

Reassessing Community Cemeteries: Cremation Burials in Britain during the Middle Bronze Age (c. 1600–1150 cal BC)

By EDWARD CASWELL¹ and BENJAMIN W. ROBERTS¹

The Middle Bronze Age (c. 1600–1150 cal BC) in Britain is traditionally understood to represent a major funerary transition. This is a transformation from a heterogeneous funerary rite, largely encompassing inhumations and cremations in burial mounds and often accompanied by grave goods, to a homogeneous and unadorned cremation-based practice. Despite a huge expansion in the number of well excavated, radiocarbon dated, and osteologically analysed sites in the last three decades, current interpretations of Middle Bronze Age cremation burials still rely upon a seminal paper by Ellison (1980), which proposed that they comprise and represent an entire community. This paper analyses 378 cremation sites containing at least 3133 burials which represent all those that can be confidently dated to the Middle Bronze Age in Britain. The new analysis demonstrates that relatively few sites can be characterised as community cemeteries and that there are substantially more contemporary settlement sites, though few contemporary settlements are in close proximity to the cemeteries. The identifiable characteristics of cremation-based funerary practices are consistent across Britain with little evidence for social differentiation at the point of burial. It is also evident that only a minority of the population received a cremation burial. There is a substantial decrease in archaeologically visible funerary activity from the preceding Early Bronze Age (c. 2200–1600 cal BC) and a further decrease in the proceeding Late Bronze Age (c. 1150–800 cal BC) in Britain. This is comparable in form, and partially in sequence, to Bronze Age funerary practices in Ireland and several regions in North-west Europe.

Keywords: Middle Bronze Age, Britain, cremation, burial, cemeteries, communities, radiocarbon dating

The Middle Bronze Age (c. 1600–1150 cal BC) in Britain is characterised in broad archaeological narratives by the major expansion of settlements and bronze and gold metalwork hoards throughout Britain, as well as the construction of field systems in central and southern England (Darvill 1996, 108–32; Bradley 2007, ch. 4; Yates 2007; Cunliffe 2013, 266–7). Contemporaneously, the funerary record is overwhelmingly dominated by cremation burials. The presence of certain Middle Bronze Age cremation sites such as Itford Hill, Sussex (Holden 1972); Stansted Airport, Essex (Cooke *et al.* 2008); Harehope,

Peebleshire (Jobey 1980); and Black Patch, East Sussex (Drewett 1982) in close proximity to contemporary settlements has encouraged interpretations that they contain *entire* communities from these nearby settlements (eg, Bradley 1981; 2007, 185; Darvill 1996, 116–17; 2010, 222). The interpretation that Middle Bronze Age funerary sites throughout Britain are representative of community cemeteries – groups of cremation burials that are associated with a specific community and contain *all* members of that community – can be traced back to a seminal paper by Ellison (1980). However, despite the immense increase in the excavation and radiocarbon dating of Middle Bronze Age cremation burials over the last 35 years, and the refinement and widespread application of osteological analyses on cremated bone, there has been no reappraisal of the community cemetery interpretation.

¹Department of Archaeology, Durham University, Dawson Building, South Road, Durham, DH1 3LE.
Email: benjamin.roberts@durham.ac.uk; e.j.caswell@durham.ac.uk

Similarly, there has never been an analysis of Middle Bronze Age cremation burials that goes beyond a region larger than southern Britain.

In the last few years, there has been a substantial advance in the analysis and interpretation of cremated human remains. In particular, there has been an increasing emphasis on: the standardisation of recording (McKinley 2004); the development of new analytical and experimental methods (eg, Marshall 2011; Depierre 2014; Kuijt *et al.* 2014; Snoeck *et al.* 2015; Thompson 2015); as well as an understanding of the highly varied *chaîne opératoires* in the creation of superficially similar cremation burials (eg, Rebay-Salisbury 2010; Marshall 2011; Appleby 2013; Depierre 2014). There is also now a broader recognition of the importance of analysing this funerary phenomenon which has been far too frequently overlooked in broader mortuary studies due to it being less visible in the archaeological record (see Rebay-Salisbury 2010; Kuijt *et al.* 2014; Barceló *et al.* 2014; Capuzzo & Barceló 2015; Bradbury *et al.* 2016; Cerezo-Román *et al.* 2017).

This paper investigates all available evidence for Middle Bronze Age cremations in Britain in order to evaluate the characteristics of cremation burial during the period and whether cremation cemeteries represented the majority of Middle Bronze Age people. It explores the size, duration, distribution, and associated structures of Middle Bronze Age cremation cemeteries, and subsequently analyses individual cremation burials, both in terms of their associated material culture and the osteological evidence relating to demography. Finally, this paper analyses the cremation burial process, encompassing the evidence for pyres, the burning of the deceased, and the collection and deposition of the remains.

URNS, INVADERS, & COMMUNITIES – PAST SCHOLARSHIP ON MIDDLE BRONZE AGE CREMATIONS IN BRITAIN

The earliest studies of prehistoric cremation burials in Britain focused on their chronology. Cremation burial in cemeteries was debated as being a Bronze Age tradition from the early 19th century (Miles 1826; Bateman 1861, 279–87; Lubbock 1865, 313; Stanley 1867; Pennington 1875). During this time, numerous sites containing urned and unurned, as well as single and multiple, cremation deposits were being identified (eg, Miles 1826; Bateman 1861). It was initially thought that urned cremation burials

had been deposited in an earlier phase of the Bronze Age, although this was based solely on the relative paucity of their grave goods. These social evolutionary interpretative schema were soon supplanted by the development of a Bronze Age temporal framework based on pottery typo-chronologies. Abercromby's (1912) landmark corpus of British and Irish pottery formalised many Bronze Age pottery types and identified an 'overhanging rim' type, which later became the Collared Urn type (see Longworth 1961; 1984) and the 'Deverel-Rimbury' forms (Abercromby 1912, 7–14). These were attributed to the Middle and Late/early Bronze Ages, respectively, and both contained cremation burials. The identification of these two ceramic types provided the foundation for all subsequent scholarship on Middle Bronze Age cremation cemeteries in Britain. As was typical in the late 19th/early 20th century, the cemeteries were interpreted within invasion-based paradigms (eg, Clay 1927; Kendrick & Hawkes 1932, 107; Childe 1947, 188). There is little osteological detail in the late 19th or early 20th century research on the cremated remains, many of which were not retained.

It was not until the advent of radiocarbon dating in the mid-20th century that the deposition of cremations within broader cemeteries was shown to pre-date the Urnfield funerary tradition in continental Europe (Ellison 1975, 373; Barrett 1976; cf. Sørensen & Rebay-Salisbury 2008). During the late 20th century, the greater chronological accuracy achieved through increasing radiocarbon dating and refining typo-chronologies (eg, M.A. Smith 1959, 155–9, 185; I.F. Smith 1961; Calkin 1962) did not substantially change the relative temporal sequence of funerary practices in Britain. Cremation cemeteries in Britain with Collared, and occasionally Food Vessel, urns were dated to the Early Bronze Age: Needham's Period 3 (2050–1700 cal BC) (Needham 1996, 130–2). Subsequently, the widespread use of flat and barrow sites with Deverel-Rimbury urned and unurned cremations occurred during the Middle Bronze Age: Needham's Period 4 and 5 (1700–1150 cal BC) (Needham 1996, 132–4). This Middle Bronze Age pottery and practice was suggested to continue until the Late Bronze Age (1150–800 cal BC) (Atkinson 1972, 115; Burgess 1980, 158–9; Brück 1995; Bradley 2007) at which time, as Brück (1995, 264) has demonstrated, cremations shift their location far closer to settlements and take on a different, less formalised role.

It is notable that few works before the 1980s attempted a dedicated synthesis or explanation of Middle Bronze Age cremation burial practice in Britain. Instead, research identified the generalities of this burial form. In summary, burials were found with increasingly fewer grave goods, often in larger groups, and their pottery potentially represented certain groups with shared identities. Early contextual analyses were limited to suggestions of a preference for the placing of cremations in the southern section of barrow sites and the recognition that cremation cemeteries were found both in barrows and flat sites (Preston & Hawkes 1933).

It was only with the work of Burgess (1980) and Bradley (1981) that the landscape context of cremation burials was studied more thoroughly – albeit with the analyses being published only in summary. These two scholars looked at the geographical location of Middle Bronze Age cremation cemeteries in southern England and concluded that many were found on good agricultural land and were geographically distinct to the burials of the Early Bronze Age Wessex tradition. This pattern was interpreted as a means to express property rights over preferable land ‘at a time of more intensive farming’ (Bradley 1981, 103). In contrast, Ellison (1980) focused on analysing the immediate character and locations of Middle Bronze Age cremations within the cemeteries themselves. This highly influential paper investigated the size, demographics, and funerary contexts of 48 multiple cremation sites, within a broader database of 480 sites and 608 urns across southern England, dated largely through the presence of Deverel-Rimbury pottery (Ellison 1980). However, the majority of the underlying data and data analysis was only available within her unpublished doctoral thesis (Ellison 1975) and, as with Bradley’s (1981) paper, this relative inaccessibility has prevented a thorough re-evaluation of those original findings. Both Bradley’s (1981) and Ellison’s (1980) research suggested that the rise of cremation cemeteries heralded a new social dynamic within Britain that lacked evidence of social distinctions. They highlighted the challenge of reconciling this funerary tradition with the settlement evidence and metalwork hoards that demonstrated new hierarchies (see papers in Barrett & Bradley 1980).

These two publications represent the last dedicated projects studying Middle Bronze Age cremations beyond site specific reports or county summaries. Subsequent scholarship appears in regional syntheses

of Bronze Age burial practices (eg, Allen *et al.* 1987; Mullin 2003; Robinson 2007; Cooper 2016) or, in one case, as part of a broader synthetic analysis of later prehistoric funerary practices in southern Britain (Bristow 1998; 2001). The publications emerging from the many Middle Bronze Age cremation cemeteries excavated since 1981 are, with the exception of the monograph on the site of Eye Kettleby, Leicestershire (Finn 2011), typically sections within broader monographs, site reports in county journals, or unpublished interim reports. Prior to this paper, no studies have re-analysed all sites across Britain excavated before and after 1981 together or challenged substantially the interpretations of Bradley (1981) and Ellison (1980).

