn on Hoedic (Brittany, France). 3: construction of a single line of erected blocks, integrating natural blocks. Objects were intentionally deposited at the base of some of them. Near the largest block of the line, a tomb containing the remains of a burial. 4: plan of all structures discovered during the excavation, incorporating both initial structures and changes in the 4th and 3rd millennia BC.

heated stone structures (Fig. 18.6, no. 1). This occupation level, sealed by a sedimentary layer, was partially destroyed by the erection of monoliths in the Neolithic period. A series of small worked slabs, probably once upright, were pulled down and placed at the periphery of the monument. Some were found in a pit fill (Fig. 18.6, no. 2). In the second stage, the stones were erected (Fig. 18.7, no. 1). In the third stage, a number of items were deposited at the base of some of the standing stones. These included axe blades, ceramics, grindstones, broken pebbles, shell deposits, and a lithic assemblage comprising a carnacean-type axe blade and a large flint flake (Fig. 8.7, no 1). These deposits were subsequently covered. In the third stage, the construction of the monument continued with the addition of a linear paved surface for embedding the standing stones.

In the final phases, the site was reused in the 4th and 3rd millennia (Fig. 8.7, no. 2). Its function apparently changed from symbolic to functional. The structures were used to delimit an area devoted to the knapping of coastal flint pebbles. During that phase, other blocks were added, laid flat or on edge. Rubble and pebbles were positioned in the spaces between the blocks. The large central stone (M2) was pulled down, the smaller blocks left in place or displaced. A renewed interest in the row is perceptible at the end of the Neolithic or Early Bronze Age, and evidenced by a circular tomb dug into the sediment and bounded by a series of continuous upright granite slabs. The badly damaged remains of a young adult were found inside.

Between 4700 and 4300 BC, Groah Denn complemented Le Douet (Fig. 18.8). Its study provides new evidence for aspects we only touched upon at the previous site (Large and Mens 2009). Groah Denn is an indicator of the structural complexity of standing stone alignments and their implementation and use, which is apparent only when the sites are well preserved, with contemporary soil surfaces present. Indeed, the architecture of these sites is so fragile that it can be destroyed by a few highly motivated individuals acting with very limited resources. In addition, the structural study provides valuable information, not only about the complexity but also the changing use of the site. These monuments were evolving and dynamic: they had a ritual function that took into account not only features in the landscape, but also the remarkable lines formed by fault lines in the bedrock or the movement of the sun, as at Le Douet, for example (Large 2014).

The two rows of standing stones studied on Hoedic clearly show that they are complex architectural features, set within a symbolically meaningful landscape open to further developments. These recent studies of well-preserved sites significantly challenge simplistic ideas about single rows of standing stones. The excavations by Le Roux at St Just, and those of Lecerf at Monteneuf, had already indicated the structural complexity of these sites. The work undertaken on Hoedic confirms their observations. Understanding such architectures is still more challenging when only a few upright stones are left (or have been even completely destroyed at some sites), especially when contemporary soils and structures are absent. Yet, in all cases, the dating of such structures to the 5th millennium is confirmed, and the use of these stone alignments to stage an event, or to materialise an idea or belief, is also evidenced.

Fig. 18.8: Le Douet on Hoedic (Brittany, France). 1: alignment of eight blocks oriented towards the summer solstice sunrise. 2: block located at the south-west end, its natural protuberances intentionally shaped. No. 3: ceramic vessel at the base of this block, placed with its opening in contact with the stone: an intentional act. 4: close to the same block, the remains of a hearth dating from the first half of the 5th millennium. 5: pebble deposits found at the base of one of the standing stones.

6: The valley of Ouchettes at Plassay (Charente-Maritime)

A rescue excavation carried out at the site of Les Ouchettes permitted the excavators to identify various occupations from the Mesolithic to the Neolithic. Several structures with traces of burning and abundant ceramic artefacts have been the subject of a multidisciplinary study under the supervision of Luc Laporte and Christophe Picq (Laporte and Picq 2002). Among the structures studied, one specifically relates to our subject (Fig. 18.9).

Seven large stones were visible at roughly the same distance from a bed of limestone slabs about 20m long on the eastern slope of the valley of Les Ouchettes. Their size varies between 70cm and 90cm in length, and 50–70cm in width. Whilst the human origin of the layout is still debated, those doubts seem to be unfounded today, as a pit with stone packing and vertical slabs set all around has been identified in the north of the site. At the other end, to the south, a small cist constructed of nine flat rectangular stones arranged in a contiguous fashion was dug into the gravel slope. Two limestone slabs were used to cover it. This structure, despite the absence of bone remains (which are not preserved across the site), is interpreted as a burial. Another pit was uncovered in the immediate vicinity of the alignment.

The partial preservation of a monument of this type south of the Marais poitevin implies the existence of a common ideology across a vast territory between Armorica and Saintonge. It forms part of a general tradition of large artificial structures along the Atlantic coast, associated with similar cultural assemblages.

The stone row at Les Ouchettes is included within a entirely paved area, in the fashion of the Moulin de Cojou, Groah Denn, and Er Lannic alignments. This is a feature that is now associated with the single alignments of standing stones. Our

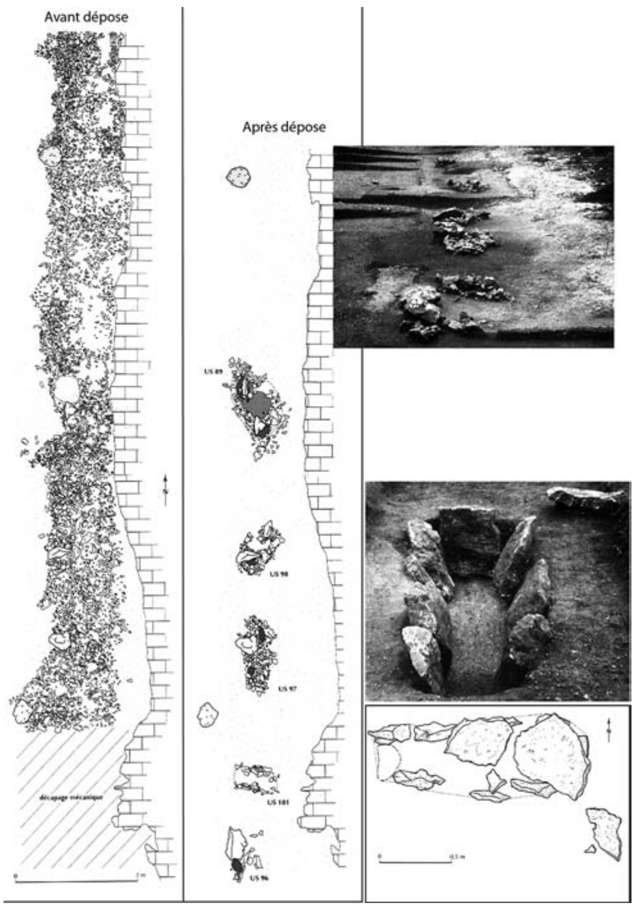


Fig. 18.9: Les Ouchettes at Plassay (Charente-Maritime, France). On the edge of a valley, several blocks were embedded in a paved feature to form a single alignment. To the south, a quadrangular stone chamber that must have been a tomb (from Laporte and Picq 2002)

research has laid less emphasis on this aspect of Le Douet on Hoedic, but the presence of rubble at the base of the large stones without definite packing function is attested. The age of the alignment at Ouchettes is inferred from its stratigraphic position, which is similar to that of several hearths found on the other side of the valley. These structures are dated to the 5th millennium cal BC, if not earlier. In addition, a cist associated with the stone row was converted into a pit lined with slabs arranged contiguously and on edge, a phenomenon that can be paralleled in similar features found at the sites of Moulin de Cojou at Saint-Just, Groah Denn on Hoedic, and Er Lannic at Arzon.

7: The horseshoe-shaped stone rows of Er Lannic at Arzon (Morbihan)

The small island of Er Lannic is located in the Gulf of Morbihan (Fig. 18.10). The flooding of one of the two megalithic enclosures was caused by the rise in sea level during the Holocene. The enclosure to the north remains partially on dry land and was restored between 1923 and 1926. During the first excavation, only three stones were still standing (Nos 2, 5, and 31; de Closmadeuc in 1867 reported four or five). The first element to be noted is the presence of numerous hearths associated with the northern enclosure (Fig. 18.7). However, it is difficult to assess the age of these hearths. Furthermore, are they really hearths? This assumption is based on the nature of the fill; however, similar small size features could equally be interpreted as the packing stones of charred posts. In some descriptions, Le Rouzic (1930) states that the stones belonging to the supposed hearths served as the packing for several menhirs.

The second analytical element is the presence of an embankment of stones and earth embedding the blocks. Each of them is reported as having a different type of packing at their bases.

The third element is the presence of less regular structures within the embankment. These are made with small stones placed edgeways, flat or upright. There could be one to two layers covering these structures.

The fourth element is the abundance of archaeological material. Many groups of artefacts seem to be ritual deposits (fibrolite axes, for example) but numerous aspects of daily life are also part of the corpus of finds (grindstones, ceramics, debitage from working coastal pebbles). The site was occupied throughout the Neolithic, Bronze, and Iron Age periods.

The fifth element is hypothetical. The northern enclosure of Er Lannic was probably not created in a single phase. It is likely that, as at Saint-Just and Hoedic, it evolved over a long period. If we may trust the 20th century restoration, the eastern part of the enclosure is not curved but straight. This can be considered as a change in the architecture of the enclosure.

We should recall that, from a structural point of view, links seem obvious with the semi-circular monuments in southern Portugal, as demonstrated long ago by both Breton and Portuguese researchers (Calado 2006). The period of construction seems firmly established in the early Neolithic, from the evidence of microliths and the presence of Cardial-related ceramics (Calado and Rocha 2008). Even though the subject of ongoing debate, we are inclined to include Er Lannic in this common structural evolution. In that respect, it would probably be extremely interesting to study further the enclosure of Kergonan on Île-aux-Moines, Morbihan, which seems to have escaped recent restoration.

Tentative conclusions

From this rapid overview of the oldest stone alignments of the Atlantic façade we can draw some initial conclusions.

The major breakthrough of the last 15 years is that we can now consider the erection of stones to have been carried out from the second quarter of the 5th millennium BC, evidenced by pottery fragments and radiocarbon dating (Douet, Lannec er Gadouer, and other sites). It is probable but not yet proven

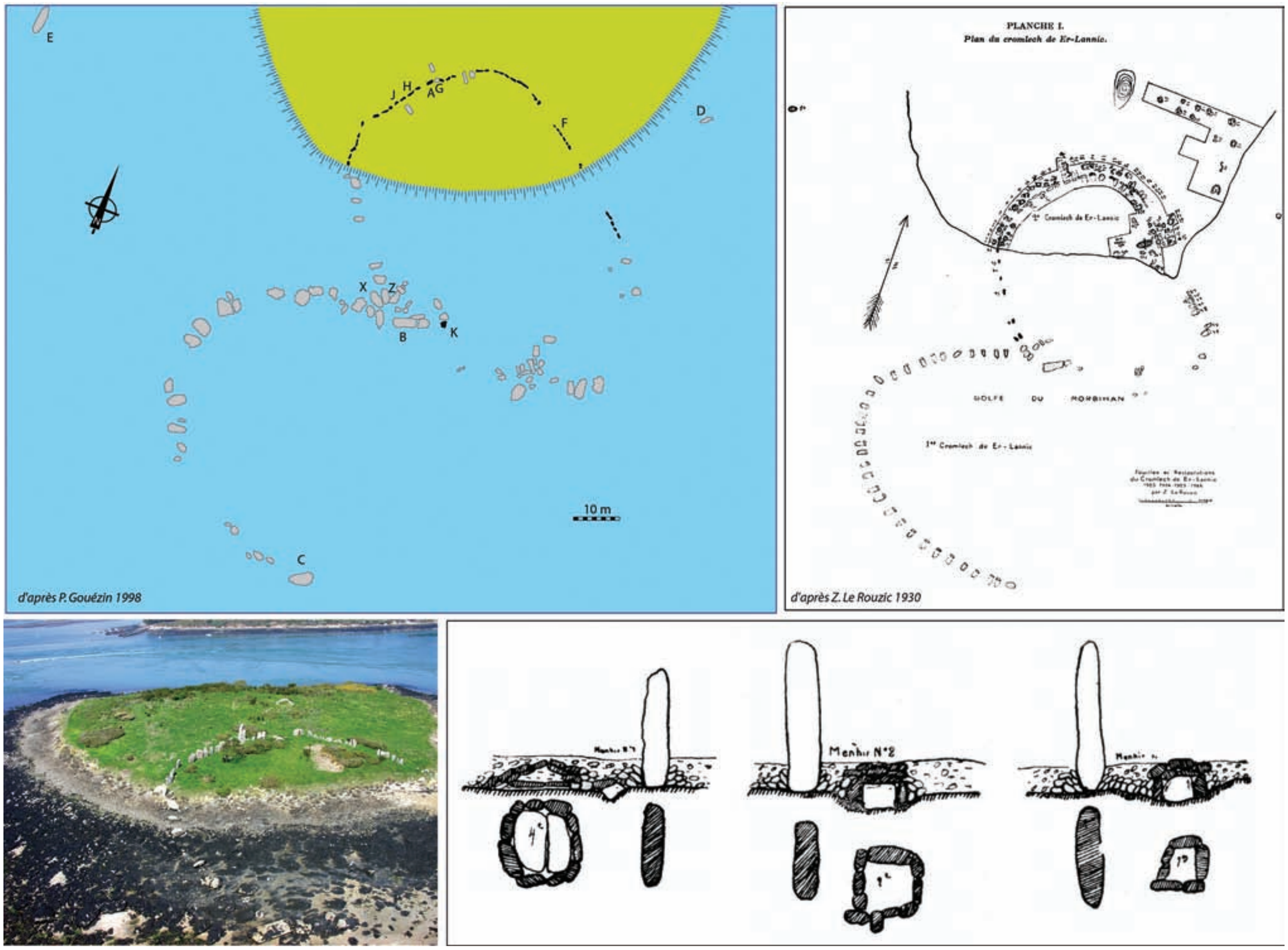


Fig. 18.10: Er Lannic at Arzon (Brittany, France). The northernmost of the two horseshoe-shaped rows of standing stones was restored in the 1920s by Zacharie Le Rouzic and the Péquart family. Many associated structures were discovered but described in only summary fashion. Their chronological position remains problematic, but some of the structures can be compared with features discovered at Groah Denn on Hoedic. (After Le Rouzic 1930; Gouézin 1998; Birocheau 2010)

that the erection of standing stones began as early as the late Mesolithic. In a quite different context, the headstone of tomb K at the Mesolithic cemetery of Port-Neuf on Hoedic is placed edgeways. Shaped slabs set upright characterize the second phase at Groah Denn and the first one at Douet. They were found fallen and broken on the edges of the alignment and, in one case (Groah Denn), in the stone packing of a menhir.

The oldest lines of standing stones consist of single rows. Multiple rows seem to appear a little later (the mound of Manio 2, on which the eastern end of the Kermario alignments is set is, in our opinion, significant in this regard: see Bailloud *et al.* 1995). However, decisive evidence is still lacking. Questions about curvilinear enclosures need to be asked (for example, at Er Lannic). Were they constructed in a homogeneous fashion? Was the erection of a curvilinear enclosure a single definitive project, or were rows bent during a later stage by the addition of other stones, giving the current form? We must never forget that what the archaeologist sees is only the final state of the architecture, and evolutionary aspects of these architectures have been demonstrated at Groah Denn and, to a lesser extent, at Saint-Just.

The installation of these rows in the landscape takes account of topographic features (corridors of coastal erosion, natural rocks integrated in the general layout, slopes), or remarkable directions (sunrise at the summer solstice), or the prior presence of older sites. These are not mutually exclusive and, instead, are often complementary.

The individual standing stones were extracted from the substrate, which occasionally required very elaborate quarrying skills (Mens 2008). The quarries from which the stones were extracted were carefully chosen, as shown by exposed rocks whose extraction was abandoned because the substrate was too hard or the rock too fragile, or for some unknown reason related to the community's life (such as at Groah Denn). These quarries may be in close proximity to sites, but many examples show the opposite: prestige was also gained through performance, through bringing the stones from a distance. The individual stones carry meaning and are sometimes be roughly shaped to enhance their symbolic representation.

Stone rows are associated with complementary structures such as paved areas (Groah Denn, Moulin de Cojou, Les Ouchettes). These are complex structures, which can have straight façades when preservation conditions are good. Sometimes the façades are joined at their corners, framing an elongated area through converging kerb edges. Where preservation is favourable, hearths are found associated with the alignments (Lannec er Gadouer, Er Lannic, Douet, Moulins de Cojou, etc.). The stones are often placed in sockets, but this is not always the case: sometimes they may be supported by the cushioning of carefully placed packing stones. Other pits may have a different function. At Lannec er Gadouer, they served to conceal deposits of intentionally placed objects. During the excavation of row B at Moulin de Cojou several postholes indicated that standing timbers had been erected. At Douet, stone packing was also discovered, but aside from the alignment of the stones. At Er Lannic, some "hearths" may well have been post holes for timbers. Some stones received deposits at or near the base. These deposits are composed of both non-functional objects (tiny polished blade axes, polished axes showing no sign of wear, and, perhaps, natural elongated pebbles) and functional items (polished axe blades, ceramics, hammers, sometimes broken grindstones). Food offerings may be added to this list (e.g. shells). In addition, there may have been wooden objects at Lannec er Gadouer.

The stone row underwent a structural evolution through the addition of elements such as other standing stones, conspicuously positioned burnt stone lumps, and resurfacing of the pavement with other stones and pebbles. Transformation, and even partial or total destruction of the stone row, could occur in the Late Neolithic and caused a meaningful change in the appearance of the site. At Groah Denn, the line of standing stones lost its symbolic significance and became a functional barrier delimiting an area for domestic activity. However, funeral features are sometimes observed during the last rearrangement phases in the Beaker and early Bronze Age periods.

Stone alignments in their original form were not exclusively used for symbolic activities. Domestic activities are also attested by the presence of lithic debitage from the making of tools or non-functional objects. However, these domestic activities are limited. The hearths that have been found were not associated with cooking activities, for example: no animal bones have ever been recovered in connection with these stone rows. Admittedly, as is well known, acid Breton soils do not allow bone preservation. Yet, on Hoedic, the sand dunes full of calcareous shells partially neutralize soil acidity and have allowed the preservation and recovery of bone fragments, sometimes small, and in very limited numbers. The question of burned remains reported on Er Lannic is left unanswered: are these human remains damaged by the acid soil, in which case we are dealing with burials, or just animal remains? The presence of well-preserved bovine teeth also raises questions.

We have not discussed here possible external influences contributing to the spread of a new ideology. The debate on the origin of stone rows remains open. The link with Portugal, for example, was noted long ago, but evidence of cultural affiliation still remains to be supported, especially as regards the very beginning of the phenomenon (Calado 2006; Calado and Rocha 2008). Here we have considered this structural phenomenon as complex and evolving, as opposed to a frozen and uniform concept of the stone row. Hopefully, future studies will incorporate this complexity in the uncovering of other stone rows on sites where evidence of the original constructional process is still preserved.

References

Bailloud, G., Boujot, C., Cassen, S. and Le Roux, C.-T. 1995. *Carnac. Les premières architectures de pierre*. CNRS Editions: Paris.

Bénéteau-Douillard, G. 2012. *Le complexe mégalithique du Bois de Fourgon à Avrillé (Vendée).* Laboratoire d'archéologie de La Bretonnière, La Claye: La Bretonnière.

Boujot, C. and Cassen, S. 2000. Construction, architecture, fonctionnement sépulcral. Comparaison. In: Cassen, S., Boujot, C. and Vaquero, J. (eds) *Éléments d'architecture. Exploration d'un tertre funéraire à Lannec er Gadouer (Erdeven, Morbihan). Constructions et reconstructions dans le Néolithique morbihannais. Propositions pour une lecture symbolique*. Mémoire XIX, Association des Publications Chauvinoises: Chauvigny, pp. 235–242.

Calado, M. 2006. The menhirs of the Iberian peninsula. In: Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et développement du mégalithisme de l'ouest de l'Europe. International conference, 26-30 October 2002*. Conseil général des Deux-Sèvres and Musée de Bougon: Bougon, pp. 613–635.

Calado, M. and Rocha, L. 2008. Sources of monumentality: standing stones in context (Fontainhas, Alentejo Central, Portugal). In: Diniz, M. (ed.) *The Early Neolithic in the Iberian Peninsula*. BAR S1857, Archaeopress: Oxford, pp. 61–70.

Cassen, S. (ed.) 2009. *Autour de la Table. Explorations archéologiques et discours savants sur des architectures néolithiques à Locmariaquer, Morbihan (Table des Marchands et Grand Menhir)*. Laboratoire de recherches archéologiques, CNRS and Université de Nantes: Nantes.

Cassen, S. and Vaquero Lastres, J. 2003. Le désir médusé. In: Guilaine, J. (ed.) *Arts et symboles du Néolithique à la Protohistoire*. Éditions Errance: Paris, pp. 91–118.

Cassen, S., Boujot, C. and Vaquero, J. (ed.) 2000. *Éléments d'architecture. Exploration d'un tertre funéraire à Lannec er Gadouer (Erdeven, Morbihan). Constructions et reconstructions dans le Néolithique morbihannais. Propositions pour une lecture symbolique*. Mémoire XIX, Association des Publications Chauvinoises: Chauvigny.

Hamon, G. 2012. La production céramique. In: Bénéteau-Douillard, G. (ed.) *Le complexe mégalithique du Bois de Fourgon à Avrillé (Vendée)*. Laboratoire d'archéologie de La Bretonnière – La Claye: La Bretonnière, pp. 199–205.

Laporte, L. and Picq, C. (eds.) 2002. Les occupations néolithiques du vallon des Ouchettes (Plassay, Charente-Maritime). *Gallia Préhistoire* 44. pp. 1–120.

Large, J.-M. (ed.) 2014. *La file de pierres dressées du Douet à Hoedic (Morbihan)*. Melvan: Hoedic.

Large, J.-M. and Mens, E. 2009. The Douet alignment on the island of Hoedic (Morbihan, France): new insights into standing stone alignments in Brittany. *Oxford Journal of Archaeology* 29, pp. 239–254.

Le Roux, C.-T., Lecerf, Y., Gautier, M. and Le Roux, C.-T. 1989. Les mégalithes de Saint-Just (Ille-et-Vilaine) et la fouille des alignements du Moulin de Cojou. *Revue archéologique de l'Ouest* 6, pp. 5–29.

Le Rouzic, Z. 1930. *Les cromlechs de Er-Lannic, commune d'Arzon de 1923 à 1926*. Imprimerie Lafolye et J. de Lamarzelle: Vannes.

Marchand, G. 2003. Les zones de contact Mésolithique / Néolithique dans l'ouest de la France: définitions et implications. In: Gonçalves, V. S. (ed.) *Muita gente, Boucas antas? Origens, espaços e contextos do megalithismo*. Actas do II coloquió internacional sobre megalithismo: Lisbon, pp. 181–197.

Mens, E. 2008. Refitting megaliths in western France. *Antiquity* 82, pp. 25–36.

Péquart, M. and Péquart, St J. 1954. *Hoëdic: deuxième station nécropole du Mésolithique côtier armoricain*. De Sikkel: Anvers.

Schulting, R. J. and Richards, M. P. 2001. Dating women becoming farmers: new paleodietary and AMS dating evidence from the breton mesolithic cemeteries of Téviec and Hoëdic. *Journal of Anthropological Archaeology* 20, pp. 314–344.

19

Decorative techniques in Breton megalithic tombs (France): the role of paintings

Primitiva Bueno Ramírez, Rodrigo de Balbín Behrmann, Luc Laporte, Rosa Barroso Bermejo, Philippe Gouézin, Florian Cousseau, Antonio Hernanz Gismero and Mercedes Iriarte Cela

Abstract

The decoration of megalithic monuments is one of the ritual actions that define the spaces that were dedicated to the ancestors. Consideration of the artistic programmes employed during the construction of megalithic tombs provides parameters for analysis that support the search for the ideology and symbolic meaning of these monuments. Most of the known megalithic art within the Atlantic region has already been recorded, and this has shown that carvings are the commonest form. However, studies and analysis carried out in the Iberian Peninsula during recent years prove that paintings must have had a greater presence than was initially thought. By applying methodologies similar to those developed elsewhere in Europe, important new evidence could be recovered. In this paper we propose a programme of research for the megalithic monuments of Brittany.

Keywords: Megalithic monuments, megalithic art, carved motifs, painted motifs, ritual, chaîne opératoire

The importance of megalithic art

The use of painted, carved, or sculpted decorations in European funerary practice makes megalithic art a basic reference point for analysing the use of burial spaces. Decorating megalithic monuments was one of the ritual actions that defined the spaces that were dedicated to the ancestors. Engravings,

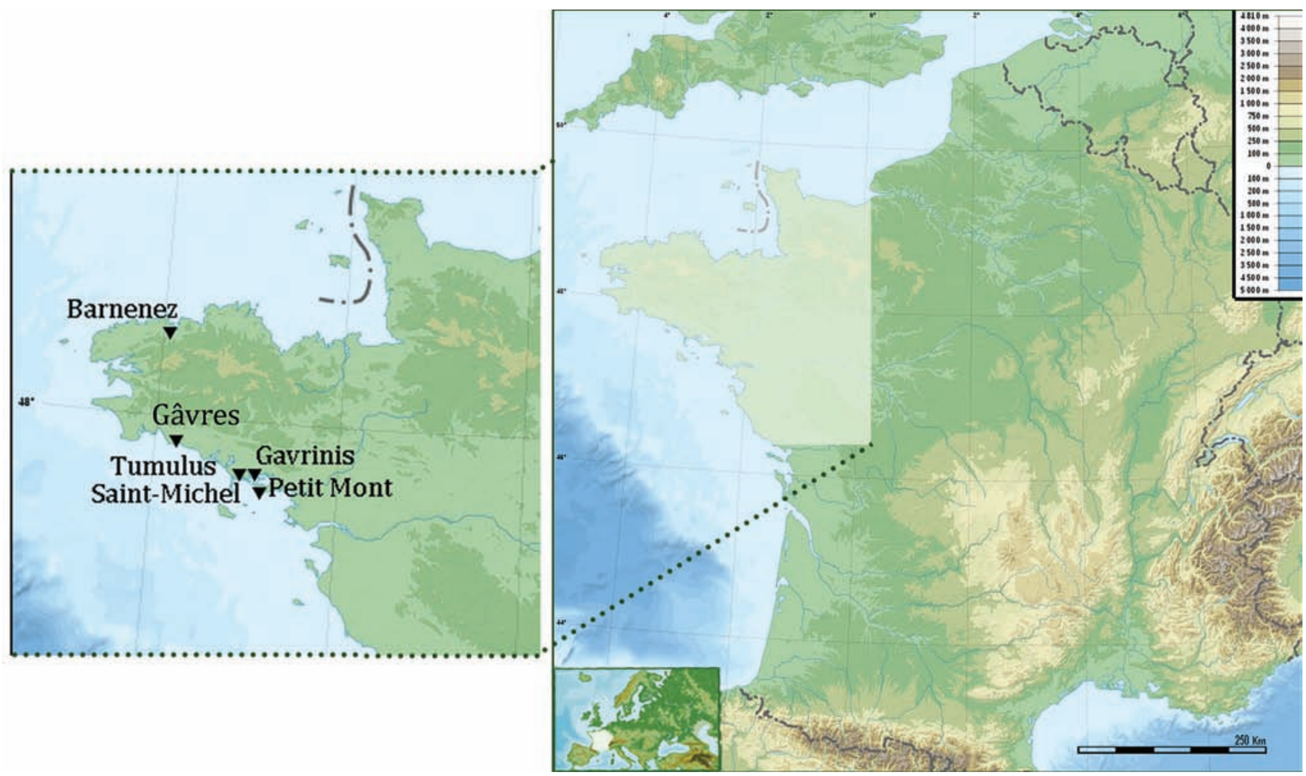


Fig. 19.1: Brittany showing location of sites mentioned in the text

paintings, and sculptures should therefore be included in any analysis of the process of building megalithic tombs. The addition of decoration was part of a deliberate programme, and hence represents an organised discourse.

