Megaliths from north and north-west France, Britain and Ireland

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Megaliths of the World

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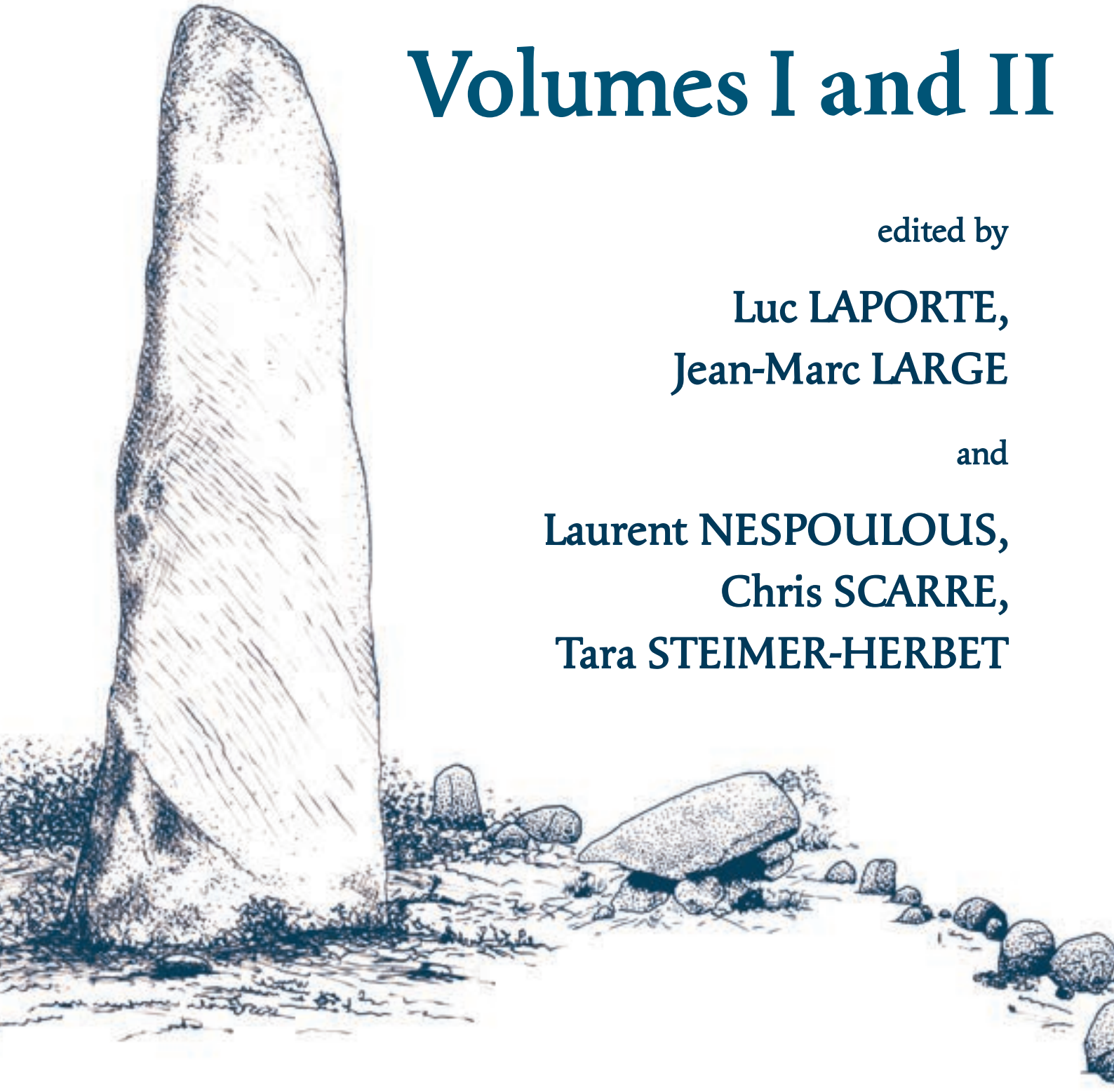

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Abstract: The megalithic monuments of northern France, Britain and Ireland drew upon a diversity of materials, including stone, timber, earth, turf, and unbaked clay, to create a series of structures that were themselves often highly mutable, subject to additions and modifications over periods extending across several centuries. Northern and western France saw an early development of Neolithic monumentality in the long mounds which appeared during the second quarter of the 5th millennium BC. In northwest France, these were progressively combined with different, though contemporary, forms of burial chamber and surrounding structures. Those chambers were first dug into the subsoil but, after 4300 BC, mainly stood above ground. The arrangement of the megalithic blocks in these chambered tombs can be compared with that of the stone rows for which this region of France is especially famous. Unilinear models cannot fully account for the sequence and diversity of chambered tombs, and some supposedly later types, such as *dolmens angevins*, may indeed be partly contemporary with the passage tombs. The first Neolithic monuments of Britain (early 4th millennium BC) drew culturally on their north French antecedents but did not copy them exactly; the concepts and features of megalithic monumentality introduced from the continent were transformed to create new insular traditions. Neolithic societies of western Britain and Ireland developed specific types of funerary monument (portal dolmens, court cairns) followed, towards the end of the 4th millennium BC, by a florescence of megalithic art in the passage tombs of the Boyne Valley in Ireland. Late 4th millennium megalithic traditions in northern France followed a very different pattern with the appearance of gallery graves (*allées sépulcrales, sépultures à entrée latérale*) their elongated chambers perhaps modelled on contemporary house forms. These tomb types continued to be built into the 3rd millennium BC but find no strict parallel in Britain or Ireland, where the primary focus switched instead to ceremonial monuments including stone circles and henges.