METHODOLOGY

The purpose of this study is to reassess all Middle Bronze Age (c. 1600–1150 cal BC) cremation sites in mainland Britain as well as those islands in close proximity, including the Isles of Scilly and Isle of Wight, the Western Isles, Shetland, and Orkney (Appx 1). The aim is to evaluate whether existing community-based models of cremation cemeteries are appropriate.

Initial data collection identified over 7000 cremation burials – defined as a single cut feature containing cremated remains from one or more individuals – from 1696 sites in Britain that had the potential to be Middle Bronze Age in date. This potential was based on the burial sites’ features, material culture, or radiocarbon dates. Many sites had little or no diagnostic information to prove the sites’ period of use. As such, a key challenge to this study was filtering this corpus down to only those sites where at least one cremation burial could be placed within the Middle Bronze Age with a high degree of confidence.

Of the 1696 cremation burial sites that had the potential to be Middle Bronze Age, 417 sites had at least one radiocarbon date associated with a cremation burial. Only 47 of these 417 sites contained burials that could be confidently assigned to the Middle Bronze Age through a direct radiocarbon date, rather than a phase that crossed into either the Early or Late Bronze Age.

It has been shown that radiocarbon dates obtained from cremated human bone can be offset by the inbuilt ages of the material used in the cremation pyre (Snoeck *et al.* 2014; 2015). This effect can be negligible if the material used is of a similar age to the

individual, but can also distort the date of a cremation significantly in other cases, particularly if old wood, coal, or peat was used. Consequently, 21 cremation burials (at nine sites) were reclassified as Middle Bronze Age (their dates being only slightly older than 1600 cal BC), as there was also evidence for other Middle Bronze Age cremation burials on the site. This consideration in mind, the number of cremation burials sites containing at least one burial radiocarbon dated to the Middle Bronze Age rises to 56.

Of the 1696 potentially Middle Bronze Age sites, the remaining 1640 cremation burial sites which did not have at least one burial directly radiocarbon dated solely to the Middle Bronze Age were investigated for associations with typo-chronologically diagnostic material. There were 321 cremation burial sites that lacked sufficient diagnostic material and so were discounted from this study. The remaining 1319 contained at least one cremation burial which could be confidently dated to a typo-chronological range. There were 322 sites that contained at least one burial whose associated material is dated, according to current typo-chronological schemes, to the Middle Bronze Age.

When combined, the number of individual sites that contained at least one cremation burial confidently dated by radiocarbon (56 sites containing 673 individuals) or typo-chronology (322 sites containing 2460 individuals) to the Middle Bronze Age is 378 (see dating criteria details in Appx S1). These 378 sites contain 3133 individual burials, representing a minimum number of 3242 individuals that may be confidently dated to between c. 1600 and 1150 cal BC. These are the securely dated Middle Bronze Age cremation burial data which form the analytical core of this paper. Notably, these 378 sites also contained 1319 further burials which could not be confidently dated to the Middle Bronze Age.

The paper's results were created using a database designed to record each cremation burial site identified by their individual burials. This is accessible in the online supporting material (Appx S1). Where possible, each cremation burial was categorised according to: the funerary structure (eg, barrow, ring ditch, settlement, etc.); burial arrangement (eg, container, grave markings, grave goods etc.); and osteology (minimum number of individuals [MNI], sex, age, bone quantity, bone colouration), all of which were recorded using a standardised lexicon of terms. Each site was investigated as thoroughly as possible using the available

records of each site. If these records did not provide information on the characteristics being recorded, the field was left blank rather than inferring a potential value.

EVALUATING MIDDLE BRONZE AGE CREMATION SITES

Cemetery size

The 378 Middle Bronze Age cremation burial sites contain a mean number of 12 individual burials, dating to all periods, per site (Fig. 1). However, the mean is highly skewed by the presence of 19 (5%) large cemeteries containing over 50 cremation burials, such as at Simons Ground, Dorset (White 1982); Bromfield, Shropshire (Stanford *et al.* 1982; Hughes *et al.* 1995); and Vines Farm, Essex (Erith & Longworth 1960) (Table 1). On the other hand, there are 210 (55%) sites that contain fewer than five individual burials. The number of burials recorded on these sites may be under-represented, as it has not been possible to confirm whether the excavated area of the cemeteries and the number of cremation burials excavated from them represent the full extent and number of burials placed on these sites. Having said that, there are still 117 (31%) sites that contain only a single cremation burial with only one individual, such as at Alwynds, Surrey (Germany 2010); East Harting Farm, Sussex (Aldsworth 1983); and Dishley Grange, Leicestershire (Walker 2009). This indicates that, despite the aforementioned biases against identifying and dating such sites, single burials remained a major feature of Middle Bronze Age funerary practices and that the majority of Middle Bronze Age cemeteries are far smaller than would be expected to contain an extended family.

Of the 3133 Middle Bronze Age cremation burials found, there are only 94 incidences (3%) of multiple individuals being placed within the same cremation burial (Table 2). The largest of these exceptional cremation burials with multiple individuals are: Shouldham, Norfolk, with a MNI of five (Wells 1976); Vines Farm, Essex with a MNI of four (Erith & Longworth 1960); and Ring Ditch 4, between Linch Hill and Stanton Harcourt, with a MNI of three (Hamlin & Case 1963).

The utility of the MNI when studying cremation burials is partially restricted due to the fragmented nature of the remains, which may lead to the identified number of individuals being lower than the actual number deposited in the past. Similarly, it is equally possible that a single cremated individual may have had

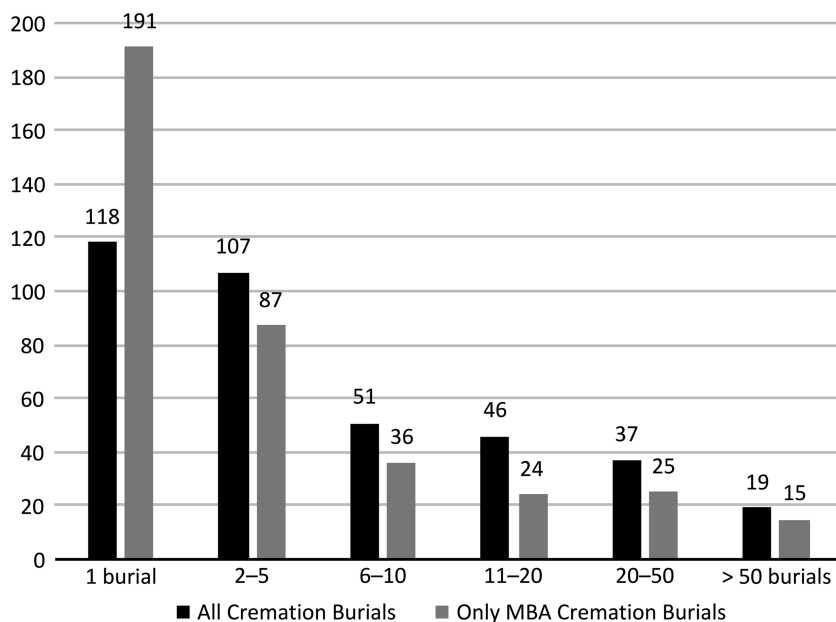


Fig. 1.

The size of the 378 cremation burials sites when considering *all* cremation burials found on the site compared to the size of the 378 cremation burials sites when considering *only* those cremation burials that could be confidently dated to the Middle Bronze Age

TABLE 1: STATISTICS DEMONSTRATING THE SKEW OF THE MINIMUM NUMBER OF BURIALS ACROSS MBA CREMATION BURIAL SITES WHEN CONSIDERING BURIALS OF ALL PERIODS & BURIALS SOLELY FROM THE MBA (378 SITES)

Statistic	All cremation burials	Only MBA cremation burials
Average	12	8
Minimum	1	1
1st quartile	1	1
Median	4	1
3rd quartile	11	6
Maximum	260	165

their remains separated into more than one token deposit (see commentary in Lynch & O'Donnell 2007, 110). These caveats aside, it is proposed that, regardless of the size of the cemetery, Middle Bronze Age cremation burial practice overwhelmingly favoured the burial of single individuals within burials. This is significant, as the presence of burials with multiple individuals shows that cremation easily facilitates the mixing of human remains within relatively smaller receptacles than might otherwise be required. Similarly, one can envisage the possible symbolic gestures that might be achieved by the mixing of a homogenised cremation material. Yet, these mixing options were almost always rejected in the final deposition of human remains.

Cemetery duration

There are 97 Middle Bronze Age cremation burial sites which have at least one radiocarbon date, although only 56 of these sites' radiocarbon dates place individual cremation burials within the Middle Bronze Age. Unfortunately, too few sites have suitable spatial and temporal details to allow any comment on the shifting use of cremation cemeteries as seen elsewhere in Europe (eg, De Reu *et al.* 2012).

Only 30 of the 97 cremation burial sites have at least three separate burials that have been radiocarbon dated. Three of these sites have reports that use Bayesian modelling (citing Buck *et al.* 1996) to determine their duration. At Papworth Everard Bypass, Cambridgeshire (Hounsell 2007, 20), this modelling determined that the cemetery's span of use was between 1 and 140 years. Assuming that the radiocarbon dates reflect the full span of use of the cemetery and that the cremation burials were evenly placed through time, this would require at least one cremation burial to be placed within the cemetery every 2 years (minimum number of burials: 57; MNI: 67). At Eye Kettleby, Leicestershire (Finn 2011, 56–8), the duration of all funerary activity is modelled to be between 220 and 400 years. Following the same assumptions as stated above, this would require at least one cremation burial to be placed within the

TABLE 2: COUNT OF MINIMUM NUMBER
OF INDIVIDUALS (MNI) PER MBA CREMATION BURIAL
(3133 BURIALS)

<i>MNI category</i>	<i>Burials</i>
1 Individual	3039
2 Individuals	82
3 Individuals	10
4 Individuals	1
5 Individuals	1

cemetery every 4 years (minimum number of burials: 95; MNI: 101). At St Osyth Lodge Farm, Essex (Germany 2007, 102), the time span for the Middle Bronze Age activity was reported to be between 1 and 200 years indicating that one cremation burial had to be placed within the cemetery at least once every 17 years (minimum number of burials: 12; MNI: 15).

