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Deposited on: 17 September 2018
Los orígenes de la producción de alimentos

The Origins of Food Production
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de alimentos

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Editor
The Origins of Food Production

Published in 2016 by the United Nations Educational, Scientific and Cultural Organization, 7, place de Fontenoy, 75352 Paris 07 SP, France and the UNESCO Office in Mexico, Presidente Masaryk 526, Polanco, 11560, Mexico City, Mexico.

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ISBN: 978-92-300043-1

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Original idea, concept, coordination and supervision of the editing and publication: The UNESCO Office in Mexico.

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Cover photos:
Top photo: Rock art, Tehuacán-Cuicatlán Biosphere Reserve © Fundación Cuicatlán
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The UNESCO Office in Mexico would like to thank the Government of the State of Puebla and Professor Robin Dennell, member of the Scientific Committee of the World Heritage Thematic Programme HEADS. We would also like to extend our gratitude to all of the participants, whose contributions have made this publication possible.

Printed in Mexico.
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The Neolithisation of Britain and Ireland: the Arrival of Immigrant Farmers from Continental Europe and its Impact on Pre-existing Lifeways

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Abstract

Britain and Ireland, located in the north-west corner of Europe and separated from the Continent since the seventh millennium bc by the sea (and much longer, in the case of Ireland), were among the last areas in Europe where an agricultural – more specifically, agro-pastoral – lifestyle became established. There was a gap of around a millennium between its appearance on the near Continent and its spread to that archipelago. The reason for this delay and the question of agency in the Mesolithic–Neolithic transition (as well as the characterisation of the transition process) have long been debated, even though all must agree that the domesticated plants and animals involved – various kinds of wheat, barley, flax and probably some legumes, plus cattle, sheep, goats and pigs – must have been imported in boats across the sea. Regarding agency, the debate revolves around whether the prime movers for the change had been the indigenous hunter-gatherer-fisher groups in Britain and Ireland, or else immigrant farmers from various points along the coast of northern and north-western France. This contribution sets out the background, sketching a picture of fifth-millennium Late Mesolithic communities in Britain and Ireland and of contemporary farmers across the water, and examining the processes of demographic and ideological change affecting those farmers which could have led to some groups choosing to relocate, ending up in Britain and Ireland. It then outlines the novelties which accompanied the establishment of an agro-pastoral lifestyle in Britain and Ireland – that is, a range of radically new, alien practices, traditions and technology that can be traced to the Continent – and reviews the chronology of the appearance of these novelties. The principal interpretative models are then summarized. The author’s own model of a multi-strand process, featuring several episodes of small-scale population movement from different parts of northern and north-west France to different parts of Britain and Ireland between c. 4300 bc and c. 3800 bc, undertaken for different reasons and with differing outcomes, is presented as offering the best fit with the currently-available data. In this model, the indigenous groups are neither passive nor victims: they chose whether to adopt the new lifestyle or not, and in the case of the earliest dated domesticated animals in the archipelago (cattle at the Late Mesolithic camp site at Ferriter’s Cove, south-west Ireland), it appears that the indigenous groups did not, choosing instead to hunt and eat the farmers’ cattle. Other, later encounters between indigenous groups and immigrant farmers seem to have resulted in a fairly rapid adoption of the farming lifestyle and disappearance of subsistence strategies based solely on the use of wild resources.

Introduction

The question of how, when and why an agro-pastoral subsistence strategy and its associated way of life appeared in Britain and Ireland has long been discussed (for example, Childe, 1925, 1940; Piggott, 1954), with the debate becoming increasingly vigorous, intense and at times acrimonious over the past 15 years or so (for example, Thomas, 2013, 157–184; Sheridan, 2015). At the heart of the matter is whether the prime movers for this change were the indigenous hunter-gatherer-fisher groups who had been present on these islands for millennia (for example, Thomas, 2013), or were small groups of immigrant farmers from Continental Europe (for example, Sheridan, 2010a), although there are also a variety of views concerning the ‘When?’ and ‘Why?’ questions as well, with several models currently offering different perspectives on the matter (for example, Bonsall et al., 2002; Collard et al., 2010; Tipping, 2010; Whittle et al., 2011). On one point, however, all must agree: the domesticated plants and animals that formed the basis of the agro-pastoral way of life in Britain and Ireland can only have arrived through being transported by boat, since the wild progenitors of most of the species in question do not exist there, and where they do (in the case of aurochsen in Britain and boars in Britain and Ireland: Woodman, 2012, 15), it is clear that the domestication process did not take place in this archipelago (Bollongino et al., 2014). The fact that we are dealing with a set of islands, separated from the Continent since the seventh millennium bc (Sturt, 2015, 20 and Figure 2.9) by a stretch of water that is now 33.1 km (20.6 miles) wide at its narrowest point and which, at certain times and in certain areas, can be treacherous, is a major factor that has arguably influenced the timing and nature of the process of Neolithisation in this north-west corner of Europe (cf. Garrow and Sturt, 2011).

The current author has already set out her own, multi-strand model for the Neolithisation of this archipelago (Figure 1), and her critique of the other models, in considerable detail in previous publications (most recently Sheridan, 2011a, 2012, 2013, 2015; Sheridan and Pailier, 2011; Sheridan and Pétrequin, 2014), and so only a summary of the main points will be repeated here. In order to facilitate comparison with the process of Neolithisation elsewhere around the world, which forms the topic of this overall publication, it is proposed to present the evidence in terms of the ‘What?’; ‘When?’; ‘Where?’ and ‘Why and How?’ big questions, and to explore the various responses to these questions that have been proposed in the different current models, explaining why the multi-strand model offers the best fit for the evidence. Underpinning all that is stated below is the conviction that we cannot understand the process in Britain and Ireland without first understanding: i) the nature of Late Mesolithic society and subsistence strategies in this archipelago and ii) late 5th and early 4th millennium developments in farming communities on the near Continent, and so a brief consideration of these will be presented first.