Standardisation of the codes relating to location and the association of images guaranteed a widespread understanding amongst ancient viewers (Bueno Ramírez and Balbín Behrmann 1994; 2004). These signs were not merely practical: they were used to transmit messages along with the ideology of the Western European megalith builders (Bueno Ramírez and Balbín Behrmann 2002). Consideration of such artistic schemes within megalithic construction would provide additional parameters for analysis to support the search for the ideology and symbolic meaning of monuments. The integration of these programmes into the study of the ideological and physical configuration of ancestral burial places is a challenge currently facing investigative research into European megaliths.

The majority of the known megalithic decoration within the Atlantic region is carved (Shee Twohig 1981). However, recent studies in the Iberian Peninsula prove that paintings had a greater presence than was initially thought (Bueno Ramírez and Balbín Behrmann 1992; 2002; 2006; Bueno Ramírez *et al.* 2004a; Carrera 2011). By applying methodologies developed in other European contexts (such as the Iberian Peninsula) to new areas, elements can be added that are vital for a thorough understanding of this interregional tradition.

Although there was long-lasting association between engravings and paintings, there are many monuments that have only painted motifs, for example in the Iberian Peninsula (Bueno Ramírez *et al.* 2009) and in the South of France, e.g. the Courion dolmen (Gutherz *et al.* 1998). However some raw materials, especially limestone and some granites, preserve paintings better than others, leading to differential survival.

In order to apply the methodologies developed in the Iberian Peninsula, a group of decorated and engraved megaliths was identified in Brittany. The Breton region was chosen for several reasons. It was found to be exceptional in terms of the presence of painting on megalith supports. Further, some of the decorative and other evidence connect the Iberian Peninsula with Brittany, a connection that is reinforced by new chronologies from the Iberian Peninsula that are closer to those from Brittany than previously expected (Bueno Ramírez *et al.* 2007; Furholt and Müller 2011). Brittany is also a region of special significance in the relationship between megalithic art and cultural elements such as menhirs, jade axes, and decorated ceramics (Calado 2002; Herbaut and Querré 2004; Laporte and Le Roux 2004; Pétrequin *et al.* 2012; Shee Twohig 1981).

Choosing the sites

Monuments that are considered to be of the appropriate period (Barnenez, Tumulus de Mont-Saint-Michel (TMSM), Petit Mont, and Goërem at Gâvres) were selected to reflect the development of Breton megalithic construction. Barnenez is a representative case, particularly chamber H, which is one of the most completely decorated monuments in Brittany (described by Giot (1987) (Fig. 19.1). The chamber was sealed following the excavations, ensuring excellent preservation when compared to other dolmens.

These monuments provide a good representation of the thematic repertoire present within Breton art, which includes geometrical motifs such as zigzags, simple or complex circles, rectangles in different stages of elaboration, and concentric series of curved lines, sometimes with a straight edge. These were accompanied by axes, crooks, and occasionally more elaborate elements such as bows. In more recent periods, anthropomorphic representations appear, such as the Pierres Plates type idols, or breasts and necklaces (Shee Twohig 1981, 54). It is a simple repertoire, but it relates to other Atlantic megalithic art and has some interesting nuances. The anthropomorphic images show an especial singularity. This is the case not only in the older forms as the buckler and écusson, but also in the later examples.

Some geometric motifs reproduce isolated shapes found in other monuments, such as U-shapes with outcurved ends, interpreted as birds or boats (Cassen 2011). Sometimes this type of engraved decoration is associated with paintings (Bueno Ramírez *et al.* 2012). This link points to the possibility that the carved motifs were completed using other, less visible, techniques. The interpretation of these motifs should consider the possibility of more complex original compositions than those we can see nowadays (Le Quellec 2006).

What to do and how to do it

Throughout over 20 years of experience in working with Iberian dolmens we have developed a documentation methodology. This methodology is based on complementary systems for the documentation of Paleolithic art (Bueno Ramírez *et al.* 1998; 2009b; Balbín Behrmann *et al.* 2012). It includes not only a thorough analysis of the decorated surfaces, but also integrates information regarding their spatial arrangement. In the Iberian Peninsula there is an interesting relationship between painted and engraved open-air art, and funerary art that is displayed on the walls of dolmens and funerary caves, created using the same techniques (Bueno Ramírez and Balbín Behrmann 2000; Bueno Ramírez *et al.* 2004b). Important methods of rock art analysis have also been developed in the British Isles and northern Europe (Bradley 2009). Unfortunately, this type of interpretation is rarely employed in fieldwork in France and Italy. At present, funerary structures are still analysed separately from those associated with everyday life. However, the work of D'Anna and his team should be noted, as they connect funerary images with similar symbols within territories that were marked and travelled through by the same groups (D'Anna *et al.* 2006).

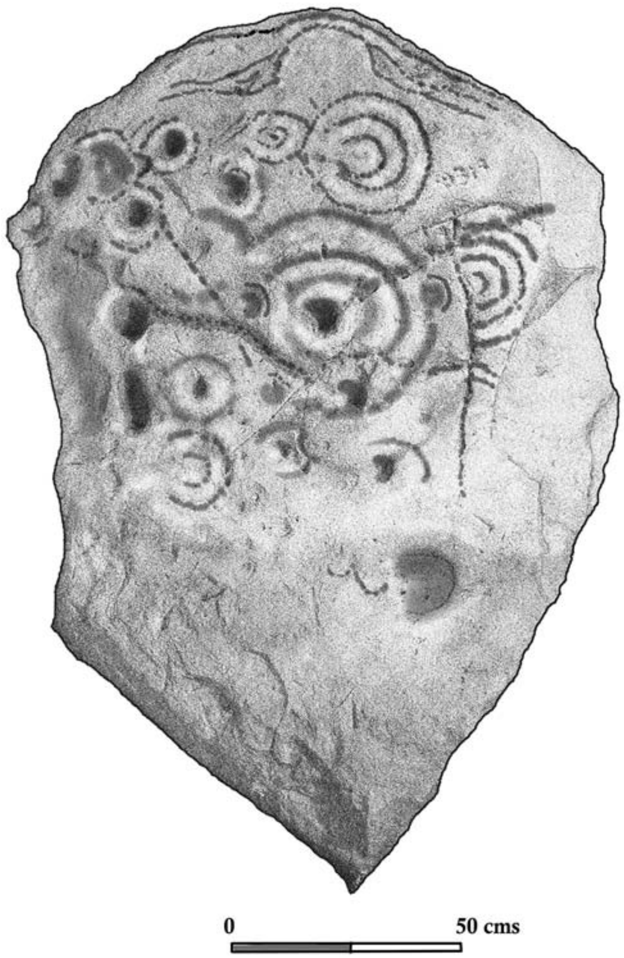


Fig. 19.2: Diagram in "artistic" style of the stela of Oles (Asturias, Spain). (From Bueno Ramírez et al. *2007)*

Likewise, research by Hameau links pigments from funerary caves with pigments from other non-funerary decorated contexts (Hameau *et al.* 2001).

A detailed study of the artistic scheme of individual monuments is part of the micro-level of our protocol. Each orthostat is studied as a panel, as it is physically delimited from the other supports. In order to observe the decoration, it is vital to have adequate illumination and to know how to position it. White, frontal light is the best option. Pigments are photographed using all available traditional and digital resources. The camera used is capable of capturing infra-red light (1) and digital filtering packages such as Photofilter, Photofilter 1.0 manual use and Tiffen are also used. In addition we apply analogical Tiffen, Heliopan, and Kodak Wratten gelatin filters and B+W. Previous experience has been important, enabling easier identification of the most effective methodologies. When evidence was found for the possible presence of pigments, a microphotography device was used. This provides 300x magnification with its own internal illumination (Lumos X-Loupe – G Model) allowing us to distinguish pigment particles, their colour and even the remains of the tool used to apply them. Brush strokes, for example, were documented at the Soto dolmen in Huelva.

Each panel (or orthostat) is described to aid the analysis of the spatial analysis of the monument. The dolmens display a compact artistic discourse. However, today we know that individual blocks were often taken from other, older, monuments and were then manipulated by repainting, re-engraving, or fragmentation in order to create new monuments (Bueno Ramírez *et al.* 2007). Detailed interpretation of the decoration of the stones is fundamental for reconstructing the history of the artistic discourse on the walls of the monument. Repainting, for example, demnonstrates complex sequences of re-use during the use of a monument. In some Iberian examples, it has been possible to date individual phases of painting (Carrera and Fábregas 2002; Steelman *et al.*2005).

Every photograph taken of each orthostat adds information. Various software applications such as Adobe Photoshop and Corel Photo Paint are used to highlight or contrast the tones of the pigment or surface. Image J is used to separate warm and cold ranges with a false colourization that allows one to distinguish lost or poorly visible tones. Together these are used to make a digital representation: at no point is a direct tracing made from the walls (Balbín Behrmann *et al.* 2012).

The final model combines different systems of graphic expression. In our opinion the most useful are those that include surface characteristics, such as the quality and depth of engravings, and evidence of technical and thematic super-impositions, since this builds upon the available information. It can be "artistic", or it can be simple (Fig. 19.2).

Other teams prefer to offer more synthetic visions using coloured schemes. These do allow easy identification of the position and interrelationships of the images but they do not explain the techniques nor do they capture the characteristics of the stone surface (Fig. 19.3). They are very useful when explaining the difficulties of interpreting Paleolithic art to the public. However, models are scientific interpretations and should offer tools for distinguishing the techniques used. We have chosen this method to publish our work at Barnenez chamber H (Bueno Ramírez *et al.* 2015). We regard this as the penultimate phase before final documentation (Fig. 19.4).

Prehistoric painting is most commonly identified though photography: megalithic art is no exception. Many sites are justifiably described as megaliths with paintings. However, some professionals, including ourselves, have chosen to sample the pigments to authenticate the information, and to provide further detail for the study of the operational sequences through which the construction of the monument occurred. In addition, analysis of organic pigments offers the possibility of direct chronology (Carrera *et al*. 2005).

3D-scanning and photogrammetry provide geo-referenced information about the orthostats, precisely situating the

Fig. 19.3: Colour coding showing phases of Paleolithic art in the Côa valley, Portugal. (From Baptista 1999)

decorative motifs. It is easier to locate the motifs of a megalithic monument than those in a cave. However, a 3D scanner does not provide clear images of the paintings: a specialized team must always have studied them beforehand. Ideally there should be closer cooperation between professionals working with three-dimensional techniques and archaeologists who specialize in rock art. We have used such methods to record the Andalusian megaliths (Bueno Ramírez *et al.* 2013a), and they have also been employed in Brittany (Cassen 2011).

Although it is the role of the paintings that is emphasised here, the variety of carved components must not be forgotten, including occasional sculptures, engravings, and the different techniques used complete and enrich the standard themes. We recommend a holistic analysis using specific methodologies for the detection of paintings. This is the only way to study thoroughly the complex funerary schemes in which diverse techniques and themes come together. Their combination represents the materialization of an ideological system that was of great importance throughout Western Europe (Bueno Ramírez and Balbín Behrmann 2002).

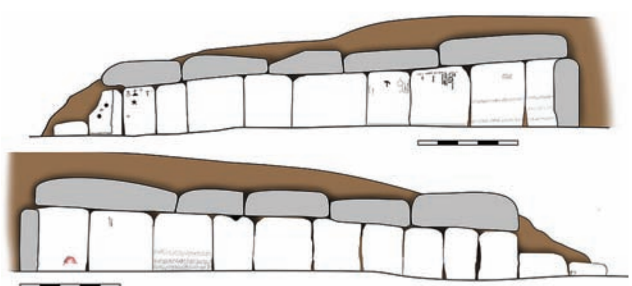


Fig. 19.4: Preliminary survey of paintings and engravings in the dolmen de Menga at Antequera (Málaga, Spain). (From Bueno Ramírez et al. *2013)*

Preliminary results (Table 19.1)

Photographic analysis

We have carried out an initial photographic evaluation in all of the selected monuments using the methodology described above. This has provided indications of pigmented areas on several orthostats. There is black painting in chamber H at Barnenez, at Gâvres, and in the TMSM. Red paint is found in chamber H at Barnenez, in chamber E of the TMSM and probably also on dolmen 2 at Petit Mont. Black and red occur together in two monuments. The application of artificial

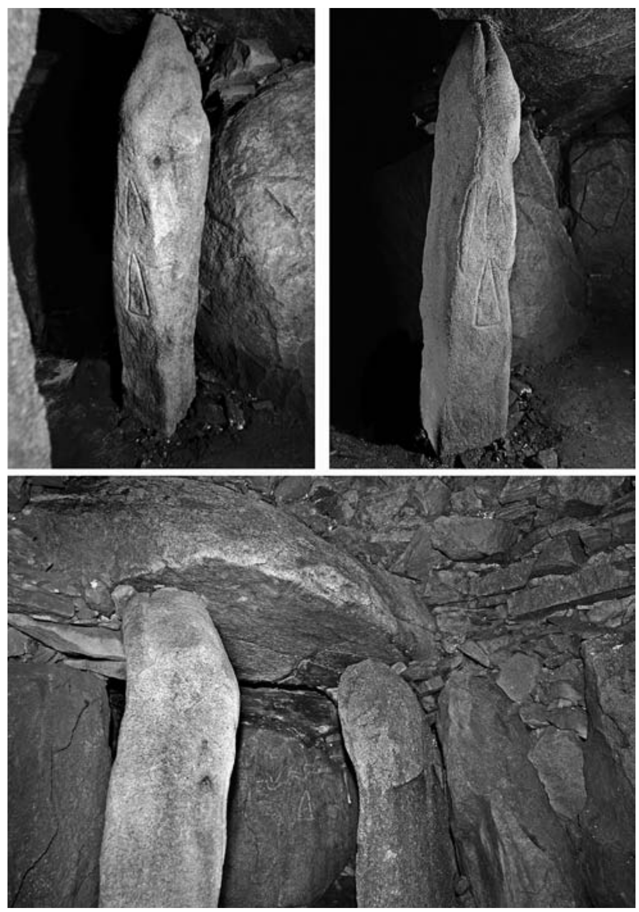


Fig. 19.5: (above) Menhir at the entrance to Barnenez chamber H: a hafted axe is highlighted by black paint and the upper part of the stone is finished in the shape of a glans penis; (below) entrance to the chamber with backstone beyond

Table 19.1. Themes and techniques in the decorated megalithic tombs of Brittany

colours was primarily used for geometric motifs. These include zigzags and rectangles with rounded edges, horizontal zigzags, and vertical zigzags. The painting follows a previously defined line and was probably made with a thick brush. This is especially visible in the black painting of orthostat C at Barnenez. Occasionally, paint has been used to extend and complete engravings: this is visible in the axe on menhir D in Barnenez chamber H (Fig. 19.5).

Engravings also play an important rôle. Paintings and engravings are used alongside sculpture in chamber H at Barnenez, and at Petit Mont and Gâvres. There appear to have been regional schemes in Brittany requiring different techniques for the complex decoration of specific monuments.

Pigment analysis

Three methods of analysis have been employed to study the pigments used to produce these painted motifs: direct sampling, Raman spectroscopy, and fluorescent lighting. Each has advantages and disadvantages. The first offers more convincing results but damages the stones (although leaving no visible mark: the sample measures only 1 mm^2); the latter two are non-destructive. Raman spectroscopy allows the identification of organic matter, which cannot be detected using fluorescent lighting. In some cases this is sufficient but the interpretation of samples can be problematic. Where there are thick surface crusts or where the stone contains high amounts of clay or chalk, the fluorescence can be affected. At present, direct samples have been taken only from chamber H at Barnenez and from Gâvres (Bueno Ramírez *et al.* 2012; 2015).

Conservation issues

Paint does not preserve well and it has been demonstrated that white and black, in that order, are especially delicate (Carrera 2011, 496). Another facet of the project has therefore sought to incorporate and analyse older archival documentation from all of the monuments within this study. This has yielded spectacular results in the case of Barnenez. The photographs taken when chamber H was first discovered show black paint in the chamber and more red paint than remains today (Fig. 19.6). Information provided by original photographic negatives is therefore very important: it may even allow us to propose a more complete reconstruction of the decoration. The search continues for older documentation for TMSM and Petit Mont.

For this type of cultural heritage, conservation is a significant challenge. It is a particular issue in the Carnac area where most megalithic monuments are open to the

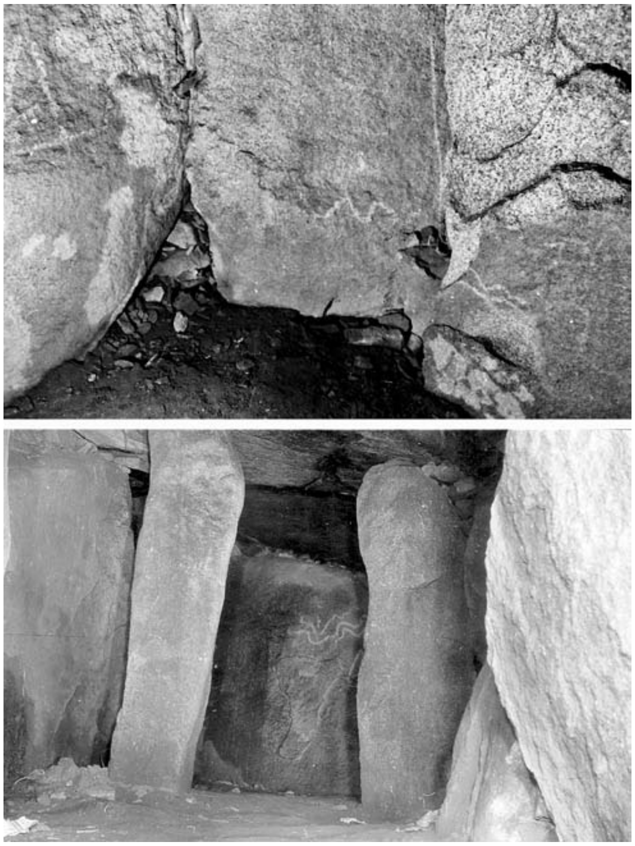


Fig. 19.6: Black paintings visible in photographs taken shortly after the discovery of Barnenez chamber H in the 1960s: (above) detail of the orthostats on the northern side of the chamber; (below) view of the backstone with remains of black painting on the left

public without any control. Cases such as Mané Kerioned or Mané Lud are shocking. The motifs within these megalithic tombs have been painted, infilled and reworked several times, mostly by vandals, destroying their archaeological value. It is of some concern that monuments of such significance for our understanding of the past are being "devoured" by poorly controlled tourism– although there are exceptions (Fig. 19.7). Our project therefore contains another vital element: to rescue information that will disappear if the management of these monuments does not focus more strongly on control of visitor access. Older repairs and restorations have also left their mark.

Future plans

The encouraging results from chamber H at Barnenez justify the use of similar methodologies in all of the Breton megaliths. Our initial results already open up wider issues. The rectangular motifs in black pigment that were found on orthostat A of dolmen H at Barnenez are very similar to the engraving on a reused support in chamber J of the same mound. Some Breton motifs can be paralleled in other regions of France, especially around Paris, as L'Helgouach noted

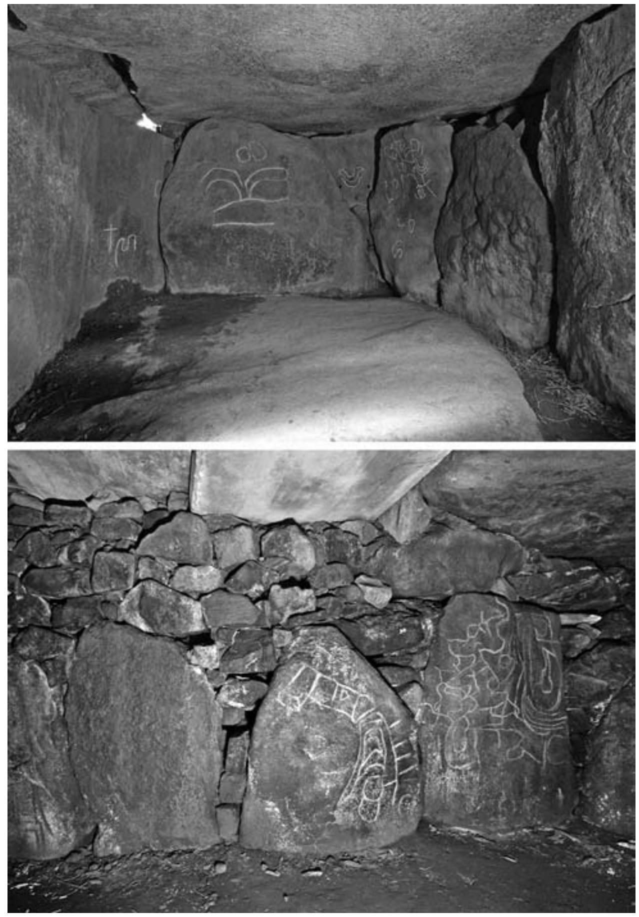


Fig. 19.7: Mané Lud (above) and (below) Mané Kerioned

(1986). The best example is the decoration of the dolmen du Berceau at Saint-Piat (Renaud and Jagu 1994; Jagu *et al.* 1998). Écusson (shield) idols, hafted axes, and a bow, all made by *piqueté* (pecking) technique, are linked by thick carved angular strokes on the frontal slab of the chamber. This suggests the possibility of reuse or of a remodelling of the chamber during which the engravings were added (Bueno Ramírez *et al.* 2007). The deliberate choice of red stone for the construction of the chamber also deserves further study (Fig. 19.8).

There is evidence of the role of the colour black elsewhere in France, in the black pigment used in the Marne hypogea (Villes 1997) and in the Courion dolmen mentioned above. As in Brittany, painted and engraved motifs can be contrasted. This is confirmed by the recording project we have initiated with Rémi Martineau at some of the Marne hypogea. The situation is analogous to that in the Iberian Peninsula: painting or engraving techniques enhance the visibility and expressiveness of some motifs. These designs, however, may be applied using either of the techniques, or both at the same time.

L`Helgouach (1970, 255) pointed out the clear

Fig. 19.8: Engraved motifs in the dolmen du Berceau at Saint-Piat (Eure-et-Loire, France)

relationship between engravings of Pierres Plates type and the stelae from Provence. Further support for this relationship hs being discovered through recent study of some of the painted stelae (Maillé 2010).

Other evidence suggests relationships on an even larger scale. In addition to painting, there are techniques such as the superficial *piqueté* (pecking) found at Barnenez and other Breton monuments. This is frequently encountered in Iberian monuments. There is also evidence that specific motifs, such as hafted axes, were repeated. Moreover, false low-relief techniques are used in both regions to make deep, angular stroke engravings that clearly demarcate certain areas. Usually these are painted. Both aspects, motifs and techniques, are evident in Andalusian monuments (Bueno Ramírez *et al.* 2013b; in press) (Fig. 19.9).

The use of such techniques at Gavrinis indicates that the engravings there could have been painted; that possibility requires investigation. (Fig. 19.10). We are not seeking to list all possible parallels; Le Quellec (2006) has previously noted the futility of that kind of interpretation. However, we believe that the symbolic relationships correspond to shared cultural mechanisms that explain the presence of certain prestige goods in both the Iberian Peninsula and Brittany.