The remaining 27 Middle Bronze Age cremation burial sites with three or more radiocarbon dates (minimum number of burials: 1027; MNI: 1073) lack any modelling, and therefore comment on the length of use of these cemetery sites can only be generalised. The average maximum span of use of these 27 sites is 866 years, such that on average one burial must have been placed across these sites every 59 years. This contrasts strongly with these same sites' minimum average span, which is only 200 years, such that on average one burial could have been placed in these sites as regularly as every 12 years. Without modelling, the maximum length of these sites' duration, seen purely from the radiocarbon dates, is likely to be exaggerated, as will the number of years between the placement of each burial at these locations. Equally, it is unlikely the 12 sites (or 14 if including those sites that have used Bayesian modelling) which have radiocarbon dates (Table 3) that would allow for their cremation burials to be buried within a single year were used for so short a time. It does appear that the larger cemeteries' span of use is extended by the presence of a minority of burials dating either earlier than the majority of the burials, such as at Eweford West, East Lothian (MacGregor 2008) and Moverons Pit, Essex (Clarke & Lavender 2008), or later than the majority of the burials, such as at Western International Market, London (Bradley 2003; Boyer 2007); Handley Hill, Dorset (Barrett *et al.* 1981); and Simons Ground, Dorset (White 1982).

Yet, there are also, generally smaller, cemeteries which show a low number of burials that were placed intermittently over a long period of time, such as at

Whitton Hill Henge, Northumberland (Fowler 2013); Heathrow Terminal 5, London (Framework Archaeology 2010); and Dallam School, Cumbria (Platell *et al.* 2013). Similarly, of these 27 sites with three or more radiocarbon dates, there are *at least* seven cremation burial sites that must have been used over more than 200 years. As such, it is clear that there is no set rule for the length of cemetery use or the regularity at which burials were placed at these sites.

Distribution

The Middle Bronze Age cremation burial sites included in this study are distributed throughout mainland Britain and the nearby islands (Fig. 2). They are found far more frequently in southern England, and in particular are most densely concentrated around the south Dorset and Hampshire region, but are strikingly and inexplicably absent from the High and Low Weald of East Sussex, an absence that is paralleled in the Bronze Age settlement record (Caswell 2018). There are relatively few sites in Wales, although this might be due to the relatively lower level of fieldwork and lack of sufficiently well dated sites. There are notably few cremation burial sites in northern Britain, particularly in the region spanning north-east England and south-east Scotland (Warden *et al.* 2016). When the distribution is analysed from the perspective of cemetery size, the most northerly Middle Bronze Age cremation burial cemetery with over 50 individuals is at Bromfield, Shropshire (Stanford *et al.* 1982; Hughes *et al.* 1995). Whilst the uneven distribution of excavations and research needs to be considered (see Green *et al.* 2017), this north-south division is nonetheless striking.

Funerary structure

Middle Bronze Age cremation burials are found primarily in three funerary contexts: barrows (195 sites, 52%), ring ditches (60 sites, 16%), and flat sites (defined as having no features visible on the ground surface) (122 sites, 32%). It is certainly possible that a proportion of the ring ditches are the remains of barrows which have been subsequently ploughed out. Sixteen (<4%) sites contained detail in their reports suggesting an association with field/enclosure features, and 36 (<10%) made mention of nearby settlement features, although these were placed up to 1 km away.

The 3133 cremation burials within the 378 cremation burial sites reveal very limited evidence for the

TABLE 3: MBA CREMATION CEMETERY SITES WITH MORE THAN TWO RADIOCARBON DATED CREMATION BURIALS

<i>Cemetery</i>	<i>Ratio C¹⁴ dates: burials</i>	<i>Min. duration (years)</i>	<i>Max. duration (years)</i>	<i>Min. years between burials</i>	<i>Max. years between burials</i>
Papworth Everard Bypass*	16:57	1	140	0	2
Eye Kettleby*	16:95	220	400	2	4
St Osyth Lodge Farm MBA ring ditches*	8:12	1	200	0	17
Vinces Farm	3:111	1	709	0	6
Knighton Heath	6:41	1	299	0	7
Bromfield merged**	4:188	379	1622	2	9
Simons merged**	7:138	504	1291	4	9
Rhee Lakeside South	3:37	1	367	0	10
Kimpton Kalis Corner ADS	6:117	85	1529	1	13
Handley Hill Barrow 24	7:52	315.5	703	6	14
Kingsborough	6:34	73	505	2	15
Moverons Pit Brightlingsea	5:49	142	1070	3	22
Western International Market	17:35	385	825	11	24
Peacehaven WTW, Hodder Farm	3:12	1	295	0	25
Imperial College Sports Ground	3:16	112	494	7	31
Eweford (west)	7:23	279	738	12	32
Shrewton 5a	3:19	1	756	0	40
Sharpstones Weeping Cross Site B	4:32	1	1275	0	40
Easton Down R7	3:11	1	500	0	45
Barrow Pleck 3	4:19	1	885	0	47
Sanday Spur Ness	4:7	1	329	0	47
Heathrow T5	8:11	324	606	29	55
Pencraig Wood	3:3	1	234	0	78
Linga Fold	9:9	119	774	13	86
Whitton Hill henge Site 1	3:28	1682	2561	60	91
Temple Wood	7:8	1	1159	0	145
Dallam School	4:6	653	1022	109	170
Ferry Fryston Site D	3:3	128	615	43	205
Brown Edge Ring Cairn	3:5	1	1360	0	272
Manor Farm Borwick ADS***	4:12				

Minimum and maximum durations have been calculated using the earliest and latest radiocarbon dates (at 95.4% probability) from cremation burials on the site. *Key:* *Those sites which have had Bayesian modelling. **Due to their proximity, the three sites at Bromfield (Bromfield Quarry, Bromfield Cemetery C1, & Bromfield Quarry Cemetery C3) and the four sites at Simons Ground (Sites B, C, F, & G) have been grouped together for the purpose of this table. ***Manor Farm, Borwick was not studied, as it contained no radiocarbon dates placing a burial in the Middle Bronze Age. ADS = Archaeological Data Service.

marking of burials with visible, above ground, markers. For example, there is evidence at a few sites such as Itford Hill, Sussex (Holden 1972), where each cremation burial had an associated post-hole which was interpreted as a marker to prevent intercutting. However, the evidence for the presence or absence of grave marking is not consistently interpreted and can be difficult to identify (see Evans & Knight 1998). There are examples where both intercutting and the lack of intercutting have been interpreted as indications of above ground grave markers. At Briar Hill, Northamptonshire (Bamford 1985), the cremation burials were found to intercut with one another, leading to an interpretation that their locations must have been marked. At Broom, Bedfordshire (Cooper & Edmonds 2007), four cremation burials were each associated with a post-hole, yet were intercut by other cremation burials, leading to an interpretation for the absence of grave marking.

EVALUATING MIDDLE BRONZE AGE CREMATION BURIALS

Funerary containers and grave goods

Of the 3133 Middle Bronze Age cremation burials, 844 (27%) show no evidence for a burial container – whether ceramic vessel, stone cist, or wooden coffin – and a further 211 (7%) have no record of this information in their reports (Table 4). Of the remaining 2078 cremation burials, 2058 (66%) were excavated in a container, 2036 of which are ceramic vessels. Where the information for position of the ceramic vessel holding the individual cremation burials was available, it showed that ceramic vessels were almost evenly found inverted (460 burials) and upright (485 burials). Thirty-five sites had a mix of individual cremation burials in both inverted and upright ceramic vessels, indicating that the choice of urn direction was not dictated by burial site. Finally, there are 20 burials

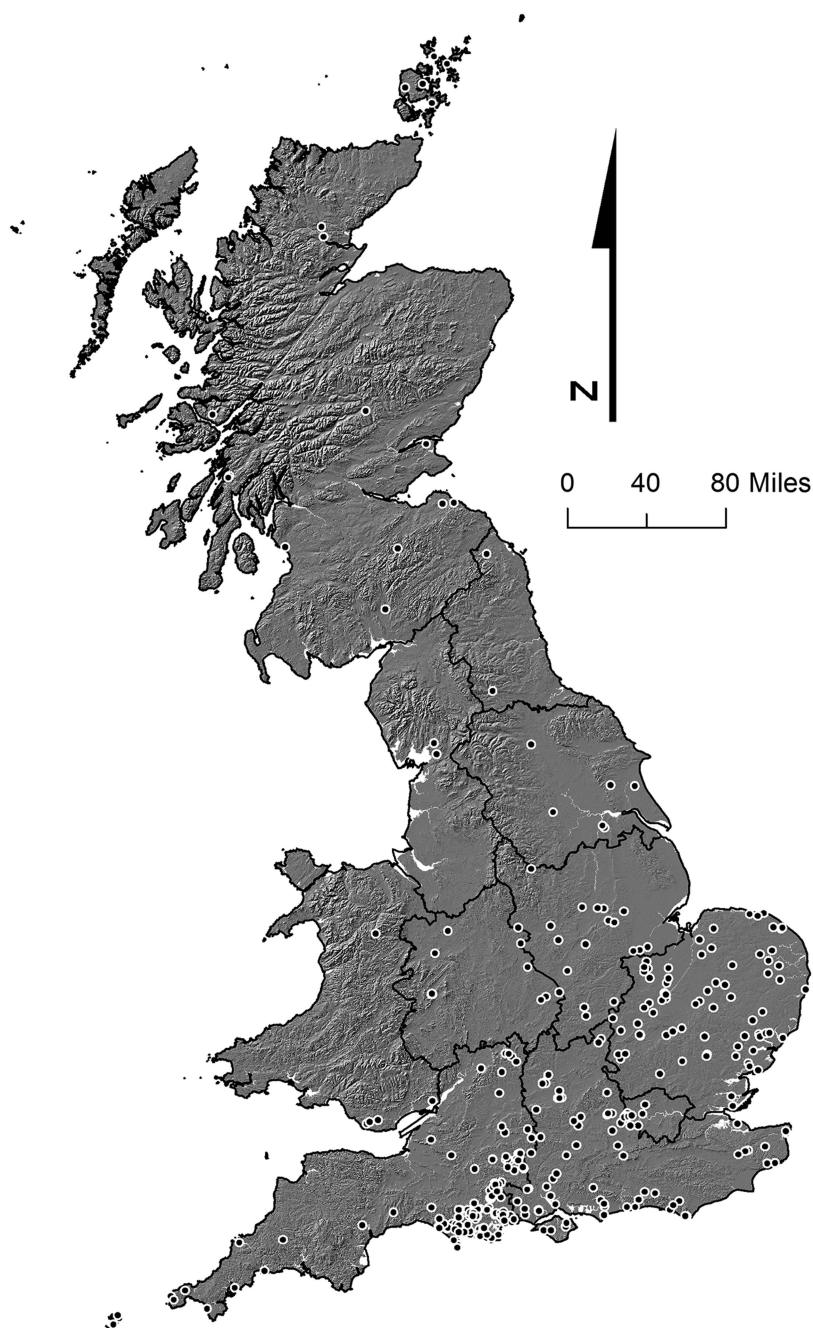


Fig. 2.
Distribution of the 378 Middle Bronze Age cremation burial sites included in this study

where the clustering of the cremated bone and ash led to the inference of an organic bag, such as at Latch Farm, Kent (Piggott 1938); Briar Hill, Northamptonshire (Bamford 1985); and Eye Quarry, Cambridgeshire (Patten 2004; 2009).