Keywords: *megaliths, Neolithic, France, United Kingdom, Ireland*

Among the regions of the world with megalithic monuments, northern France, Britain and Ireland hold a particularly prominent place. It is here that some of the most famous of all megalithic monuments are to be found: Carnac in Brittany, Newgrange in Ireland, Stonehenge in southern England. Northwest Europe was also one of the first regions of the world in which megalithic monuments were studied, surveyed and excavated. Indeed, two of the first recorded excavations of megalithic tombs took place, by coincidence, in the same year in successive months, led by the poet Titia Brongersma at Great Hunebed D27 at Borger in June 1685, and by landowner Robert le Prévôt at Cocherel in Normandy in July (Bakker 2010: 54-56; Schnapp 1996: 268-289). Both interventions resulted in the recovery of human skeletal remains and helped underpin the argument that these were burial places. It was not only tombs that became the subject of scholarly interest. In the 1660s, the English antiquarian John Aubrey had produced the first measured plans of the stone circles of Avebury and Stonehenge. Thus, by the end of the 17th century, the rich and diverse character of the megalithic monuments of northern France, Britain, and Ireland was already recognized, including both burial monuments and standing stones in various configurations.

Subsequent research and fieldwork have provided remarkable insights into the character and chronology of these monuments and the societies by and for whom they were constructed. We know that they range in time across a period of three or more millennia, and in size and sophistication from modest individual standing stones and 'boulder burials' to the chambered tombs of the Boyne Valley, the stone rows of southern Brittany, and the stone circles of Britain. Two other features must also be underlined. First, we are increasingly aware that many of these monuments achieved their final form through a process of addition and modification; they were not necessarily built to a pre-determined design. This discovery is partly the outcome of improving excavation techniques, which have also shown that the mounds and banks associated with many megalithic structures were not unstructured dumps of material but were carefully designed and built, with their own internal architecture. And second, although the focus of this paper is 'megalithic' monuments, the use of large stone blocks is only a part of a wider practice involving other materials. The role of earth, turf, chalk and rubble in forming banks and cairns has long been recognized; dry stone was used alongside or instead of megalithic blocks. The importance of timber has also been increasingly brought to the fore since the middle of the 20th century through excavation and the examination of aerial photographs. One recent survey of Scottish Neolithic timber monuments suggested that there may originally have been as many as there were stone or megalithic examples (Millican 2016). To these materials we must now also add unbaked clay, recently discovered in a Middle Neolithic settlement context at Lillemer in northwest France (Laporte *et al.* 2015a).

The scale of Neolithic construction with walls of unbaked clay, or turf blocks, is still difficult to evaluate. Such structures are often hard to identify, and they remained for many years undetected in continental Europe (Laporte & Bocoum 2019: 402). They are particularly liable to degrade, in contrast to structures of stone, and leave few traces of a cut feature, unlike those of wood. In addition to those that have long been known in Britain and Ireland, they are scattered along the whole of the Atlantic façade of Europe, not only in Brittany but also north of the Gironde estuary (Sainte-Lheurine: Burnez & Louboutin 1999; Burnez *et al.* 2003), in the Basque Country and Galicia (Chousa Novo 1: Bóveda & Vilaseco 2015), and in southern Portugal (Anta Grande de Zambujeiro). In Normandy, notably at Fleury-sur-Orne, recent rescue excavations have highlighted the role of such hitherto unknown structures of unbaked clay. They offer an origin for certain architectural forms that, during the 5th millennium, came to be exclusively manifested in stone (Ghesquière *et al.* 2019). Around the edges of the Golfe du Morbihan it is possible that earth walls of this kind could have structured the impressive masses of hydromorphic clay that contribute so substantially to the monumentality of the Tumulus de Saint-Michel or Le Moustoir (Galles 1862, 1864; Cassen 2009). It might also help to explain the presence within such monumental massifs of several megalithic chambers devoid of any other

surrounding structure, progressively incorporated within a large single monument through a process of accretion attested in numerous structures of stone elsewhere (**Fig. 1**).

In western France, megalithic structures in a wide diversity of forms were built at different times from at least the second half of the 5th millennium BC to the beginning of the Bronze Age. Few other regions of Europe present such diversity over such a long period, spanning around 3000 years. The origin of the phenomenon, through the combination of multiple elements, is discussed in Chapter 54 of this volume (Laporte & Bueno Ramírez, p. 1173). The basic models were in place by the final third of the 5th millennium BC, between around 4400-4300 cal BC and 3800-3700 cal BC. The beginning of the 4th millennium was marked by a reduction in the construction of funerary monuments, although it is not always possible to identify at what moment activity ceased at each individual site. A second cycle of monument construction was initiated in the final third of the 4th millennium, in around 3300 cal BC. Beyond these broad outlines, detailed chronologies of the kind established for southern Britain are still not available for western France. Above all, the degree of transformation that each site experienced throughout the Neolithic must not be underestimated (Laporte 2010, 2011, 2012).

The diversity and duration of early monument forms in western France contrasts with the range of architectural traditions directly or indirectly linked to the Neolithic transition in Britain and Ireland, in the centuries following 3800 BC. The first megalithic monuments of northern France are substantially earlier than those of Britain and Ireland. In northern and western France, they developed in the centuries following the appearance of the first farming communities, the long mounds an echo, perhaps, of the long houses of those first farmers (of the late Bandkeramik and Villeneuve-Saint-Germain cultural groups; Laporte *et al.* 2018), along with boulder graves, square stone cists or boxes, as well as circular funerary huts converted into stone, and megalithic elements that could have been partly inspired by the stony landscapes of the Armorican peninsula. In western France there may also have been a contribution from the early Neolithic of southern France, and perhaps from certain Mesolithic traditions. In Britain and Ireland, by contrast, megalithic architecture is associated with the very first farming communities, falling within a century or so of the Mesolithic-Neolithic transition in several regions. The concept of megalithic architecture, along with specific features such as the passage tomb, the long mound, and perhaps the transepted chamber form, may have been borrowed from traditions already developed in northwest France during previous centuries (Scarre & Laporte 2021).