The analysis is by no means complete, and there is still scope for further work. For example, sampling in the British Isles, and especially at sites on the Orkney Islands, could add valuable information (Darvill and Andrews 2014). As we proposed some time ago (Bueno Ramírez and Balbín Behrmann 2002), Atlantic megalithic art demonstrate the

Fig. 19.9: Pecked axes in the dolmen of Alberite II (Cádiz, Spain). (From Bueno Ramírez et al. *2007)*

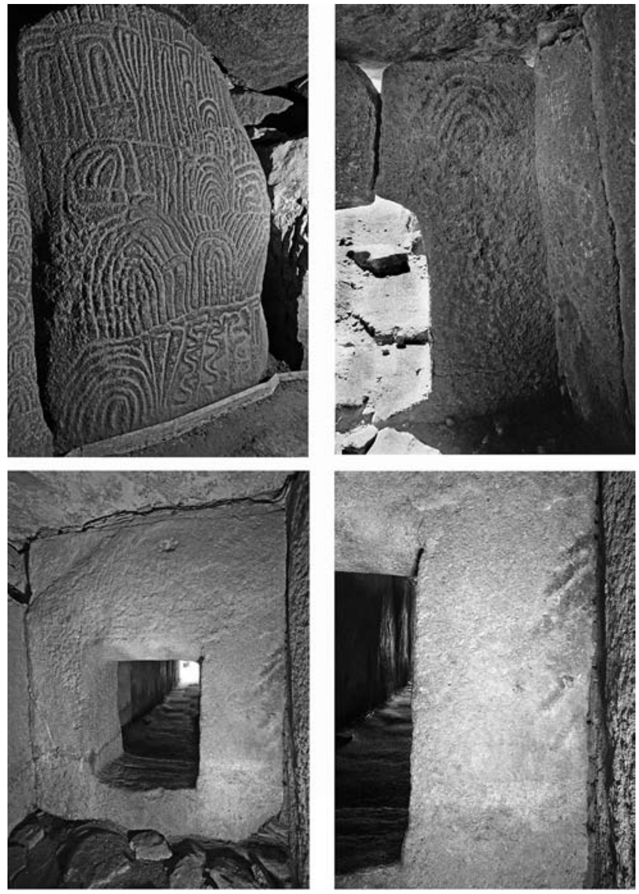


Fig. 19.10: (above left) Decorated orthostat at Gavrinis (Brittany); (above right) carved motifs at Montefrio dolmen 29 (Granada, Spain); (below left): chamber doorway of the dolmen de la Viera at Antequera (Málaga, Spain) with (below right) detail of the red painting

existence of a funerary code that was widely spread across Europe. Its variability parallels that found in funerary architecture. However, everything points to systems of interaction where painting and engraving techniques are evidence of common ideological content. Therefore, the use of specific protocols and methodologies that are dedicated to the documentation of painting must be a research objective for Atlantic megalithic studies. Only in this way can we interpret the true extent of this technique in Brittany, and in the rest of Europe.

Acknowledgements

This study has been made possible thanks to the project "The colours of death", financed by the Spanish Ministerio de Economía y Competividad, and the "Barnenez, Plouezoc'h, Finistère" project, supported by the Direction Régionale des Affaires Culturelles de Bretagne. We collaborated with colleagues who were involved in the original research on these monuments: Charles- Tanguy Le Roux, Michel Le Goffic, and Joël Le Cornec; and are also grateful for the help of Richard Longuepée and the commune of Saint-Piat in our study of the dolmen du Berceau. Rémi Martineau has generously allowed us to review the evidence of painting in the Champagne hypogea. Many other colleagues have also assisted us, especially Roger Joussaume, Jean-Marc Large, Emmanuel Mens, Gérard Bénéteau, Laure Salanova, Alain Villes, Nuria Sanz, Denis Vialou and Jean-Pierre Mohen. The necessary permits for this work were issued by the Direction Générale des Antiquités de Bretagne directed by Stéphane Deschamps. A. Belaud de Sauce has been a constant help.

The translation from the original Spanish was undertaken by J. Verdonkschot.

References

Balbín Behrmann, R. de, Bueno Ramírez, P. and Alcolea, J. 2012. Técnicas, estilo y cronología en el arte paleolítico del sur de Europa: cuevas y aire libre. In: Sanches, M. de J. (ed.) *Artes Rupestres da Pré-História e da Proto-História: Paradigmas e Metodologias de Registo.* Trabalhos de Arqueología 54. Direçao-Geral do Patrimonio Cultural: Lisboa, pp. 105–124.

Baptista, A. M. 1999. *No tempo seu tempo. A arte dos caçadores paleolíticos do Vale do Côa*. Centro Nacional de Arte rupestre: Vila Nova de Foz Côa.

Bradley, R. 2009. *Image and Audience: Rethinking Prehistoric Art.* Oxford University Press: Oxford.

Bueno Ramírez, P. and Balbín Behrmann, R. de. 1992. L'Art mégalithique dans la Péninsule Ibérique. Une vue d'ensemble. *L'Anthropologie* 96, pp. 499–572.

Bueno Ramírez, P. and Balbín Behrmann, R. de. 1994. Estatuas-menhir y estelas antropomorfas en megalitos ibéricos. Una hipótesis de interpretación del espacio funerario. *Homenaje a González Echegaray.* Museo y Centro de Investigación de Altamira: Santander, pp. 337–347.

Bueno Ramírez, P. and Balbín Behrmann, R. de. 2000. Art mégalithique et art en plein air. Approches de la définition du territoire pour les groupes producteurs de la péninsule ibérique. *L'Anthropologie* 104, pp. 427–458.

Bueno Ramírez, P. and Balbín Behrmann, R. de. 2002. L'Art mégalithique péninsulaire et l'Art mégalithique de la façade atlantique: un modèle de capillarité appliqué à l'Art post-paléolithique européen. *L'Anthropologie* 106, pp. 603–646.

Bueno Ramírez, P. and Balbín Behrmann, R. de. 2004. Imágenes antropomorfas al interior de los megalitos: las representaciones escultóricas. In: Calado, M. (ed.) *Sinais de pedra. I Coloquio Internacional sobre Megalitismo e Arte Rupestre*. Fundação Eugénio de Almeida: Evora. CD.

Bueno Ramírez, P. and Balbín Behrmann. R. de. 2006. Arte megalítico en la Península Ibérica: contextos materiales y simbólicos para el arte esquemático. In: Martínez, J. and Hernández, M. (eds) *Arte rupestre Esquemático en la Península Ibérica.* Comarca de Los Vélez: Almería, pp. 57–84.

Bueno, P., Balbín Behrmann, R. de and Barroso, R. 2004a. Arte Megalítico en Andalucía: una propuesta para su valoración global en el ámbito de las grafías de los conjuntos productores del Sur de Europa. *Mainake* XXVI, pp. 29–62.

Bueno Ramírez, P., Balbín Behrmann, R. de and Barroso, R. 2004b. Application d'une méthode d`analyse du territoire à partir de la situation des marqueurs graphiques à l'interieur de la Péninsule Ibérique: le Tage International. *L'Anthropologie* 108, pp. 653–710.

Bueno Ramírez, P., Balbín Behrmann, R. de and Barroso, R. 2007. Chronologie de l'art mégalithique ibérique: C14 et contextes archéologiques. *L'Anthropologie* 111, pp. 590–654.

Bueno Ramírez, P., Balbín Behrmann, R. de and Barroso, R. 2009a. Pintura megalítica en Andalucía. Estudios de Prehistoria y Arqueología. *Homenaje a Pilar Acosta*. Universidad de Sevilla: Sevilla, pp. 141–170.

Bueno Ramírez, P., Balbín Behrmann, R. de and Barroso, R. 2009b. Análisis de las grafías megalíticas de los dólmenes de Antequera y su entorno. In *Dólmenes de Antequera: tutela y valorización hoy.* Instituto Andaluz del Patrimonio Histórico: Sevilla, pp. 186–197.

Bueno Ramírez, P., Balbín Behrmann, R. de and Barroso, R. 2013a. Símbolos para los vivos, símbolos para los muertos. Arte megalítico en Andalucía. In: Martínez García, J. (ed.) *Arte Esquemático. Actas del II Congreso de Los Velez.* Grupo de Desarrollo Rural de los Vélez: Almería, pp. 25–48.

Bueno Ramírez, P., Balbín Behrmann, R. de, Barroso, R., Carrera, F. and Ayora, C. 2013b. Secuencias de arquitecturas y símbolos en el dolmen de Viera, Málaga. *Menga* 4, pp. 249–264.

Bueno Ramírez, P., Balbín Behrmann, R. de, Barroso, R. and Vázquez, A. in press. Los símbolos de la muerte en los dólmenes antequeranos y sus referencias en el paisaje de la Prehistoria Reciente de Tierras de Antequera. *Antequera milenaria*: Antequera

Bueno Ramírez, P., Balbín Behrmann, R., de, Laporte, L., Gouézin, P., Cousseau, F., Barroso, R., Hernanz, A., Iriarte, M. and Quesnel, L. 2015. Natural colours /artificial colours. The case of Brittany's megaliths. *Antiquity* 89, pp. 55-71.

Bueno Ramírez, P., Balbín Behrmann, R. de, Díaz-Andreu, M. and Aldecoa, A. 1998. Espacio habitacional/espacio gráfico: grabados al aire libre en término de la Hinojosa (Cuenca). *Trabajos de Prehistoria* 55, pp. 101–120.

Bueno Ramírez, P., Balbín Behrmann, R. de, Laporte., L, Gouézin, P., Barroso, R., Hernanz, A., Gavira-Vallejo, J. M. and Iriarte, M. 2012. Paintings in Atlantic Megalithic Art: Barnenez. *Trabajos de Prehistoria* 69, pp. 123–132.

Calado, M. 2002. Standing stones and natural outcrops. In Scarre, C. (ed.) *Monuments and Landscape in Atlantic Europe. Perception and Society during the Neolithic and Early Bronze Age.* Routledge: London, pp. 17–35.

Carrera, F. 2011. *El arte parietal en monumentos megalíticos del*

Noroeste ibérico. Valoración, diagnosis y conservación. BAR S2190, Archaeopress: Oxford

Carrera, F. and Fábregas, R. 2002. Datación radiocarbónica de pinturas megalíticas del Noroeste peninsular. *Trabajos de Prehistoria* 59, pp. 157–166.

Carrera, F., Fábregas, R., Bello, J. M., Balbín Behrmann, R. de, Bueno Ramírez, P., Ayora, C., Carrera, J., Lloret, A., Suriol, J., García, A., Silva, B., Rivas, T. and Prieto, B. 2005. Procedimiento interdisciplinar de caracterización, diagnosis y preservación de pintura megalítica. *Actas de II Congreso del GEIIC "Investigación en Conservación y Restauración".* Grupo español del IIC: Barcelona, pp. 259–267.

Cassen, S. 2011. Le Mané Lud en mouvement. Déroulé des signes dans un ouvrage néolithique de pierres dressées à Locmariaquer (Morbihan). *Préhistoires Méditerranéenes* 2, pp. 11–70.

D'Anna, A., Guendon, J. L., Pinet, L. and Tramoni, P. 2006. Espaces, territoires et mégalithes: le plateau de Cauria (Sartène, Corse-du-Sud) au néolithique et l'âge du bronze. In Duhamel, P. (dir.) *Impacts interculturels au Néolithique moyen. Du terroir au territoire: sociétés et espaces. Revue Archéologique de l'Est, supplément 25*, Société Archéologique de l'Est: Dijon, pp, 191–213.

Darvill,T. and Andrews, K. 2014. Polychrome Pottery from the later Neolithic of the Isle of Man. *Cambridge Archaeological Journal* 243, pp. 531-541

Furholt, J. and Muller, J. 2011. The earliest monuments in Europe – architecture and social structures (5000–3000 cal. BC). In: Furholt, M., Lüth, F. and Müller, J. (eds) *Megaliths and Identity: early monuments and Neolithic societies from the Atlantic to the Baltic.* Rudolf Habelt: Bonn, pp. 15–31.

Giot, P. R. 1987. *Barnenez, Carn, Guennoc.* Travaux du laboratoire "Anthropologie-Préhistoire-Protohistoire-Quaternaire armoricains": Rennes.

Gutherz, X., Jallot, L. and Garnier, N. 1998. Le monument de Courion (Collias. Gard) et les statues-menhirs de l'Uzege méridionale. *Archéologie en Languedoc* 22, pp. 119–134.

Hameau, Ph., Cruz, V., Laval, E., Menu, M. and Vignaud, C. 2001. Analyse de la peinture de quelques sites postglaciares de Sud-Est de la France. *L'Anthropologie* 105, pp. 611–626.

Herbaut, F. and Querré, G. 2004. La parure néolithique en variscite dans le sud de l'Armorique. *Bulletin de la Société Préhistorique Française* 101, pp. 497–520.

Jagu, D., Blum B. and Mourain, J. M. 1998. *Dolmens et menhirs de Changé à Saint-Piat (Eure-et-Loir). Témoins archéologiques des rites et pratiques funéraires des premiers agriculteurs beaucerons.* ARCHEA: L'Eure et Loir.

Laporte, L. and Le Roux, C. T. 2004. *Bâtisseurs du Néolithique, Mégalithisme de la France de l'Ouest*. Maison des Roches: Paris.

L'Helgouach, J. 1970. Le monument mégalithique du Goërem à Gâvres (Morbihan). *Gallia Préhistoire* 13, pp. 217–261.

L'Helgouach, J. 1986. Les sépultures mégalithiques du Néolithique final: 1es architectures et figurations pariétales. Comparaisons et relations entre massif armoricain et nord de la France. *Revue Archéologique de l'Ouest* Supplément 1, pp. 189–194.

Le Quellec, J. L. 2006. L'art mégalithique en France: récents développements. In Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et développement du mégalithisme de l'ouest de l'Europe*. Conseil Général des Deux-Sèvres: Bougon, pp. 689–719.

Maillé, M. 2010. *Hommes et femmes de pierre. Statues-menhirs du Rouergue et du Haut Languedoc*. Archives d'écologie préhistorique: Toulouse.

Pétrequin, P., Cassen, S., Errera, M., Klassen, L., Sheridan, A. and Pétrequin, A. M. (eds). 2012. *Jade. Grandes haches alpines du Néolithique européen, Ve au IVe millénaires av. J.-C*. Les Cahiers de la MSHE Ledoux 17. Presses Universitaires de Franche-Comté: Besançon.

Renaud, J. and Jagu, D. 1994. Une datation concernant le site mégalithique de Changé à Saint-Piat obtenue grâce aux collections du Muséum de Chartres. *Bulletin de* la *Société des Amis de Musée de Chartres* 14, pp. 2–4.

Shee Twohig, E. 1981. *The Megalithic Art of Western Europe*. Clarendon Press: Oxford.

Steelman, K. L., Carrera, F., Fábregas, R., Guiderson, T. and Rowe, M. W. 2005. Direct radiocarbon dating of megalithic paints from north-west Iberia. *Antiquity* 79, pp. 379–389.

Villes, A. 1997. Les figurations dans les sépultures collectives néolithiques de la Marne, dans le contexte du Bassin parisien. *Brigantium* 10, pp. 148–177.

20

Stability in a changing world: insights from settlement intensity patterns and archaeobotany

Martin Hinz and Wiebke Kirleis

Abstract

Explanations of the meaning of megalithic architecture have ranged between economic determinism and purely ritual manifestation, but attachment to the sphere of the ancestors is a feature of nearly every interpretation. We argue that there was a relationship between the base and superstructure (in a Marxian sense), but it was not simple and straightforward. The link to past traditions that was established by the mean of durable funerary architecture may have been of importance in a time when society was undergoing severe changes. With the help of archaeobotanical investigations and the method of summed calibrated C14 dates we try to explore the relationship between economic prosperity and ritual expression during the time of Funnel Beaker societies (4100–2800 cal BC) and the role that traditions played in stabilising those societies.

Keywords: botanical macro-remains, economy, ritual plant use, summed calibrated C14 dates, population growth, tradition, crisis

Introduction

Analysing the intention behind the construction of megalithic architecture requires us to consider the broader background of its establishment in different regions, if that is possible (see Hage *et al.* 2015). At least in northern Europe, early large-scale woodland clearances around 3500 cal BC (Feeser *et al.* 2012, 187) were associated with an agricultural transition. It is particularly striking that this coincides also with a monumental manifestation in the form of large burial structures that combine monumentality and funerary aggregation. On the basis of our results, and in the light of current research (Hinz *et al.* 2012; Hage 2012; Rassmann and Schafferer 2012; Kirleis *et al.* 2012; Müller 2011a; 2011b; 2012; 2013; Müller *et al.* 2013; Hage *et al.* 2015), we therefore propose the following hypotheses:

We deduce that there is a mutual conditioning between ritual expression and the economic base (contrasting, for example, with Midgley 2008, 10–11).

- This conditioning is not a simple, direct, functional relationship (contrasting, for example, with Kristiansen 1984, 79), but an active reflection by the Neolithic people on their changed conditions. These conditions were not only economic, but potentially also social, since public rituals always include – if not consist of – elements of public reflexivity as metasocial performances (Turner 1979).
- This process involves an active establishment of links to the past, and to commemorated or actual ancestors, owing to an awareness of change not previously present in the society.
- The tombs represent this link, and are themselves an innovation that embodies a traditional and stabilising character.
- This stability concerns identities, and results in a consolidation and continuation of this identity through the creation of a spatial focus and a material representation.
- This process of stabilisation, although locally realised by individual communities, nevertheless displays a general and generalisable pattern, resulting from the shared notion of change.
- The actual form and architecture – thus the specific decisions on how to build a megalithic grave – were partly (but not in all regions) used as markers of identity. In some areas, monumental architecture was probably actively used as a marker of exclusive identity, but in other areas, differences represent isochrestic variations, as the mere presence of a monumental megalithic structure had more meaning than its actual form. Variations reveal these differences in intentions and indicate what the local intentions might have been.
- The link to the past not only consists of the buried individuals, but also includes the ritual activities that took place at the monuments that have connections to a commemorated past.
- This stabilisation mechanism remained, or even became more important, during phases of potential crisis in the demographic/economic sectors of society.

Identity is often thought of as an excluding concept, through which individuals or groups distinguish themselves from others. Here, however, we assume that there is also a more integrative identity that ties a group together, emphasising a common long history, and deep collective memories. In such a sense, one could think of a line of tradition that could have started with the shell middens (Larsson 2007, 215; Müller 2013), continuing through the long barrow phase, and finally culminating in the stone architecture of the megalithic tombs. Even if this is not the case, the idea at least predates the beginning of large-scale woodland opening and therefore the substantial change in everyday routines. It seems plausible that this need for roots is caused by a change in the lifestyle the people experienced, or a self-induced change visible in the restructuring of the landscape. In addition to such speculations, we would like to present arguments supporting

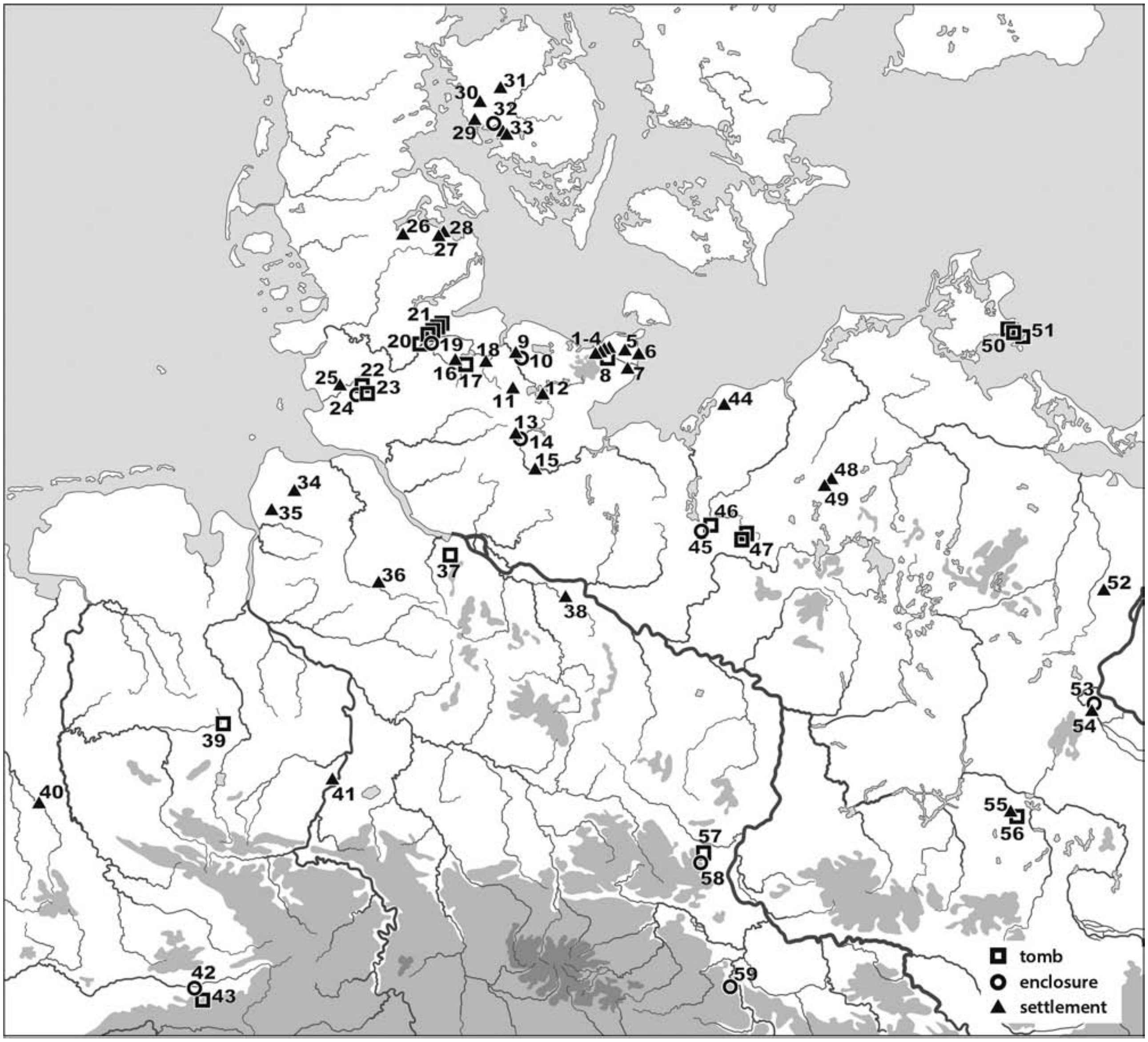


Fig. 20.1: Neolithic sites with archaeobotanical investigations: 1. Oldenburg-Dannau LA 77; 2. Oldenburg-Dannau LA 191; 3. Wangels LA 505; 4. Klein Wessek; 5. Göhl LA 142; 6. Heringsdorf-Süssau; 7. Grube LA 65; 8. Wangels LA 69; 9. Rastorf LA 6a/c; 10. Rastorf LA 73; 11. Stolpe-Depenau LA 14, LA 17, LA 18; 12. Bosau Vorderste Waade; 13. Bad Segeberg LA 93; 14. Bad Segeberg LA 94; 15. Bad Oldesloe-Wolkenwehe LA 154; 16. Klein Vollstedt LA 67; 17. Eisendorf LA 42–44; 18. Flintbek LA 55; 19. Büdelsdorf LA 1; 20. Borgstedt LA 35; 21. Borgstedt LA 22, LA 27, LA 31, LA 32; 22. Albersdorf-Brutkamp LA 5; 23. Albersdorf-Breedenhoop LA 65; 24. Albersdorf-Diekosknöll LA 68; 25. Hemmingstedt LA 2; 26. Tastrup LA 29; 27. Neukirchen-Quern LA 28; 28. Steinbergkirche LA 41; 29. Skaghorn (FSM 4087); 30. Sneglebjerg (FSM 9137); 31. Frydenlund (FSM 6973); 32. Sarup I (FSM 50); 33. Damsbo (FSM 3527/ 4511); 34. Flögeln-Eekhöltjen; 35. Sievern Fpl. 114; 36. Lavenstedt Fpl. 178; 37. Elstorf Fpl. 11; 38. Rullstorf Fst. 8; 39. Vechta 10; 40. Nordhorn-Hestrup 6; 41. Müsleringen 2; 42. Schmerlecke 4315, 25-1; 43. Schmerlecke 4415, 26-2; 44. Zweedorf Fpl. 123; 45. Plate Fpl. 14; 46. Gädebehn Fpl. 10; 47. Friedrichsruhe Fpl. 8, 9; 48. Vogelsang Fpl. 10; 49. Lübsee Fpl. 5; 50. Burtevitz Fpl. 1, 2 (Lancken-Granitz); 51. Baabe Fpl. 7; 52. Penkun Fpl. 164; 53. Rathsdorf 5; 54. Altgaul Fpl. 2; 55. Selchow 10; 56. Selchow Fpl. 24; 57. Haldensleben-Hundisburg 24 (Küsterberg); 58. Hundisburg-Olbetal; 59. Belleben I

our hypotheses which originate from different sub-projects of the Priority Program 1400 'Early Monumentality and Social Differentiation' of the Deutsche Forschungsgemeinschaft.

Multiple sources of information must be consulted to draw a consistent picture. For this reason, an investigation of the megalithic phenomenon itself, and of the underlying economic, ecological, and social structures, is necessary to disentangle the interrelationships and causalities of this development. Different spatial scales are also necessary.

Results from the site of Borgstedt, and the analysis of the areas of different construction traditions, are presented elsewhere (Hage *et al.* 2015), so we will concentrate here on the supra-regional level. We would like to show how the idea of 'ancestry' and the probable connection to the former mode of production could have influenced the use of plants in ritual behaviour, and how, in a diachronic comparison, changes in activity in the ritual sphere were related to activity in the settlement sphere. This is measured by the accumulated C14 dates. These investigations can provide some indication of what may have shaped the intentions of the monument builders.

Economic and ritual context of Neolithic plant use

From an archaeobotanical point of view, a gradual transition from the Mesolithic towards the Neolithic can be observed in northern Germany. Before 4100 cal BC, no reliable evidence of cultivated plants is known for the Baltic region (Kirleis *et al.* 2012; Hartz *et al.* 2002), and even up to 3750 cal BC, the intensity of the subsistence economy seemed to be low. Pollen analysis showed a stepwise establishment of agriculture (Feeser *et al.* 2012). The first phase consisted of small scale openings in forests. From around 3750 cal BC onwards, the spread of the fallow land indicator *Plantago lanceoloata* and an increase in the number of cereal pollen grains show an enlargement of crop fields: this is probably linked to a shift in agricultural technology. The enlargement of arable fields necessitated the structuring of the environment and establishment of open space. This human-environment interaction may have been accompanied by a shift in the perception of the natural environment by Funnel Beaker farmers: perhaps they came to experience landscape as mouldable space. Thus, the created landscape could be classified as an anthropogenic landscape. This is further supported by the archaeological record since suddenly, around 3600 cal BC, social differentiation was expressed through a new kind of monumentality, seen in the evolution of causewayed enclosures and new burial rituals. With this in mind, is it a coincidence that we observe the first macrobotanical evidence for agriculture concurrently with the erection of monuments?