The Background: Late Mesolithic Communities in Britain and Ireland, and Developments on the Continent during the Second Half of the Fifth Millennium to the Early Fourth Millennium bc

Anyone who compares subsistence activities and lifestyles between Britain and Ireland and the near Continent...
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around 4500–4300 BC could not fail to be struck by the contrast between the two. On the north side of the English Channel, we are dealing with diverse and sparse communities of mainly semi-nomadic hunter-gatherer-fishers, whose subsistence strategies varied according to their location (Saville, 2004). Thus, on the small island of Oronsay in the Hebridean archipelago off the west coast of Scotland, for example, we find small groups who relied heavily on the exploitation of marine resources (namely fish, shellfish and marine mammals) and who also hunted wild deer, boar, other mammals and birds and gathered wild plant resources, moving around the island, and off the island, at different times in the year as different resources became abundant (Mellars, 1987).

In Ireland, where the range of large mammals and fish was narrow due to the island’s relatively early separation from Britain and the Continent c. 12,000 BC (Woodman, 2012; Sturt, 2015), the exploitation of a few types of fish and of eels appears to have formed a major component of many communities’ subsistence strategies. Other Late Mesolithic communities in Ireland had a different diet, as reflected in the carbon and nitrogen isotopic signatures of human bone from different areas (Meiklejohn and Woodman, 2012), and dietary variability is also attested in the equivalent data for Wales (Barton and Roberts, 2004, 349), and will also have occurred among communities in England (Milner et al., 2004).

In terms of the technology used by these indigenous groups, pottery was wholly unknown, and the only use of ground (as opposed to flaked) stone axeheads comes from Ireland (Cooney et al., 2011) and from Nab Head in south-west Wales (David and Walker, 2004, 325–327). The small-lithic assemblages in use in Britain had diverged from their Continental counterparts from the time of the formation of the Channel between 7000 and 6200 BC (Ghesquière and Marchand, 2011), suggesting a probable rupture in inter-community contacts between what is now England and what is now France (but see below), and within Britain and Ireland a

Figure 1. The author’s model of the multi-strand nature of the Neolithisation process (with the arrows representing the direction of small-scale movements of immigrant farmers). 1: ‘False start’, from north-west France to south-west Ireland, third quarter of fifth millennium BC; 2. The Breton, Atlantic façade Neolithic, from the Morbihan area of Brittany, arriving along the west coast of Wales and Scotland and around the northern coast of Ireland at some time between 4400/4300 BC and 4000/3900 BC; 3. The Carinated Bowl Neolithic, arriving from north France to various parts of eastern and southern Britain between the 41st and 39th century BC; 4. ‘Trans-Manche ouest’, from Normandy (and possibly north Brittany) to south-west England, arriving some time between 4100/4000 BC and 3800 BC. © Alison Sheridan
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marked contrast can be seen between the Late Mesolithic assemblages from Ireland and the Isle of Man on the one hand, with their distinctive broad, butt-trimmed flakes (Woodman, 2012), and those on the larger landmass of Britain on the other, along with variability within the British material (Warren, 2015). Regarding raw material procurement strategies, commentators have noted that there appears to be a greater use of local raw materials in parts of Late Mesolithic Britain and Ireland than had been the case in preceding millennia (for example, Woodman, 2012, 31). This pattern is consistent with a model of groups that were highly mobile – as reflected in their lightly-built dwelling structures, contrasting with the more substantial structures of the Early Mesolithic (for example, Howick, Northumberland: Waddington, 2007) – but who were moving around smaller territories than had been the case during the preceding millennia (Barton and Roberts, 2004; Warren, 2015). There was a certain amount of inter-group interaction, as reflected for example in the commonality of the lithic toolkit in Ireland and the Isle of Man (McCcartan, 2004) and in the movement of seashells and certain stone types between coastal and inland southern Britain (Barton and Roberts, 2004, 351, 352). There have also been claims for long-distance Late Mesolithic links, within Ireland (Kador, 2007); along the Channel coast between the Scilly Isles and the Continental coast between the Seine and the Netherlands (Anderson-Whymark et al., 2015); and, most controversially, right across the Continent from Bouldnor, off the Isle of Wight, to the Mediterranean (Gaffney et al., 2015; Smith et al., 2015 and see below). However, overall the overwhelming impression is of communities that are both literally and metaphorically insular, lacking extensive networks of contacts and cut off from developments on the Continent, separated by the sea even though some groups were clearly capable of sailing in deep waters, as the Manx (Isle of Man)-Irish connection implies (McCcartan, 2004). As for their treatment of the dead, while relatively little is known about Late Mesolithic funerary practices, it is clear that these included deposition in caves (Meiklejohn and Woodman, 2012; Meiklejohn et al., 2011) and on Oronsay, exposure on platforms constructed on shell middens (Meiklejohn et al., 2005; Mellars, 1987). There was no use of funerary monuments and indeed, no monumental architecture relating to the Late Mesolithic inhabitants of Britain and Ireland can be identified.

In contrast, across the Channel in northern and north-west France, by 4500 BC agro-pastoral farming had been established for well over half a millennium (Allard, 2007; Ghesquire and Marcigny, 2011), having spread westwards as part of a late expansion of an ultimately Danubian agro-pastoral tradition, and northwards into southern Armorica, north-west France, as part of an Atlantic expansion (Marchand, 2007). By 4500 BC, a distinctive and highly socially-differentiated society had emerged in the Morbihan region of Brittany (Cassen et al., 2012) and its emergence relates to the selective adoption of elements of the agro-pastoral lifestyle by fisher-hunter-gatherer communities. The theocratic Big Men who controlled these communities were responsible for the construction of enormous standing stones and gigantic funerary mounds (the Carnac mounds), and they obtained exotic items from as far away as the north Italian Alps (namely axeheads of jadeitite, a tough metamorphic rock) and northern Spain (beads of variscite, a type of gemstone, and axeheads of fibrolite, a metamorphic rock: ibid.). These inhabitants of the Morbihan had a long tradition of sailing in deep waters, and it is likely that the links with Iberia were effected through long-distance sailing across (or around) the Bay of Biscay (ibid.; Herbaut and Queré, 2004).