Combined and associated with the presence (or absence) of a covered entrance structure (portico or passage, either permanent or temporary), these different elements ultimately generated a series of standard features. These are easily identifiable in the arrangement of the blocks that form the framework of the funerary chambers in which the dead were henceforth deposited, not below ground but on the same level as the daily activities of the living (Joussaume 2003, 2016). It is the ruins of these monuments that form the basis of the entire descriptive vocabulary associated with them, and of the system of classification still in use today in

Fig. 1 – Section through the Tumulus de Moustoir, at Carnac (Morbihan). Watercolour by R. Pocard-Keviler du Cozlier, following excavations by René Galles (1864).

France, Great Britain and Ireland (Joussaume 1985; Scarre 2011). In western France, the form of each individual monument is very often the result of a complex history specific to that site and does not always allow the form of the monument to be deduced from the architecture of the burial chambers. That is still more true when one includes the landscape modifications, often extensive in scale, that accompanied the construction of above-ground structures. These frequently (though not exclusively) took the form of cut features that might also serve as quarries, and in some cases a series of quarries corresponding to a succession of separate architectural projects (Laporte 2013).

Among the most widespread of the early monument traditions was the passage tomb. Stone-built chambers (either dry-stone or megalithic) accessed by narrow passages and roofed either by capstones or corbelled vaults are found from the Gironde estuary to the Caen plain (Burnez 1976; Joussaume & Pautreau 1990; Giot *et al.* 1998). They typically contain only a limited number of inhumations (in their primary phase of use) with little accompanying archaeological material. This practice of multiple successive inhumations contrasts markedly with the large-scale collective inhumations, sometimes incorporating the remains of hundreds of individuals, found in later periods of the Neolithic in northern and western France (Chambon 2003). In some passage tombs, as at Ernes/Condé-sur-Ifs in Normandy, successive burials are laid out to respect previous inhumations, with little disturbance or mixing of skeletal elements (Dron *et al.* 2016). South of the Loire river in the same period, the passage tombs of Prissé-la-Charrière (Deux-Sèvres) contained a similarly restricted number of individuals, some of them placed in a sitting position with their back against the chamber wall. They exhibit successive manipulations, perhaps including the removal of certain skeletal elements, and a funerary practice much closer to that covered by the term 'collective burial' in the later phases of the Neolithic (Soler *et al.* 2004). Progress in palaeogenetic analysis indicates direct or indirect family links between the individuals (generally of all ages and both sexes) buried in each chamber, as might be expected had the chambers initially been intended for several members of a single clan or lineage (Gallay 2006; Fowler *et al.* 2022; Cheronet *et al.*, this volume, p. 1260). Whether each chamber had originally been constructed for a single individual, who was later joined by others, remains more difficult to determine. In every case, the number of bodies is very much smaller than the number of people who would have been involved in the building of these structures.

The distribution of passage tombs in Brittany is predominantly coastal, but reaches high densities extending inland around the edges of the Armorican Massif, notably in the Jurassic limestone landscapes of the Paris and Aquitainian basins. The distribution of passage tombs is complementary to that of the *dolmens à portique* in the Loire Valley (the *dolmens angevins*) and corresponds generally with that of the other types of site of the same period (enclosures, mines, settlements, etc.). This distribution of *dolmens à portique* and passage tombs is very different from that of the megalithic tombs of the later Neolithic, which are distributed in a much more random way across the whole of the Armorican Massif and the Paris basin, and are much rarer between the Loire and the Gironde (Kerdivel 2009). Passage tombs are also found to the north of the Massif central, between the Loire and the Seine in Burgundy, for example, where several groups of standing stones are present. Also contemporary with the passage tombs may be the chambered tombs with an entrance but no covered access, sometimes referred to as *dolmens simples.* These were for many years attributed only to the end of the Neolithic, but in the western foothills of the Massif central, for example in the Seuil du Poitou, some have yielded material belonging to the same period as the passage tombs, for example the dolmen of Bois Neuf or the dolmen des Goudours in the Creuse area (Joussaume *et al.* 2002, 2008).

Although more difficult to date, the settings of standing stones are also clustered in particular areas, for example in the Cholet area of the northern Vendée, around the edges of the Golfe du Morbihan, or in the Crozon peninsula. In Brittany, scarcely more than 15% of these settings include more than three stones, but these account for almost 85% of all the single free-standing standing stones individually recorded (Laporte *et al.* 2015b). The Carnac align-

ments and the partially submerged enclosures of Er Lannic are the most famous examples (**Fig. 2**). Recent studies of the Morbihan *département* reveal the existence of recurrent similarities in the way the stones are arranged within these settings. This applies whether they stand in rows in the open air or along the passage and chamber walls of passage tombs (Gouézin 2017). A row of standing stones has been exposed at the base of the eastern façade of the Barnenez long cairn in Finistère, which displays a structure similar to that of the standing stones along the walls of two of the eleven passage tombs enclosed within this cairn. At the foot of this eastern façade are large stones laid on the ground and covered by a bank; the stones would otherwise have been used to roof a passage (Laporte *et al.* 2017). On the island of Hoedic, the excavation of several alignments has shown the multiple remodellings to which these open-air settings of standing stones were subject throughout the Neolithic (Large & Mens 2008; Large 2015). Further, while some standing stones, such as the large orthogneiss stelae of the golfe du Morbihan, are frequently found re-used in passage tombs, other settings were established on the ruins of older megalithic burial monuments (as at Le Manio and Château Bû; Bailloud *et al.* 1995; Briard *et al.* 1995).