There are 1003 cremation burials (32%) which contained no surviving accompanying artefacts (such as ceramic vessels, flint, metalwork, or animal bone) that might be regarded as grave goods, although animal bone may be under-represented due to the difficulties

of distinguishing fragmented human and animal bone. Beyond the presence of a ceramic vessel or ceramic sherds, which might indicate a vessel and both of which constitute grave goods, 2996 (96%) of the 3133 individual cremation burials are devoid of any other archaeologically visible associated artefact. The remaining 137 (4%) cremation burials have yielded artefacts ranging from bronze pins/awls to flint flakes to animal bone pendants (Fig. 3).

Of these 137 burials, there are 43 cremation burials from 23 cremation burial sites which contained burnt objects, presumably also gathered from the funerary pyre. These were predominately flints, such as at Itford Hill, Sussex (Holden 1972); Game Farm, Suffolk (Gibson 2004); Barnes Urnfield, Isle of Wight (Dunning 1931); and Pokesdown, Kent (Clay 1927). There are also examples of: molten bronze as at Eye Kettleby, Leicestershire (Finn 2011); animal bone as at King's Hill, Bedfordshire (Cooper & Edmonds 2007); and flint arrowheads as at Standlake ring ditch 1, Oxfordshire (Riley 1946) and Colne Fen, Cambridgeshire (Evans & Appleby 2013). In 24 of these 43 cremation burials, the burnt objects were found associated with ceramic vessels, which suggests that these objects were selected for inclusion in the burial.

Demographics

In the last three decades, osteological analyses have typically followed the framework outlined by McKinley (1997; 2000). However, before the 1990s, osteological reports were far more varied, such that it is not uncommon for certain traits of skeletons or whole assemblages to be unrecorded. Osteological analyses have allowed estimation of the sex of 196

individuals from 190 cremation burials across 70 sites, and the age ranges of 991 individuals from 884 cremation burials across 150 sites. In total, 840 (85%) of the burials that were aged and 159 (81%) of the burials that were sexed were detailed in reports published in or after 1980 (Figs 4 & 5) and are therefore regarded as reliable for the purposes of this study.

Of the 154 individuals where sex has been estimated, only 54 individuals have been confidently sexed as females (30 individuals) and males (24 individuals), an almost even division. In the remaining 104 individuals where the sex estimation is less certain, there is a slightly higher number of possible females.

Of the 740 individuals that have an osteologically determined age range, all osteological age ranges are represented, but 414 (49%) of the individuals are adults (25–40 years). It is possible that children (3–11 years) and infants (0–2 years) are under-represented due to their smaller bone size or preferential destruction rate for this age group. Recent experimental research suggests cremated child remains should remain archaeologically visible (Holck 1997; Jæger & Johansen 2013); therefore, the low proportion of burials might reflect a cultural bias (Lewis 2007). Whilst these age ranges and categories can be osteologically determined, it is acknowledged that the social recognition and relevance of these ages could well have been different in the past. These caveats mean that any statistically significant correlation between age range or sex and the presence or absence of grave goods (beyond ceramic vessels) found in Middle

TABLE 4: BREAKDOWN OF THE 3133 MBA CREMATION BURIALS WITH AND WITHOUT GRAVE GOODS

Category	No. burials	% of all MBA cremation burials
No. burials with grave goods	2127	68
No. burials with only ceramic vessels	1935	62
No. burials with grave goods excluding ceramic vessels	137	4
No. burials with more than one form of grave good	87	3
No. burials with burnt grave goods	43	1

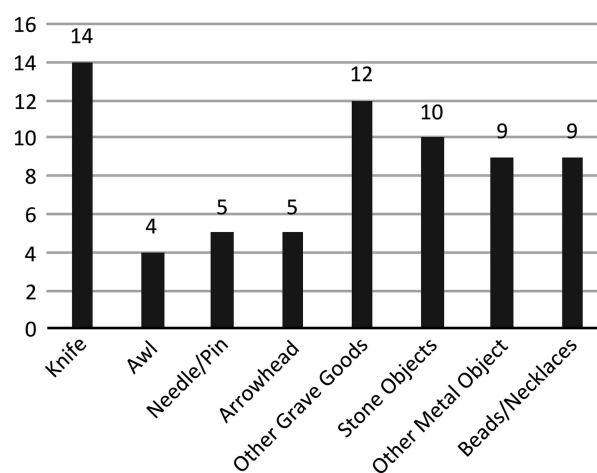


Fig. 3. Number of grave goods of each type found in the 3133 Middle Bronze Age cremation burials included in this study

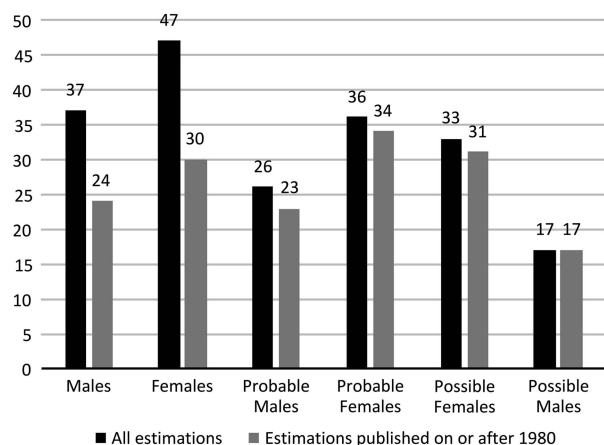


Fig. 4.

Osteologically determined sex of cremated individuals
(total = 190 of 3133)

Bronze Age (c. 1600–1150 cal BC) cremation burials in Britain should be treated with caution.

However, it is worth stating that individual infant cremation burials are treated in the same or similar manner to adult cremation burials found elsewhere, such as at Butcher's Rise, Cambridgeshire (Evans & Knight 1998); Aldham Mill Hill, Suffolk (Everett & Boulter 2010); and King's Dyke, Cambridgeshire

(Knight 1999). Whilst there are probable female individuals buried with infants, such as at Broad Chalke 1, Wiltshire (Grinsell 1957) and Oliver's Battery, Hampshire (King 1989), there are also probable male individuals buried with an infant, such as Burial 2257 at Papworth Everard Bypass, Cambridgeshire (Hounsell 2007; Gilmour *et al.* 2010). As such, it is clear that neither age nor sex provided an insurmountable barrier to the various forms of cremation burial practiced during the Middle Bronze Age.

Burning the bodies: Pyre evidence

The colour of cremated human bone was recorded for 306 cremation burials with the vast majority being described as 'well calcined' or 'buff white'. This indicates that human bone was burnt in pyres with temperatures exceeding 600°C (Shipman *et al.* 1984). The complexities involved in the preservation and identification of Bronze Age cremation pyres in Britain have recently been addressed systematically and in depth in three experimental replications inspired by the excavation of pyre evidence under the Early Bronze Age barrow at Guiting Power 3, Gloucestershire (Marshall 2011).

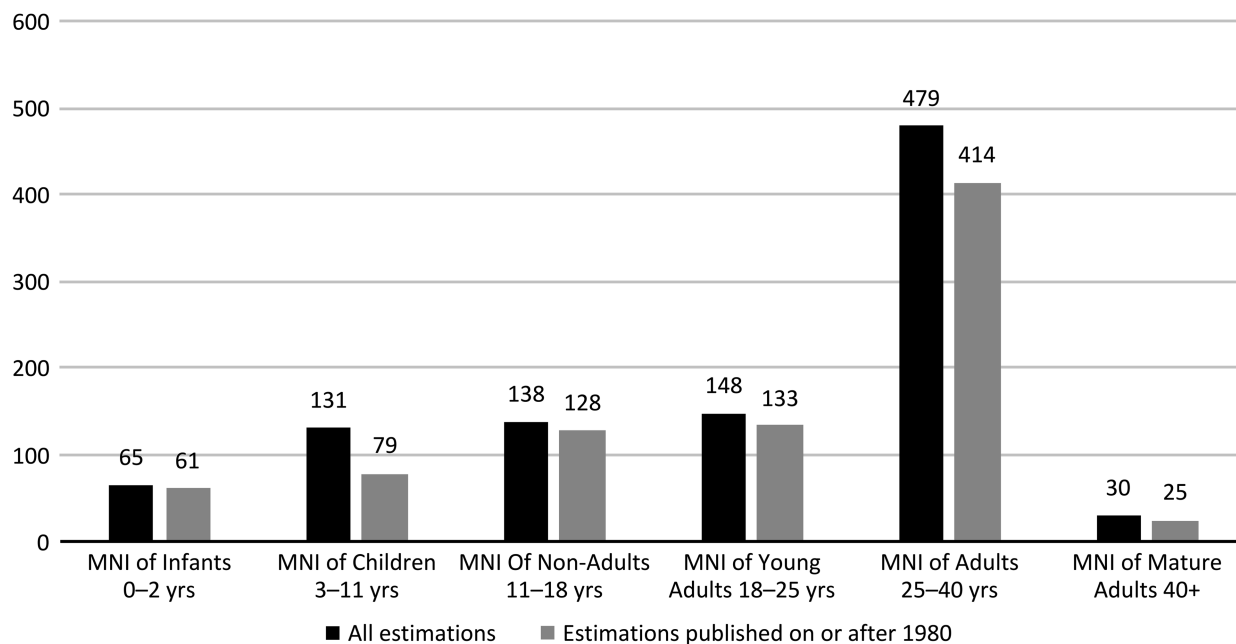


Fig. 5.