Over the course of the second half of the fifth millennium and the beginning of the fourth, these diverse communities in northern and north-west France...
underwent changes that were to have a profound influence on the Neolithisation process in Britain and Ireland. In the Paris Basin, a process of landscape infilling due to population growth appears to have led to social stress (as reflected in the construction of defensive sites) and ultimately to a degree of population movement, both westwards towards Normandy (Ghesquière and Marcigny, 2011) and north-eastwards, towards the Low Countries and quite possibly beyond (Jeunesse, 1998; Crombé and Vanmontfort, 2007; Louwe Kooijmans, 2007). This appears to have taken place during the currency of Chassey and early Michelsberg-type pottery, and to the north-east of the Paris Basin the pottery that was made by these putative emigrants combines both Chasséen and Michelsberg elements (as seen, for example, in the Spiere Group in Belgium: Vanmontfort, 2001). In some areas the appearance of these new settlers represents a re-Neolithisation of the landscape, following the initial, much earlier establishment of farming during the late sixth or early fifth millennium (Crombé and Sergant, 2008; Crombé and Vanmontfort, 2007; Louwe Kooijmans, 2007). Meanwhile, in the Morbihan, during the third quarter of the fifth millennium, the theocratic Big Man-type social system appears to have collapsed – and this may, in part, be due to seismic activity which could have caused the toppling and breakage of several large standing stones (Bonniol and Cassen, 2009, 697). Parts of those stones were then deliberately reused in passage tombs – a new style of funerary monument – and it has been argued that the male-orientated system of power, with its explicit phallic symbolism, gave place to one in which female concepts of fertility were promoted and symbolized (Cassen, 2001). Further north, in Normandy, it has been argued that the process of population growth and stress that had previously occurred in the Paris Basin occurred there as well between 4500 BC and 3800 BC, as reflected once more in the construction of overtly defensive structures, and that this was followed, around 3800 BC, by a significant change, possibly involving some emigration (Ghesquière and Marcigny, 2011; Marcigny et al., 2007, 93).

It is against this background of change in northern and north-west France, and apparent insularity and regional diversity in Late Mesolithic Britain and Ireland, that the spread of ‘Neolithic things and practices’ (to use a term employed by Whittle et al., 2011) across the sea is to be understood.

The ‘What?’ (and ‘Where?’) of the Mesolithic–Neolithic Transition in Britain and Ireland

To cut a very long story short, this transition involved, on the one hand, the appearance, from the near Continent, of a novel resource base – domesticated plants and animals, plus the knowhow to manage them – along with a variety of novel practices, beliefs and traditions and a wholly new technology (namely pottery manufacture); and, on the other hand, the disappearance of lifestyles based solely on exploiting wild resources. As will be seen below, these processes of appearance and disappearance were neither simple nor synchronous in different areas; arriving at an agreed characterization of what actually happened, and how, remains a highly contentious matter.

As for the domesticated plants and animals that must have been brought over in boats – as seed corn and as immature creatures – the former comprise various types of wheat (namely emmer, *Triticum dicoccum*, einkorn, *Triticum monococcum* L. and naked or bread wheat, *Triticum aestivum/durum/turgidum* L.) and of barley...
(namely naked, *Hordeum vulgare* var. *nudum*, and hulled, *Hordeum vulgare* L.), along with flax (*Linum usitatissimum* L.) and probably also some cultivated legumes (Bishop et al., 2009; Jones and Rowley-Conwy, 2007; McClatchie et al., 2014; Whitehouse et al., 2014). A further imported species – the grape (*Vitis vinifera*) – is represented by a single pip found at the causewayed enclosure at Hambledon Hill in Dorset (radiocarbon dated to several generations after the first appearance of other domesticates), and provides a tantalizing hint of possible viticulture in southern England, although not necessarily for making wine (Jones and Legge, 1987; Whittle et al., 2011, 130). The novel animal species are domesticated cattle, sheep, goat and pigs, with cattle bones predominating in many faunal assemblages (Tresset, 2003).

The co-occurrence of cereals and domesticated animal bones at many sites suggests that a mixed agro-pastoral regime was followed, and detailed studies of the use of cereals in Neolithic Britain and Ireland have concluded that, rather than practising mobile, slash-and-burn agriculture as had previously been claimed (for example, Thomas, 1999, 23–32), the farmers cultivated crops in small, fixed fields, close to their houses (Bogaard and Jones, 2007; McClatchie et al., 2012). This accords with the conclusion drawn from a detailed palaeoenvironmental study associated with a large, Early Neolithic house at Warren Field, Crathes, Aberdeenshire, near the east coast of Scotland (Lancaster et al., 2009). As for animal husbandry practices, the analysis of absorbed lipids in pottery has shown that, as a food source, cattle were exploited not only for their meat but also for their milk from at least as early as the early fourth millennium BC (Cramp et al., 2014), and there are hints that transhumance was practised in some areas, as in Glendaruel in western Scotland, where small upland hut-like structures may represent summer shielings (huts used when pasturing animals) (Sheridan, 2013). There are also indications that in some areas, cattle herding became a key element, if not the mainstay, of the subsistence economy: in County Mayo, north-west Ireland, it has been claimed that a huge field system was established during the first half of the fourth millennium, designed to manage and optimize grazing (Caulfield, 1988; Caulfield et al., 2010; Whittle et al., 2011, 615–625. See, however, Whitefield 2017 for a proposed re-dating of this field system to the Bronze Age). That cattle were not simply a food resource but were important in the maintenance of social relationships – through feasting – is reflected in the abundance and numerical predominance of their remains.
in the faunal assemblages of Early Neolithic causewayed enclosures (Whittle et al., 2011). Anne Tresset’s study of the kill-off patterns in these assemblages shows a marked similarity in herd management strategies with the users of similar enclosures in northern France (Tresset, 2003; Tresset and Vigne, 2007).