In western and northern France, the term 'passage tomb' covers a diverse set of architectures without close parallel in Britain and Ireland, or northern Europe more generally. Some chambers of entirely dry-stone construction above ground and buried under a mound enclose a space similar to that of a silo: a grain store for the dead (Laporte *et al.* 2011: 299). Others built solely of large blocks of stone take the form of a large cist (**Fig. 3**). Between these two extremes, numerous other forms are found which vary in the provision of an access. In Brittany, as well as in Normandy and on the plains of west-central France, there exist small circular cairns tightly wrapped around a circular chamber accessed via a very short passage. Some of these were later incorporated into much larger and more complex monuments, sometimes including several burial chambers (Scarre *et al.* 2003; Joussaume & Laporte 2006). These circular chambers are generally roofed

Fig. 2 – a. The stone alignments of Kerzerho at Erdeven (Morbihan); b. The menhir of Champs Dolent at Dol-de-Bretagne (Ille-et-Vilaine) (Photos: L. Laporte).

Fig. 3 – '*Tombes à couloir*' within the monument of Barnenez, some roofed by a capstone, others by a corbelled vault (a: Archives du Laboratoire Archéosciences; b: after Giot 1987; c: photo: L. Laporte).

Fig. 4 – The *dolmen angevin* of La Madeleine at Gennes (Maine-et-Loire) (Photo: L. Laporte).

by a corbelled vault, since they are built in dry stonework, in contrast to the polygonal chambered tombs whose edges are defined by vertical stabs. In structural terms, the *dolmens angevins* present almost the complete opposite, being constructed of enormous stone slabs that form a quadrangular chamber, entered through a narrow trilithon porch in the centre of one of the short sides of the cairn which closely wraps around the megalithic structure (**Fig. 4**; Gruet 1967; Joussaume *et al.* 1994). The small circular monuments are generally attributed to the second half of the 5th millennium BC, or even earlier according to some specialists, whereas the *dolmens angevins* may belong, rather, to the first half of the 4th millennium BC. Unlike the types of tomb already referred to, *dolmens angevins* are almost always isolated and were never incorporated into later larger monuments.

An 'evolutionist' model would derive the *dolmens angevins* from the passage tombs, but this would be thrown into question if some of the passage tombs with quadrangular chambers proved to have been initially furnished with a short lateral passage similar to the axial portico of the *dolmens angevins*. The question is particularly relevant in the case of the *dolmens angoumoisins* where the passage has been lengthened in several stages, along with enlargement of the mound that encloses them (Ard *et al.* 2016). The *dolmens angoumoisins* in the north of the Aquitainian basin are characterized by finely worked chamber orthostats, surmounted by a heavy capstone. Like most monuments with a rectangular chamber accessed by a lateral passage (forming a 'T', 'p' or 'q' plan) they are generally enclosed by a circular or quadrangular cairn. The earlier of the two quadrangular chambers of monument B at Champ-Châlon in Charente-Maritime was originally situated within a circular cairn (Joussaume 2006). The second was enclosed within a quadrangular cairn which incorporated the earlier structure. At least one of the two quadrangular chambers in monument B at Bougon in Deux-Sèvres originally had a circular plan (Mohen & Scarre 2002). It is not impossible that the elongated form of the small cairn resulted here from the modification of an oval cairn with twin chambers, like the twin-chambered cairn whose plan has been revealed at La Bruyère du Hamel in Normandy. In its initial form, the monument of Pey de Fontaine in Vendée likewise had two chambers apparently constructed at the same time but enclosed, in this case, within a quadrangular cairn (Joussaume 1999).

Examples of such modifications are very numerous and diverse. At Trédion in the Morbihan, one of the side walls of the chamber and passage echoes the form of the external envelope of a small cairn which had previously enclosed a large trapezoidal cist containing a ceramic vessel of Castellic type. Such transformations cannot be described as simply a phenomenon of accretion. At Petit Mont on the Arzon peninsula in the Morbihan, for example, the walls of one of the chambers had collapsed at an early stage, perhaps even before the first burials were deposited. The rebuilding of the chamber involved a complete reconstruction programme, culminating in the building of dry-stone walls over the lower parts of the fractured orthostats, which were left in place (Lecornec 1994; Laporte 2010). There is evidence at other sites of the partial dismantling of monumental structures that were then reconstructed in a new architectural project very different from that which preceded it. In some cases, the use of the burial spaces can be dated, but it is very rare to find monuments for which *ante quem* and *post quem* can be established to provide an absolute chronology for each of these events. In order to fill these gaps, other types of argument must be employed, which are valid in themselves but do not always offer the precision that would today be desired.

It was, again, an 'evolutionist' reasoning, combined with formal resemblances to the more precisely dated transepted chambers of the Cotswold-Severn monuments in England, that led to monuments with transepted chambers on the south coast of Brittany being dated to the first half of the 4th millennium BC (Laporte & Tinévez 2004; Scarre & Laporte, in press). These were considered more complex and more elaborate than passage tombs with simple circular or rectangular chambers. Indeed, the monument of Quélarn in Finistère illustrates that sequence: the transepted chambers were added to either side of a long quadrangular monument already furnished with three rectangular and compartmented chambers. All the passages open on the same side of the structure regardless of the different phases. That is the usual pattern. On the other hand, the passages

of the 12 circular chambers contained within the monument of La Hogue at Fontenay-le-Marmion in Normandy, open in radiating fashion all around the outer kerb of the cairn (Joussaume & Laporte 2006). At Barnenez in northern Brittany, recent analysis of the dry stonework indicates that the monument probably originated as a series of separate individual or paired chambers, ultimately combined into a single long mound that was 72 m long, up to 25 m wide, and 8 m high (Cousseau 2016). At Prissé-la-Charrière, extensive excavation of the 100 m-long mound, incorporating two passage tombs, has demonstrated that one of these tombs initially stood alone within its own circular cairn. The second, by contrast, was added as an integral part of the long mound that was later built to cover both the circular cairn and an earlier rectangular monument to the west (Laporte *et al.* 2002; Laporte *et al.* 2021).