Osteologically determined age of cremated individuals in Middle Bronze Age cremation burials (total = 991 of 3133)

Pyres are typically inferred from evidence such as burial scorching, where the soil surrounding the cremation burial has been burnt, such as at Claggan, Argyll (Ritchie & Thornber 1977); Zionshill Copse, Hampshire (Entwistle 2001); and Kalis Corner, Hampshire (Dacre & Ellison 1981). It has also been inferred from the burning of pottery, suggesting that the ashes were deposited when still hot, such as at Imperial College Sports Ground, London (Powell *et al.* 2015); Temple Guiting 8, Gloucestershire (O'Neil 1967); and Swanmore, Hampshire (Dunning 1931). Of the 378 Middle Bronze Age cremation burial sites, there are 43 that have *in situ* evidence for burning that indicates either that a pyre existed at the site, or that the remains of a pyre were deposited at the site whilst still in a state of combustion, implying that the original pyre had been nearby.

Considering that 3133 cremation burials have been studied, it is reasonable to expect that more evidence for pyres would have been identified, assuming that cremated remains were not being brought to their place of burial from elsewhere. Furthermore, it would be expected that if *in situ* evidence for burning had existed at these sites, it would have been found in larger quantities, especially at the largest cremation burial sites. It has been suggested at sites such as Eye Kettleby, Leicestershire (Finn 2011); Butcher's Rise, Cambridgeshire (Evans & Knight 1998); and Mockbeggar Lane, Hampshire (Coles 2004), that funerary pyres were potentially cleaned away after their use due to the high collection rates of bone excavated in the cremation burials. However, there are 32 pyre sites that exist at cremation burial sites; these are invariably simple spreads of ash and charcoal, which show no signs of cleaning beyond the collection of human remains.

COLLECTING AND DEPOSITING THE CREMATED DEAD

Whilst taphonomic issues should not be ignored, the published data reveal that there was no standard practice for the quantity of human remains that underlie their collection and burial during the Middle Bronze Age in Britain, as there are significant variations from every perspective.

There are 859 cremation burials from 104 cremation burial sites which recorded the cremation deposit weight of the excavated human bone (Fig. 6). The mean cremation deposit weight of human bone from these is 374.6 g, although it should be noted that truncation might have reduced the quantity of bone recovered at

certain sites. These weights vary significantly (with a standard deviation of 561.7 g) (Table 5). For instance, 635 (74%) of the cremation burials weigh less than 500 g, and 370 (43%) cremation burials weigh less than 100 g (Fig. 7). Only 17 (2%) cremation burials weigh over 2 kg. The most widely cited experimental study which recreated Anglo-Saxon pyres found that the cremation of an adult could be expected to produce between 1.5 and 2 kg of bone residue (McKinley 1997).

The extensive presence of cremated human remains weighing significantly less than 1.5–2 kg implies the partial collection of human remains for burial. Unfortunately, too few osteological reports recorded the cremation deposit weights by fragment size, as recommended by McKinley (1997; 2000) to enable further comparative analysis. An alternative method based on the volume of cremated human remains has been proposed that seeks to provide a more reliable representation of the completeness of the human remains that were originally buried (Harvig & Lynnerup 2013). However, none of the publications on Middle Bronze Age cremations in Britain used by this paper employed this new methodology.

When the cremation deposit weights within 66 cremation burial sites are investigated, 56 sites show a relatively higher internal consistency than the total population of weighed burials. For instance, within the 32 cremation burials at Kingsborough, Kent (Allen *et al.* 2008) and the 11 cremation burials at Coton Park, Warwickshire (Maull 2001), there is a remarkably consistent selection of less than 100 g in the quantity of bone being buried, which cannot easily be explained by issues of taphonomy and differential recovery. Such consistency has also been recognised within separate clusters of potentially chronologically distinct cremation burials (Finn 2011, 66).

TABLE 5: STATISTICS DEMONSTRATING THE SKEW OF THE BURIAL WEIGHTS OF MBA CREMATION BURIALS (859 BURIALS)

Statistic	MBA cremation burial weights (g)
Average	374.6
Minimum	0.1
1st quartile	27.5
Median	140.0
3rd quartile	140.0
Maximum	5908.0

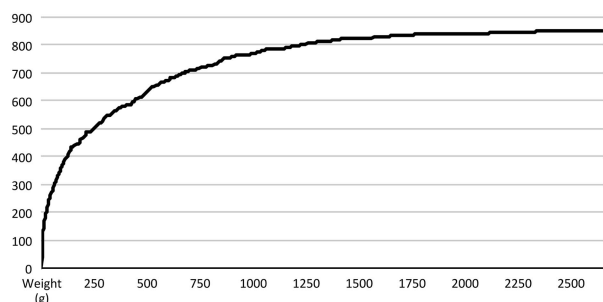


Fig. 6.

Cumulative frequency plot of cremation deposit weights in Middle Bronze Age cremation burials (859 burials of 3133)

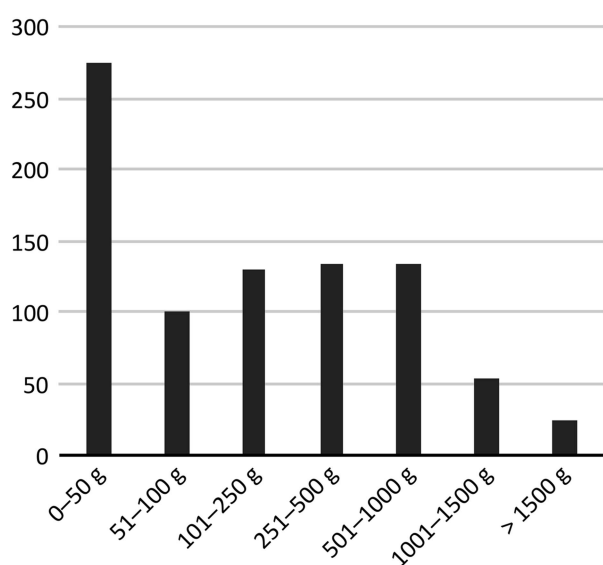


Fig. 7.

Bar chart of cremation deposit weights in Middle Bronze Age cremation burials (859 burials of 3133)

DISCUSSION

Identifying the visible dead of Middle Bronze Age Britain

The database assembled for this paper recorded 378 cremation sites containing at least 3133 burials that can be confidently dated to the Middle Bronze Age (c. 1600–1150 cal BC). It is a very near comprehensive corpus of this feature type and represents the majority of archaeologically visible funerary evidence for the period. The analysis of the Middle Bronze Age cremation sites and burials demonstrates no bias towards particular sexes or age ranges. Neither is any social, ritual, nor political differentiation made explicit

in the funerary remains – in stark contrast to monuments and grave goods which characterise the archaeologically visible Early Bronze Age (c. 2200–1600 cal BC) evidence (see Woodward 2000; Garwood 2007; Needham 2011; Wilkin 2011; Fowler 2013; Melton *et al.* 2013; Hunter & Woodward 2015; Jones 2016; Nicolas 2017). Where it exists, the evidence for Middle Bronze Age barrow construction is far less substantial in scale, investment, and complexity (eg, Bradley & Fraser 2010). Similarly, Middle Bronze Age personal ornaments were not placed with the dead as grave goods, but rather were worn and subsequently removed from the body and placed unburnt elsewhere (see Roberts 2007; Davies 2012; Wilkin 2017; O'Connor *et al.* 2017). There are only three poorly excavated Middle Bronze Age cremation sites where bronze ornaments have been found potentially in association (Roberts 2007, 149). It is certainly possible that ornaments could have been removed from the body as part of the funerary process. However, as particularly large ornament hoards, such as at Wylve, Wiltshire; West Ashling, Sussex; and Monkswood, Somerset (Smith 1959; Roberts 2007; Wilkin 2017; O'Connor *et al.* 2017), demonstrate, there is no straightforward equation between ornament hoards and individuals.

Other Middle Bronze Age funerary rites in Britain are evidenced, although these comprise less than 3% of the total number of burials from this period. A new comprehensive survey of non-burnt human remains dating to the Middle Bronze Age has only identified 92 individual burials from 45 sites which emphasises the dominance of cremation based practices at this time (Cormack 2018). The sites include inhumations in bogs, as at Ashton Moss, Lancashire (Mullin 2003; Nevell 2015); in rivers, as shown by the dating of skulls (Bradley & Gordon 1988; Schulting & Bradley 2013); in water holes, as at Striplands Farm, Cambridgeshire (Evans & Patten 2011); in ditches, as at Tormarton (Osgood 2006); and settlements, as at Gwithian, Cornwall (Nowakowski 2004, section 3, 26, appx 11). Many sites with inhumations also contained cremated human bone, which is sometimes in greater abundance than the unburnt bone, such as at Weymouth 34, Dorset (otherwise known as the famous Rimbury cemetery that defines the Deverel-Rimbury ceramic type) (Warne 1866); Milborne 16h/i, Dorset (Grinsell 1959); and Berwick St John 10, Wiltshire (Grinsell 1957). Within our study, cremated and unburnt human bone was found at 40 of the 378

cremation sites. This indicates that these cemeteries were not exclusively used for one funerary rite, although cremations form the vast majority of the Middle Bronze Age funerary remains visible in the archaeological record. In summary, the archaeologically visible cremation burial practice in Middle Bronze Age Britain can be characterised by: the placing of individuals of both sexes and all ages; variable quantities of bone; associated with few grave goods, barring ceramic vessels; either in unmarked flat sites or earlier monuments.

Is there a Middle Bronze Age cremation horizon in Britain?

There is no easily identifiable temporally distinct appearance of a Middle Bronze cremation tradition at 1600 cal BC. Brück (2014, 130) asserts that the apparent dominance of cremation burials over inhumation burials occurs in Britain from c. 2000 cal BC. A similarly placed transition in north-east England–south-east Scotland is also suggested by Fowler and Wilkin (2016, 126) at 1900 cal BC. Needham’s chronology (2011; see also Needham *et al.* 1997) for the entirety of Britain recognises that a transition is hard to pinpoint, suggesting that the cremation rite becomes more frequent towards the end of his phase two (2300–1950 cal BC) and only becomes the ‘predominant burial rite’ by his phase three (1950–1500 cal BC).