Hunting of wild animals, and foraging for wild plant resources, was clearly an integral part of the subsistence strategy of these early farmers, as it had been on the Continent (Bishop et al., 2009; Sheridan, 2007, 451 and Figure 5, 2011b). And just as fishing and the exploitation of marine mammals had not formed part of the subsistence strategies of farmers in late fifth millennium northern and north-west France (except perhaps in the Morbihan (Schulting, 2011, 28) and, it would appear, at the causewayed enclosure at Escalles, Pas-de-Calais (Praud, 2015), so it was among the early farming communities in Britain and Ireland. This includes communities who lived on the coast, as Richards and Schulting’s isotope-based dietary studies (for example, Richards and Schulting, 2006; Schulting, 2013) and Lucy Cramp et al.’s lipid analyses of Neolithic pottery have shown (Cramp et al., 2014.).

Growing crops and herding animals would have represented wholly alien subsistence practices when compared with those followed by the indigenous Late Mesolithic communities of Britain and Ireland (Schulting, 2013). They would have required the transformation of the landscape through forest clearance (to create cultivation plots and pastures) and would have dictated a greater degree of sedentism than had been the case with the Mesolithic lifestyle (Rowley-Conwy, 2004).

As indicated above, these new subsistence resources and practices were not the only novelties to appear on the scene. A whole range of other new Continental practices, activities and traditions appeared that indicate a radically different lifestyle (or lifestyles), identity, social organization, ways of making sense of the world and of dealing with the dead, from those that characterized the indigenous communities of Britain and Ireland. These novelties may be summarized as follows:

- The use of rectangular or square, timber-built houses, designed for year-round occupation (Figure 2) (Sheridan, 2013; Smyth, 2014). The earliest examples of these are enormous, with the largest (at Carnoustie, Angus, Scotland) being 35.5 x 7.7 to 9.35 m (c. 116 x c. 25 to 31 feet; Pitts 2017; Bailie, pers. comm.) in size; as discussed elsewhere (Sheridan, 2013), these could have housed pioneering groups of immigrant farmers, who lived together until they felt sufficiently well established to bud off into smaller, single-family houses. Both the large and the smaller houses would also have served as statements of identity, differentiating their inhabitants from the hunter-gatherer-fishers who lived in temporary encampments. Not all the new dwelling structures were as sturdily constructed, however: other, more lightly-built structures (some circular, some trapezoidal) could, as indicated above, have been used as seasonal accommodation during transhumance (ibid., 294).

- The use of funerary monuments, indicating a concern with commemorating the dead (or rather, certain dead individuals) and with memorializing, and maintaining links with, the ancestors. These take different forms in different parts of Britain and Ireland. A non-megalithic tradition appeared over much of eastern and parts of southern Britain, south-west Scotland and north-east Ireland, the elements of which comprised:

  - i) the use of rectangular timber mortuary structures, in which the dead were laid out – presumably until some decomposition had occurred (Figure 3). Often these structures were burnt down, and covered by long rectangular or circular earthen or stone mounds, with concave forecourts, that sealed the deposits (Kinnis, 1992; Sheridan, 2010a). At Eweford, East Lothian, Scotland, two such mortuary structures had been built and burnt before the mound was erected (Lelong and MacGregor, 2008, 21–31);
  - ii) the construction of long, rectangular enclosures, resembling the outer edge of long barrows, which may well have been used as mortuary enclosures for laying out the dead (for example, Inchtuthil, Perth and Kinross, Scotland: Barclay and Maxwell, 1991);
  - iii) the use of open air cremation pyres for the apparently simultaneous cremation of several individuals, which were then sealed over by round mounds (Sheridan, 2010b); and
  - iv) a rectangular sub-surface timber chamber, used to inter a single individual, found at Yabsley Street, London (Coles et al., 2008). (Note that non-megalithic funerary practices also included the placing of bodies in caves and rivers, in various parts of Britain and Ireland (Dowd, 2008; Milner and Craig, 2009, tables 15.3, 15.4; Schulting, 2009; Schulting et al., 2013); the deposition of human remains as a foundation
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deposit under a house at Yarnton, Oxfordshire (Hey and Barclay, 2007, 413); and even the deposition of cremated remains in a logboat, at Old Parkbury Farm, St. Albans, Hertfordshire (Niblett, 2001, 159). These locales arguably do not fall under the category of ‘funerary monuments’, however.)

• **Megalithic (and drystone-built) funerary monuments** are also known from the Early Neolithic period, and these show marked variability in different parts of Britain and Ireland. Arguably the earliest of these are the polygonal closed chambers and simple passage tombs (Figure 4) of the Atlantic fringe of Britain and Ireland, as discussed below (and at length elsewhere, for example, Sheridan and Paillet, 2011). Other versions of these monument shapes, built wholly or partly in dry stone and surrounded by small round mounds, constitute the earliest funerary monuments in south-west England (Figure 5; Darvill, 2004, 60–66, 2010; Sheridan, 2011b; Sheridan et al., 2008; cf. Scarre, 2015), and their relationship with the Atlantic façade megaliths is discussed below. Also present, and associated with the earliest evidence of a ‘Neolithic’ presence in south-east England, is a small group of chamber tombs, the ‘Medway group’, at and around Coldrum in Kent, south-east England (Whittle et al., 2011, 381–3). The best-preserved example, at Coldrum, consists of a single, above-ground rectangular chamber surrounded by a rectangular setting of sarsen stones, and like many non-megalithic monuments, this chamber tomb was used communally, to house several individuals. Other kinds of Early Neolithic megalithic chamber tomb represent subsequent developments of the earliest Neolithic monument types. Thus, for example, a process of translation into stone of the rectangular timber mortuary structure can be seen in south-west Scotland, with the earliest versions featuring simple rectangular stone chambers associated with round or trapezoidal mounds (as, for example, at Mid Gleniron (Henshall, 1972, Figure 2) and Cairnholy II respectively, Dumfries and Galloway: Figure 6) and slightly later versions, from c. 3700 bc, featuring segmented chambers associated with rectangular or trapezoidal cairns. The latter are known as ‘Clyde cairns’ (ibid., 15–110) and their congeners in the northern half of Ireland are known as ‘court tombs’ (Cooney, 2000; Schulting et al., 2012). A further example of a monument type that may represent a different variant of the same phenomenon of translation into stone, this time featuring the use of a gigantic capstone (the latter
perhaps inspired by the massive capstones of the Atlantic façade polygonal chambers), is the portal tomb, found around the Irish Sea (Cummings and Whittle, 2004; Sheridan, 2003). The radiocarbon dating of human remains from Poulnabrone portal tomb in County Clare, in the west of Ireland, indicate that it must have been constructed early in the fourth millennium (Lynch, 2014) and this particular monument appears to pre-date court tombs. Space does not permit a discussion of other megalithic monument types that emerged during the first half of the fourth millennium, such as the Severn-Cotswold tombs of southern England (Bayliss and Whittle, 2007; Whittle et al., 2011).