Until recently, little was known about the detail of husbandry practices, and in particular of ritual plant use, in northern Germany for the Neolithic period from an archaeobotanical perspective. The state of research was based upon only seven investigations of sediment samples from domestic sites that supplemented data about plant imprints on ceramics (Behre and Kučan 1994; Hopf 1982; Kroll 1976; 1981; 2001; 2007). Under the ongoing Priority Program project, the amount of available data for macro-remains has been extended to more than 50 sites (Fig. 20.1). In the whole study region of the North European Plain and southern Scandinavia, barley and emmer were the main crops used in the Funnel Beaker plant economy. They were supplemented by einkorn and naked wheat. Oil plants and pulses were late arrivals. Evidence for poppy seeds dates to the late Middle Neolithic (2900–2800 cal BC, Kroll 2001; 2007), whereas evidence for peas dates even later, to the Late Neolithic (Kirleis *et al.* 2012, table 2). In particular, the new data show a shift in the agricultural system that accompanies the above-mentioned cultural changes. It is a shift from small-scale crop growing with a variety of species, towards standardisation. From around 3600 cal BC onwards, the establishment of large-scale crop growing is shown through a reduction in the variety of plant species used. The cereal spectrum is reduced to the two species, emmer and naked barley, and at the same time gathered plants lose their economic relevance. But, if the ritual sphere of plant use is considered, what is the meaning of plants in this context? Do the plant assemblages from tombs and enclosures reflect the farming activities? What message is incorporated in ritual plant assemblages? In order to answer these questions, a structural comparison of the different archaeological contexts of domestic, tomb, and enclosure sites has been carried out. A prerequisite for the application of the structural approach is a critical review of the taphonomy of the plant assemblages.

Find concentrations of plant remains for the Neolithic are generally low, and differ depending on site context. For domestic, burial, and enclosure sites, decreasing find numbers occur. Differences in the assemblages at the respective sites are the main reason for the varying find concentrations (Kreuz 1995; van der Veen and Jones 2006). Charred remains from domestic sites are "numerous" (up to 20 finds per litre), because they originate either from rubbish deposits or relate to food processing activities. In contrast, find concentrations in graves are much lower (Fig. 20.2), usually not exceeding one find per litre of soil. The low find concentrations may reflect selective preservation of plant remains, but very few archaeobotanical investigations have been carried out on Neolithic tombs. Nevertheless, if the particular bias of plant assemblages from tomb sites is considered, insight into the ritual sphere of plant use is possible. There are several scenarios that may describe how seeds and fruits enter the archaeological record of a tomb site. Plants were either intentionally deposited during the erection of the tombs in connection with feasting during burial rituals, they were left as burial gifts, or the deposits were related to ritual purification by fire. Coincidental deposition would explain the presence of plant species from the natural vegetation.

When the structural comparison of data from ten representative domestic and ritual sites in northern Germany is applied (Fig. 20.3), the four megalithic tombs show a clear dominance of gathered plants (Klooß and Kirleis 2012; Kirleis *et al.* 2012, table 2; Kirleis and Klooß 2014). Thus, it can be concluded that activities linked to agrarian food production and food processing are not characteristic of these sites. In contrast, the dominance of cereals is observed at six domestic sites (Fig. 20.2). Collected plants are here defined as gathered wild plants from the vicinity of settlements, disturbed places, and woodlands. Furthermore, harvested (but apparently

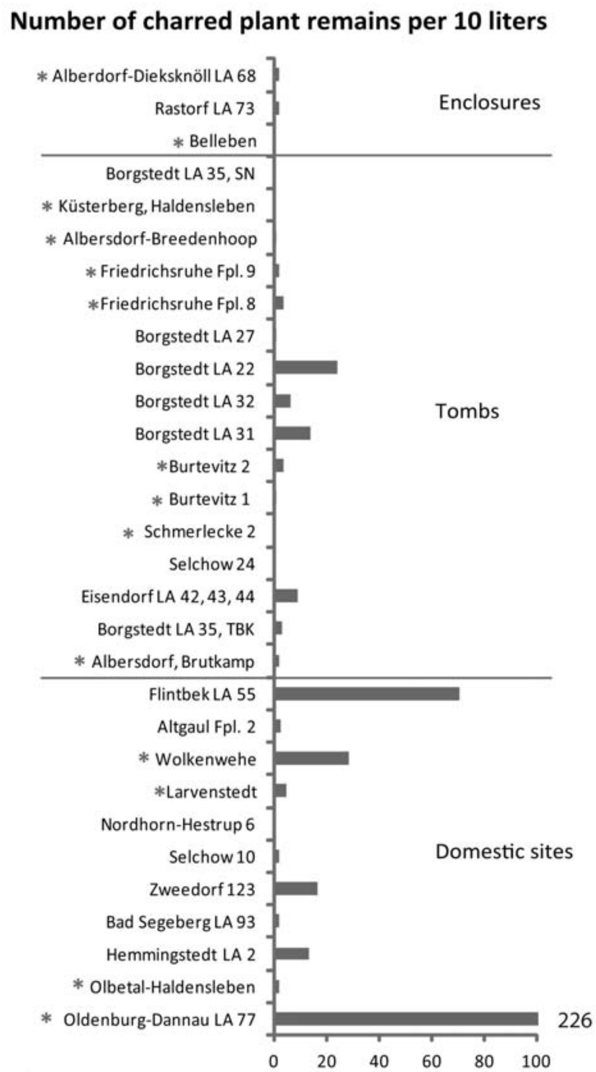


Fig. 20.2: Charred concentrations of plant remains and the archaeological context of the newly investigated Neolithic sites in northern Germany. Sites investigated in the frame of the SPP 1400 are marked with an asterisk

uncultivated) weeds are included in the gathered plant group. In addition to the resilient hazel nutshells, charred – and thus used – seeds and fruits of *Prunus spinosa*, *Chenopodium album*, *Rubus*, *Schoenoplectus*, *Nuphar*, and *Nymphaea* occur. Hazel is one of 11 different gathered plant taxa considered here, which include the edible classical weed species *Chenopodium album* (Kirleis *et al.* 2012, table 2). The quantity of nutshell fragments does not exceed 50 fragments at the Early and Middle Neolithic sites. Thus, the archaeobotanical data on gathered plant remains from northern Germany differs from that of the British and Irish material, where an over-representation of several hundred to thousands of charred nutshell fragments initiated a debate on the possible sedentary or mobile character of Neolithic society. However, as further material from domestic sites in Britain and Ireland has been investigated, both the cultivation of cereals and the gathering of wild food plants were confirmed as recurrent features of the British Neolithic economy (Robinson 2000).

The hypothesis that settlement finds provide insight into production and consumption of food from crops, while tombs mainly yield evidence of plants gathered in the wild or in semi-wild areas in the vicinity of former settlements, is generally supported by the data from the ten representative sites in northern Germany. Quantification is hardly possible, but tendencies towards a diametrical relation of domesticates versus gathered plants can be estimated. Structural differences are observed if the domestic sites are compared with the tomb sites. Collected fruits are over-represented in the grave deposits. The lack of well-preserved cereal grains in the charred plant assemblages combined with the fact that cereals in general are inadequately represented, can serve to indicate that a site has a non-economic function. For the domestic plant assemblages of north German early Neolithic farmers, one possible interpretation for the presence of gathered plants is that they represent a method of mitigating harvest failures. It can be shown that within the funeral context, however, the recovered plant remains assemblages are little related to farming activities. The basic emphasis on plant gathering in the funeral context throughout the early and the middle Neolithic might even hint at a *rite de passage* performed by north German Funnel Beaker societies.

If we accept that gathered plants can be regarded as a reflection of former economic habits, these results underline the difference between ritual and economic spheres, and indicate that the ritual sphere tends to be more conservative. This conservative, stabilising character can also be observed if we compare the development and dynamics of settlement numbers – an indicator for demographic and economic prosperity on the basis of C14 dates – with that of ritual activities, namely the megalithic tombs.

Ritual and domestic activities and the distribution of C14 dates

The relation between the development of ritual and other human activities is of major importance for an understanding of the megalithic tradition of burial. Too often, economic or ecological explanations for cultural change have been set out without empirical evidence. Intensive investment in the ritual sphere, however, could equally well be interpreted either as a result of a flourishing society, supported by a prospering economy and favourable ecological conditions, or as a reaction to a crisis and a scarcity of natural resources and land. The two options lead to completely different meanings for the megalithic phenomenon in general, and of each individual burial site. Thus, there are at least two different potential factors associated with the monument builders that diametrically oppose each other.

In order to evaluate these competing possibilities, we need

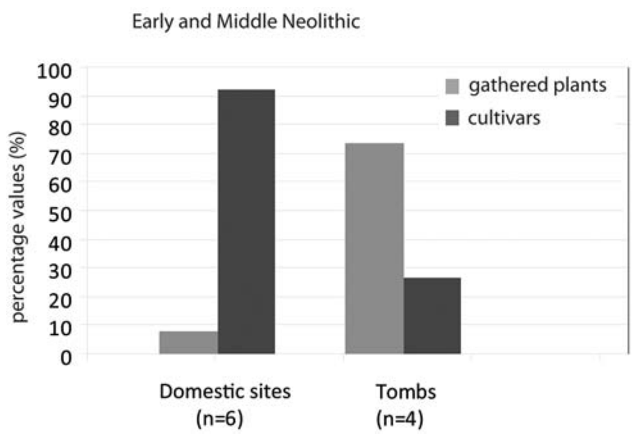


Fig. 20.3: Domestic versus gathered plants: average of proportions (%) of charred seeds/fruits from different archaeological site types from the early and middle Neolithic (EN/MN): domestic sites (d), enclosures (e) and tombs (t). Previous and recent archaeobotanical investigations with more than 50 seeds/fruits for settlements and more than ten seeds and fruits for enclosures/tombs are included, chaff remains are disregarded. Sites included: Rastorf LA 6 (EN, d; Kroll 1980); Flögeln-Eekhöltjen (MN, d; Behre/Kucan 1994), Oldenburg-Dannau LA 191 (MN, d; Kroll 2001); Wangels LA 505 (MN, d; Kroll 2007); Oldenburg-Dannau LA 77 (MN, d), Hemmingstedt LA 2 (MN, d), Belleben (EN, e), Albersdorf-Brutkamp (MN, t), Eisendorf LA 42, 43, 44 (EN/MN, t), Schmerlecke 2 (EN/MN, t), Borgstedt LA 35 (EN/MN, t) (Kirleis et al. *2012). (Diagram after: Kirleis* et al. *2012, fig. 9).*

to determine whether the period of megalith construction and use was either paralleled by indications of prosperity or by a decline in the socio-economic sector. We tried to estimate the intensity of human activities on the basis of summed calibrated C14 dates, an approach that is accompanied by a number of methodological difficulties. We will not discuss all of them here (for a detailed review and an appraisal of the problems see Williams 2012, 579; Straus 2005, 212; Bocquet-Appel 2005, 213; and for ways to overcome or at least minimise them see Hinz *et al.* 2012), but one aspect should be tackled – that the sum of recorded traces of the past does not necessarily represent the sum of activities of former times. This difficulty is, of course, an obstacle for all quantification methods of past processes that rely on archaeological material. A more direct approach to the intensity of settlement activities would probably be to simply count settlements. Yet by doing that, one would not avoid the effects of taphonomic processes. At the moment, a reliable method for estimation of the loss of archaeological material, in order to calibrate the remains surviving today against what was initially present, is still a methodological desideratum: it is already addressed by many studies (e.g. Müller 2011b). So far, the only option is to compare different proxies for their congruency.

In the current study, pollen has been taken as an indicator of human activities for a certain area of Holstein, in combination with the sum of calibrated C14 dates from the same area (Hinz *et al.* 2012) (Fig. 20.3). These indicators are twofold due to changing economic habits. For the earlier period of Neolithic land use (4100–3700 cal BC), charcoal influx indicates the opening up of the landscape; the pollen curve of ribwort plantain (*Plantago lanceolata*), however, indicates pastoral and crop growing activities that are associated with the enlargement of open habitats for the later period (initially from ~3700, extensive from ~3500 cal BC). Visual inspection suggest that the charcoal peaks roughly coincide with the peaks in the C14 curve, but the resolution is too low for a detailed comparison.

To provide a quantitative estimate of the fit of C14 and pollen curves, we used the supra-regional plantain curve supplied from the combination of the pollen data from four lakes. These were pre-processed by a Multidimensional Scaling that was applied to all taxa, but rotated to represent best the differences in the plantain value (Feeser *et al.* 2012). We calculated the cross-correlation of the de-trended, smoothed curves of both proxies (for details on the pre-processing see Hinz *et al.* 2012), and found the fit astonishingly good: the immediate correlation is 0.589 (smoothed curves 0.6197), while the best fit is observed with a lag of 12 years with a correlation of 0.599. This lag could be the result of both an old wood and a hard water effect. To obtain the sum-calibrated probabilities from the small sample used, we were unable to exclude charcoal or food crust data: these represent the vast majority of the settlement dates in that region.

The C14 curve and the pollen curve give a very good fit at a regional level. This shows the suitability of the method itself, but also hints at the fact that, in a tessellated landscape, human activities do take place at different intensities, and result in different amplitudes in the proxy data. Consequently, the quantification of human impact via the proxy of pollen analysis clearly displays a synchronous relation to the C14-sum curve. Taking other issues into account (research history, changes in the subsistence strategy), the C14-sum curve can carefully be used as a proxy for human activities.

Having secured our methodology as far as possible by this comparison, we applied it to the C14 dates of the northern area of the Funnel Beaker ceramic distribution. We divided the whole study area into twelve different investigation areas. These were based on meaningful natural and cultural borders, and the borders of research traditions. The latter was important in order to avoid the effects of different scientific strategies that may have resulted in different numbers of C14 dates, as well as enabling us to obtain a regionalised picture to compare developments in different areas (Fig. 20.4). From these 12 areas, ten offered sufficient C14 dates (to different degrees) for quantitative evaluation. One of these was the middle-Elbe-Saale region, where the transition to the Neolithic had already occurred before the time frame of our investigation: it served primarily for comparison of the Funnel Beaker area in its strictest sense with developments further south. We based our analyses primarily on dates that originate from settlement contexts, because here the conditions of the production

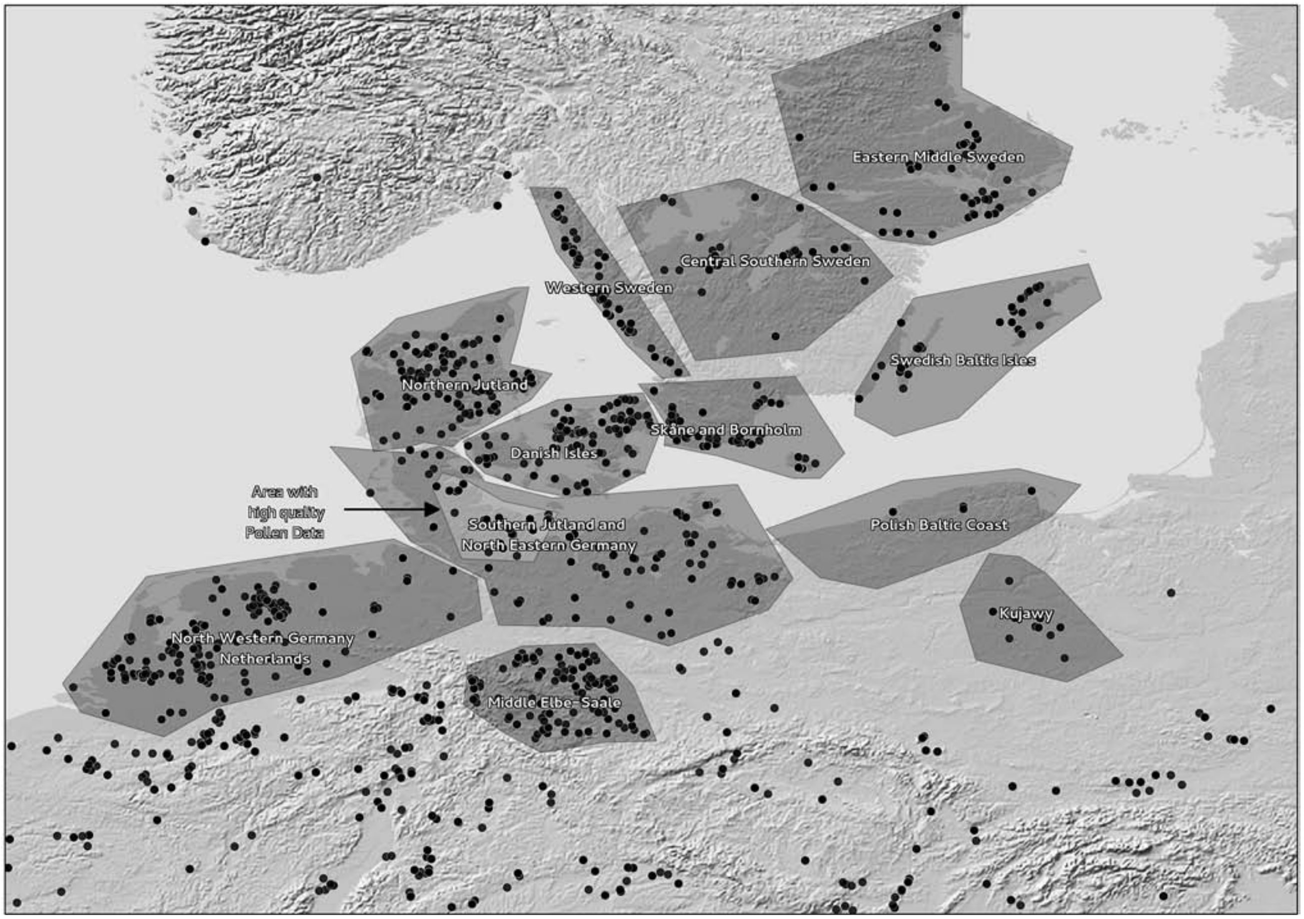


Fig. 20.4: Distribution of the C14 dated sites and the extent of the areas of investigation employed in this analysis

of archaeological material, as well as the possibility for the detection of settlement sites, can be assumed to be equal throughout the whole of the period under investigation. The same is not true, for example, for dates from tombs.

Six of the remaining nine areas showed a comparable picture (Hinz *et al.* 2012). The pattern revealed in those areas around the western part of the Baltic Sea is especially prominent (Fig. 20.5 and 20.6). After a substantial rise in social activity and in indications of human activity, either from 4000 cal BC or from 3800/3700 cal BC onward, a 'drop' is apparent from *c.* 3350 cal BC onward. The first increase in activity indicators is either a result of research strategies (e.g. specific projects with focus on late Mesolithic sites or on the Neolithic transition itself), or it might actually represent a demographic expansion resulting from cultural innovations connected with Funnel Beaker ceramics. The decline after *c.* 3350 cal BC hints at a real decrease in the underlying activity, probably a fall in population at this time. Hence we can see clear differences between an early (population increase), a middle (population increase or high level steady-state) and a younger (population decrease) stage of development during the Funnel Beaker period. At the same time, ritual activities, such as the use and construction of megaliths and enclosures, are most likely during the period when the settlement dates hint at a lower population level (3350–3100 cal BC). A second growth phase can be taken to be connected with the transition to Single Grave/Corded Ware customs.

This suggests that changes in settlement activity had no effect on the already established ritual sphere, but coincide with changes in climate and weather conditions, observed in the sedimentary regime of local lakes in Schleswig-Holstein (sudden cooling of summer temperatures: Dreibrodt 2012, 155; changes in the hydrological regime: Feeser *et al.* 2012, 180 fig. 12). At a more general level, we should note the influence of the Piora 2 oscillation (Magny 2004). Furthermore, the intensification of ritual activity appears synchronous with changes in land use around and after 3700 and 3500 cal BC. That is indicated in various ways, for example by the pollen diagrams of Schleswig-Holstein (Dörfler *et al.* 2012): again these coincide with the observed intensification in settlement activity, as well as with the earliest continuous occurrence of cereals in our record. Taking all of this evidence into account, the most likely interpretation is that the collective megalithic burial tradition was an accompaniment to changing social

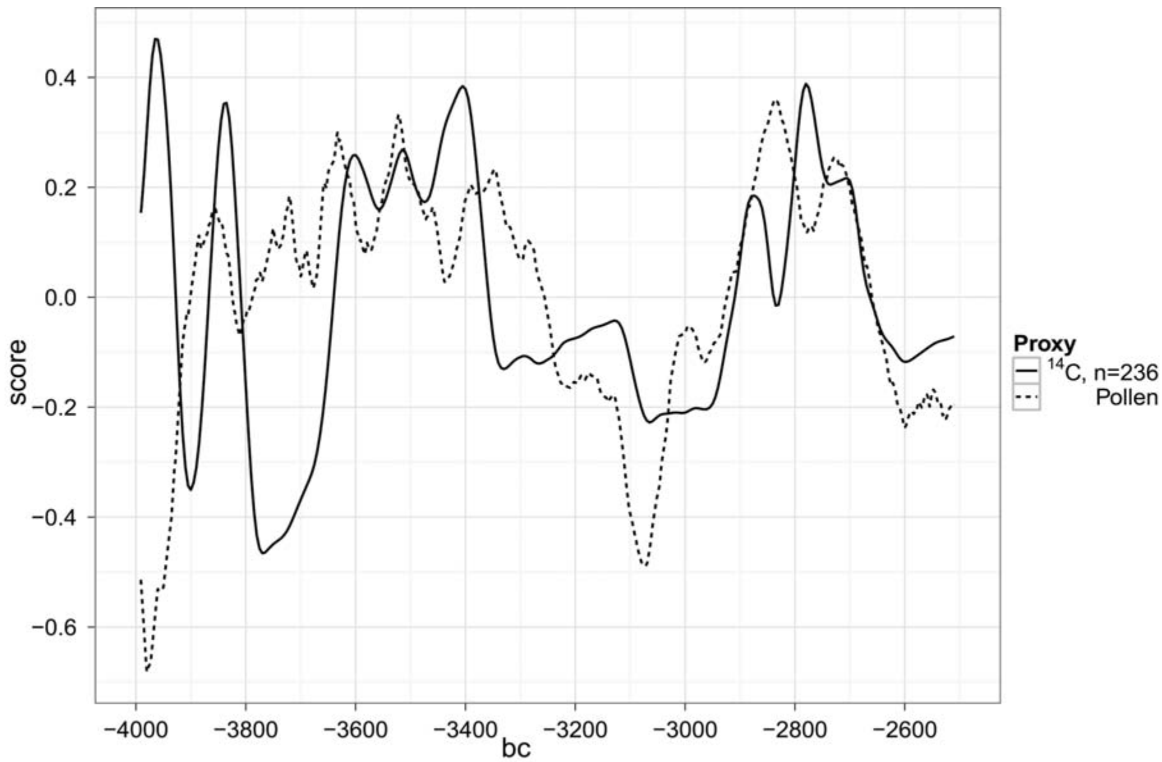


Fig. 20.5: Human impact curve from pollen analysis in Schleswig-Holstein, and the sum-calibration of C14 dates from settlement contexts with high quality pollen data from the area (see Fig.20.1, n = 236 from 26 sites). While before 3700 cal BC, there is no comparability because of biases in data amounts and different economic activities, after 3700 cal BC a highly significant correlation (p < 2.2e-16, Pearson's product-moment correlation 0.6197) supports the usefulness of C14 data for evaluating human activities

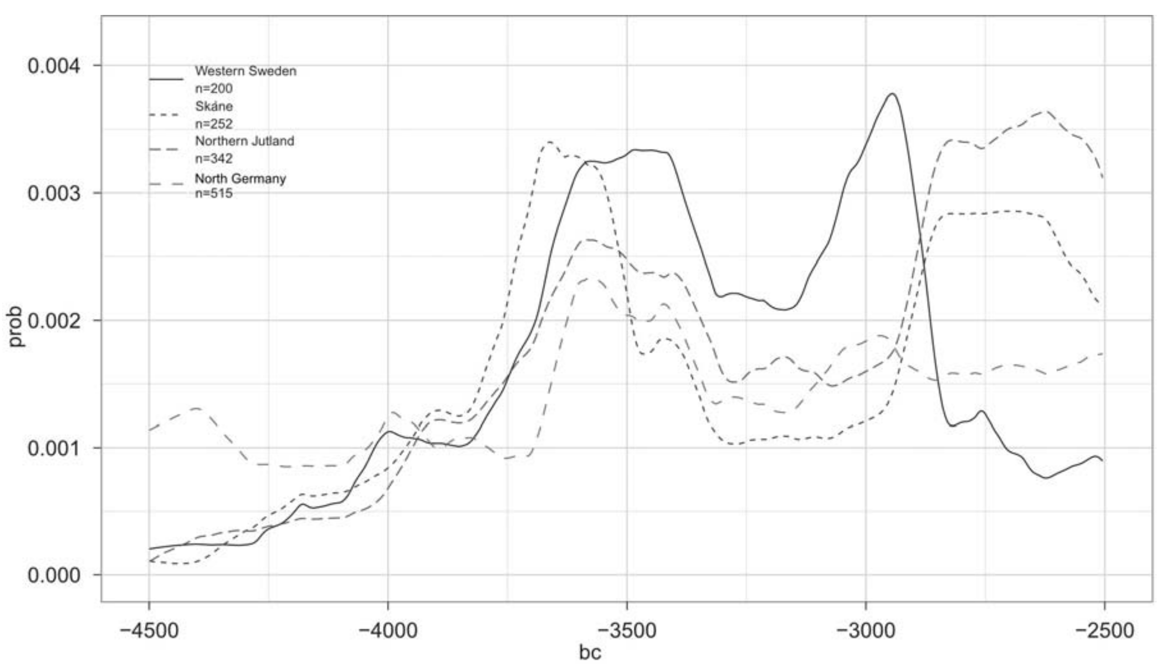


Fig. 20.6: In four regions, sum-calibration curves display similar tendencies. An increase at 3800/3700 cal BC, a decrease around 3400/3350 cal BC, and a second increase around and after 3000 cal BC are particularly visible. Despite these patterns, a lack of data after 2700 cal BC and before 4200 cal BC should be taken into consideration

conditions. These resulted from a changing economy, reflected in alterations in land use and probably demographic developments. In times of crisis, however, the reaction was a return to traditional behaviour in the ritual sphere – the continuation of long-standing ritual expressions.