The sequence at Prissé illustrates a feature that is shared with the early passage graves of southern and eastern Britain, and that was indeed also present in the *tumulus carnacéens* of southern Brittany: the tension between linear and circular forms. At Prissé and Barnenez, individual circular cairns were later incorporated within long linear mounds. Circular chambered cairns also appear (from 19th century excavation reports) to have been the primary elements in the Carnac mounds of the Tumulus de Saint-Michel and Le Moustoir (Galles 1862; Galles & Mauricet 1864; Le Rouzic 1932). In Britain, likewise, circular structures have been found, or suspected, within a number of long mounds: at Notgrove in Gloucestershire, for example, or Ty Isaf in south Wales (Clifford 1937; Grimes 1939). The evidence is not always clear, however: although the circular cairn at Notgrove does appear to have been an independent structural element, at Ty Isaf, the kerb of the circular structure was tied into that of the Cotswold-Severn long mound within which it is situated. At Camster in northern Scotland, two passage tombs may each originally have stood within its own circular mound before the long mound enclosing them was built (Masters 1997). Whether they were indeed designed to be free-standing structures, however, or merely structural stages within the larger project, remains unclear.

Long mounds were a prominent feature of eastern Britain during the middle decades of the 4th millennium BC. They are conventionally divided into chambered and unchambered categories, the former notably the Cotswold-Severn tombs with megalithic chambers either on the axis of the mound or opening from the longer sides; the latter with timber structures. Such timber structures typically take the form of an elongated mortuary container, in which multiple inhumations were deposited, often during a relatively restricted period. At Wayland's Smithy, for example, Bayesian modelling by Alasdair Whittle and his team suggests that the 14 individuals may have been deposited in less than 15 years, during the earlier decades of the 36th century BC. A few decades later, an oval mound was added; then some 75 years after that, the monument was enlarged and remodelled to take the form of a Cotswold-Severn long mound with an axial megalithic chamber (Whittle *et al.* 2007a). Detailed chronological sequences such as this, made available by relatively large numbers of dates on securely contextualised samples (ideally the human remains themselves), have demonstrated that the short period of funerary use demonstrated for Wayland's Smithy is replicated at other earlier Neolithic long mounds, reminding us that megalithic monuments, once built, were enduring features of the landscape, but that the initial burial activity may have been relatively short-lived, in the order of one or two individual lifetimes (Whittle *et al.* 2007b).

Timber structures were a feature of many long mounds, whether in the form of burial container or as an edging or façade. The classic example is the Fussell's Lodge long mound in central southern Britain, where the trapezoidal long mound was edged by a continuous bedding trench, in which were found the impressions of the bases of timber posts measuring 0.40-0.45 m in diameter (Ashbee 1966). More massive timber posts (split oak tree trunks) dominated the narrow mortuary space on the axis of the broader end of the mound, although as at Wayland's Smithy, and in contrast to the megalithic chambered long mounds, this burial space would have been inaccessible once the mound was built. Hence timber and megalithic burial structures were not copies of the same concept in different materials, but imply different mortuary practices. In Scotland, too, timber monuments were an important element in early Neolithic monument traditions. They include timber mortuary enclosures

– with continuous timber palisades but no mound – and timber cursus monuments, defined by paired rows of posts. They measured some 15-45 m across and extended over 100 m across the landscape. Radiocarbon dates suggest the first of these were built in around 3700 BC, within a century or so of the Neolithic transition in Scotland (Millican 2016).

Further west, in the lands bordering the Irish Sea, different traditions of megalithic funerary monument are encountered in these middle centuries of the 4th millennium BC. One of these is the portal tomb, found in Ireland, Cornwall and Wales, with a box-like megalithic chamber covered by a large and impressive capstone. The name derives from the porch-like feature at one end of the chamber, where a pair of uprights flank a vertical door-like slab. There has been some discussion as to whether these are primarily funerary monuments, or monuments with funerary associations, although it should be noted that excavations at Poulnabrone in western Ireland in the 1980s recovered the remains of at least 36 individuals (Lynch 2014). The presence of portal tombs on both sides of the Irish Sea underlines the significance of maritime connections in the spread and distribution of Neolithic monument traditions. This is also illustrated by flows of raw materials such as Group VI axes of Cumbrian Langdale tuff and Group IX axes of Tievebulliagh porcellanite, and by other tomb types of the mid 4th millennium. The Clyde cairns of southwest Scotland and the court tombs of the northern half of Ireland (Sheridan 2004) are both characterized by box-like chambers, often divided into segments by vertical slabs (though in some cases these may be the result of successive additions), and without any visible entrance. These compartments must have been accessed from above, by the removal of the roof or the lifting of the capstone.

Court cairns and Clyde cairns were at one stage assigned to a single 'Clyde-Carlingford' group but are now regarded as separate, although closely related, forms. One key distinction is the form of the mound or cairn in which they were incorporated. In Scotland, elongated or trapezoidal cairns are the usual form, with inwardly curved entrance façades sometimes enhanced by thin pillar-like columns (**Fig. 5**). In Ireland, conversely, the deep, inwardly curved entrance façades are sometimes extended to form an enclosed courtyard, with a narrow entrance passage facing towards the chamber (as for example

Fig. 5 – The Clyde tomb of Cairnholy in southwest Scotland, showing the concave façade with tall monolithic pillars (Photo: C. Scarre).

at Creevykeel) or, more unusually, with chambers at both ends of the court, and a lateral entrance into the court itself. These may be multi-phase structures. An interesting feature of the Clyde cairns is evidence that the final form of chamber and cairn, which appears relatively standardized at first sight, was achieved through a process of convergence. Their original forms were much more diverse, but the addition of a trapezoidal cairn and curved forecourt gave them a greater sense of conformity to an accepted model (Cummings 2016).