- The use of causewayed (and other) enclosures – large enclosures whose construction would have involved collaboration by many communities, and whose various functions will no doubt have included periodic gatherings involving large numbers of people. As Whittle et al.‘s magisterial study of Early Neolithic enclosures has demonstrated (2011, chapter 14), there seems to be a chronological gap between the first appearance of Neolithic ‘things and practices’ and the construction of these enclosures, although the example at Magheraboy in County Sligo, north-west Ireland, may be the exception, with its early dates (ibid., 574–585).

- The use of pottery (Figure 7) – a wholly novel and alien technology as far as the Mesolithic inhabitants of Britain and Ireland were concerned. As explained in considerable detail elsewhere (for example, Sheridan, 2007, 2010a, 2011b), there is variability in the earliest Neolithic pottery in different parts of Britain and Ireland, with three different French ceramic traditions being represented, namely:

  - Breton Middle Neolithic II Late Castelic pottery (and associated Breton-style pottery): this is represented at the Atlantic megalithic simple passage tomb of Achnacreebeag, on the west coast of Scotland (Sheridan, 2010a);

  - The Middle Neolithic II Chasséo-Michelsberg tradition, whose
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expression in Britain and Ireland is known as Carinated Bowl pottery (Sheridan, 2007). It is suspected that in northern France and Belgium several regional and local variants of the Chasséo-Michelsberg ‘mix’ existed (such as the Spiere Group in Belgium: Vanmontfort, 2001), and that the area where the British and Irish variant developed is most likely to be found in the Nord-Pas de Calais region of northern France (Sheridan and Pailler, 2011). Support for this view comes from recent discoveries at the causewayed enclosure at Escalles, Pas-de-Calais, within sight of the English coast (Praud, 2015; see also Philippe et al., 2011 on similar pottery from elsewhere in this region). The Escalles ceramic repertoire, like that of Carinated Bowl pottery, is notable for the absence of several features (including the use of flat ‘baking plates’) that are a feature of Chasséo-Michelsberg pottery elsewhere. The Carinated Bowl ceramic tradition is found over much (but by no means all) of England, parts of Wales and Scotland, and much of Ireland; this is the type of pottery found in the non-megalithic funerary monuments (and in some of the megalithic monuments) mentioned above; and

• The Middle Neolithic II pottery of Lower Normandy and northern Brittany, found in south-west England and associated (inter alia) with the drystone closed chambers and simple passage tombs (Sheridan, 2011b). This pottery has been confused with Carinated Bowl pottery (for example, by Whittle et al., 2011, 516, repeated by Anderson-Whymark and Garrow, 2015, 71) and this is doubtless due to the fact that superficially similar vessels of carinated bowl shape were made both in the Middle Neolithic II repertoire in Normandy and north Brittany and in the Chasséo-Michelsberg repertoire further along
the Channel coast. This is because both traditions had been influenced by Paris Basin Chassey pottery (as discussed in Sheridan, 2011b, 29). Nevertheless, some clear differences can be made out between the earliest Neolithic pottery of south-west England and the Carinated Bowl tradition pottery found elsewhere in Britain and Ireland, including the occasional use (as at the Sweet Track, Somerset, south-west England) of a specific technique of applying a carbon-based paint to the outside of pots to create a waterproof, shiny black coating (Coles and Orme, 1984, 44).

- The use of **new styles of lithic artefact**, of **new styles of knapping**, and the extensive use of **ground stone axeheads** (Figure 8). The new styles of lithic artefact include leaf-shaped arrowheads, plano-convex knives and various scrapers, along with a range of novel shapes for stone and flint axeheads. The new knapping styles included the use of both platform and bipolar core reduction routines (Warren, 2006) and, with the exception of some pitchstone blades (which are suspected to have been special-purpose artefacts: Ballin, 2011; Sheridan, 2007), the production of microliths is not a characteristic feature of Early Neolithic lithic artefact production, in contrast to Late Mesolithic knapping traditions over much of Britain (for example, at Fir Tree Field Shaft, Dorset; Allen and Green, 1998; Whittle et al., 2011, 152, 155). The most spectacular novel lithic artefacts are the ground and polished axeheads of Alpine jadeite and other Alpine stones (Figure 9), which had originated up to 1800 km (c. 1100 miles) away in the north Italian Alps but which were brought to Britain and Ireland by the farmers from locations along the northern coast of France, as old and treasured heirlooms (Sheridan et al., 2010; 2011; Sheridan and Failer, 2012; Pétrequin et al., 2012).

*Figure 9. Selection of axeheads made of jadeite from the North Italian Alps, brought to Britain by immigrant farmers from northern France. Top, left to right: Greenlaw, Scottish Borders, Scotland; Monzievaird, Perth & Kinross, Scotland; Breamore, Hampshire, England. Bottom: Sweet Track, Somerset, England. Bottom right: the Sweet Track axehead in situ beside a wooden trackway constructed 3807/3806 BC. Note: the Breamore and Sweet Track axeheads had had their shape modified in the Morbihan area of Brittany before they arrived in England. Photographs at top: National Museums Scotland; Sweet Track axehead photograph: Pierre Pétrequin for Projet JADE; bottom right: John and Bryony Coles. © Alison Sheridan*
the gods and ancestors, and hence any stone from those locations would be imbued with supernatural power (Topping, 2005).