Conclusion

The discussion above, combined with the analysis by Hage *et al.* (2015) of the meaning of monuments in Funnel Beaker societies, illustrates several distinct points. These concern the relationship between (a) overall conditions and general trends, and (b) individual intentions and local practices in different parts of northern Germany. Comparing the different scales, it becomes obvious that below a sphere of globally relevant factors, individual intentions and localised practices display regional variability that has hitherto been underestimated. Nevertheless, common ground can be observed in the monuments' overall role as a medium that stabilised social groups through linkage to the past, and through the presence of distinct ritual zones separated from the mundane areas of daily life. This is especially pronounced when a crisis seems to have heavily affected settlement and subsistence, and when the monumental and ritual activities reach their florescence. As in the case of Borgstedt, or in the supra-regional analysis of megalithic traditions in the west Baltic area (Hage *et al.* 2015), a division between two different social spheres seems visible in the plant remains, showing that, during the Neolithic, plants played an active role in the rituals associated with the dead and in their connection to the living. With this in mind, one could argue that the world of the dead was obviously not a prolongation of the world of everyday life. On the contrary, it seems that ritual activities aimed to produce an 'Otherness' that had the sources of its narrative in a real or commemorated history. In this way, the botanical investigation supports the interpretation that people's motivation and the specifics of interaction with the dead were used to promote the idea of a community that drew its legitimation from the past.

Furthermore, these monuments seem to have represented an element of stability in a changing world with a probable reminiscence of former ways of life. Although between 3350 and 3100 cal BC a major crisis had probably influenced the living conditions of Neolithic farmers, their ritual activities remained stable or even expanded. Bringing together different layers of inquiry not only allows us to investigate the intentions of the builders of the megaliths, but also their motives and *mentalité* in their relationship with their ancestors and the construction of the world of the dead. The megalithic structures were an innovation used to produce and conserve an identity and to stabilise that identity in a changing world. This is underlined by the fact that, in times of potential crisis, that rôle was continued and reinforced by maintaining the modes of burial practices in times of change, which perhaps became more relevant than ever.

Acknowledgement

We would like to thank Johannes Müller and Martin Furholt for helpful comments and critiques as well as Eileen Kücükkaraca for proof reading the English. All remaining errors and omissions are of course ours.

References

Behre, K.-E. and Kučan, D. 1994. *Die Geschichte der Kulturlandschaft und des Ackerbaus in der Siedlungskammer Flögeln, Niedersachsen, seit der Jungsteinzeit*. Probl. Küstenforsch südl. Nordseegebiet 21. Isensee: Oldenburg.

Bocquet-Appel, J.-P. 2005. Comments on Gamble et al. *Cambridge Archaeological Journal* 15(2), pp. 211–212.

Dörfler, W., Feeser, I., van den Bogaard, C., Dreibrodt, S., Erlenkeuser, H., Kleinmann, A., Merkt, J. and Wiethold, J. 2012. A high-quality annually laminated sequence from Lake Belau, Northern Germany: Revised chronology and its implications for palynological and tephrochronological studies. *Holocene* 22(12), pp. 1413–1426.

Dreibrodt, S., Zahrer, J., Bork, H.-R. and Brauer, A., 2012. Witterungs – und Umweltgeschichte während der norddeutschen Trichterbecherkultur – rekonstruiert auf Basis mikrofazieller Untersuchungen an jahresgeschichteten Seesedimenten. In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 145–158.

Feeser, I., Dörfler, W., Averdieck, F.-R. and Wiethold, J. 2012. New insight into regional and local land-use and vegetation patterns in eastern Schleswig-Holstein during the Neolithic. In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 159–190.

Hage, F. 2012. Das trichterbecherzeitliche Gräberfeld von Borgstedt. In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft, Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 227–246.

Hage, F., Schafferer, G. and Hinz, M. 2015. Common motivation, different intentions? A multiscalar approach to the megalithic architecture of the Funnel Beaker North Group. In: Laporte, L. and Scarre, C. (eds) *The Megalithic Architectures of Europe*. Oxbow Books: Oxford, pp. 145–154.

Hartz, S., Heinrich, D. and Lübke, H. 2002. Coastal farmers: the neolithisation of northernmost Germany. In: Anders, F. and Kristiansen, K. (eds) *The Neolithisation of Denmark: 150 years of debate.* J. R. Collis: Sheffield, pp. 321–340.

Hinz, M., Feeser, I., Sjögren, K.-G. and Müller, J. 2012. Demography and the intensity of cultural activities: an evaluation of Funnel Beaker Societies (4200–2800 cal BC). *Journal of Archaeological Science* 39(10), pp. 3331–3340.

Hoika, J. 1990. Megalithic graves in the Funnel Beaker Culture in Schleswig-Holstein. *Przegląd Archaeologiczny* 37, pp. 53–119.

Hopf, M. 1982. *Vor- und frühgeschichtliche Kulturpflanzen aus dem nördlichen Deutschland.* Kataloge vor- und frühgeschichtlicher Altertümer 22. Verlag des Römisch-Germanischen Zentral-museums: Mainz.

Kirleis, W. and Klooß, S. 2014. More than simply fallback food? Social context of plant use in the northern German Neolithic. In: Chevalier, A., Marinova, E. and Peña-Chocarro, L. (eds) *Plants*

and People. Choices and Diversity through Time. Earth Series 1. Oxbow Books: Oxford, pp. 326–335.
Kreuz, A. 1995. Funktionale und konzeptionelle archäobotanische Daten aus römerzeitlichen Brandbestattungen. Ber. Komm. Archäolog. Landesforsch. *Hessen* 3, pp. 93–97.
Kristiansen, K. 1984. Ideology and material culture: an archaeological perspective. In: Spriggs, M. (ed.) *Marxist Perspectives in Archaeology.* Cambridge University Press: Cambridge, pp. 72–100.
Kroll, H. 1976. Pflanzliche Abdrücke in der Keramik der befestigten neolithischen Siedlung Büdelsdorf, Kreis Rendsburg-Eckernförde. *Offa* 33, pp. 61–65.
Kroll, H. 1981. Mittelneolithisches Getreide aus Dannau. *Offa* 38, pp. 85–90.
Kroll, H. 2001. Der Mohn, die Trichterbecherkultur und das südwestliche Ostseegebiet. Zu den Pflanzenfunden aus der mittelneolithischen Fundschicht von Wangels LA 505, Kr. Ostholstein. In: Kelm, R. (ed.) *Zurück zur Steinzeitlandschaft, Archäologische und ökologische Forschung zur jungsteinzeitlichen Kulturlandschaft und ihrer Nutzung in Nordwestdeutschland*. Albersdorfer Forschungen zur Archäologie und Umweltgeschichte 2. Boyens: Heide, pp. 70–76.
Kroll, H. 2007. The plant remains from the Neolithic Funnel Beaker site of Wangels in Holsatia, northern Germany. In: Colledge, S. and Conolly, J. (eds) *The Origins and Spread of Domestic Plants in Southwest Asia and Europe*. Left Coast Press: Walnut Creek, pp. 349–357.
Larsson, M. 2007. I was walking through the wood the other day. In: Hårdh, B., Jennbert, K. and Olausson, D. (eds) *On the Road. Studies in Honour of Lars Larsson*. Almqvist & Wiksell International: Lund, pp. 212–216.
Magny, M. 2004. Holocene climatic variability as reflected by mid-European lake-level fluctuations and its probable impact on prehistoric human settlements. *Quaternary International* 113, pp. 65–79.
Midgley, M. S. 2008. *The Megaliths of Northern Europe.* Routledge: London.
Müller, J. 2011a. *Megaliths and Funnel Beakers: Societies in Change 4100–2700 BC.* Kroon-Vordaacht 13. Stichting Nederlands Museum voor Anthropologie en Praehistorie: Amsterdam.
Müller, J. 2011b. Ritual cooperation and ritual collectivity: the social structure of the middle and younger Funnel Beaker North Group (3500–2800 BC). In: Furholt, M., Lüth, F. and Müller, J. (eds) *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic.* Frühe Monumentalität und soziale Differenzierung 1. Habelt: Bonn, pp. 273–284.
Müller, J. 2012. Vom Konzept zum Ergebnis ... In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft,Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 15–27.
Müller, J. 2013. Vom Muschelhaufen zum Langhügel: Ertebølle und Trichterbecher – Landschaften als divergierende Raumkonzepte. In: Hansen, S. and Meier, T. (eds) *Landschaften als divergierende Raumkonzepte.* De Gruyter: Berlin, pp. 133–153.
Müller, J., Bork, H. R., Brozio, J. P., Demnick, D., Diers, S., Dibbern, H., Dörfler, W., Feeser, I., Fritsch, B., Furholt, M., Hage, F., Hinz, M., Kirleis, W., Klooß, S., Kroll, H., Lorenz, M. L. L., Mischka, D. and Rinne, C. 2013. Landscapes as social spaces and ritual meaning: some new results on TRB in northern Germany. In: Bakker, J. A., Bloo, S. B. C. and Dütting, M. K. (eds) *From Funeral Monuments to Household Pottery. Current Advances in Funnel Beaker Culture (TRB/TBK) Research*. BAR S2474, Archaeopress: Oxford, pp. 51–80.
Rassmann, K. and Schafferer , G. 2012. Demography, social identities, and the architecture of megalithic graves in the south-western Baltic area. In: Hinz, M. and Müller, J. (eds) *Siedlung, Grabenwerk, Großsteingrab. Studien zu Gesellschaft,Wirtschaft und Umwelt der Trichterbechergruppen im nördlichen Mitteleuropa*. Frühe Monumentalität und soziale Differenzierung 2. Habelt: Bonn, pp. 107–120.
Straus, L. G. 2005. Comments on Gamble *et al. Cambridge Archaeological Journal* 15(2), pp. 211–212
Turner, V. 1979. Frame, flow and reflection: ritual and drama as public liminality. *Japanese Journal of Religious Studies* 614, pp. 465–499.
van der Veen, M. and Jones, G. 2006. A re-analysis of agricultural production and consumption: implications for understanding the British Iron Age. *Vegetation History and Archaeobotany* 15, pp. 217–228.
Williams, A. N. 2012. The use of summed radiocarbon probability distributions in archaeology: a review of methods. *Journal of Archaeological Science* 39, pp. 578–589.

Section 4

Conclusions

21

Ostentation, power and megaliths: the example of Easter Island

Nicolas Cauwe

Abstract

French anthropologist Alain Testart recently proposed that the European megaliths of the 5th millennium were the product of an ostentatious plutocratic social system. Developments during the 4th and the 3rd millennia led to changes in those societies where the dominant classes were better established and henceforth expressed their ostentatious display through the newly available metal artefacts instead of large stone monuments. His hypothesis was based on extensive ethnographic data, in particular the political and social structures of traditional non-state societies. In this paper, we test this model through the example of the megalithic society of Easter Island (Rapa Nui, Chile).

The Western European Neolithic, and ostentatious plutocracy

In his recent and final book about European prehistory (*Avant l'histoire* – Before History), the anthropologist Alain Testart suggested that there are only three significant political models for non-state societies (Testart 2012, 450–507). In the first, positions of authority are not linked to a specific function; here, chiefs operate only as symbols of their group and try to organise its coherence. In the ethnographic examples, "power" in this kind of society is justified by wealth. Testart calls this system an "ostentatious plutocracy" because those wealthy individuals must always demonstrate their economic power. Generally, ostentatious plutocracies are an evolution from hunter-gatherer societies with (or without) a tightly defined power structure. The second model, identified by Lewis Morgan (1877), resembles a primitive democracy, where councils are called spontaneously when a problem appears. In the third and final model, society is organised through lineages, with a common ancestor and with solidarity between all of the members of the group; the chief is the oldest member of the senior generation.

Testart proposed that the megalithic societies of Western Europe were "ostentatious plutocracies" where that ostentation was expressed notably through the construction of megaliths. He suggested also that the European megalithic world arose from a Mesolithic origin and a subsequent process of "neolithisation". The Mesolithic legacy is difficult to prove, but there are many arguments supporting such an inference: the cultural opposition between the Early Neolithic of the Balkan area and the megalithic world of Western Europe on the one hand; and the relationship across time from the west European Mesolithic to the west European megalithic societies on the other (Cauwe 2001). In Testart's interpretation, megaliths are linked to the economic control that legitimised a plutocratic system, the latter symbolised and regularly reaffirmed through these expensive projects. But during the Middle and Late Neolithic of Western Europe, we see an evolution, with the progressive disappearance of the ostentatious character of the stone-built architecture and, at the same time, the multiplication in the numbers of the dead lying within these burial chambers. Overall, we go from large monuments occasionally used for the burial of selected persons (wealthy males?), to a less impressive funerary architecture housing large numbers of the dead. This may represent a process of evolution from structures of power strictly reliant on ostentatious display to the appearance of an aristocratic class that could no longer regularly display its power or social position in that way and hence lost interest in large monuments (Testart 2012, 468–477). The purpose of this paper is to examine Testart's hypothesis by considering another megalithic society, one furthermore for which ethnographic records of the 19th century AD provide some knowledge of their social structure. Alain Testart drew on comparisons with traditional societies of North-west Coast North America and North-east Asia. Here, I propose to examine the famous megalithic people of Easter Island in the South Pacific.

Ostentatious societies of Oceania

The traditional societies of Micronesia and Polynesia were characterised by the ostentatious display of economic control by individuals who used this means to assert their authority or their power; the same situation obtained on Nias Island, in the Indian Ocean. On many of these islands, ostentation was expressed in different ways, but included among them was the building of megalithic monuments. On Nias Island, off the west coast of Sumatra (Indonesia), the megalithic monuments are simple rectangular stones that do not form part of any structure. Information is available however about the social context of these large boulders that were laid in front of some of the houses in the villages. The island of Nias was known from the 9th century, through the travel accounts of Arab traders, but the first commentaries appear only during the 17th century, when the East India Company started to exploit the island, and the first scientific studies began only at the end of the 19th century (Viaro 1984). The social structure

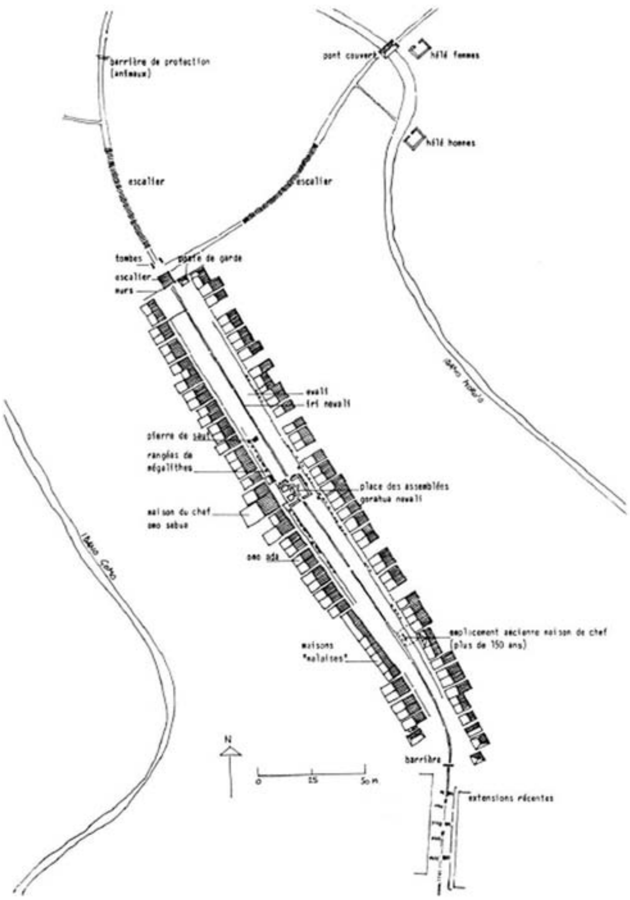


Fig. 21.1: Plan of Hilinawalo Maenemölö Village, in the southern part of Nias Island. The megalithic stones in front of some houses are indicated by lines of small black dots. (After Viaro 1984, 117)

on Nias consisted of three ranks: the nobles (descendants of mythical ancestors), the people, and the slaves. There were also counsellors drawn from the people, and nominated on their merits. But birth alone was not sufficient to justify an individual's place in society. Nobles and counsellors were obliged to provide feasts to maintain their rank or to advance to a higher rank. These feasts are termed *owasa* (merit feast), and each one was commemorated by the installation of a megalith in front of the house of the individual who had ordered the feast (Fig. 21.1). But to organise the workmen for the carving of this large stone and its transportation, nobles and counsellors had to provide foods over a long period for all of the people. In this sense, the large stones of Nias Island are the product of a society based on the acquisition of merit in order to maintain social status. In such a situation, the price of a simple stone is very high. The result is a megalithic phenomenon without any practical function, but symbolic of wealth and power.

It seems that this kind of strategy, in which power is accumulated through expensive social obligations was a widespread tradition in the Pacific Ocean. But each island or archipelago has its own particular system. In the Caroline Islands (today part of the Federated States of Micronesia), and on Yap Island especially, large circular stones are found in front of some houses (Gilliland 1975). These large discs have a hole in their centre, like the small coins of early 20th century Europe. Today, we know that the circular stones of the Yap (some of them more than 2m in diameter) had a similar purpose to the rectangular stones of Nias. A man of high rank, to retain his position, must demonstrate his control of extensive economic resources and the best way in which to do that was to install large stones in front of his house. It was once again an expensive and ostentatious process, since to obtain a stone it was necessary to provide feasts and give presents of food to the workmen and their families. One interpretation of this system might maintain that the circular stones of Yap Island are the largest "coins" in the world. But these large stones were not used for transactions. The raw material came from Belau (formerly Palaos or Pelau Island; 460km south-west of Yap island), the ocean crossing increasing the value of the stone "coins". In the 19th century, the inhabitants of Belau wanted to control the copra trade and they secured this monopoly in exchange for the stone required by the Yap islanders. It should also be noted that the number and the size of the "coins" increased significantly at the end of the 19th century, when the trade of copra became an international success. Nevertheless, the stones did not owe their value to this commercial environment. Although they were obtained through economic transactions, their only purpose was to fulfil the need for ostentatious social display. However, this ostentation was expensive: loss of the copra trade for the Yap islanders, transport by boat of the big "coins", payment of sailors and stone carvers, etc.

On Pohnpei island, also in the Caroline archipelago (Federated States of Micronesia), there are again ostentatious stone constructions. The best example is the site of Nan Madol (Ayres and Mauricio 1999). In this case, very large megalithic structures are involved, nothing less than artificial islands, built with large basaltic boulders resting on coral reefs (Fig. 21.2). It has been claimed that this impressive architecture was the most visible evidence of a new political centralisation from the 10th century. The artificial islands were enclosed by a substantial wall 1.5km long and 0.5km wide. Inside the enclosure, there are several artificial islets and more than 100 megalithic constructions (Ayres 1983). The construction technique is remarkable, consisting of the accumulation of large basaltic beams, perfectly carved, arranged in courses alternating perpendicularly between one direction and the other. Many tons of basalt were needed: one of the most impressive megalithic tombs (the Nan Dauas enclosure) required 4500m^3 of basalt and 13,500m^3 of coral fill for its construction (Ayres 1983, 140). A chronological sequence was established 30 years ago and the development of this site shown to fall between the 9th and the 16th centuries

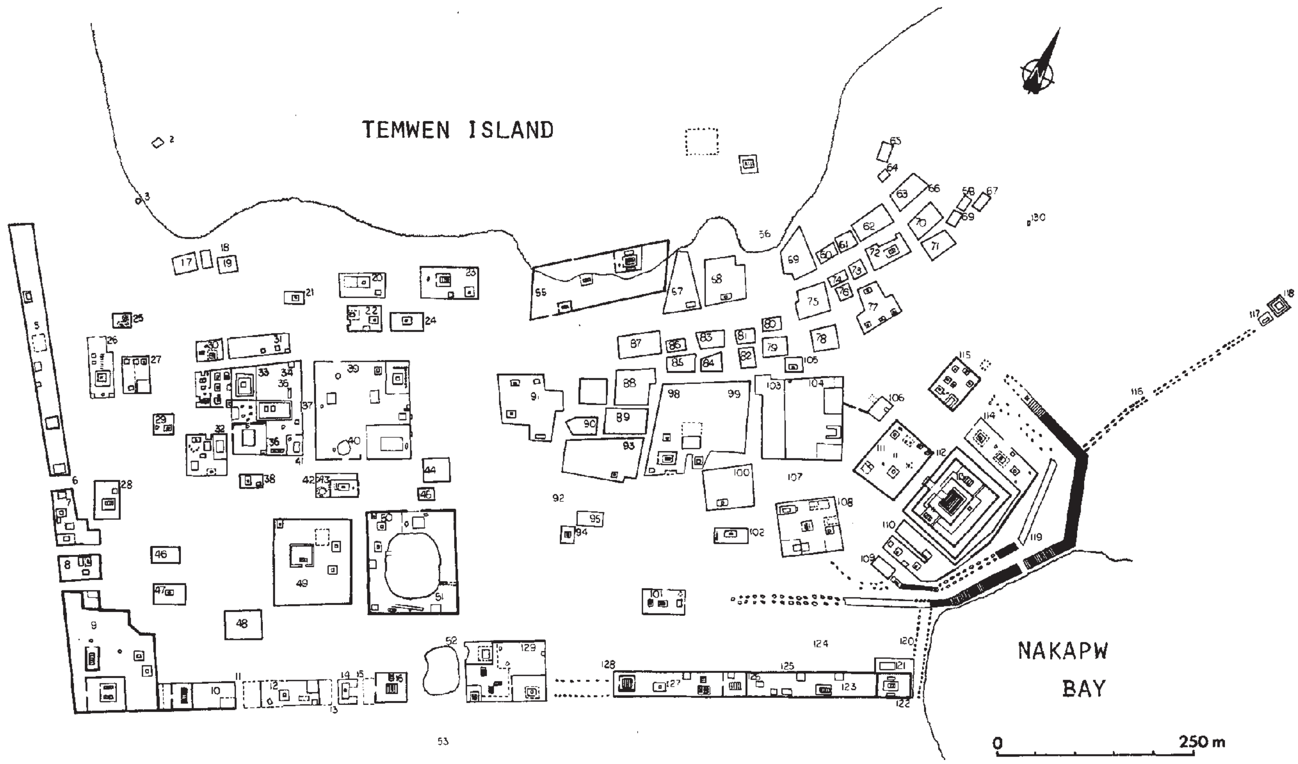


Fig. 21.2: Plan of Nan Madol. (After Ayres 1983: 137)

AD (Galipaud 2000). Tradition maintained that these artificial islets were reserved for the elite and for religious affairs (temples, graves, ceremonies). Once again, they were very expensive and ostentatious buildings, lacking economic utility, but allowing a succession of chiefs and wealthy families to increase their power through elaborate projects of this kind.

At the south-eastern end of Papua New Guinea, displays of wealth did not involve a megalithic tradition. Social power was expressed through the "*kula* ring", a system of exchange between the small islands. The *kula* ring was studied at the beginning of the 20th century by Bronisław Malinowski (1922). Thanks to this famous ethnologist, we know that the system was complex, but the final aim was once again the display of wealth and power, through exchanges of necklaces or armbands without obvious market value instead of the megalithic monuments of Nias or Micronesia. The *kula* ring involved travel around a small part of the South Pacific, between small islands. At each step, the sailors offered shell necklaces and armbands to the islanders whom they encountered, with the hope of receiving similar objects in return. In fact, the same necklaces and armbands moved from one island to another so that, after some years, a necklace or an armband may return to its island of origin. The necklaces moved in a clockwise direction (the cycle named *soulava*), the armbands in the opposite direction (the cycle named *mwali*) (Fig. 21.3). A man increased his prestige, not by the possession of these objects, but by the number of necklaces or armbands he had exchanged. To organise a *kula* expedition, the individual who wished to lead the trip and thus increase his prestige must pay the entire costs of preparation: collection of timber for the boats; manufacture of the boats; feasts for the workmen and their families; storage of food for the journey. It was indeed a very expensive process designed merely for the demonstration of symbolic wealth. As with megaliths in other parts of the Pacific, few individuals were able to increase their prestige and the *kula* ring was an ostentatious operation.

The Easter Island megaliths

The megalithic architecture of Easter Island (Rapa Nui) consists of large tuff images (*moai*) erected on impressive stone platforms (*ahu*). On the landward side, these platforms are bordered by a ramp paved with pebbles. A majority of the statues erected on these altars were carved of yellow tuff, and some were surmounted by a topknot of red scoria (Fig. 21.4). The exact functions of the *ahu-moai* are unknown, but the naturalist George Forster, who arrived on Rapa Nui with James Cook, had the opportunity to record basic information in March 1774. He asked the Easter Islanders the reason for the existence of these colossi perched on platforms, but the only reply that he could elicit was the word "areekee" (*ariki* in modern transliteration). Today we know that this term designates a person with authority, essentially a king, a noble, or else the chief of a clan or family group. From this islanders'

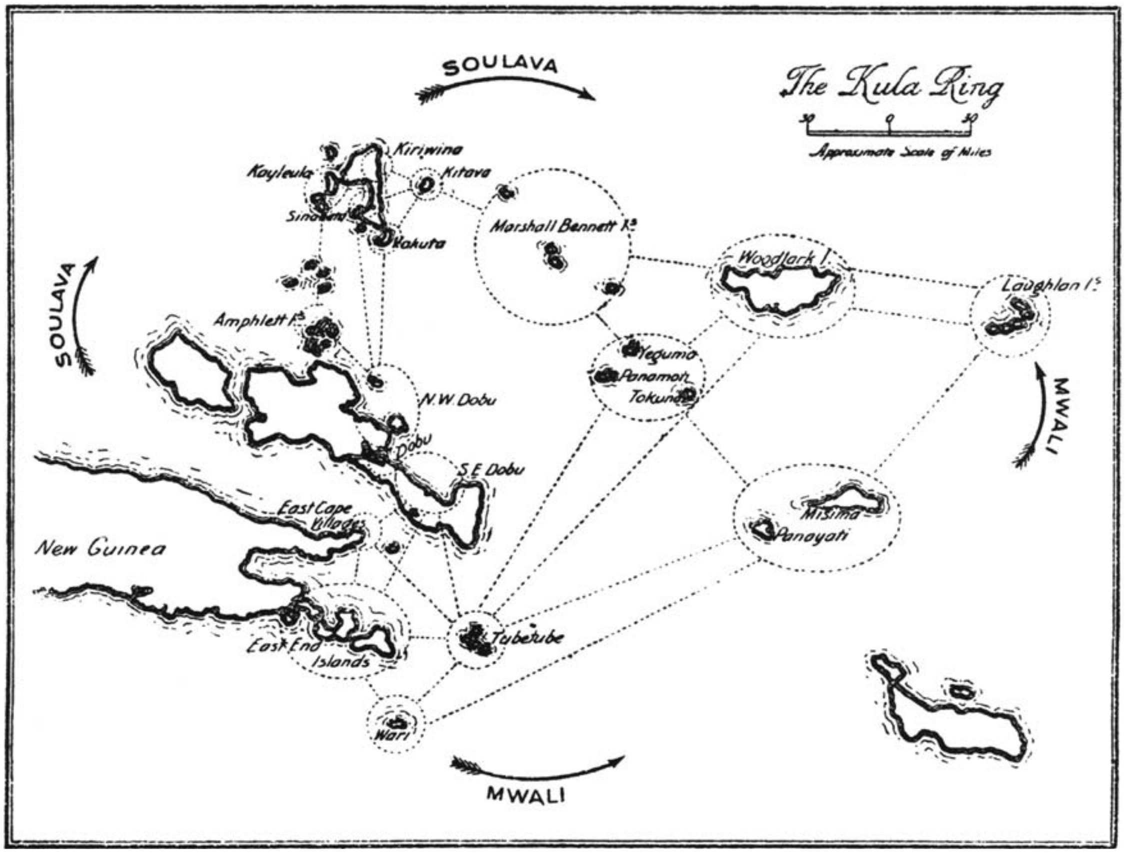


Fig. 21.3: Map of the "kula ring" at the south-eastern end of Papua-New Guinea. Soulava is the exchange cycle of necklaces (clockwise), mwali the exchange of armbands (counterclockwise). (After Malinowki 1922)

reply it was deduced that the Easter Island platforms were designed to support great effigies intended to honour clan or village chiefs, who were probably "ancestralised" or "deified". George Forster and Richard Pickersgill found confirmation of their hypothesis in the regular presence of human bones associated with the *ahu*. They concluded that the platforms were tombs, and that the statues that surmounted them must likewise have been connected with the world of the dead. The funerary character of the *ahu-moai* is not, however, as obvious as this would imply. It may have been considered advantageous to inter some of the dead close to monuments that had other functions. Elsewhere in Eastern Polynesia (Tahiti and the Marquesas), it is notable that monuments of the same type might serve a number of purposes, or switch between them according to circumstances or the evolution of the group to whom they belonged. On Tahiti especially, we know that during the 18th century, large monuments were built initially in the context of political rivalries. On Easter Island too, it seems that the *ahu-moai* were associated with a kind of "big men", named *ariki*, a term clumsily translated as "king". Thus we have a combination of large stone monuments, chiefs, and élite competition. It seems that although the megaliths of Easter Island (and of other Polynesian islands of the eastern Pacific) may have had complex functions, they were related to important men and were sometimes used in power-seeking contests. Obviously such a situation corresponds to the ostentatious plutocracy found on many islands of the Pacific Ocean.