The 'history' of Neolithic monuments in Britain and Ireland during the 4th and 3rd millennium BC, following this initial period of trans-Channel contact, is one of diversity and regional innovation. Leaving aside the causewayed enclosures that are a feature of the 37th to 34th centuries BC and may also be derived from continental models (Whittle *et al.* 2011), the middle centuries of the 4th millennium BC also saw the construction of the long cursus monuments with parallel embankments. The longest of these, the Dorset cursus, extends over almost 10 km, with chalk banks flanked by ditches (Barrett *et al.* 1991: 36-58). Various interpretations have been offered for these structures, with most focusing on a ceremonial function as processional ways. They recall the stone rows of southern Brittany, where a similar interpretation has been proposed, although the Breton examples are difficult to date and differ significantly from cursus monuments in form and materials. Cursus monuments are occasionally associated with megalithic standing stones, although contemporaneity is difficult to establish. An example is found at Rudston in eastern England, where four cursus monuments running at right angles to each other converge around the tallest standing stone in England, the 8.2 m-tall Rudston monolith. Other standing stones may be of equally early date, such as the impressive stone row at Boroughbridge in the same region, with stones 5.5 m, 6.7 m and 6.9 m high (Burl 1991).

In the Irish Sea province and northern Scotland, the late 4th millennium is the period of the developed passage tombs. The largest and most striking examples are those of the Boyne Valley, notably Knowth and Newgrange, with their corbel-vaulted chambers and extensive repertoires of megalithic art. At Newgrange, a 15 m-long passage leads to the central chamber, of cruciform plan, covered by a corbelled vault rising 6 m above the chamber floor (**Fig. 6**).

Fig. 6 – The corbelled vault covering the central chamber at Newgrange, Ireland (Photo: C. Scarre).

This is impressive in itself, but the sophistication of the construction is even greater when account is taken of the roof box over the chamber entrance allowing a narrow beam of sunlight at dawn in midwinter to penetrate the full length of the passage, illuminating the rear of the chamber. Around the base of the mound (85 m in diameter) is a kerb of 97 greywacke slabs, 31 of them bearing pecked and engraved designs, with lozenges, chevrons, zigzags, circles and spirals the commonest motifs. There are further decorated slabs in the passage and chamber, and over 200 more at the neighbouring tomb of Knowth (O'Kelly 1982; Eogan 1986, 2017; Hensey 2015).

The scale and elaboration of these structures marks this as a place of special importance, part of a wider network of social and sacred power extending far beyond Ireland. Connections have long been suggested between the megalithic art of the Boyne Valley tombs and that of southern Brittany, at sites such as Gavrinis (e.g., O'Sullivan 1997), but there are differences in motifs and chronology, the Boyne Valley tombs being dated to *ca.* 3200 BC (although some of the decorated slabs appear to have derived from earlier structures; Eogan 1998) and radiocarbon dates from Gavrinis falling in the period 4100-3800 BC (Cassen *et al.* 2014). Still more distant contacts have also been suggested: a decorated bone pin from Knowth may have come from Portugal (Eogan 1979).

Much clearer are connections with Wales and Scotland, notably with the Orkney Islands. The Neolithic monument sequence in Orkney includes chambered tombs, standing stones and stone circles, alongside remains of houses, both of timber and dry-stone construction, that allow comparison between domestic and funerary architecture.

The two principal types of Orkney chambered tomb are the 'stalled cairns', with long elongated chambers divided into segments either side of a central corridor by thin vertical slabs; and passage tombs of the 'Maeshowe' type, with a square or rectangular central chamber and smaller side chambers (Davidson & Henshall 1989). Both can be architecturally sophisticated: the chamber of the stalled cairn at Midhowe is 23.4 m long divided into 12 compartments, with stone shelves surviving in some of these (Fig. 7); the Maeshowe type site has a long passage and impressive central chamber built of regularly coursed Orkney sandstone, massive corner monoliths with distinctive truncated-oblique tops (others form the side walls of the passage), and a soaring