• The establishment of extensive networks of contacts, over which raw materials, artefacts, ideas and no doubt people travelled and were exchanged. Once again, this had been a feature of the Middle Neolithic II on the far side of the English Channel, and had not been a feature of Late Mesolithic groups in Britain and Ireland, (pace Anderson-Whymark et al., 2015).

The ‘When?’ of the Transition

As indicated above, the appearance of these novelties was not simultaneous – and indeed in some areas, including the Northern Isles of Scotland, the earliest appearance of Neolithic traits seems to have related to a secondary expansion from within Britain (Sheridan, 2014).

Several models for the appearance of ‘Neolithic things and practices’ exist (as recently reviewed in Sheridan and Pétrequin, 2014). Regarding the very earliest appearance of any ‘Neolithic’ trait, a claim has recently been made – as noted above – for the appearance of einkorn wheat as early as c. 6000 BC, at a submerged site, Bouldnor Cliff, off the Isle of Wight on the southern coast of England (Gaffney et al., 2015; Smith et al., 2015). This is some two millennia earlier than the appearance of cereal grains in Britain and four centuries earlier than the appearance of cereal grains on the Near Continent and has, predictably, proved to be a highly controversial claim. It is based on sedimentary ancient DNA, rather than on the presence of actual cereal grains, and its dating is based on radiocarbon dates on wood and plant remains from sediment cores. The authors posit that the wheat arrived through long-distance contacts between the Mesolithic inhabitants of what is now Britain and the users of Cardial Impressed Ware pottery, perhaps as far away as the Mediterranean. If this wholly remarkable claim for a hitherto unprecedented long-distance connection is correct – and in order to validate it, far more substantive, well-dated evidence is required – then it would indeed shed new light on the activities of Mesolithic communities around 6000 BC. The total absence of evidence for the use of cereals elsewhere in Mesolithic Britain and Ireland suggests that even if there had been this precocious use of wheat around 6000 BC, it certainly did not herald the start of cereal agriculture in this archipelago.

The earliest indubitable evidence for the presence of any ‘Neolithic’ trait in Britain and Ireland comes from seven bones of domestic cattle, found in a Late Mesolithic coastal campsite at Ferriter’s Cove in County Kerry, south-west Ireland (Woodman and McCarthy, 2003; Woodman et al., 1999). One of these bones has produced a radiocarbon date of 5510±70 BP (OxA-3869, 4500-4180 cal BC at 95.4% probability; Sheridan, 2010a, 90; Woodman et al., 1999, 219); an earlier date from another bone has been rejected as it was determined from charred bone, a notoriously unreliable source of radiocarbon dates.

As noted above, the only way that domesticated cattle could have appeared in Ireland and Britain was by their physical import in a boat, either as livestock or, as some have suggested for Ferriter’s Cove (for example, Thomas, 2013, 267, repeated by Anderson-Whymark and Garrow, 2015, 67), as joints of meat – presumably preserved in some manner, to survive the long sea journey. Either way, the cattle are most likely to have come from north-west France, probably Armorica.

There is no consensus on what constitutes the next earliest evidence for the presence of any Neolithic traits in Britain and Ireland, since not all commentators accept the current author’s argument for a Breton, Atlantic façade strand of Neolithisation arriving at some point between 4400/4300 BC and 4000/3900 BC (and quite possibly towards the end of this date range). This strand is represented by the use of closed megalithic chambers and simple megalithic passage tombs, associated with Late Castelic related pottery (Sheridan, 2010a; 2012; Sheridan and Pailler, 2011; Sheridan and Pétrequin, 2014). The absence of directly-dated material for this phenomenon in Britain and Ireland means that dating currently has to rely on comparison with the well-dated sequence for Late Castelic monuments and material culture at Locmariaquer in the Morbihan area of Brittany – the likely area of origin for this strand of Neolithisation. Cassen et al. (2009, 761, Figure 13) have modelled the dates for this as lying between 4400/4300 cal BC and 3900 cal BC (the use of italics indicating that these are Bayesian-modelled date estimates) and an additional source of dating for the specific type of Late Castelic pot found at Achnacreebeag comes from the dating of human remains from a drystone simple passage tomb at Vierville, Normandy, where a strikingly similar pot was found. These dates lie between c. 4300 BC and c. 4050 BC (Scarr, 2015, 81, Figure 6.3). However, Whittle et al. (2011, 850) chose to remodel the Locmariaquer dating evidence to argue that Late Castelic pottery did not go out of use there until 4120–3610 cal BC and, by extension, to imply that it (and its associated monuments) did not
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Figure 10. Whittle et al.'s model of the Neolithisation of Britain and Ireland, from Whittle et al., 2011, reproduced courtesy of Alasdair Whittle.
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appear in Britain and Ireland until the first half of the fourth millennium. This somewhat arbitrary reworking of the French data ignores the fact, however, that decorated closed bipartite bowls that are clearly derived from the Late Castellic tradition have been found in Clyde cairns and court tombs in Scotland and Ireland (for example, at Blasthill, south-west Scotland: Cummings and Robinson, 2015), and so a *terminus ante quem* of at least as early as the thirty-seventh century BC exists for the Achnacrebeeag pottery from its simple megalithic passage tomb. Likewise, the set of radiocarbon dates recently obtained for finds from the Atlantic-style megalithic tombs in the cemetery at Carrowmore, County Sligo, in north-west Ireland, provide a *terminus ante quem* for the construction of these monuments of 3775–3520 cal bc (Hensey and Bergh, 2013). The current author stands by her claim that the Breton, Atlantic façade strand of Neolithisation could have arrived during the last quarter of the fifth millennium or at the very beginning of the fourth.