There are numerous radiocarbon dated funerary sites, containing multiple cremation burials, whose use spans the 2nd millennium BC. These include the sites of: Meldon Bridge, Peebleshire (Speak & Burgess 1999); Ewanrigg, Cumbria (Bewley *et al.* 1992); Biddenham Loop, Bedfordshire (Luke 2008); Kimpton (Kalis Corner), Hampshire (Dacre & Ellison 1981); and Eye Kettleby, Leicestershire (Finn 2011). There are also large cremation burial sites that have been radiocarbon dated exclusively to the Early Bronze Age (c. 2200–1600 cal BC) such as Skilmafilly, Aberdeenshire (Johnson & Cameron 2012) and Over, Cambridgeshire (Evans 2016). It should also be noted that cremation cemeteries are also found in Late Neolithic–Chalcolithic (c. 3000–2200 cal BC) monuments, such as Stonehenge, Wiltshire (Parker Pearson *et al.* 2009; Willis *et al.* 2016) and Forteviot, Perth and Kinross (Noble & Brophy 2017), and have also been identified in the Mesolithic as at Langford, Essex (Gilmour & Loe 2015; Gray Jones 2017). It is

therefore important not to overstate a Middle Bronze Age funerary transformation towards cremations or cremation cemeteries.

Furthermore, exemplary research on the recently excavated and published barrow cemetery at Over, Cambridgeshire (Garrow *et al.* 2014; Evans 2016) cautions strongly against overstating any linear transition to a largely cremation dominated funerary rite. Chronological modelling using Bayesian statistics revealed sequential funerary phases starting with inhumation, followed by cremation, then inhumation again, then further phases of cremation burials, all within an Early Bronze Age cemetery (Evans 2016, 444, 448).

How comparable is the funerary record in North-west Europe c. 1600–1150 cal BC?

There are currently no in-depth comparative analyses of Middle Bronze Age funerary practices across North-west Europe – or even between communities across the Irish Sea, North Sea, or Channel/Manche. This contrasts with the wealth of recent cross-border scholarship comparing Chalcolithic and Early Bronze Age funerary evidence (eg, Needham 2000; 2005; 2009; Vander Linden 2006; Hammond 2010; Fraser 2013; Ripoche 2016; Wilkin & Vander Linden 2015) and, to a lesser extent, Middle Bronze Age metalwork, ceramics, and settlements (eg, O’Connor 1980; Ehrenberg 1983; Marcigny *et al.* 2007; Bourgeois & Talon 2009; Kleijne 2010; Needham *et al.* 2013). The main explanation for this lack is that the characteristics of the surviving funerary evidence from 1600 cal BC in North-west Europe are less conducive to broader comparative analyses. In addition, the complexities and different sub-divisions of typochronologies and their respective terminologies can prove obstructive (see Roberts *et al.* 2013), as can the varying practices of archaeological fieldwork in the region (eg, Webley *et al.* 2012). However, the similarities and differences in mid–late 2nd millennium BC funerary practices have been discussed in the broader context of North-west European later prehistoric archaeology (eg, Bourgeois & Talon 2009, 39–42; Bradley *et al.* 2015, 195–205; Marcigny *et al.* 2015, 231; Webley 2015).

The closest and most widespread parallels to the Middle Bronze Age cremation burials in Britain are found to the west, in Ireland. The wealth of recent excavations and radiocarbon dates means that the

funerary framework proposed by Grogan (2004), of a phase (c. 1500–1300 cal BC) of burials placed with Cordoned Urns and grave goods followed by a phase (c. 1300–1000 cal BC) of cremations placed in coarser urns, is in need of substantial chronological revision. The recent modelling of radiocarbon dates by Brindley (2007) and Bayliss and O’Sullivan (2013) has confirmed that the use of Cordoned Urns had ceased by c. 1500 cal BC. It also appears that razor knives, faience, gold, and amber grave goods were only included in burials pre-dating 1600–1500 cal BC (Waddell 2010).

A recent review of all accessible reports on later Bronze Age (c. 1600–600 cal BC) cremation burials found along road schemes in Ireland has found that following c. 1600–1500 cal BC, the evidence of funerary practices is dominated by small cremation deposits, usually unaccompanied, but sometimes placed within coarse ceramic vessels (Spillane 2017). Other than ceramic vessels, or later typically only ceramic sherds, the objects placed with these cremations included only the occasional burnt or unburnt flint flakes and animal bones. These burials were predominantly found in flat, unmarked pits, either as isolated features or in small clusters (Lynch & O’Donnell 2007; McQuade *et al.* 2009, 141–6; Troy 2015; Cooney 2017).

These Irish cremation burials are placed in similar locations to those seen in Britain, having been found deposited in barrows, ring-ditches, and occasionally in close proximity to Bronze Age settlements (Spillane 2017). In some cases, it seems as though cremation depositions in the Middle Bronze Age became focal points for domestic settlement in the Late Bronze Age (Spillane 2017, 47–8). Furthermore, and as seen in Britain, the majority of Middle Bronze Age cremation burial sites contain only a few individuals, though there are occasional larger cemeteries, such as at Templenoe and Derrybane, Co. Tipperary; Manusmore, Co. Clare (Birmingham *et al.* 2012); and Rathglass, Co. Galway (Doody 2008; Kiely & O’Mahony 2011; Péterváry 2009). These larger cemeteries are generally specific to the Middle Bronze Age, after which isolated pit burials become the dominant form (Spillane 2017, 37–8).

Middle Bronze Age pyres are rarely associated with these burials, although some examples such as Newford, Co. Galway or Coolmore, Co. Kilkenny contain pit features with indications of intense *in situ* burning, along with small deposits of burnt bone, which could be an indicator of pyre structures. Such evidence has

led Becker (2014, 14) to suggest that the small amounts of cremated remains located near these pyres represent the intentional deposition of pyre material rather than formalised burials.

In northern France and southern Belgium, cremation cemeteries containing multiple individuals, some contained within ceramic urns and a few accompanied by additional grave goods, are found from c. 1500–1100 cal BC (Le Goff & Guichard 2005; Bourgeois & Talon 2009; Le Goff & Billand 2012). The current dating of evidence across northern France, Belgium, and the Netherlands indicates that few barrows were constructed from c. 15/1400–1100 cal BC, with cremations from this time being inserted into older barrows, such as at Waben-Le Sémaître (Desfossés & Bernard 2000; see also Bourgeois & Arnoldussen 2006; Bourgeois & Fontijn 2008; Bourgeois & Talon 2009; Bourgeois 2013). Given the similarities in the ceramic assemblages on either side of the Channel (see Marcigny *et al.* 2007; Kleijne 2010), it is not surprising that a ceramic urn, closely related to the Deverel-Rimbury ceramic types, containing a cremation was found at Argoeuves-Le Moulin d’Argoeuves (Soupart 2009).

Further inland into Continental Europe, a section of the Seine valley has one of the most extensively excavated mid–late 2nd millennium BC funerary landscapes in North-west Europe. It contains a diversity of barrow monuments, co-existing inhumation and cremation funerary traditions, and a wide range of grave goods, providing a cautionary example to any straightforward narrative attempted in less well excavated areas (Delattre & Peake 2012; Delattre *et al.* 2015; Rottier 2010). To the west, Middle Bronze Age funerary sites in north-west France are also dominated by barrows containing (where their preservation in the soil allows) both cremations and inhumations with ceramic urns and few grave goods; their chronologies remain poorly understood (Briard 1984; Fily *et al.* 2012; Boulud-Gazo *et al.* 2017).

Funerary sites in north Germany and Denmark include occasional cremation cemeteries, such as at Lustrupholm, Denmark (Feveile & Bennike 2002), on flat sites that display similarly equal proportions of ages and sexes to Middle Bronze Age cremation cemeteries in Britain. However, the vast majority of the archaeologically visible contemporary funerary activity comprises thousands of barrows, inhumations, and grave goods (see Bergerbrant 2007; Holst & Rasmussen 2013).

The existence of shared practices connected by maritime routes throughout North-west Europe during c. 1600–1150 cal BC is not in doubt, as a major museum exhibition, BOAT 1550 BC (Lehoërff 2012), and numerous recent conferences have demonstrated (see Bourgeois & Talon 2005; Clark 2009; Lehoërff & Talon 2017). However, the extent of similarities and differences in funerary practices has remained under-investigated and deserves further attention beyond the scope of this paper.

Identifying long term trends in the quantity of archaeologically visible burials throughout the Bronze Age in Britain

There is a substantial decrease across Britain in the number of funerary sites in the Middle Bronze Age (c. 1600–1150 cal BC) as compared to the Early Bronze Age (c. 2200–1600 cal BC), which is not adequately explained by its only slightly shorter duration (150 years difference). For instance, in the Tyne-Forth region spanning north-east England and south-east Scotland, there are over 130 Early Bronze Age sites (Fowler & Wilkin 2016), three Middle Bronze Age cremation funerary sites, and 12 Late Bronze Age burial sites, only six of which contained confirmed cremation burials (Warden *et al.* 2016). Similarly, in Cumbria, north-west England, 100+ funerary sites have been dated to the Early Bronze Age, yet only one Middle Bronze Age funerary site has been confirmed (Evans 2008; Platell *et al.* 2013, 53; Walsh 2013). Even in areas where there are relatively high concentrations of Middle Bronze Age cremation burials, such as in the Dorset–Hampshire region, there are far more Early Bronze Age burial sites (Grinsell 1959; Bristow 1998; 2001).

The Late Bronze Age (c. 1150–800 cal BC) funerary record (inhumations and cremations) in Britain is even sparser than that of the Middle Bronze Age. In southern Britain, Late Bronze Age cremation burials are predominately found in roundhouses and associated ditches (see Brück 1995; Roth 2012; Davies 2016), comprise smaller quantities of human bone, and are rarely accompanied by ceramic vessels. In northern Britain, similarly small quantities of cremated and unburnt human bone are found in settlements, caves, ditches, and in both earlier and contemporary funerary monuments (Thomson 2011; Melton *et al.* 2016; Warden *et al.* 2016). The cremated remains in these studies (referenced above) also appear to be

generally smaller in cremation deposit weight than the average Middle Bronze Age cremation burial. This reduction in the quantity of cremated bone being buried through time has also been demonstrated across the Early, Middle, and Late Bronze Age in Cambridgeshire (Evans 2016, 429).

Reassessing the Middle Bronze Age community cemetery model in Britain

When considering all Middle Bronze Age cremation burial sites with at least three radiocarbon dates, it is possible that cremations need only have been deposited on each site on average once every 54 years (Table 3). The quantity of cremation burials can also be analysed on a national scale. The period of study encompasses 450 years such that, from the available evidence, only one archaeologically known cemetery site was created every 2 years. Furthermore, only seven deaths a year would then have resulted in a cremation burial being placed in one of these sites. While these numbers are likely to under-represent the number of individuals who were cremated and buried, it can only be concluded that a small minority of people in Middle Bronze Age Britain were buried in an archaeologically visible rite. For instance, the placing of cremated human remains in seas, rivers, lakes, and bogs or their scattering over the landscape would all be invisible to later archaeological investigation.