Fig. 21.4: Restored monument of Ahu Ko te Riku, on west coast of Easter Island. (Photo: Nicolas Cauwe)

But this proposed concurrence on Rapa Nui between a particular type of social organisation and megalithic

Fig. 21.5: The regular rebuilding of cult platforms on Easter Island is demonstrated by the superpositioning of the structures, and also by the recycling of old statues in new constructions, as here where a head is included in the masonry of the rear wall of Ahu Nau Nau (northern coast). (Photo: Pierre Cattelain)

Fig. 21.6: An ahu (platform) on the southern coast of Easter Island. The first impression is that this monument is in ruins, but the statue (moai) lies intact in front the ahu, covered by the stone cairn. To left and right can be seen the intact landward wall of the platform. Instead of ruin or destruction, evidence indicates the transformation and closure of these monuments. (Photo: Nicolas Cauwe)

architecture is not the only feature that it shared with European megalithic societies. In Europe, we have long known that megalithic monuments were regularly enlarged, modified and rebuilt. This dynamic may reflect the continually renewed need for ostentatious display, and similar processes can be documented on Easter Island. All recent excavations have shown sequences, renovations, or transformations of *ahu-moai* (Cauwe 2011, 52–56). It appears that the cult platforms were built for a limited period and then reconstructed or restored some generations later (Fig. 21.5). It has been possible to estimate the period of use of the *ahu-moai* at some sites, notably at Ahu Nau Nau (Martinsson-Wallin 1994), Ahu te Niu, and Ahu Motu Toremo Hiva. In the two former cases, four monuments succeeded one another over a period of five centuries; in the latter, three platforms were built one on top of the other over approximately 300 years. Taking into account the phases of abandonment, which are marked by natural sedimentation, between the successive episodes of construction, we may deduce that each *ahu* functioned for less than one century. Finally, during the 18th and the beginning of the 19th centuries AD, all of the *ahu* of Easter Island were buried under large cairns comprising thousands of pebbles (Fig. 21.6). Shortly before this closure of the monuments, the large statues were toppled and laid lying down, generally in front of the altars although sometimes along the back wall.

The toppling of the *moai* seems to be the most impressive event at the end of the pre-colonial period. Most scholars think it followed violence or tribal wars, themselves resulting from an ecological crash (the disappearance of the forest owing to natural and/or anthropic actions that culminated in the middle of the 17th century AD). Modern excavations, however, have revealed that instead of a "destruction" of their *ahu-moai*, the islanders organised the closure of all of their megalithic monuments through a succession of ceremonial actions: removal of some of the pebbles from the ramps built in front of the platforms, dusting of red scoria on the same ramps, careful toppling of the images (Fig. 21.7), and finally construction of large cairns. All of these actions took place over an extended period spanning a century or more. The sophistication and duration of the processes argue against violence or warfare. During the same decades when the closure of the monuments was occurring, the cult platforms were also transformed into cemeteries, with burials inside small vaults (Fig. 21.8) or in single pits dug through the ancient monuments (Fig. 21.9). In other words, the organised toppling of the statues was accompanied by a transformation

Fig. 21.7: Ahu of Hanga Te'e on the south coast of Easter Island. The eight intact moai (statues) of the monument are lying in perfect order, which excludes destruction of this site by violence or by a natural phenomenon. (Photo: Nicolas Cauwe)

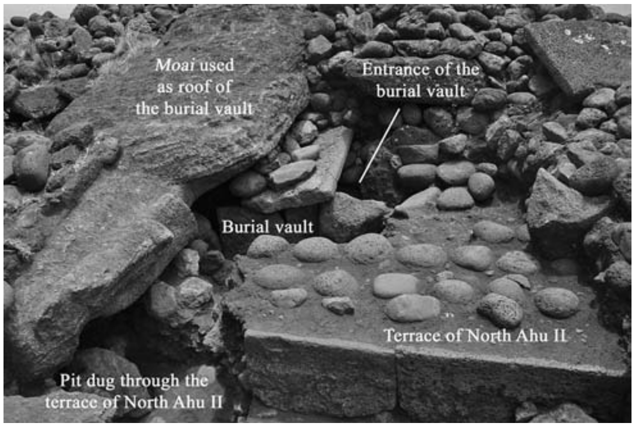


Fig. 21.8: Burial vault dug through the terrace of an ahu and covered by an intact statue: Ahu te Niu (west coast of Easter Island), excavations by the Musées Royaux d'Art et d'Histoire of Brussels in 2008. (Photo: Nicolas Cauwe)

of funerary practices and a loss of monumentality, that is to say the cessation of opportunities for ostentatious display. The parallel with the European megaliths is very strong. In both instances we may observe a dynamic and expensive architecture, investments in large monuments for short periods, evolution through the time of the function of these monuments with a growing emphasis on funerary use and a reduction in ostentatious display, and finally complex processes of closure with organised partial destruction.

Unfortunately, the first ethnographic studies in Rapa Nui were too late in time to understand the real context of the transformation of *ahu-moai*, and the toppling of the images. We do, however, have some indication of a similar cultural transformation on Tahiti, through the logs of Samuel Wallis, Louis-Antoine de Bougainville and James Cook (Salmond 2012), the reports of priests of the London Missionary Society (William Ellis [French edition 1972] and J. M. Orsmond [report partially lost but reconstructed

Fig. 21.9: Funeral pit dug through the closing cairn of Ahu te Niu (west coast of Easter Island). (Photo: Nicolas Cauwe)

in 1928 by his granddaughter Teuira: Henry 1928; see also Babadzan 1993]), and the publication of the Dutch voyager J. A. Moerenhout (1877; republished in 1959). It seems that during the 18th century the islanders began to compete for political leadership and at the same period changed the order of importance of their gods, 'Oro becoming the leading divinity to the detriment of Ta'aroa, the creator god. The European explorers of the 18th century were used by the people of Tahiti during this crucial period. Each family that was striving for supremacy took a European "chief" or "god" as a symbol of their ambition, and the flags left by the Europeans were recycled during these rivalries (Salmond 2012). In addition to sometimes very violent physical engagements, the erection of new *marae* (megalithic cult monuments) was fundamental to the process. It seems that the Mahaiatea Marae, on the south-west coast of Tahiti, was built at this time (Fig. 21.10). It was the highest ever erected on the island, indicating the full value of ostentatious display despite (or because) of the turbulent period during which it was built.

The Easter Island story during the 17th, the 18th and the beginning of 19th centuries appears to have been quite similar. We do not have direct testimony for conflicts, but the first explorers and missionaries found a society for whom the god Makemake had recently become the most significant divinity. The older megalithic tradition, with its cult platforms (*ahu-moai*), declined from that moment onwards, and a process of closure ensured (toppling of the tall statues and the raising of large cairns over the platforms; Cauwe 2011). In its place, ostentatious display focused around Rano Raraku, the volcano where the images (*moai*) were carved. There, dozens of new *moai* were erected inside deep pits on the inner and outer southern slopes of the volcano (Fig. 21.11), while others were carved as a new form of rock art, without any possibility for detaching them from the bedrock. The rivalry was henceforth expressed by the size and the number of statues assembled on Rano Raraku. Times and religious values had changed, but the system of ostentatious display persisted. The number of workmen needed and the food storage required for such an initiative is hard to imagine, as are the economic resources on which the promoters were able to call. All too often, the end of Easter Island is presented as a disaster or a collapse, with tribal warfare, starvation and destruction (Bahn & Flenley 2011; Diamond 2005). In reality, through social, economic and religious changes, a new way of expressing ostentatious display and expense was devised, the only purpose of which was the maintenance of the social order.

Conclusion

In the Pacific area, it can be seen that all of the collective projects (large structures, *kula* ring exchange and so on), imply extensive remuneration for the workmen, through feasts, food provision, and social obligations. The result in each case was

Fig. 21.10: Marae Mahaiatea, southwest coast of Tahiti (drawing from the end of the 18th century). This most famous monument of Tahiti, perhaps the tallest ever built, is now in ruins and has lost its impressive character. (After Wilson 1799)

the consolidation of the social structure and the accession to a higher position for those who had expended the necessary resources. The social objective was achieved by ostentatious displays, including the raising of megaliths on several islands, especially in Eastern Polynesia, and by the accumulation of valuable exchange items. The megaliths of Easter Island, whatever their functions and symbolism, participated in such a process through their monumental nature, supporting a political project that demanded ostentatious display by a plutocratic elite.

In framing his argument Testart used ethnographical comparisons from the Northwest Coast of North America and northeast Asia. Here, we have added the case of Easter Island with its famous colossal statues. Each region has its story and its own trajectory, but all of these cultural entities can be classified within the same general framework. We cannot call upon direct testimonies to inform us about the social structure of the European megalithic people and we cannot translate 18th century Oceania to Neolithic Europe. The Oceanic example shows, nonetheless, that we must consider the building of megaliths in Western Europe as an activity with social impact, not only as serving symbolic, funerary or religious ends. The Testart hypothesis hence provides a good starting point to address the European megalithic societies and their evolution through the time in a new light.

References

Ayres, W. 1983. Archaeology at Nan Madol, Ponape. *Bulletin of the Indo Pacific Prehistory Association*, 1983, pp. 135–142.

Ayres, W. and Mauricio R. 1999. Definition, ownership and conservation of indigenous landscape at Salapwuk, Pohnpei, Micronesia. In: Ucko, P. J. and Layton, R. (eds) *The Archaeology and Anthropology of Landscape. Shaping your Landscape*. Routledge: New York, pp. 299–318.

Babadzan, A. 1993. *Mythes tahitiens réunis par Teuira Henry*. Gallimard: Paris.

Bahn, P. and Fenley, J. 2011. *Easter Island. Earth Island*. Rapanui Press: Santiago de Chile.

Cauwe, N. 2001. *L'héritage des chasseurs-cueilleurs dans le nord-ouest de l'Europe (10 000–3 000 avant notre ère)*. Errance: Paris.

Cauwe, N. 2011. *Easter Island. The Great Taboo*. Versant Sud: Louvain-la-Neuve.

Diamond, J. 2005. *Collapse. How Societies Choose to Fall or Succeed*. Penguin: New York.

Fig. 21.11: The famous Rano Raraku quarry-volcano where the majority of the statues of Easter Island were carved. From the end of the 17th century and through the 18th century this site became a full ceremonial centre, with the erection of over 100 very tall images. (Photo: Nicolas Cauwe)

Ellis, W. 1972. À la recherche de la Polynésie d'autrefois. Société des Océanistes: Paris.
Galipaud, J.-C. 2000. *Nan Madol et le peuplement ancien de la Micronésie : rapport préliminaire de la mission de recherche qui s'est déroulée du 2 septembre eu 2 octobre 1999 à Ponape (îles Carolines)*. IRD; Laboratoire ERMES.
Gilliland, C. L. C. 1975. *The Stone Money of Yap. A Numismatic Survey.* Smithsonian Studies in History and Technology 23, Smithsonian Institution Press: Washington.
Henry, T. 1928. *Ancient Tahiti*. Bernice P. Bishop Museum: Honolulu.
Malinowski, B. 1922. *Argonauts of the Western Pacific*. Routledge and Kegan Paul: London
Martinsson-Wallin, H. 1994. *Ahu. The Ceremonial Stone Structures of Easter Island. Analyses of Variation and Interpretation of Meanings*. AUN 19 Societas Archaeologica Upsaliensis: Uppsala.
Moerenhout, J.-A. 1959. *Voyage aux îles du grand océan*. Maisonneuve: Paris (original edition: 1837).
Morgan, L. 1877. *Ancient society*. Macmillan: London.
Salmond, A. 2012. *L'île de Vénus. Les Européens découvrent Tahiti*. Au Vent des Îles : Papeete (original edition: *Aphrodite's Island: The European Discovery of Tahiti* 2009).
Testart, A. 2012. *Avant l'histoire. L'évolution des sociétés, de Lascaux à Carnac*. Gallimard: Paris.
Viaro, A. M. 1984. Nias: habitat et mégalithisme. *Archipel* 27, pp. 109–148.

22

A southern viewpoint

Luc Laporte and Primitiva Bueno Ramírez

Diffusionist theories for the Neolithic in western Europe were completely reversed when the first radiocarbon dates were obtained from Breton sites such as Carn and Barnenez (Giot 1960). Those diffusionist theories had identified Millares as the place of origin of west European megalithic structures, emanating from eastern influences. Moreover, at that moment another tradition began; one of regional studies that are only now beginning to be superseded. Diffusionist ideas have been in vogue for such a long time that they have left a powerful legacy, especially in the southern part of the Atlantic façade. There are even differences between the Iberian Peninsula, France, and Italy. France was divided into three areas: the south with its Mediterranean coast; the Paris Basin, which is oriented more towards Continental Europe; and the west, which has academic connections with the British Isles and the Atlantic region of the Iberian Peninsula. This division is partially explained by the historiography and social framework of the different countries. The Iberian Peninsula retained ideas of distant origins and late dating for its megaliths (Almagro and Arribas 1963). In the other areas, archaeological analyses were developed that moved beyond the location of the megaliths (Joussaume 1985) and took social perspectives into account (Renfrew 1984).

Major projects were carried out in the west of France in the 1980s and 1990s: for example, at Champ-Châlon or Pé-de-Fontaine in the west-central region (Joussaume 1999; Joussaume 2006); at Dissignac, Gavrinis, Saint-Just, Er-Grah, and La Table des Marchands in Brittany (L'Helgouach 1996; Le Roux 1985; Briard *et al.* 1995; Le Roux 2006; Cassen 2009); and at Ernes in Normandy (Dron and San Juan 1997). These projects provide information that helps to break away from the static image of the megalithic monument. All of them add valuable data for the interpretation of this architecture, and allow important methodological advances, such as those developed at the Bougon necropolis, and at Prissé-la-Charrière (Mohen and Scarre 2002; Laporte *et al.* 2002; 2015; Scarre *et al.* 2003).

In the south of France, studies by Guilaine at Saint-Eugène and Pépioux deserve special mention, as does Pajot's work in Quercy and D'Anna's work on Corsica (Guilaine and Guilaine 1998; Pajot 1999; D'Anna 2002). However, Arnal's synthesis of the 1960s has not been replaced by a new interpretative model. New ideas have been more closely linked to the development of new methodologies in physical anthropology and excavation technique, such as those carried out by Duday (2005) at Villedubert. More or less the same occurred in the Paris Basin with, for example, the work of Leclerc and Masset (2006) on collective burials in a number of gallery graves. This academic tradition started in the 1960s with Leroi-Gourhan's work at the Marne Valley hypogea and is still alive today.

The most innovative project in the Iberian Peninsula was that developed by Vítor Jorge and the Porto University team in the Serra da Aboboreira. This project stands at the beginning of a new way of working with Iberian megaliths. An integrated excavation and research strategy was employed, including study of the mound, the paleoenvironment, and C14 sampling (Jorge 1984; 1995). Subsequent research at Viseu (da Cruz 1995), Tras os Montes (Sanches 1997) and in the north (Silva 2003) can be considered to owe its origin to that methodological and theoretical design. The new theoretical perspectives of Galician archaeology (Bello Dieguez *et al.* 1987), known extensively from Criado's and Fábregas's publications (Criado 1989; 1991; Fábregas Valcarce 1992) could be considered another result of Jorge's critical way of thinking. The same goes for the first compilation of information by Arribas and Molina (1984).

In the 1990s, research in the Iberian Peninsula ran parallel to Anglo-Saxon research. At this time, some of the most prominent issues in the study of European megalithic monuments were addressed: the polymorphism of the earliest tombs (the geographical extension beyond the coastal zone; regional sequences; and the development of an altogether more realistic perspective. Large scale projects were carried out at Los Millares, El Pozuelo and Ambrona, at sites in the Toledo region, and at Dombate (Bueno Ramírez 1991; 1994; Tarrús 2002; Molina and Cámara 2005; Nocete 2004; Rojo Guerra *et al.* 2005; Carrera *et al.* 2005); and in southern Portugal (Oliveira 1995; Gonçalves and Sousa 2000). New aspects were considered, including anthropological perspectives, and the relationship between spaces for the living and spaces for the dead (Delibes 1995; Senna-Martinez *et al.* 1997; Bueno Ramírez *et al.* 2002). Territorial studies were a prominent feature of research in the Iberian Peninsula (Hurtado and Garcia-Sanjuán 1997). At the same time, the need to record the decoration of the monuments, and the large number of important menhirs in south-west Portugal (Calado 1997) became clear: megalithic art and representations on stelae and menhirs suggested connections between the Iberian Peninsula and Brittany (Bueno Ramírez and Balbín Behrmann 2002; Calado 2002).

These developments led to the adoption of new methodologies, focusing on those aspects of the evidence that were most important for the new interpretations. There was a remarkable accumulation of C14 dates. This work formed the basis of an evolutionary scheme that proposed a progression in tomb architecture in Brittany from the simplest to the most complex (Arnaud 1983; Boujot and Cassen 1992). Nonetheless, by the 1990s it was called into question. The rigid hypotheses that argued for the spread of chamber forms from a single area of origin to multiple areas were flawed. These flaws could only be overcome by thorough regional documentation (Soares 1997; Bueno Ramírez 2000; Laporte 2011; 2015).

In the 1980s, the availability of new dating evidence led to revised chronologies that overturned previous theories regarding the development of megalithic monuments in the south of Europe, particularly in southern France. From the 1990s, a similar reassessment occurred through the application of territorial analysis in the Iberian Peninsula (Boaventura and Mataloto 2009; Fernandez-Eraso and Mújika 2013; Garcia San Juan and Linares 2010; Molist and Clop 2010). Another feature was the growing interrelationships between the various research teams, and the development of collaborative projects between different European institutions. This opened the way for new discussion groups, and the first of a series of conferences on megalithic art. Wider debates, following from those in Moesgård and Groningen in 1950 and 1960, were revisited at the Bougon conference in 2002 (Joussaume *et al.* 2006).

Despite this progress, several topics that were resolved or examined in detail in some regions were not considered a focus of interest in others, or were not even taken into serious consideration. These distortions were especially noticeable in countries where there were no common frameworks for research objectives, such as Spain. Certain regions have a strong appreciation for archaeology as a feature that marks their identity, whereas others have little regard for that. One consequence is that established research teams with disappear, as the team leaders retire and are not replaced or succeeded by new researchers. This trend is also present to a lesser extent in France.

The European Megalithic Studies Group: interpretations at the broader scale

Many of the key issues that in recent research on megalithic monuments of the Atlantic zone were raised in the volumes arising from meetings of the European Megalithic Studies Group We hope that the present volume will carry forward this practice. The northern school of megalithic research has recently attained a clearly dominant position, as opposed to the older southern traditions. This is now beginning to change, as the south is contributing new themes for discussion. Thus, there is once again a true dialogue among the west European scientific community around the topic of megalithic monuments.

One such aspect relates to the more finely tuned chronologies (Scarre *et al.* 2008). A broader consideration of the social system that underlies architectural structures built of large stones is required. This should include the age of the earliest megalithic structures in western France and the Iberian Peninsula, compared with the slightly later developments in the north (Bayliss and Whittle 2007). In this, we feel the evaluation of such architecture as the result of many complex social relations provides the essential starting point. Discussions at the successive EMSG meetings have contributed to this. It has been agreed that analyses that focus on the understanding of supposedly "primitive architecture" must be set aside. Instead, we focus on studying a social and cultural product that was made material in very powerful architecture.

This interpretational framework is meant to draw closer attention to the social and cultural parameters that may explain west European megalithic monuments. From this perspective, we have learnt to nuance the role of architectural development as a classic evolutionary process. We believe there was clear polymorphism from the beginning, when the builders of the oldest European funerary architecture employed a number of different formulae for the housing of their ancestors. To connect this type of study with that of identity (Furholt *et al.* 2011) requires historical analyses about those societies that generated and sustained highly complex funerary behaviour. The variety that we accept for the structural morphology should also be applied to the function of these monuments. It is not easy to define a single function for monuments that have undergone several transformations. We should therefore develop a nuanced understanding in interpreting "changing" architecture in the coming years.

Throughout the Rennes meeting of 2012, participants discussed architecture, time, space, and action. In different ways, these concepts were applied to landscapes, monuments, and megalithic chambers. They were also applied, however, to temporal or operational sequences, such as time scales and geography (Fig. 22.1). Many participants employed terms such as construction, reconstruction, and experiment, as well as reuse, integration, incorporation, and modelling. Not surprisingly, we discussed monuments and large stones, which can be exposed in order to convey ostentation, or hidden to keep it secret. Many monuments required a tremendous collective effort for their creation, although evidence of more casual construction processes was also presented. Taken together, we often look for a social, technical, and /or symbolic function for a given feature, although even elements that appear to us to us to have had no useful purpose may

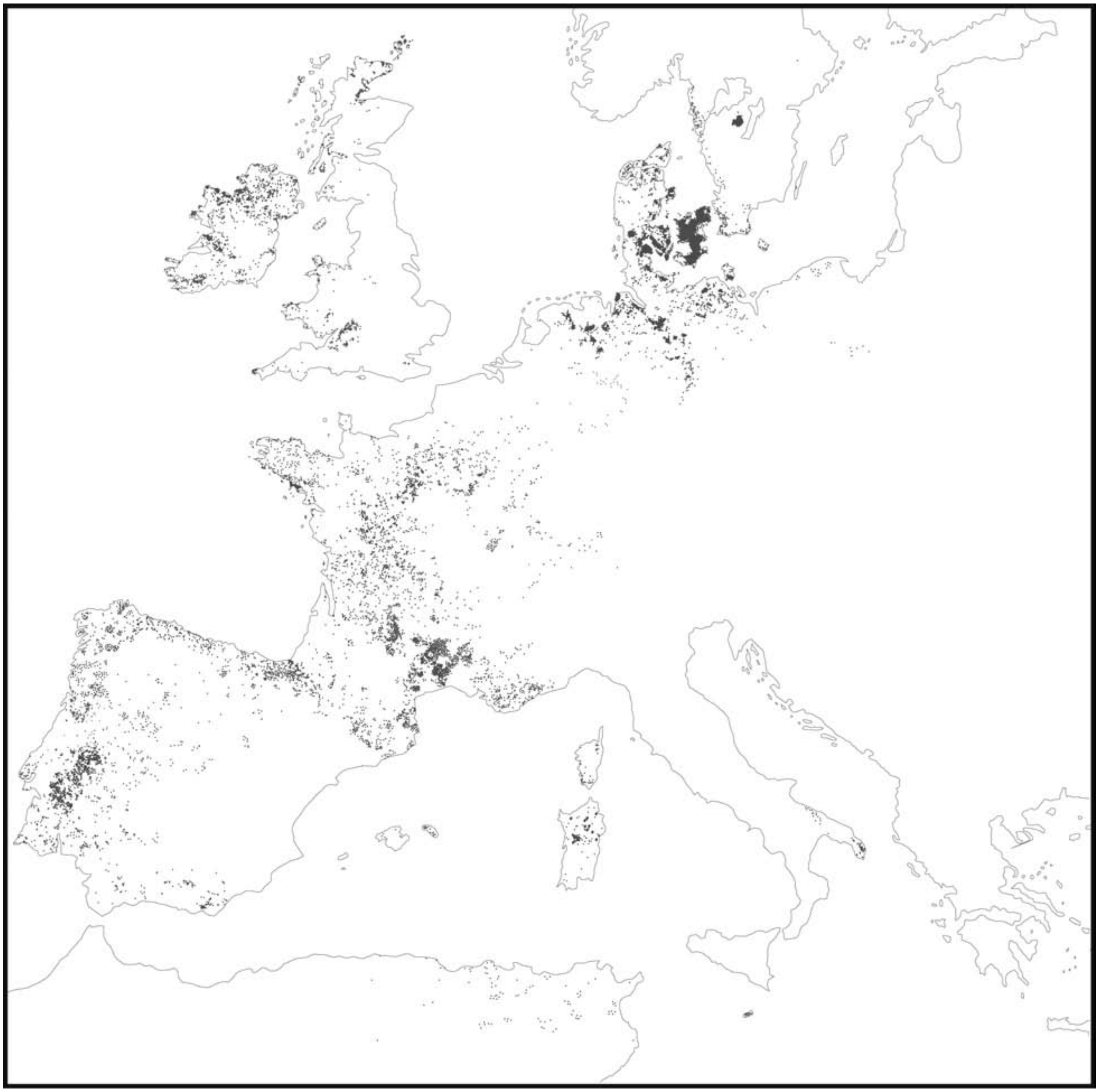


Fig. 22.1: Distribution of megalithic funerary monuments in Europe (information from Soulier 1998; Darvill 2004; Scarre 2005; Ritchie 2006; Migdley 2006; Costa 2008; Furholt and Muller, 2011; Rzepecki 201; Rocha forthcoming; and R. Barroso and L. Millan (pers. comm.)

sometimes have had their own significance.