While there remains disagreement about exactly what had arrived in Britain and/or Ireland before 4000 bc, there is consensus about the presence of at least some ‘Neolithic’ traits around 4000 bc. Collard et al.’s model (2010), based solely on the examination of radiocarbon dates in isolation, concluded that ‘the Neolithic’ (in the form of immigrant farmers) arrived first in Wiltshire and the surrounding counties of southern England around 4000 bc, and then in Scotland around 3900 bc. The obvious flaws in their model have recently been explained in detail (Sheridan and Pétrequin, 2014), so the critique will not be repeated here.

On the basis of the existing radiocarbon dating evidence – but not without consideration of the ‘things and practices’ upon which the British and Irish Neolithic is defined – Whittle et al., (2011) have offered a different chronological model. They argued for an initial appearance of such ‘Neolithic things and practices’ (which translates as Carnarvon Bowl pottery and associated novelties) in south-east England, at the point nearest to the Continent, during the forty-first century bc, followed by a northwards and westwards spread, through a process of ‘chain migration’ and indigenous acculturation, picking up speed around 3800 bc and changing somewhat in its characteristics as it spread (ibid., Figure 14.16). Their model is described in more detail below, and issues with it have already been discussed in detail elsewhere (Sheridan, 2012; Sheridan and Pétrequin, 2014).

As for the question of when the Mesolithic–Neolithic transition can be said to have ended, and how rapidly it took place, once again there is debate, a lack of consensus, and a need for new information. It is hard to identify any sites or assemblages that are purely ‘Mesolithic’ in nature which date much beyond 3900/3800 bc (Charlton et al., 2016; Milner, 2010). The impression that the lifestyles of the indigenous inhabitants of Britain and Ireland were being transformed shortly after the beginning of the fourth millennium is reinforced by the isotopic evidence for diet in human remains (Schulting, 2013), which suggests a cessation in the exploitation of marine resources, at least for some considerable time, around that point (cf. Milner, 2010). That said, there is a pressing need for more radiocarbon dates for Late Mesolithic material in general, and a need for the reassessment and better dating of shell middens, some of which have produced fourth millennium or later dates, and some of which include the remains of domesticated animals (for example, Dalkey Island, on the east coast of Ireland, where a sheep humerus from a low level has produced a radiocarbon date calibrated to 4040–3640 cal bc; Woodman et al., 1997, 138). Such sites may arguably reflect the acculturation process.

Narratives for the Mesolithic–Neolithic Transition: Differing Perspectives

As suggested above, several models are currently in play to account for the changes sketched above. So much ink has recently been used to present and debate these models that one recent commentator has rightly referred to ‘transition fatigue’ among readers (Anderson–Whymark and Garrow, 2015, 66). For that reason, and because the relevant publications are easily accessible, only a summary of the current position will be offered here, and the focus will be on the three principal models – of Thomas, Whittle et al., and the current author.

In his latest and most substantial presentation of the ‘indigenous groups as prime movers’ argument, *The Birth of Neolithic Britain*, Julian Thomas argues that the Late Neolithic communities of Britain and Ireland were not cut off from developments on the Continent; rather, ‘it is probable that there were contacts between the Irish Sea zone and north-west France during the later fifth millennium bc, and...these involved both British [sic] and Continental mariners’ (Thomas, 2013, 268). Elsewhere he writes of ‘a complex and overlapping web of innumerable contacts between British people and populations dispersed from Armorica to Jutland and Scania’ (ibid., 424). The evidence cited to support this view consists of the domestic cattle bones at Ferriter’s Cove; the claim for fifth-millennium bc cereal-type pollen around the Irish Sea; and also Alpine axeheads, which are known to have been made (and in some cases modified) during the second half of the fifth millennium (ibid., 266–267, 273–283). Thomas argues that, as a result of these claimed interactions and growing familiarity with farming lifestyles on the near Continent, some Mesolithic communities were ‘developing an interest in the accumulation of collective property’ (ibid., 423). This trend continued, with indigenous groups selectively adopting certain subsistence practices, artefact types, practices and traditions from the Continent, filtering and recombining them in an insular manner, to create cultural bricolage (ibid., 424). Finally, during the 40th and/or 39th centuries bc ‘some component of the change from Mesolithic to Neolithic was not only relatively swift, but was fully understood by the participants at a discursive level. In other words, there must have been an active decision to ‘become Neolithic’ (whatever that entailed)... What this probably involved was an identity process, in which a social group resolved to immerse itself in one network of contacts and relationships, while relinquishing another: ceasing to ‘be Mesolithic’ (ibid., 425). While some movement of individuals from the Continent to Britain and Ireland is accepted within Thomas’ model, immigration of farming groups is not regarded as being the key reason for the change of lifestyle.