When compared to the contemporary settlement record, how few individuals received an archaeologically visible cremation burial is even clearer. There are c. 8000 substantial domestic sites in Britain, characterised by the presence of at least one round-house, which are dated to the Middle Bronze Age (1600–1150 cal BC), either by radiocarbon dating, associated material culture, or architecture (Caswell 2018). This contrasts with the 3133 cremation burials dated using the same methods identified in this paper. Even when allowing for the fragmentary evidence of other funerary rites, the comparative ratio is stark; there are 2.6 settlements for each cremation burial in the Middle Bronze Age in Britain. Even considering the multiple taphonomic issues, and the many more sites that are doubtless awaiting re-dating or discovery, these statistics must lead to a revision of the community cemetery model applied to all Middle Bronze Age cremation burials in Britain.

Middle Bronze Age funerary sites containing cremation burials are invariably interpreted as cemeteries for

nearby communities (eg, Ellison 1980; Bradley 1981; Boyer 2007; Cooper & Edmonds 2007; Finn 2011) due to two influential publications (Ellison 1980; Bradley 1981) which relied upon two observations.

Firstly, the size and clustering of these sites is similar to the assumed extended family unit of the Middle Bronze Age (Ellison 1980). The proposed spatially distinct clustering of cremation burials in groups of between ten and 30 individuals, as identified by Ellison (1980, 122), suitably fits the estimated size of extended family units that are widely thought to be the social core of Middle Bronze Age societies. This identification of clusters has been made in many subsequent site monographs such as Eye Kettleby, Leicestershire (Finn 2011); Daneshill, Hampshire (Millett & Schadla-Hall 1992, 91); and Oliver's Battery, Hampshire (King 1989, 22). However, this clustering is often only loosely defined methodologically and interpretatively, such as at Pasture Lodge Farm, Lincolnshire (Allen *et al.* 1987, 210), and when not conforming to the size suggested by Ellison, the clustering is instead defined by smaller groupings of three per cluster, such as at Papworth Everard, Cambridgeshire (Gilmour *et al.* 2010, 22). A detailed analysis of 60 Middle Bronze Age cemeteries in East Anglia by Robinson (2007, 51) found no evidence for clusters of cremation burials.

This study has shown that the vast majority of Middle Bronze Age cremation burials (2942, 94%) are found on a site with at least one other burial also dated to the period. However, it has been possible to confirm that a slightly larger proportion of Middle Bronze Age cremation burial sites (79 out of 118 cremation burial sites with only one burial, 21%) definitely contain only one cremation burial, while only 40 out of 378 (11%) Middle Bronze Age cremation burial sites contain 20+ cremation burials. This is despite the biases against recovering and dating single cremation burials, which makes it likely that the overall proportion of single cremation burials is under-represented. As such, despite Middle Bronze Age cremation burials frequently being found together, the majority of cremation cemeteries do not appear to meet the underlying requirement for demonstrating evidence for extended family units and therefore a larger community.

Secondly, Middle Bronze Age cremation burial sites are placed near, and have been linked to, contemporary settlements (Bradley 1981). The pairing of Middle Bronze Age settlements and cemeteries in Britain is frequently asserted (eg, Bradley 2007, 185;

Darvill 2010, 222), usually on the basis of spatial proximity, such as at Down Farm, Cranborne Chase (Barrett & Bradley 1980). There is also the frequent comparative analogy to Itford Hill, Sussex (Ellison in Holden 1972, 110) where two sherds of pottery were found to re-fit – one from a Middle Bronze Age barrow and the other in a nearby Middle Bronze Age settlement. The spatial proximity argument for pairing settlements with cremation cemeteries is based primarily on Bradley (1981), who asserts that the majority of Middle Bronze Age cremation cemeteries are found within 700 m of a settlement, with a peak between 50 m and 300 m (Bradley 1981, 100).

A pilot assessment of this assertion was made possible by comparing 372 of the 378 Middle Bronze Age cremation burial sites to the location of potential Bronze Age settlements known to all Historic Environment Records within mainland England, Scotland, and Wales, a database totalling 21,831 sites. The list of settlements (Caswell 2018) includes sites that might be Early or Late Bronze Age and some sites which are only speculated as being Bronze Age. It is therefore a generous distribution that would be expected to skew results towards a smaller distance between Middle Bronze Age cremation burials and Middle Bronze Age settlements. Six of the 378 Middle Bronze Age cremation burial sites were excluded from this analysis due to the poor settlement evidence available for their region.

This analysis found that there is a peak of 96 (26%) Middle Bronze Age cremation burial sites placed within 300 m of a potential Bronze Age settlement site – in both northern and southern Britain – which might in part support Bradley's assertion that, in some cases, settlements are paired with cemeteries (Fig. 8). However, only 139 (37%) cremation cemetery sites were found within 700 m of a potential Bronze Age settlement, 201 (54%) cremation cemetery sites were located over 1 km away, and the average distance between these cemeteries and their nearest *potential* settlement was 1787 m. Therefore, from the data available to this paper it can only be concluded that Middle Bronze Age cremation burials do not show a universally strong spatial connection to occupation sites as has been suggested (Darvill 1996, 116–17; Bradley 1981; 2007, 185).

Furthermore, the contemporary chronology of settlements and nearby cemeteries is often assumed rather than demonstrated. Yet, similarly to cremation sites in Ireland (Spillane 2017), when the radiocarbon

dates for well excavated Bronze Age settlements and cemeteries within 500 m in Britain are compared, they frequently reveal that it is Late Bronze Age settlements that are placed in close proximity to pre-existing Middle Bronze Age cremation cemeteries. This occurs at Dunch Hill, Wiltshire (Andrews 2006); Game Farm, Suffolk (Gibson 2004); and Biddenham Loop, Bedfordshire (Luke 2008) and has also been observed across the Netherlands (cf. Gerritsen 2007). Directly contemporary Middle Bronze Age settlements and cemeteries in close proximity, such as at Shorncote Quarry, Gloucestershire (Barclay *et al.* 1995), are very rare according to the radiocarbon dates, are rarely discussed in site reports, and, bar the much-cited Itford Hill example (Holden 1972), never directly evidenced through material culture.

As such, it is argued that neither Ellison's (1980) nor Bradley's (1981) observations can now be broadly supported. Consequently, the community cemetery model in Middle Bronze Age Britain should be revised.

How then should Middle Bronze Age cremation burials be understood? The preference for burying only individuals does suggest that the deceased individual was given some primacy during multiple stages of the funerary process. However, this primacy did not translate to the final burial stage, which tended to

avoid both monumentalisation in the landscape or any material expression of identity beyond a ceramic vessel that frequently contained their remains. This relatively homogeneous and modest burial stage may well have extended to the burning of the individual, given the absence of burnt personal ornaments which are known to have been worn but are deposited unburnt elsewhere in Britain (Roberts 2007). On average, less than three-quarters of the human bone produced through the cremation process is recovered from Middle Bronze Age cremation burials. Given the low number of sites showing evidence for cremation pyres, it seems likely then that the human cremated bone was 'created' in a different location to the final burial place and that the majority of it was used and/or placed in ways that are no longer archaeologically visible. The intentions underlying these uses will be difficult to understand, as they are likely to have occurred in the transportation (and maybe redistribution) of the potentially symbolically charged cremated material in social contexts which now leave no archaeological trace (cf. Appleby 2013; Kuijt *et al.* 2014; Bradbury *et al.* 2016). This understanding does not exclude Ellison's (1980) suggestion that cemeteries or grouping of burials represent kin groups, yet it should be stressed that the evidence above implies that the cre-

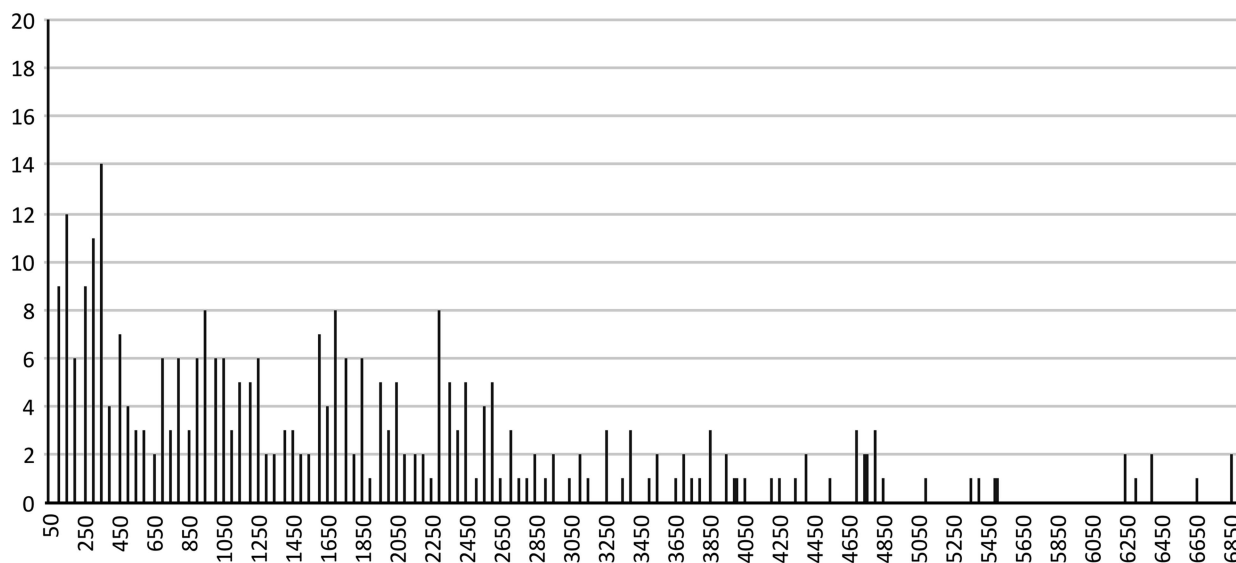


Fig. 8.

Number of confirmed Middle Bronze Age cremation burial sites by distance to their closest potential Bronze Age settlement site. NB: the broken scale accounts for the high number of burials that were recorded as being in or around a settlement (the Y axis has been capped at 20 to better depict the distribution of sites, 49 sites were found less than 50 m distant from a settlement).

mated human bone cannot have been used solely for this purpose, and probably was not in the majority of circumstances.