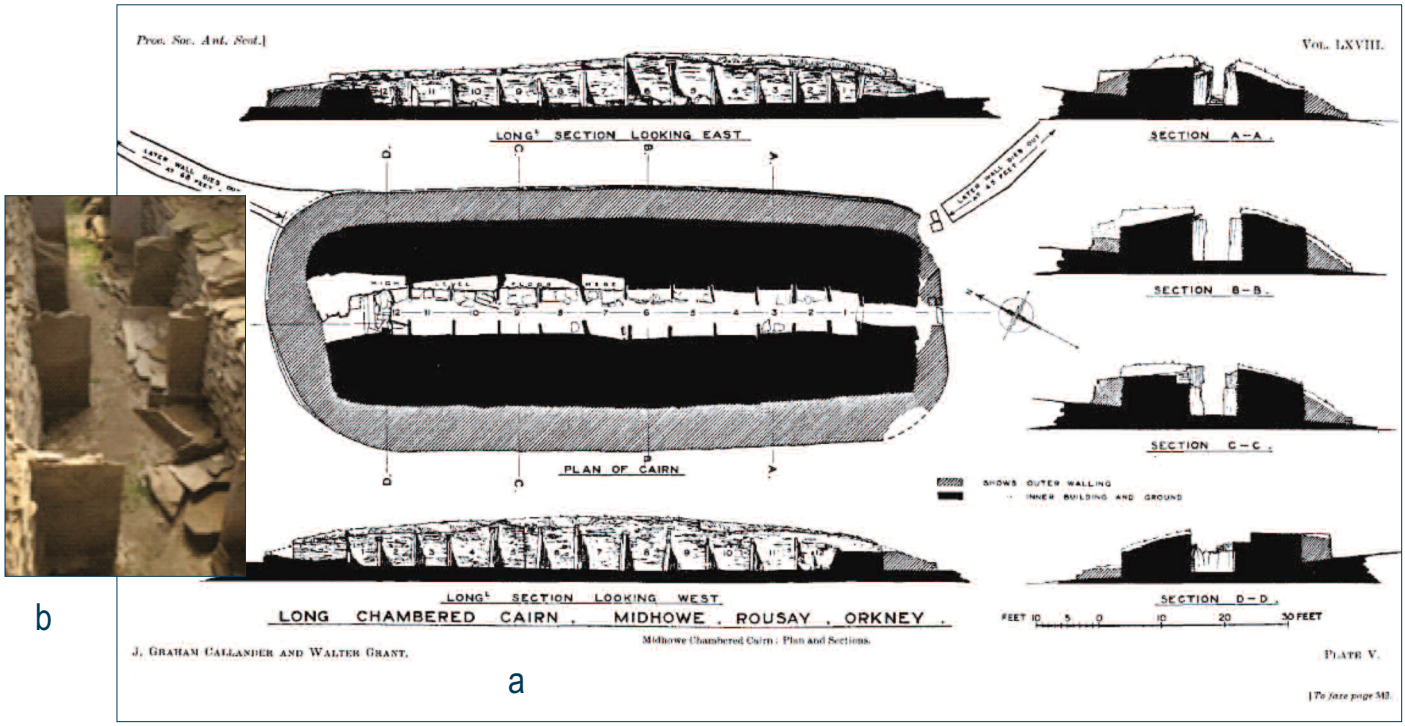

Fig. 7 – The stalled cairn at Midhowe on Orkney, showing the division of the interior into shelved compartments either side of a central corridor (Plan from Callander & Grant 1934, Plate V, © Society of Antiquaries of Scotland; photo (inset left): C. Scarre).

corbelled vault. The stalled cairns have been compared with dry-stone linear houses with vertical internal dividing slabs such as the two examples at Knap of Howar on the island of Papa Westray; the Maeshowe passage tomb has been compared with the houses of Skara Brae and Barnhouse, sharing with them the rectangular centralized ground plan with alcoves and projecting corners. A recent dating programme indicates that in both cases, the tomb types are earlier than the houses. Indeed, the Knap of Howar linear house, now dated to *ca.* 3300 BC, may have been derived from the stalled cairn – the house of the dead providing the model for the houses of the living – rather than vice versa (Richards *et al.* 2016).

Not far from Maeshowe in Orkney is the impressive stone circle of the Ring of Brodgar. Stone circles are a characteristic and very numerous British Neolithic (and Bronze Age) monument type, with estimates suggesting there are well over 1000 extant examples, from an original total of perhaps as many as 4000 (Burl 2000). They range from small settings a few metres across, to major monuments such as that at Brodgar, 103.7 m in diameter with 60 stones originally up to 4.5 m in height. The shapes of the stones at Brodgar reflect the local geology, several of them being thin parallel-sided blocks with obliquely truncated tops, though they are drawn from three different locations (Vestra Fiold, Staneyhill and Houton) at one of which (Vestra Fiold), excavation revealed a quarried monolith abandoned *in situ* (Richards *et al.* 2013). Other stone circles also display characteristic forms derived from the local geology: the glacially smoothed boulders of Long Meg and Her Daughters, in northwest England (more specifically the 'daughters', Long Meg itself having been cut out of a local river cliff: Frodsham 1996; **Fig. 8**); or the tall, thin gneiss pillars of Callanish in the Hebrides.

The stone circles have their own parallels in timber monuments, mostly today of course represented merely by patterns of postholes. They are found in areas where stone circles are absent, but in some cases, there is evidence that a timber circle preceded a stone circle in the same location. Dating evidence indicates that the timber circles were being built in the final centuries of the 4th millennium BC; the first stone circles may belong to the same period. The timber-stone connection achieves its most dramatic expression at Stonehenge in central southern

Fig. 8 – Long Meg and Her Daughters in northwest England. The red sandstone pillar of Long Meg (right) standing outside the stone circle of glacially rounded boulders (her 'Daughters') (Photo: C. Scarre).

England, where the tall sarsen trilithons and the lintelled circle reproduce features of carpentry manufacture, such as the mortice-and-tenon seating for the horizontal blocks, and the tongue-and-groove joints between the adjoining lintels (Gibson 2005).

These British monument forms of the late 4th millennium BC have no close parallels in northern France, where the construction of the final passage tombs *ca.* 3800 BC appears to be followed by a break of several centuries before a new cycle of chambered tomb appears in around 3400 BC (**Fig. 9**). These are characterized by long parallel-sided chambers, with entrances either at one end (sometimes with a porch or antechamber: commonly referred to as *allées couvertes* or *allées sépulcrales*), or in one of the long sides, accessed via a passage at right angles to the main chamber (*sépultures à entrée laterale*). In northwestern France, these tombs mark the renewal of megalithic tomb construction, but the prevalence of acidic soils makes the associated burial practices difficult to reconstruct (Giot *et al.* 1998). *Allées sépulcrales* are also found in the Paris basin and northwards towards the Channel coast, where chalk and limestone geology have allowed excellent preservation of human remains. Careful excavation and detailed analysis at sites such as La Chaussée-

Fig. 9 – *Allées couvertes*, with a short lateral passage (a) Le Mélus, Côtes-d'Armor, or an axial entrance (b) Liscuis II, Côtes-d'Armor (Photos: L. Laporte).