A slightly more prominent role for immigrant farmers is, however, proposed by Whittle et al., (2011). As noted above, according to their model, small groups crossed the Channel from northern France at its narrowest point during the forty-first century bc and successfully established an agro-pastoral way of life in south-east England, mixing with indigenous groups as they did so. Through the aforementioned process of ‘chain migration’ and indigenous acculturation, ‘Neolithic things and practices’ then spread northwards and westwards through the rest of Britain and Ireland, this process accelerating around 3800 bc (ibid., Figure 14.177). However, in order to account for the marked variability in material culture and monumental architecture in different parts of Britain and Ireland which could not be accounted for in terms of variability between Late Mesolithic groups, Whittle et al., also presented a more nuanced version of that model, in which continued contacts with the Continent, at various points along the north and north-west coast of France, were invoked (ibid., Figure 15. 8, this, and their Figure 14.16, are reproduced here as Figure 10).
or slightly later: as noted above, it will have occurred
for such evidence has been undertaken, and in any case, it
2015, 66) – ignores the fact that no systematic prospection
of more people than the other three strands. This strand
is associated not only with the Chassé-Michelsberg,
Carinated Bowl ceramic tradition (Figure 7 bottom)
but also with the non-megalithic (and subsequently
megalithic) funerary tradition described above (Figure
3), and with most of the other novelties described on
the list of ‘Neolithic’ traits, including the importation of
old and treasured axeheads of jadeite and other Alpine
rocks (Figs. 6, 9), the exploitation of mountain (and other liminal zone) sources of stone for making axeheads, and
the opening of flint mines. As noted above, the large
houses (or ‘halls’) that appeared at the beginning of the
Carinated Bowl Neolithic (Figure 2) can be understood as
the communal dwellings of immigrant farmers, who lived
together until they felt sufficiently well-established to bud
off into smaller, single-family households. They, and the
non-megalithic funerary monuments, will have signalled
the settlers’ presence and acted as prominent expressions
of their identity; and the ceremonial burning of the large
houses when the community dispersed will have signified
a metaphorical ‘burning of bridges’ with the past (Sheridan,
2013). Furthermore, the construction of causewayed
enclosures – be it relatively soon after the arrival of the
putative immigrants (as may be the case at Magheraboy) or
else several generations later – represents the continuation
of a long-standing practice familiar from the north
French homeland, as seen for example at Escalles, Pas-
de-Calais (Praud, 2015). Building such enclosures would
have been undertaken when a critical mass of farming
groups had been achieved in a region, and when the need
for a supra-local gathering place was felt. It is a moot
point whether this process of Carinated Bowl Neolithic
immigration involved an initial settlement in south-east
England, followed by expansion from there as Whittle et
al., argue or whether it took the form of a longer-term,
more extensive diaspora from the Nord-Pas de Calais
region right along the east coast of Britain, as far north
as Caithness in northern Scotland, followed by expansion
from points along this coast. It appears that its spread
to Ireland was probably from south-west Scotland, and
this is highly likely to have occurred before the so-called
‘house boom’ in Ireland of 3715–3625 cal bc (ibid.; Cooney
et al., 2011; Smyth, 2014; cf. Lynch, 2014 on the dates
for the Poulnabrone portal tomb). Rapid acculturation
of indigenous groups who came into contact with these
putative immigrants would account for the disappearance
of the purely Mesolithic lifestyle in the regions in question.

Finally, the fourth strand of Neolithisation, the ‘Trans-
Manche ouest’ (western cross-Channel) strand, seems
to have involved one or more episodes of small-scale
immigration from Normandy (and possibly northern
Brittany) to south-west England, and the presumed
acculturation of indigenous groups, probably at some point
between 4100/4000 cal bc and 3800 cal bc (Figure 1 bottom
right; Sheridan, 2011b; Sheridan et al., 2008, 2010; cf.
Scarre, 2015). The construction and use of the simple
dry-stone and megalithic passage tomb at Broadsands
in Devon, south-west England (Figure 5) – the only such
monument on the Devon and Cornwall peninsula, its
initial deposits of human remains dating to 4121–3712
cal bc (Sheridan et al., 2008, 15) – points strongly towards
Lower Normandy as a point of origin, where closely similar
monuments were built between 4410–4180 cal bc and
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3920–3710 cal bc (Scarre, 2015, 81). The drystone closed chambers and simple passage tombs of the Severn Estuary could have been built by other settlers from Normandy. Some Alpine axeheads, especially those whose shape had previously been modified in Brittany, may well have arrived in England as part of this strand of Neolithisation (Figure 9, top right and bottom). Continued contact with Normandy over the next few centuries is attested in several ways, including the selective adoption of elements of Norman pottery design (notably trumpet lugs) and the importation, probably during the thirty-sixth century bc, of a quern made of rock from near Evreux, Normandy, to the causewayed enclosure at Maiden Castle, Dorset, south-west England (Peacock et al., 2009).

Conclusions and Outstanding Issues

Here is not to explain in detail why the author’s multi-strand model of Neolithisation is believed to offer the best fit with the currently-available data. Suffice it to note that Thomas’ suggestion of long-standing, two-way maritime contact between indigenous groups in Britain and Ireland and France – an argument repeated by others, for example, Garrow and Sturt (2011) – does not stand up to close scrutiny and his characterization of Late Mesolithic communities as proactive cultural bricoleurs is wholly at odds with the evidence. The alleged pollen evidence for fifth-millennium cereal cultivation is highly contentious and has been rejected by most palaeoenvironmentalists, while there is not a shred of evidence to prove that any Alpine axehead arrived on these shores prior to the first appearance of the Carinated Bowl and Trans-Manche ouest strands of the Neolithic. Moreover, nothing identifiable as coming from Late Mesolithic Britain or Ireland has ever been found on the near Continent; the latter suggestion stretches credibility beyond breaking point, in the current author’s view.

The problems with Whittle et al.’s model have already been rehearsed elsewhere (Sheridan, 2012; Sheridan and Pêtrequin, 2014) so will not be repeated here. As for the author’s own multi-strand model, there are indeed outstanding questions to be addressed. These include: why were only leaf-shaped arrowheads, and not others that had been in use in northern and north-west France, used in Britain and Ireland? Where are the exact matches for elements of the non-megalithic funerary monuments of the Carinated Bowl Neolithic – do they lie (as suspected) in the unexcavated long barrows of northern France and Belgium? What were the settlements and subsistence practices of the Breton, Atlantic façade putative immigrants? How far west did the users of Carinated Bowl pottery spread in England? Addressing these questions, and advancing the debate, can only be done through fresh targeted fieldwork and detailed, collaborative material culture studies, on both sides of the Channel. For the meantime, however, it is this author’s belief that her multi-strand model of small-scale immigration, with a range of responses by indigenous communities, offers the most robust narrative of the Mesolithic–Neolithic transition in Britain and Ireland.

Acknowledgements

Nuria Sanz is thanked for her invitation to participate in the 2014 UNESCO conference in Puebla, which gave rise to this publication, and the illustration copyright holders are thanked for giving permission to reproduce their images – in particular, Steve Farrar, John Coles, Blaise Vyner, Graeme Warren and Alasdair Whittle.

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