One of the objectives of the Rennes meeting was to approach these monuments and their funerary spaces in terms of architecture. This introduces a perspective in which Neolithic builders carefully planned these architectural projects, even before any work in the field began. In several examples, rows of stones discovered below the mound, can be suggested to have acted as precise guidelines for the building process: they can be found in Danish [*Chap. 6: Dehn*], west French [*Chap. 2: Laporte*], and British passage graves. Whether mound construction was always an integral part of the architectural project was discussed both for Danish [*Chap. 8: Eriksen and Anderson*] and British [*Chap. 5: Cummings and Richards; Chap. 7: Scarre*] dolmens. This leads us to question whether their present day appearance should be understood as a ruin. Taphonomic arguments, for example, identify enclosing platforms or circuits of walling that could have never been covered. Similar elements have also been noted at 5th millennium monuments in southern France, surrounding cists and, more rarely, around standing stones. Reserved areas surrounded by ditches, predating mound construction, are also a feature of some of the west French long monuments.

Conversely, the position of the capstones in at least some chambered tombs is due to a deliberate intent to elevate the blocks in the air so as to appear to float: this was clearly part of the conceptualisation of the monument. Isolating this to a phase totally distinct from the construction of the funerary chamber and its surrounding structure would underestimate the complexity and diversity of the values and symbolism involved.

Study of the building site should not be seen through the restrictive perspective of a history of techniques. Indeed megalithic art must be considered part of the project and its development [*Chap. 19: Bueno Ramírez* et al.]. The ultimate design of the planned structure has first, however, to be distinguished from other more temporary devices. For example, studies of such different architecture as Danish passage graves [*Chap. 6: Dehn*] and Portuguese hypogea [*Chap. 16: Rocha*] emphasise that the entrance to the chamber, planned from the beginning as part of the project, was not always the access used while building work was in process. The existence of related structures, such as the closing stones within long megalithic chambers in Denmark, should perhaps be more carefully sought in other regions. Evidence for the drainage systems to improve the water-tightness of the chamber in Danish tombs [*Chap. 6: Dehn*] could also be investigated to generalise more broadly. The oversailing capstones of angoumoisin type passage graves could perhaps have been designed to achieve this, as could the clay layers inside some Spanish mounds and British long barrows. As for the different types of materials used for construction, it is intriguing to note the mention of daub walling as far north as Denmark [*Chap. 13: Gebauer*]. In northern Spain, the collective burial of La Velilla, dated to the second half of the 5th millennium BC, was deposited in a circular monument that seems to have been built entirely of daub. Even drystone construction needs further definition at a European scale. While it is often used in its strictest sense in France and the British Isles, the existence of a binding agent between the courses of stone is also attested in some late 4th and 3rd millennium BC structures. This binding agent can be prepared clay, as in the corbelled vaults of tholoi from southern Spain [*Chap. 15: Bueno Ramírez* et al.], or chalk: even birch bark is seen in some Danish passage graves [*Chap. 6: Dehn*]. Symbolic and technical choices also highlight local traditions: pointed keystones were used in northern Jutland [*Chap. 9: Westphal*]; white burnt flint, red sandstone, clay, and even pebbles were used for the flooring in Danish and German passage graves [*Chap. 20: Hinz and Kirleis*].

The installation of capstones over the chamber, or over the passage, was a strategic step in the building process. Associated platforms and ramps have been identified within Danish [*Chap. 6: Dehn*] and west French [*Chap. 2: Laporte*] mounds. Alternative propositions, that still need to be tested, are discussed for portal dolmens in the British Isles [*Chap. 5: Cummings and Richards*]. This step in the construction sequence may also have left a trace in the external elevation of the walling enclosing circular cairns in western France [*Chap. 4: Cousseau*]. Another question arises from the latter example – was the morphology of the monument, during what here can be shown to be no more than a constructional step, so different from the morphology of what, elsewhere, is commonly accepted as the final mound [*Chap. 11: Linares Catela*].

All architecture deals with space. In fact, identifying a place from which capstones can be extracted, moved, or elevated is one of the first requirements before work at the building site can begin. The presence of similar carved motifs on both a natural outcrop and an orthostat used in the construction of a passage grave [*Chap. 7: Scarre*] in England provides a striking example of the link between open air rock art and megalithic monuments. This has already been highlighted for the Iberian Peninsula. In Brittany, on the other hand, what looked like a natural outcrop within which a gallery grave was constructed was revealed to have previously been the quarry from which some of the tall standing stones of the Morbihan originated [*Chap. 17: Gouezin*]. The choice of the capstones, and to a certain degree the orthostats, also determines the dimensions of the chamber [*Chap. 6: Dehn*]. In Wales, the unique and sometimes enormous capstones of the portal dolmens could have been extracted from a pit discovered just underneath [*Chap. 5: Cummings and Richards*]. The dimensions of the backstone must have been strategically planned during the construction of Iberian polygonal chambers, with a standardised number of uprights and a capstone of generally small size [*Chap. 10: Fábregas Valcarce and Vilaseco Vázquez*]. In Iberia, former standing stones seem frequently to have been reused in the construction of these chambered tombs [*Chap. 15: Bueno Ramírez* et al.]. Standing stones themselves may have had sequences as complex as those of some burial mounds [*Chap. 18: Large and Mens*]. It is important always to recall the size of the space that the builders wanted to cover in the chamber. This was no more than 4 or 5m^2 for most southern French passage graves [*Chap. 3: Bec Drelon*], as well as for Danish dolmens [*Chap. 13: Gebauer*]. By contrast, L'Helgouach (1996) noted that almost all the passage graves in Brittany are larger than that.

The location chosen for construction must also be examined. Landscape is a crucial part of the architectural project, including both natural and artificial structures. In southern Spain, the visual relationship between entrance to the Menga tomb and the Peña de los Enamorados provides a good illustration of the link between a megalithic monument and a natural landscape feature [*Chap. 1: Sanjuan and Lozano Rodríguez*]. The large terraces constructed around the monuments of the El Pozuelo cemetery, in southern Iberia, as well as those identified at the Klekkendehøj Danish passage grave [*Chap. 6: Dhen*] highlight the integration of cultural feature [*Chap. 11: Linares Catela*]. Flanking quarries along large mounds are sometimes the only features that have survived down to the present day. The chronology and locations of these monuments are also linked in central Spain and Denmark to sites of previous farming settlements [*Chap. 15: Bueno Ramírez et al.*; *Chap. 12: Andersen*]. The link between funerary and domestic architecture, however, can also be examined through conceptual models, for example, in the long barrows of western France [*Chap. 2: Laporte*]. Tomb cemeteries (clusters of monuments of different types, successively constructed by local groups) and associated enclosures (used for a short duration but commanding the involvement of a large number of people) are also explored [*Chap. 12: Andersen; Chap. 20: Hinz and Kirleis*], mostly in northern Europe.

Conclusion

Are these the right questions? Would specific architectural layouts and ways of construction be of interest for understanding the functions of monuments resulting from such collective investments? Would the process of making things have been more significant – including for the Neolithic builders themselves – than the architectural product that resulted from it? These questions also show what Chis Scarre (pers. comm.) has termed, not without some irony, as an informal boundary between what could be seen as "Catholic" and "Protestant" based academic traditions in Western Europe. The former emphasises the dogma of what can be seen or demonstrated by material evidence. The latter focuses more on the essence of things, which are not always accessible by direct observation. In this way, it is striking to note how some researchers would, for example, relatively readily accept a reconstruction using now-lost wooden elements within a megalithic structure. Yet the same researchers will be sceptical at the suggestion of a stone platform originally higher than it was observed in the field. On the other hand, those who regularly draw generalisations from well preserved monuments (sometimes several metres high) often forget that elsewhere the missing part could have been built in timber, turf or even daub.

The Rennes meeting was a venue for dialogue, and this must be reinforced. What new ideas can be proposed? What evidence should be considered valid to support a particular interpretation or reconstruction? Is reconstruction useful, or even possible? This dialogue is partly one between what can be seen today and our mental concepts. While we are all looking for what has disappeared, we do not give the same weight to specific pieces of evidence. Some insist on surviving material evidence. Others give more weight to what has disappeared. Some even focus only on the significance it had for past populations. This dialogue also examines the coherence of general trends when confronted with specifics at the local level. On the one hand, trying to renew ways of thinking tends to highlight general frameworks of interpretation inducing, paradoxically, a normative effect. On the other hand, re-examining our observations tends to highlight local diversity but, at the same time, cannot avoid the risk of generalising too quickly. Both are obviously necessary. Dialogue presupposes diversity.

References

Almagro Basch, A. and Arribas Palau, A. 1963. *El poblado y la necrópolis megalítica de Los Millares (Santa Fé de Mondújar, Almería).* Bibliotheca Praehistórica Hispana: Madrid.

Arnaud, J. M. 1982. Le néolithique ancien et le processus de néolithisation au Portugal. *Le Néolithique ancien mediterranéen. Archéologie en Languedoc, no. spécial*, pp. 29–48.

Arribas, A. and Molina F. 1984. Estado actual de la investigación del megalitismo en la Península Ibérica. *Scripta Praehistórica*. Salamanca, pp. 63–112.

Bayliss, A. and Whittle, A. 2007. Histories of the dead: building chronologies for five southern British long barrows. *Cambridge Archaeological Journal* 17(1) (supplement).

Bello Diéguez, J. M., Criado Boado, F. and Vázquez Varela, J. M. 1987. *La cultura megalítica en la provincia de A Coruña y sus relaciones con el marco natural: implicaciones socioeconómicas.* Diputación Provincial de La Coruña.

Boujot C. and Cassen, S. 1992. Le développement des premières architectures funéraires monumentales en France occidentale. In: *Paysans et bâtisseurs: l'émergence du Néolithique atlantique et les origines du mégalithisme; XVII colloque interrégional sur le Néolithique, Vannes, Octobre 1990, Rennes:* Revue Archéologique de l'Ouest, supplément 5, pp. 195–211.

Briard, J., Gautier, M. and Le Roux, C.-T. 1995. *Les mégalithes et les tumulus de Saint-Just (Ille-et-Vilaine)*. CTHS, Paris.

Bueno Ramírez, P. 1988. *Los dólmenes de Valencia de Alcántara*. Excavaciones Arqueológicas en España 155: Madrid.

Bueno Ramírez, P. 1991. *Megalitos en la Meseta Sur: los dólmenes de Azután y La Estrella (Toledo).* Excavaciones arqueológicas en España 159: Madrid.

Bueno Ramírez, P. 1994. La necrópolis de Santiago de Alcántara (Cáceres). Una hipótesis de interpretación para los sepulcros de pequeño tamaño del megalitismo occidental. *Boletín del Seminario de Arte y Arqueología de Valladolid* LIX, pp. 25–100

Bueno Ramírez, P. 2000. El espacio de la muerte en los grupos neolíticos y calcolíticos de la Extremadura española. *Extremadura Arqueológica* VIII, pp. 35–80.

Bueno Ramírez, P. and Balbín Behrmann, R. de. 2002. L'art mégalithique péninsulaire et l'art mégalithique de la façade atlantique. Un modèle de capillarité appliqué à l'art postpaléolithique ibérique. *L'Anthropologie* 106, pp. 603–646

Bueno Ramírez, P., Barroso Bermejo, R., Balbín Behrman, R. de, Campo Martín, M., Etxeberría Gabilondo, F., González Martín, A. and Sánchez, B. 2002. Áreas habitacionales y funerarias en el Neolítico de la cuenca interior del Tajo: la provincia de Toledo. *Trabajos de Prehistoria* 59, pp. 65–79.

Calado, M. 1997. Cromlechs alentejanos e a arte megalítica. *Brigantium* 10, pp. 287–297.

Calado, M. 2002. Standing stones and natural outcrops. The role of the ritual monuments in the Neolithic transition in the Central Alentejo. In: Scarre, C. (ed.) *Monuments and Landscape in Atlantic Europe*. London: Routledge, pp. 17–35.

Cassen, S. (ed.) 2009. *Autour de la table: explorations archéologiques et discours savants sur des architectures néolithiques à Locmariaquer, Morbihan (Table des Marchands et Grand Menhir).* Laboratoire de recherches archéologiques LARA du CNRS/Université de Nantes : Nantes.

Carrera, F., Valcarce, R. F., Bello, R., Balbín, J. M., Bueno, R. and Ayora, P. 2005. Procedimiento interdisciplinar de caracterización, diagnosis y preservación de pintura megalítica. In: *Investigación en conservación y restauración: II Congres o del Grupo Español del IIC: [9, 10 y 11 de noviembre de 2005, Barcelona],* p. 30.

Criado Boado, F. 1989. Megalitos, espacio, pensamiento. *Trabajos de Prehistoria* 46, pp. 75–98.

Criado Boado, F. 1991. *Arqueología del Paisaje. El área Bocelo-Furelos. Entre los tiempos paleolíticos y medievales*. Arqueoloxía/investigación 6: Santiago de Compostela.

Costa, L. 2008. *Mégalithismes insulaires en Méditerranée*. Errance: Paris.

Da Cruz, D. 1995. Cronología dos monumentos con tumulus do Noroeste e da Beira Alta. *Estudos Pré-históricos* 3, pp. 81–119.

D'Anna, A. 2002. Les cultures de la fin du Néolithique en Méditerranée occidentale. *Documents d'Archéologie Méridionale, ADAM* 25, pp. 247–256.

Darvill, T. 2004. *Long Barrows of the Cotswolds*. Tempus: Stroud.

Delibes, G.1995. Ritos funerarios, demografía y estructura social entre las comunidades neolíticas de la Submeseta Norte. In: *Arqueoloxía da morte: arqueoloxía da morte na Península Ibérica desde as Orixes ata o Medievo (actas do Curso de Verán da Universidade de Vigo, celebrado en Xinzo de Limia, do 4 ó 8 de xullo de 1994)*. Concello de Xinzo de Limia, p. 61–94.

Dron, J.-L. and Sanjuan, G. (eds). 1997. Le site néolithique moyen de Derrière-les-Prés à Ernes (Calvados). *Gallia Préhistoire* 39, pp. 151–237.

Duday, H. 2005. *Lezioni di archeotanatologia, archeologia funeraria e antropologia di campo.* Soprintendenza Archeologica di Roma: Rome.

Fábregas Valcarce, R. 1992. *Megalitismo del Noroeste de la Península Ibérica. Tipologia y secuencia de los materiales líticos*. UNED: Madrid.

Fernández-Eraso, J. and Mújika-Alustiza, J. A. 2013. La estación megalítica de la Rioja Alavesa: cronología, orígenes y ciclos de utilización. *Zephyrus*, 71, pp. 89–106.

Furholt, J. and Müller J. 2011. The earliest monuments in Europe – architecture and social structures (5000–3000 cal. bc). In: Furholt, J., Lüth, F. and Müller, J. (eds) *Megaliths and Identity*. Frühe Monumentalität und soziale differenzierung 1. Habelt: Bonn, pp. 15–31.

Furholt, J., Lüth, F. and Müller, J. (eds) 2011. *Megaliths and Identity*. Frühe Monumentalität und soziale differenzierung 1. Habelt: Bonn.

García Sanjuán, L. and Linares Catela, J. A. 2010. Contribuciones a la cronología absoluta del megalitismo andaluz. Nuevas fechas radiocarbónicas de sitios megalíticos del andévalo Oriental (Huelva). *Menga* 1, pp. 135–151.

Giot, P. R. 1960. Vers une échelle chronologique "absolue" pour la préhistoire et la protohistoire armoricains. *Annales de Bretagne*, 67, pp. 33–44.

Gonçalves, V. and Sousa, C. 2000. O grupo megalítico de Reguengos de Monsaraz e a evoluçao do megalitismo no Ocidente peninsular. *Muitas antas, pouca gente? Trabalhos de Arqueologia,* 16, pp. 11–104.

Guilaine, C. and Guilaine, J. 1998. Les dolmens de l'Aude. In: Soulier, P. (ed.) *La France des dolmens et des sépultures collectives (4500–2000 av. J.-C.).* Errance : Paris, pp. 175–194.

Hurtado Pérez, V. and García Sanjuán, L. 1997. Los inicios de la Jerarquización Social en el Suroeste de la Península Ibérica (c. 2500–1700 ane): Problemas conceptuales y empíricos. *Saguntum. Papeles del Laboratorio de Arqueología de Valencia* 30, pp. 135–152.

Jorge, V. O. 1984. Datas de C14 para o megalitismo do Norte de Portugal: Breve nota. *Lucerna*, pp. 69–72

Jorge, V. O. 1989. Les tumulus de Châ de Santinhos: ensemble mégalíthique de Serra da Aboboreira, Nord du Portugal. In: *Homenagem à Jean Roche*: Porto, pp. 381–413.

Jorge, V. O. 1995. Late Prehistoric funerary mounds in Northern Portugal as indicators of social complexity. In: Lillios, K. (ed.) *The Origins of Complex Societies in Late Prehistoric Iberia*. Archeological Series 8 : Michigan, pp. 00–00.

Joussaume, R. 1985. *Des dolmens pour les morts*. Hachette: Paris.

Joussaume, R. (ed.) 1999. Le tumulus du Pey de Fontaine au Bernard (Vendée). *Gallia Préhistoire* 41, pp. 167–222.

Joussaume, R. 2006. *Les tumulus de Champ-Châlon à Benon (Charente-Maritime)*. Groupe Vendéen d'Etudes Préhistoriques 42.

Joussaume, R., Laporte, L. and Scarre, C., (eds) 2006. *Origine et développement du mégalithisme de l'ouest de l'Europe*. Musée des Tumulus de Bougon: Bougon.

L'Helgouach, J. 1996. Mégalithes armoricains: stratigraphie, réutilisations, remaniements. *Bulletin de la Société préhistorique française* 93, pp. 418–424.

Laporte L. 2011. Innate and/or expressed identities: their conceptualization through monumentality, funerary practices and grave goods? Some examples from the megalithic tradition of Western France. In: Furholt, M., Lüth, F. and Müller, J. (eds) *Megaliths and Identities*. Frühe Monumentalität und soziale differenzierung 1. Habelt: Bonn, pp. 199–224.

Laporte, L. 2015. Menhirs et Dolmens: deux facettes complémentaires du mégalithisme atlantique? In: Rodriguez, G. and Marchesi, H. (eds) Statues-menhirs et pierres levées du Néolithique à nos jours. *Actes du 3e colloque international de Saint-Pons-de-Thomières*. Montpellier: Direction Régionale des Affaires Culturelles Languedoc-Roussillon/Groupe Archéologique du Saint-Ponais, 175-191.

Laporte, L., Joussaume, R. and Scarre, C., 2002. Le tumulus C de Péré à Prissé-la-Charrière (79), état des recherches après 6 années d'intervention. *Gallia Préhistoire* 44, pp. 167–214.

Laporte, L., Parron, I. and Cousseau, F. forthcoming. Nouvelle approche du mégalithisme à l'épreuve de l'archéologie du bâti. In: *Méthodologie des recherches de terrain sur la Préhistoire récente en France. Nouveaux acquis, nouveaux outils (1987–2012). Actes des Premières Rencontres Nord/Sud de Préhistoire Récente, Marseille 23-25 mai 2012*. Editions Archives d'Ecologie Préhistorique: Toulouse, pp. 169-186.

Leclerc, J. and Masset, C. 2006. L'évolution de la pratique funéraire dans la sépulture collective néolithique de la Chaussée-Tirancourt (Somme). *Bulletin de la Société Préhistorique Française* 103, pp. 87–116.

Le Roux ,C.-T. 1985. New excavations at Gavrinis. *Antiquity* 59, pp. 183–187.

Le Roux, C.-T. (ed.) 2006. *Monuments mégalithiques à Locmariaquer (Morbihan), le long tumulus d'Er Grah dans son environnement. XXXVIIIe suppl. à Gallia Préhistoire*, CNRS: Paris.

Midgley, M. 2006. The megalithic tombs of the north European plain. In: Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et développement du mégalithisme de l'ouest de l'Europe.* Musée des Tumulus de Bougon: Bougon, pp. 63–88.

Mohen, J.-P. and Scarre, C. 2002. *Les tumulus de Bougon, complexe mégalithique du Ve au IIIe millénaire.* Errance: Paris.

Molina, F. and Cámara, J. A. 2005. *Los Millares. Guía del yacimiento arqueológico*. Junta de Andalucía: Sevilla.

Molist, M. and Clop, X. 2010. Los orígenes del megalitismo en Cataluña en el marco de las prácticas funerarias del Neolítico. In: *Actas del Congreso Internacional sobre Megalitismo y otras manifestaciones funerarias contemporáneas en su contexto social, económico y cultural. Munibe*, Supplement 32, pp. 212–225.

Nocete Calvo, F. 2004. *Odiel. Proyecto de investigación arqueológica para el análisis del origen de la desigualdad social en el suroeste de la península Iberica*. Junta de Andalucia, Arqueología Monografías: Sevilla.

Oliveira, J. 1997. *O Megalitismo da bacia hidrográfica do rio Sever*. Ibn Maruan: Marvâo.

Pajot, B. 1999. Les dolmens du Quercy. In: Guilaine, J. (ed.) *Mégalithismes de l'Atlantique à l'Ethiopie*. Errance: Paris, pp. 143–172.

Pérez Arrondo, C. 1987. El fenómeno megalítico en la margen derecha del Ebro: La Rioja. Estado de la cuestión y principales problemas. In: *El megalitismo en la Península Iberica*: Madrid, 159–180.

Renfrew, C. 1984. *Approaches to Social Archaeology*. Edinburgh University Press: Edinburgh.

Ritchie, G. 2006. Megaliths in Scotland. In: Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et développement du mégalithisme de l'ouest de l'Europe*. Musée des Tumulus de Bougon: Bougon, pp. 159–186.

Rojo Guerra, M., Kunst, M., Garrido Pena, R., Martinez de Lagrán, I. and Morán Dauchez, G. 2005. *Un desafío a la eternidad: tumbas monumentales del Valle de Ambrona*. Arqueología en Castilla y León 14. Junta de Castilla y León: Valladolid.

Rzepecki, S. 2011. *The Roots of Megalithism in the TRB Culture*. Instytut archeologii uniwersytetu lodzkiego: Lodz.

Sanches, M. J. 1997. *Ocupaçao pré-histórica do Nordeste de Portugal.* Fundación Rei Afonso Henriques: Zamora.

Senna-Martinez, J. C., Lópel Plaza, S. and Hoskin, M. 1997. Territorio, ideología y cultura material en el megalitismo de la plataforma del Mondego (centro de Portugal). In: Rodriguez Casal, A. (ed.) *O neolítico atlántico e as orixes do megalitismo*. Universidade de Santiago de Compostela: Santiago de Compostela, pp. 657–676.

Scarre, C. 2005. *Monuments mégalithiques de Grande-Bretagne et d'Irlande.* Errance: Paris.

Scarre, C., Laporte, L. and Joussaume, R. 2003. Long mounds and megalithic origins in western France: recent excavations at Prissé-la-Charrière, *Proceedings of the Prehistoric Society* 69, pp. 235–251.

Scarre, C., Arias, P., Fano, M., Oosterbeek, K., Schulting, R., Sheridan, A. and Whittle, A. 2003. Megalithic chronologies. In: Burenhult, G. (ed.) *Stones and Bones*. BAR S1201, Archaeopress: Oxford, pp. 65–111.

Scarre, C., Garcia Sanjuán L. and Wheatley D. (eds). 2008. *Exploring Time and Matter in Prehistoric Monuments: Absolute Chronology and Rare Rocks in European Megaliths. Menga: Journal of Andalusian Prehistory, Monograph no 1*. Junta de Andalucía: Seville.

Silva, E. J. L. da. 2003. Novos dados sobre o megalitismo do Norte de Portugal. *Muita gente, poucas antas? Origens, espaços e contextos do megalitismo. Trabalhos de Arqueología* 25, pp. 269–270.

Soares, A. M. 1997. Megalitismo e cronologìa absoluta. In: de Balbìn, R. and Bueno Ramírez, P. (eds) *II Congreso de Arqueologìa Peninsular. T. III. Primer Milenio y Metodologìa.* Fundación Rei Afonso Henriques: Zamora, pp. 689–706.

Soulier, P. (ed.) 1998. *La France des dolmens et des sépultures collectives (4500–2000 avant J. C.)*. Errance: Paris.

Tarrús i Galter, J.2002. *Poblats, dolmens i menhirs. Els grups megalitics de l'Albera, serra de Rodes I Cap de Creus.* Diputació de Girona: Girona

23

A northern viewpoint

Chris Scarre and Torben Dehn

There is a recurrent tension in studies of the megalithic monuments of Western Europe. In the 18th and 19th centuries many of the first antiquarians to write about them decided that they must be the work of a megalithic people: the Comte du Caylus attributed them to "les hommes du Nord"; Nicolaus Westendorp to the Celts; and more recently in the mid-20th century Gordon Childe attributed them to the activities of "megalithic missionaries" (Caylus 1766; Westendorp 1822; Childe 1950). In Northern Europe, Montelius sought to derive megalithic tombs through diffusion from the Eastern Mediterranean (Montelius 1899), and diffusionist models continued to dominate during the following decades, albeit the direction of travel was reversed from south–north to north–south (Sjögren 2003, 33–35).

In contrast to this assumption that these megalithic monuments were in some way part of a unitary phenomenon have been the many regional studies that have sought to understand groups of tombs or standing stones within a more restricted geographical setting. It has even been proposed that they had independent multi-regional origins at different places within the west European arc (Renfrew 1976). As the long-distance movement of materials such as Alpine greenstone axes and Iberian variscite becomes clearer, along with genetic and other analyses supporting the role of population movement in the Mesolithic/Neolithic transition, the argument for a pattern of independent regionalised origins has become more difficult to sustain. Neolithic communities were not static, isolated entities, out of contact with the rest of the world. At the same time, the variable chronology and character of Neolithic monuments in Northern Europe, Britain, France and Iberia obliges us to interpret them within their regional contexts. Looking outwards, however, a regional perspective also brings new insights into the megalithic pattern as a whole. Features long studied by specialists in one region may have passed unnoticed in another; while gross differences between megalithic traditions in different regions may not have received the attention and interpretation they deserve.