Tirancourt, Méréaucourt, and Bury have revealed complex and changing practices involving the deposition and manipulation of the remains of several hundred individuals (Masset 1997; Salanova *et al.* 2017).

As in Britain, there is combination and cross-over between different kinds of materials, and between domestic and funerary architecture. Some *allées sépulcrales* were of timber rather than megalithic construction; and similarities in funerary practice exist between *allées sépulcrales* and rock-cut *hypogées*, some 160 of which were cut into the soft chalk hillsides of the Marne *département*, to the east of Paris. The large and clustered concentration of hypogées may represent the successive creation of collective burial spaces by individual communities, since recent Bayesian modelling of radiocarbon dates for Les Mournouards II indicates that it may have been in use for burial for less than 100 years (Chambon *et al.* 2017). André Leroi-Gourhan proposed that internal arrangements of the burial space replicated those of contemporary houses of the living (Leroi-Gourhan *et al.* 1963). The cross-over with domestic architecture is also illustrated by the ground plans of large hall-like long houses that have been revealed in northern and western France in recent decades, and which date to the very end of the 4th millennium BC or the early centuries of the 3rd millennium – marginally later (on current evidence) than the funerary monuments. The most striking parallel is provided by the long houses with side wings, such as those at Pléchâtel in central Brittany, which reproduce elements of the ground plan of *sépultures à entrée latérale* such as Goërem at Gâvres (Laporte & Tinévez 2004). Hence there appears, in some instances, to have been a parallel conceptualization of space between the domestic and funerary domains, albeit in different materials.

The long rectangular burial chambers of Late Neolithic northern France share certain general characteristics with the late 4th millennium megalithic tombs of northern Europe that are classified as passage graves (*Ganggräber* in northern Germany, *Jaettestur* in Denmark, *Hunebedden* in the Netherlands). That includes, for example, the elongated parallel-sided chamber plan, although the classic north European passage tomb has an entrance passage placed in the middle of one of the long sides, a feature only rarely encountered in northern France. They are similar in date, however, and may nonetheless be part of a broad continental family of Late Neolithic long-chambered tombs. Whether or not that is so, they have no obvious parallels in Britain or Ireland. It is interesting in this regard to note that while some 40 square-butted flint axes of Scandinavian type have been found in Britain, only a handful are of the thin-butted type, associated with the TRB (the period of the North European megalithic tombs) and the majority are of the later, 3rd millennium thick-butted type (Walker 2018). Likewise, a possible connection between the *allées couvertes* of northern France and the wedge tombs of southern Ireland cannot be excluded but there is a significant chronological disjunction, the wedge tombs being in use from 2300 to 2000 BC (McLaughlin *et al.* 2016: 133). Interestingly, this is the period when copper metallurgy and Beaker pottery appear in Ireland, both indicating connections with continental Europe. The wedge tomb tradition may have been introduced through such contacts, although several centuries had elapsed since the newly built megalithic tombs had been constructed in northern France (O'Brien 2012). If the wedge tombs do owe anything to these connections, it must have been generic rather than specific; perhaps inspired by the Beaker-related reuse of *allées sépulcrales* such as those at Ville-ès-Nouaux in Jersey and Kerbors in northern Brittany.

Hence the late 4th and 3rd millennia BC witnessed divergent megalithic traditions on either side of the Channel, with *allées sépulcrales* and related tomb forms in northern France, whereas in terms of strictly megalithic construction, the principal British and Irish monuments were the passage tombs of the north and west and the stone circles and henges, and possibly many of the individual standing stones and stone rows, although those are very difficult to date securely. It is clear that standing stones and stone circles continued to be erected during the 2nd millennium BC, especially in western and northern Britain and in Ireland.

There is one final feature to consider, that has a bearing on the long development of the megalithic tradition. In northern France, Britain and Ireland, as in certain other regions of western and northern Europe, megalithic monuments (along with non-

megalithic structures) are often grouped in small cemeteries. Sometimes, however, they cluster together to form monument complexes of considerable scale and importance. The Carnac region of southern Brittany is among the most famous example, rising to prominence in the mid/late 5th millennium BC with the construction of the Carnac mounds and with spectacular stone rows extending over distances of a kilometre or more (Scarre 2011). Monument complexes become a significant feature of Britain and Ireland too, in the late 4th and 3rd millennium BC, with large, diverse and often unique monument forms occurring together around Maeshowe and Brodgar in Orkney, in the Boyne Valley in Ireland, and at Stonehenge and Avebury in southern Britain. At Avebury, there is a 350 m diameter henge with a circular ditch up to 10 m deep, with external bank, an internal circle of 98 standing stones and two smaller (but still sizeable) stone circles associated with two long avenues of paired standing stones (Gillings *et al.* 2008). Not far away are Silbury Hill, the largest prehistoric mound in western Europe (**Fig. 10**), and the extensive but rather earlier timber-post enclosures at West Kennet (Bayliss *et al.* 2017; Leary *et al.* 2013). Stonehenge also stands at the centre of a monument complex including the Durrington Walls henge, the Stonehenge cursus, and the Avenue linking Stonehenge itself with the River Avon some 2 km away. Recent analysis of stable isotopes of fauna from Durrington Walls has revealed how domestic animals were being brought to this site from different regions of Britain, often over long distances, some of the cattle, and even some of the pigs, possibly from as far as Scotland (Evans *et al.* 2019; Madgwick *et al.* 2019). This evidence reminds us that megalithic monuments were socially embedded constructs operating at a variety of different scales, from the local community to entire regions and beyond.

Acknowledgements

We are grateful to Mike Pitts for supplying the image of Silbury Hill (Fig. 10).

Fig. 10 – Silbury Hill at Avebury in southern England, the largest prehistoric mound in western Europe, showing the flooded quarry pit in the foreground (Photo: M. Pitts).