What then might be learned by reviewing the megalithic monuments of Western Europe from a north European perspective?

Chronology and typology

One of the key advances in the understanding of megalithic monuments in Northern Europe (Britain and Ireland, southern Scandinavia, the northern Netherlands, and north Germany) has been the improvement in chronological resolution. In southern England in particular, the multiplication of radiocarbon dates coupled with Bayesian modelling has led to detailed chronologies of both chambered tombs and causewayed enclosures (Bayliss and Whittle 2007; Whittle *et al.* 2011). This has confirmed earlier studies (e.g. Saville 1990) that had argued that the duration of funerary use of these monuments was much shorter than had previously been supposed, in most cases lasting for only three or four generations. It also shows that the construction of these monuments had followed closely upon one another over a period of three or four centuries. Thus the first burials in the Ascott-under-Wychwood chambered long cairn in the 38th century cal BC were followed shortly afterwards by those at Fussell's Lodge, then at Hazleton within 20–95 years after Ascott, and at West Kennet less than 55 years after Hazleton (Whittle *et al.* 2007).

Chronologies of this precision are rarely available outside the chalk and limestone regions where skeletal material is well preserved, and hence the indications of short use-lives are currently limited to those regions. Whether they can be applied more generally across the megalithic monuments of Western and Northern Europe, and assumed even in areas of acid soils and geology where human remains do no usually survive, has yet to be determined. Even where human remains are preserved, the resulting radiocarbon dates must be interpreted with caution. Evidence from Schleswig-Holstein suggests that megalithic tombs may sometimes contain older remains transferred from other sites (e.g. Flintbek LA 3, Dolmen II: Mischka 2011, 89), and the duration of tomb use cannot always be inferred directly from the dispersion of radiocarbon dates, even with the assistance of Bayesian analysis.

It is not only in southern Britain, that dating evidence indicates a relatively short phase of primary use for megalithic burial chambers. Radiocarbon dates from interments in three separate chambers within the Prissé-la-Charrière long mound in western France also fall within a short period of two centuries, and suggest that the entire development of the monument, from a small closed chamber, to a short rectangular long mound within a rock-cut ditch, and finally to the massive 100m long mound incorporating two separate passage tombs, may been comprised within that relatively short period (Scarre *et al*. 2003). Thus even where a complex sequence of modification and enlargement can be demonstrated, the individual stages may have followed each other very rapidly.

The contrasting case is where large numbers of monuments of strikingly similar morphology are concerned. Examples at the opposite ends of Europe are many of the *jættestuer/gånggrifter* or passage tombs of southern Scandinavia and the seven-stone *antas* of western Iberia. The former take a variety of forms, but one classic variant consists of a narrow elongated chamber set within a mound and accessed via a passage in one of its long sides. The resulting T-shaped plan is highly distinctive and is encountered in large numbers of passage tombs in northern Netherlands, southern Scandinavia, and northern Germany. Not all Scandinavian passage tombs are so distinctive in their morphology, and many of the *dolmens* – the other major category of Scandinavian tomb – do also have passages and would in other regions of Western Europe be classified as passage tombs. But the T-shaped varieties have highly distinctive and repetitive plans.

Similarity of design and of constructional technique implies a unified knowledge base and would be consistent with a relatively short chronology. Direct dating of these tombs has been difficult since most of them lie in areas of acid geology where human remains do not preserve well, and furthermore several of those within the limestone catchment of Vastergötland, where human remains are preserved, appear to have been re-used during the later Neolithic (Sjögren 2011).

A breakthrough came with the dating of layers of birch bark interleaved between the courses of drystone work within several Danish passage tombs. These showed a relatively narrow chronology of construction, lying within a period of two or three centuries between 3300 and 3000 cal BC (Dehn and Hansen 2006). They are consistent with AMS dates on human remains (Sjögren 2011). Available AMS dates indicate that many of the Scandinavian "dolmens" were built during the same three centuries, although some might be two centuries older (*c*. 3500 cal BC). Thus dolmens and passage tombs in south Scandinavia were first built five to seven centuries after the first Neolithic communities became established in Northern Europe, and continued to be built for only a few generations, but in impressive numbers: some estimates suggest as many as 25,000 megalithic tombs may once have existed in south Scandinavia (Ebbesen 1985; Midgley 2008, 29–31).

Despite the short but intensive period of construction, which may have seen the building of one megalithic tomb per year across an extensive area of Northern Europe, the structures share one important feature with those of other regions of Western Europe. They were regularly subject to modification and reconstruction by their builders, a feature that even here seems to be deeply embedded with the megalithic tradition [*Chap. 6: Dehn*].

In the case of the T-shaped passage tombs, chronology and typology are both tightly defined. The same may be true of the seven-stone *antas* of western Iberia. These tombs are typical of regions such as the Central Alentejo and typically consist of chambers of seven megalithic slabs leaning inwards against each other and supporting a single capstone. The number of orthostats varies, but the use of seven uprights is a widespread and consistent feature, a morphological regularity that may be evidence of a strong regional tradition. These tombs appear to date to the 4th millennium, and may (like the T-shaped passage tombs) have been built in a short burst of activity, although direct chronological evidence is limited, and extensive series of AMS date are not yet available (Boaventura 2011, 162). It is interesting to note that many of the passage tombs of Denmark also share a numerical characteristic, with seven pairs of orthostats in the passage.

Thus despite their prominence and permanence, many megalithic tombs in both Northern and Southern Europe may have been the outcome of "events" lasting only two or three centuries. Furthermore, in none of these regions do they fall at the beginning of the Neolithic but several centuries later: three centuries or so in the case of the British long mounds; seven centuries or so in the case of passage tombs in Brittany and Scandinavia, and as much as a millennium and a half in the case of the seven-stone *antas* of Iberia. They are the product of particular social dynamics that we are only now beginning to grasp. Thus the study of tomb chronologies in Northern Europe may have identified regularities that are more widely applicable.

Orthostats, standing stones and petrified people

The megalithic monuments of Western Europe span a wide range of climate and geology, from the limestones of Andalusia to the glaciated boulder clays of the North European Plain. The varying geologies have of course dictated the materials that were locally to hand for the construction of megalithic monuments, but even in northern Europe, where some monuments are built in areas with exposed bedrock outcrops (e.g. Västergötland) and others in moraine landscapes, offering very different challenges and opportunities in terms of the materials available, the fundamental concept and intention appears to be the same. Of course, in some cases materials were brought from a distance. Extreme examples of the latter are the Stonehenge bluestones and the Grand Menhir Brisé at Locmariaquer, but most megalithic transport probably involved distances of only 1–2km (Bevins *et al*. 2012; Cassen 2009; cf. Thorpe and Williams-Thorpe 1991). Studies in the moraine landscapes of Northern Europe have also indicated predominantly local origins, as in the geological study comparing the stone blocks of Kong Svends Høj and other passage tombs in the region with locally available stones in dikes, piles, and quarries. The conclusion was that the materials for the tomb were locally derived (Dehn *et al*. 1995, 141–158). This does not exclude the possibility, however, that significant stones may have been transported over longer distances.

The forms taken by megalithic monuments will hence have been dependent in some measure on the size and qualities of locally available stone blocks. The relationship between monuments and source materials is not unidirectional, however, nor is it deterministic: tombs were not built in the way they were, just because certain materials were locally available. The concept of the megalithic monument itself was very likely inspired by the natural features of the landscapes in which they were built. They may indeed represent the replacement of the veneration of natural "monuments" by the construction of artificial monuments (Scarre 2009; 2012).

In that context one of the most striking features of the north European monuments is the exclusive focus on chambered tombs. *Dysser* (or "dolmens") and *jættestuer* (or passage tombs) are constructed of glacial erratic boulders. These erratics had often been split, presumably by natural glacial action, and the smooth fracture plane that resulted was positioned by the builders facing into the chamber interior. Elsewhere in the megalithic domain, chambered tombs form only one of the varied series of megalithic monuments, among which standing stones are a conspicuous component. Standing stones are themselves a broad category, including unworked stone slabs set upright, the finely smoothed menhirs with carved motifs of Iberia and north-western France, and the statue-menhirs of southern Europe. The latter are overtly anthropomorphic, and many have suggested that standing stones more generally may represent people, a line of argument that draws support from Madagascan ethnography in particular (Bueno Ramírez 2010; Jorge 1998; Bloch 1995; Scarre 2009; 2010).

In a number of regions, standing stones are particularly common. A recent survey counted no fewer than 1122 sites with prehistoric standing stones as compared with 1182 Neolithic funerary monuments in Brittany. Those sites, however, do not comprise only single standing stones. The majority consist of multiple stones in settings that culminate in the well-known stone rows of the southern Morbihan. Altogether, a total of at least 6800 standing stones potentially of Neolithic age were documented (Laporte *et al.* 2015). The numbers for Britain are similar (Swarbrick 2012: 896 prehistoric sites with 1228 standing stones, although some of the details are to be regarded with caution). In Britain, once again, and in Ireland, many more standing stones are assembled into circles and alignments (Burl 2000). In Iberia, likewise, standing stones may be single isolated features, or (in Portugal) elements of the stone enclosures known locally as *cromlechs* (Calado 2002; 2006). Although the dating of standing stones remains a challenge, and some of the prehistoric examples may have been erected in more recent periods, evidence suggests that the majority belong to the Neolithic. This is supported by the re-use in the construction of megalithic burial chambers of what had originally been individual standing stones, a practice documented in Iberia, France and Britain. Furthermore, in northwest France and southwestern Iberia, the limited chronological evidence that is available suggests that standing stones may have been the oldest of all megalithic monuments, pre-dating the earliest burial chambers. It is hence possible to envisage early Neolithic societies in which ambitious individuals coopted members of the community to drag stones from distant quarries and set them upright, as reported of the holy men of the Angami Naga people of Assam in the early 20th century, or more recently of the Kusasi of northern Ghana and the Merina of Madagascar (Hutton 1921; Mather 2003; Kus and Raharijoana 1998).

It is all the more striking that among the thousands (originally tens of thousands) of megalithic monuments in Northern Europe, standing stones are rare. Furthermore, the few standing stones that are known have not been dated. In Germany, there are no confirmed Neolithic examples in the northern provinces of Mecklenburg-Vorpommern, Niedersachsen and Schleswig-Holstein (Groht 2013). It is hard to imagine that standing stones could survive in the intensively cultivated Danish landscape. Indeed, within Denmark, it is only on the island of Bornholm that standing stones are present in large numbers, but most of these are of Iron Age date, and this island is the only area in present-day Denmark with bedrock outcrops. Recent episodes of destruction may account for the absence of standing stones elsewhere. Nineteenth century descriptions of ancient monuments describe several monoliths and ship settings that have since completely disappeared. Single standing stones were easier to remove and reuse to build bridges and houses than those incorporated into the structure of megalithic tombs. To conclude – we do not know if standing stones were a common feature in Northern Europe, but if so, we cannot expect them to be preserved. At present, however, the absence of standing stones is a feature that sharply differentiates Northern Europe from Britain and Ireland, France, and Iberia.

Unity in diversity?

That brings us back to the fundamental tension cited at the beginning of this short review: the recognition, despite occasional arguments to the contrary, that the megalithic monuments and chambered tombs of Neolithic Western and Northern Europe share in some degree a common origin; and the evident diversity in form, activity and chronology that makes specific linkages difficult to identify.

One element which both units and divides is the symbolic legacy of the Bandkeramik long house, which is widely claimed to underlie the early long mound traditions of northern Europe, Britain, and northern France (e.g. Midgley 2005; Scarre 2002; 2003; Laporte and Marchand 2004; Bradley 2001). The parallel was proposed over half a century ago, and has received support from the positioning of long mounds directly over former Bandkeramik longhouses at Balloy in France (Duhamel 1997). In Northern Europe, such a direct superpositioning has not yet been encountered but long mounds appeared in areas of southern Poland where Bandkeramik long houses had been built only a few centuries earlier. The link between the two appears very strong. In Denmark, Niels H. Andersen [*Chap. 12*] has discovered a number of houses under long mounds around Sarup, and others may hitherto have escaped attention. The phenomenon may be much more common than has hitherto been recognised, especially in areas where structural remains of Neolithic houses have proved difficult to identify. Furthermore recent discoveries in north-western France have extended the distribution of Villeneuve-Saint-Germain longhouses into Central Brittany, providing a potential inspiration for the long rectangular *tertres* that are an early component of the Breton monumental tradition (Blanchet *et al.* 2010; Tinévez *et al.*2015).

For Britain, the relationship is more problematic. Formal similarities between the Early Neolithic long mound and those of northern Europe have long been noted (Madsen 1979), but the ceramics of earlier Neolithic Britain belong to the Carinated Bowl tradition of northern France and Belgium, an area from which long mounds that could be ancestral to the British series are largely absent. Thus the connection with the Bandkeramik longhouse tradition is at best remote, and rather than seek direct antecedents it may be more realistic to conclude that the British earlier Neolithic drew on a number of sources (Thomas 2013, 335; Scarre 2015).

Britain nonetheless seems to fall within the longhouse/long mound zone, in contrast to Iberia and France south of the Loire where a tradition of circular Neolithic houses prevails, linked perhaps to a Mediterranean-focused Cardial Early Neolithic (Laporte and Marchand 2004). Yet this fracture line does not find expression in other features of the west European megalithic tradition. Thus if long mounds are restricted to northern France and regions to the north, megalithic art is found in Iberia, northern and western France, Britain, and Ireland, with a further group of decorated tombs around Halle in central Germany (Schierhold 2012). How far megalithic art can be considered a unified or connected phenomenon is difficult to assess. There are parallels in motifs and techniques between different areas, and notably between Brittany and Iberia where an early phase of art involving crooks and axe blades appeared on standing stones (Calado 2002). Geometric motifs are widespread, but could perhaps be attributed to transfer from other materials such as textiles, rather than direct transmission between the different regions. Recent discoveries of painted megalithic art in Brittany and Orkney show that similar motifs may have been present (but no longer preserved) in monuments of other regions [*Chap. 15: Bueno Ramírez* et al.]. At present, however, megalithic art is unknown from the extensive series of monuments in northern Europe; a surprising feature, perhaps, given the elaborately decorated TRB pottery that is often found deposited in front of the passage tombs.

The widening distribution of megalithic art provides a pendant to the northern focus of the longhouse/long mound parallel, and draws the centre of gravity back to southern Europe. It was here that 20th century archaeologists such as Forde and Childe sought the origins of the European megalithic chambered tomb tradition (Forde 1930; Childe 1950). Despite the difficulty of dating these structures, especially in areas where associated human remains are rarely preserved, it seems that Iberia and north-west France were the locus of the earliest manifestation of this tradition, during the 5th millennium BC. It was only later, in the 4th millennium, that similar structures began to be built in Britain and Northern Europe. The presence of megalithic art and other features connects the British tradition to the Atlantic seaways and the south, but despite morphological parallels the direct link with Northern Europe is hard to document. That there was such a link, however, it is difficult to deny. The practice of burying the dead at ground level within a stone chamber, one furthermore that was often built of megalithic blocks, was often furnished with a passage to provide permanent access, and frequently opened to the east or southeast, is hard to account for in any other way.

References

Bayliss, A. and Whittle, A. (eds.). 2007. *Histories of the Dead: building chronologies for five southern British long barrows. Cambridge Archaeological Journal* 17(1) (Supplement).

Bevins, R. E. and Ixer, R. 2013. Carn Alw as a source of the rhyolitic component of the Stonehenge bluestones: a critical re-appraisal of the petrographical account of H. H. Thomas. *Journal of Archaeological Science* 40, 3293–3301.

Blanchet, S., Forre, P.. Fromont, N., Hamon, C. and Hamon, G. 2010. Un habitat du Néolithique ancien à Betton "Pluvignon" (Ille-et-Vilaine). Présentations synthétique des premiers résultats. In: Billard, C. and Legris, M. (eds) *Premiers Néolithiques de l'Ouest. Cultures, réseaux, échanges des premières sociétés néolithiques à leur expansion*. Presses Universitaires de Rennes: Rennes, pp. 15–39.

Bloch, M. 1995. People into places: Zafimaniry concepts of clarity. In: Hirsch, E. and O'Hanlon, M. (eds) *The Anthropology of Landscape. Perspectives on Place and Space*, eds. Clarendon Press: Oxford, pp. 63–77.

Boaventura, R. 2011. Chronology of megalithism in south-central Portugal. In: Sanjuán, L. G., Dcarre, C. and Wheatley, D. (eds) *Exploring Time and Matter in Prehistoric Monuments: absolute chronology and rare rocks in European megalith*. Junta de Andalucía: Antequera, pp. 159–175.

Bradley, R. 2001. Orientations and origins: a symbolic dimension to the long house in Neolithic Europe. *Antiquity* 75, 50–56.

Bueno Ramírez, P. 2010. Ancestros e imágenes antropomorfas muebles en el ámbito del megalitismo occidental: las placas decoradas. In: Cacho, C., Maicas, R., Galán, E. and Martos, J. A. (eds) *Ojos que Nunca se Cerran. Ídolos en las primeras sociedades campesinas.* Ministerio de Cultura: Madrid, pp. 39–77.

Burl, A., 2000. *The Stone Circles of Britain, Ireland and Brittany.*Yale University Press: New Haven.

Calado, M. 2002. Standing stones and natural outcrops. The role of ritual monuments in the Neolithic transition of the Central Alentejo. In: C. Scarre (ed.) *Monuments and Landscape in Atlantic Europe. Perception and Society During the Neolithic and Early Bronze Age*. Routledge: London, pp. 17–35.

Calado, M. 2006. Les menhirs de la péninsule ibérique. In: Joussaume, R., Laporte, L. and Scarre, C. (eds) *Origine et Développement du Mégalithisme de l'Ouest de l'Europe*,Musée des Tumulus de Bougon: Bougon, pp. 613–635.

Cassen, S. (ed.) 2009. *Autour de la Table. Explorations archéologiques et discours savants sur des architectures néolithiques à Locmariaquer, Morbihan (Table des Marchands et Grand Menhir).* Université de Nantes: Nantes.

Caylus, A. C. P. comte de, 1766. *Recueil d'Antiquités Egyptiennes, Etrusques, Grecques, Romaines et Gauloises, Tome VI.* Paris.

Childe, V. G. 1950. *Prehistoric Migrations in Europe.* Kegan Paul: London.

Dehn, T., Hansen, S. and Kaul, F. 1995. *Kong Svends Høj. Restaureringer og undersøgelser på Lolland 1991.* Nationalmuseet: Copenhagen.

Dehn, T. and Hansen, S. I. 2006. Birch bark in Danish passage graves. *Journal of Danish Archaeology* 14, pp. 23–44.

Duhamel, P. 1997. La nécropole monumentale Cerny de Passy (Yonne): description d'ensemble et problèmes d'interprétation. In: Constantin, C., Mordant, D. and Simonin, D. (eds) *La Culture de Cerny. Nouvelle économie, nouvelle société au Néolithique. Actes du Colloque International de Nemours, 9-10-11 mai 1994.* Musée de Préhistoire de l'Ile de France: Nemours, pp. 397–448.

Ebbesen, K. 1985. *Fortidsminderegistrering i Danmark.* Fredningsstyrelsen: København.

Forde, C. D. 1930. Early cultures of Atlantic Europe. *American Anthropologist* 32, pp. 19–100.

Groht, J. 2013. *Menhire in Deutschland*. Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt: Halle.

Hutton, J. H. 1921. *The Angami Nagas, with some notes on neighbouring tribes.* Macmillan: London.

Jorge, V. O. 1998. Interpreting the "megalithic art" of Western Iberia: some preliminary remarks. *Journal of Iberian Archaeology* 00, pp. 69–84.

Kus, S. Raharijoana,V. 1998. Between earth and sky there are only a few large boulders: sovereignty and monumentality in central Madagascar. *Journal of Anthropological Archaeology* 17, pp. 53–79.

Laporte, L. and Marchand, G. 2004. Une structure d'habitat circulaire dans le Néolithique ancien du Centre-Ouest de la France. *Bulletin de la Société Préhistorique Française* 101, pp. 55–73.

Laporte, L., Daire, M.-Y., Kerdivel, G. and López-Romero, E. 2015. Back and forward. Neolithic standing stones and Iron Age stelae in French Brittany. In Díaz-Guardamino, M., García Sanjuán, L. and Wheatley, D. (eds) *The Lives of Prehistoric Monuments in Iron Age, Roman and Medieval Europe*. Oxford University Press: Oxford, pp. 141-61.

Madsen, T. 1979. Earthen long barrows and timber structures: aspects of the Early Neolithic mortuary practice in Denmark. *Proceedings of the Prehistoric Society* 45, pp. 301–320.

Mather, C. 2003. Shrines and the domestication of landscape. *Journal of Anthropological Research* 59, pp. 23–45.

Midgley, M. 2005. *The Monumental Cemeteries of Prehistoric Europe.* Tempus: Stroud.

Midgley, M., 2008. *The Megaliths of Northern Europe.* Routledge: London.

Mischka, D. 2011. Flintbek LA 3, biography of a monument. In: Furholt, M., Lüth, F. and Müller, J. (eds) *Megaliths and Identities. Early Monuments and Neolithic Societies from the Atlantic to the Baltic.* Rudolf Habelt: Bonn, pp. 67–94.

Montelius, O. 1899. *Der Orient und Europa. Einfluss de orientalischen Cultur auf Europa bis zur Mitte des letzten Jahrtausends v. Chr.* Stockholm.

Renfrew, C. 1976. Megaliths, territories and populations. In: De Laet, S. J. (ed.) *Acculturation and Continuity in Atlantic Europe.* De Tempel: Brussels, pp. 198–220.

Saville, A. 1990. *Hazleton North. The excavation of a Neolithic long cairn of the Cotswold-Severn group.* English Heritage: London.

Scarre, C. 2002. Contexts of monumentalism: regional diversity at the Neolithic transition in north-west France. *Oxford Journal of Archaeology* 21, pp. 23–61.

Scarre, C. 2003. Diverse inspirations: landscapes, longhouses and the neolithic monument forms of northern France. In: Burenhult, G. (ed.) *Stones and Bones. Formal disposal of the dead in Atlantic Europe during the Mesolithic-Neolithic interface 6000–3000 BC.* BAR S1201, Archaeopress: Oxford, pp. 39–52.

Scarre, C. 2009. Stones with character: animism, agency and megalithic monuments. In: Cooney, G, O'Connor, B. and Chapman, J. (eds) *Materialitas: working stone, carving identity.* Prehistoric Society Research Papers 2: Oxford, pp. 9–18.

Scarre, C. 2009. Stony ground: outcrops, rocks and quarries in the creation of megalithic monuments. In: Scarre, C. (ed.) *Megalithic Quarrying. Sourcing, Extracting and Manipulating the Stones.* BAR S1923, Archaeopress: Oxford, pp. 3–20.

Scarre, C. 2010. Rocks of ages: tempo and time in megalithic monuments. *European Journal of Archaeology* 13, pp. 175–193.

Scarre, C. 2012. Significant stones, significant places: monumentality and landscape in Neolithic western Europe. In: Papadopoulos, J. K. and Urton, G. (eds) *The Construction of Value in the Ancient World.* Cotsen Institute of Archaeology: Los Angeles, pp. 51–65.

Scarre, C. 2015. Parallel lives? Neolithic funerary monuments and the Channel divide. In: Anderson-Whymark, H., Garrow, D. and Sturt, F. (eds) *Continental Connections. Exploring cross-Channel relations from the Mesolithic to the Iron Age*. Oxbow Books: Oxford, 78-98.

Scarre, C., Laporte, L. and Joussaume, R. 2003. Long mounds and megalithic origins in western France: recent excavations at Prissé-la-Charrière. *Proceedings of the Prehistoric Society* 67, pp. 235–251.

Schierhold, K. 2012. *Studien zur hessisch-westfälischen Megalithik. Forschungsstand und perspektiven im europäischen Kontext.* Leidorf: Rahden.

Sjögren, K.-G. 2003. *"Mångfalldige uhrminnes grafvar . . ." Megalitgravar och samhälle i Västsverige.* Göteborgs Universitet Institutionen för Arkeologi: Gøteborg.

Sjögren, K.-G. 2011. C-14 chronology of Scandinavian megalithic tombs. In: Sanjuan, L. G., Scarre, C. and Wheatley, D. (eds) *Exploring Time and Matter in Prehistoric Monuments: Absolute Chronology and Rare Rocks in European Megaliths*. Junta de Andalucia: Antequera, pp. 103–119.

Swarbrick, O. 2012. *A Gazetteer of Prehistoric Standing Stones in Great Britain.* BAR 558, Archaeopress: Oxford.

Thomas, J. 2013. *The Birth of Neolithic Britain. An Interpretive Account.* Oxford University Press: Oxford

Thorpe, R. S. Williams-Thorpe, O. 1991. The myth of long-distance megalithic transport. *Antiquity* 65, pp 64–73.

Tinévez, J.-Y., Hamon, G., Querré, G., Marchand, G., Pailler, Y., Darboux, J.-R., Donnart, K., Marcoux, N., Pustoc'h, F., Quesnel, L. and Oberlin, C. 2015. Les vestiges d'habitat du Néolithique ancien de Quimper, Kervouyec (Finistère). *Bulletin de la Société Préhistorique Française* 112, 269-316.

Westendorp, N. 1822. *Verhandeling ter beantwoording der Vrage: welke volkeren hebben de zoogenoemde hunebedden gesticht? In* *welke tijden kan man onderstellen, dat zij deze oorden hebben bewoond?* Oomkens: Groningen.

Whittle, A. Bayliss, A. 2007. The times of their lives: from chronological precision to kinds of history and change. In: Bayliss, A. and Whittle, A. (eds) *Histories of the Dead: building chronologies for five southern British long barrows. Cambridge Archaeological Journal* 17(1) (Supplement), pp. 21–28.

Whittle, A., Healy, F. and Bayliss, A. 2011. *Gathering Time. Dating the Early Neolithic Enclosures of Southern Britain and Ireland.* Oxbow Books: Oxford.