FUTURE RESEARCH: GOING BEYOND COMMUNITY CEMETERIES

This paper has identified that the archaeologically visible funerary rites in Middle Bronze Age (c. 1600–1150 cal BC) Britain represent only a minority of the contemporary population. This can be further investigated through addressing the problem of chronological resolution. For instance, there are 421 cremation burial sites of the original 1696 sites identified during initial data collection, which contained at least 1145 burials whose date could not be confirmed. It has been shown how assumptions of date placed purely on the form of cremation burial can produce wildly inaccurate period classifications (De Mulder *et al.* 2014). As such, the radiocarbon dating of the remaining sites would assist in establishing whether certain absences in the funerary record, such as the northern England or East Sussex region, are reflective of the past reality. Similarly the regular use of Bayesian modelling and more substantial dating programmes on all cremation burial sites will allow a truer image of their life histories to be produced. There are substantial issues with the typo-chronologies of (Early–) Middle Bronze Age ceramics associated with cremations which would benefit from further study and dating. The recorded diversity of funerary practices indicates that there may well be far more sites than is currently appreciated – especially when funerary sites and burials assumed to be Early Bronze are taken into consideration. However, even if all of these burials were dated to the Middle Bronze Age they would still be far exceeded by the number of contemporary settlements and would thus still represent only a minority of the contemporary population.

This paper challenged the widely held assumption that Middle Bronze Age cremation burials represented entire communities (Ellison 1980) who were locally based (Bradley 1981). In this, it follows an earlier comparative analysis of Bronze Age settlements and funerary sites in the Netherlands, which also challenged successfully similar pre-existing models (Bourgeois & Fontijn 2008). This raises a fundamental question – where did the people who

were subject to cremation burials in Middle Bronze Age originate?

The recent successful application of strontium isotope analysis to cremated burials (Snoeck *et al.* 2015) now enables this question to be at least partially resolved by demonstrating whether those individuals buried had lived and died nearby and whether there is a coherency in the life histories of the dead within a cemetery. The recent results from the isotopic analysis of preceding Beaker burials spanning the Chalcolithic and Early Bronze Ages (c. 2500–1600 cal BC) highlight the co-existence in funerary treatment and contexts of both sedentary and mobile individuals, albeit within Britain (Parker Pearson *et al.* 2016). However, this has recently been challenged by the analysis of Neolithic–Early Bronze Age human aDNA which strongly implies a continental migration of people from Continental North-west Europe to Britain, apparently replacing nearly the entire indigenous population, during the same period (Olalde *et al.* 2018). The widespread adoption of cremation-orientated burial practices prevents any extension of comparably extensive aDNA research programmes into the Middle–Late Bronze Age (c. 1600–800 cal BC) in Britain. The materials and technologies in the Middle Bronze Age (c. 1600–1150 cal BC), most visibly in bronze and gold as exemplified by the Salcombe, Devon and Langdon Bay, Kent shipwrecks (Needham *et al.* 2013; Wang *et al.* 2016), would imply continuity in mobility across North-west Europe and beyond. However, the current interpretations surrounding the contemporary construction of roundhouses, enclosures, and field systems in Britain, both implicitly and explicitly, strongly envisage far more sedentary farming groups. The resolution of this major interpretative divergence on the same prehistoric population (cf. Roberts 2013), ideally through the widespread application of strontium isotope analysis on cremated human bones, would enable a far clearer understanding of the extent to which mobility shaped and defined Bronze Age communities in Britain.

Acknowledgements: This paper was supported by the Arts and Humanities Research Council [AH/L503927/1] through the Northern Bridge Doctoral Training Partnership. It was first presented at the *Bronze Age Forum*, Belfast, Northern Ireland (November 2013) and a revised version was presented at the conference *Le Bronze moyen et l'origine du Bronze final en Europe occidentale, de la Méditerranée aux pays nordiques (XVIIème - XIIIème siècle av. J.-C.)* in

Strasbourg, France (June 2014). We are very grateful for the invitations to present and for the subsequent discussions with conference participants. We would like to thank Anna Bloxham, Emily Carroll, Claudio Cavazzuti, Kerri Cleary, Anwen Cooper, Katie Cormack, Chris Fowler, Arjan Louwen, Mette Løvschal, Rebecca Peake, Ben Spillaine, and especially Ann Woodward (née Ellison) for reading and commenting on an earlier draft of this paper. We are especially grateful to the three reviewers and the editors. Any errors remaining are the responsibility of the authors.

SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit: <https://doi.org/10.1017/ppr.2018.9>

BIBLIOGRAPHY

- Abercromby, J. 1912. *A Study of the Bronze Age Pottery of Great Britain & Ireland and Its Associated Grave-Goods*. Oxford: Clarendon Press
- Aldsworth, F. 1983. A Bronze Age cremation urn from East Harting. *Sussex Archaeological Collections* 121, 195
- Allen, C.S.M., Harman, M. & Wheeler, H. 1987. Bronze Age cremation cemeteries in the East Midlands. *Proceedings of the Prehistoric Society* 53, 187–221
- Allen, M.J., Leivers, M., Ellis, C., Stevens, S., Clelland, S., Bayliss, A., Butler, C., Gale, R., Gibson, A., McKinley, J.I., Knight, S., Mephum, L., Scaife, R. & Stevens, C.J. 2008. Neolithic causewayed enclosures and later prehistoric farming: Duality, imposition and the role of predecessors at Kingsborough, Isle of Sheppey, Kent, UK. *Proceedings of the Prehistoric Society* 74, 235–322
- Anderson-Whymark, H., Garrow, D. & Sturt, F. (eds). 2015. *Continental Connections: Exploring cross-channel relationships from the Mesolithic to the Iron Age*. Oxford: Oxbow Books
- Andrews, P. 2006. A Middle to Late Bronze Age Settlement at Dunch Hill, Tidworth. *Wiltshire Archaeological & Natural History Magazine* 99, 51–78
- Appleby, J. 2013. Temporality and the transition to cremation in the late third millennium to mid second millennium BC in Britain. *Cambridge Archaeological Journal* 23, 83–97
- Atkinson, R.J.C. 1972. Burial and population in the British Bronze Age. In F.M. Lynch & C. Burgess (eds), *Prehistoric Man in Wales and the West: Essays in honour of Lily F. Chitty*, 107–16. Bath: Adams & Dart
- Bamford, H.M. 1985. *Briar Hill: Excavation 1974–1978*. Northampton: Northampton Development Corporation
- Barceló, J.A., Capuzzo, G. & Bogdanović, I. 2014. Modeling expansive phenomena in early complex societies: The transition from Bronze Iron Age in prehistoric Europe. *Journal of Archaeological Method and Theory* 21, 486–510
- Barclay, A., Glass, H. & Parry, C. 1995. Excavations of Neolithic and Bronze Age ring-ditches, Shorncliffe Quarry, Somerford Keynes, Gloucestershire. *Transactions of the Bristol & Gloucestershire Archaeological Society* 113, 21–60
- Barrett, J. 1976. Deverel-Rimbury: Problems of chronology and interpretation. In C. Burgess & R. Miket (eds), *Settlement and Economy in the Third and Second Millennia BC*, 289–307. Oxford: British Archaeological Report 33
- Barrett, J. & Bradley, R. (eds). 1980. *Settlement and Society in the British Later Bronze Age*. Oxford: British Archaeological Report 83
- Barrett, J., Bradley, R., Green, M. & Lewis, B. 1981. The earlier prehistoric settlement of Cranborne Chase – the first results of current fieldwork. *Antiquaries Journal* 61, 203–37
- Bateman, T. 1861. *Ten Years' Diggings in Celtic and Saxon Grave Hills, in the Counties of Derby, Stafford, and York, from 1848 to 1858: With notices of some former discoveries, hitherto unpublished, and remarks on the crania and pottery from the mounds*. London: JR Smith
- Bayliss, A. & O'Sullivan, M. 2013. Interpreting chronologies for the Mound of the Hostages, Tara, and its contemporary context in Neolithic and Bronze Age Ireland. In M. O'Sullivan, M. Doyle & C. Scarre (eds), *Tara – From the Past to the Future: Towards a new research agenda*, 26–104. Dublin: Wordwell
- Becker, K. 2014. Token explanations – Rathgall and the interpretation of cremation deposits in later prehistoric Ireland. *Archaeology Ireland* 28, 13–15
- Béranger, D., Bourgeois, J., Talon, M. & Wirth, S. (eds). 2012. *Gräberlandschaften der Bronzezeit/ Paysages funéraires de l'âge du Bronze: Internationales Kolloquium zur Bronzezeit/ Colloque International sur l'âge du Bronze*, Herne, 15.–18. Oktober 2008. *Bodenaltertümer Westfalens* 51. Darmstadt: Philip Von Zabern
- Birmingham, N., Hull, G. & Taylor, K. 2012. *Beneath the Banner: Archaeology of the M18 Ennis Bypass and N85 Western Relief Road, County Clare*. Dublin: National Roads Authority
- Bergerbrant, S. 2007. *Bronze Age Identities: Costume, conflict and contact in Northern Europe 1600–1300 BC*. Unpublished PhD thesis, University of Stockholm
- Bewley, R.H., Longworth, I.H., Beckett, S., Huntley, J.P., Varndell, G., Craddock, P. & Freestone, I. 1992. Excavation of a Bronze Age cemetery at Ewanrigg, Maryport, Cumbria. *Proceedings of the Prehistoric Society* 58, 325–54
- Boulud-Gazo, S., Melin, M. & Nordez, M. 2017. De la fin du Bronze moyen au début du Bronze final: un état des lieux dans le Nord-Ouest à la lumière des dépôts volontaires, des productions métalliques et des contextes funéraires. In Lachenal et al. 2017, 849–69
- Bourgeois, J. & Talon, M. (eds). 2005. *L'âge du Bronze du Nord de la France dans son contexte européen, actes du colloque de Lille, 10-1 avril 2000*. Association pour les recherches sur l'âge du Bronze. Lille: Éditions du Comité des Travaux historiques et scientifiques
- Bourgeois, J. & Talon, M. 2009. From Picardy to Flanders: Transmanche connections in the Bronze Age. In Clark 2009, 38–59

- Bourgeois, Q.P.J. 2013. *Monuments on the Horizon: The formation of the barrow landscape throughout the 3rd and the 2nd millennium BCE*. Leiden: Sidestone Press
- Bourgeois, Q.P.J. & Arnoldussen, S. 2006. Expressing monumentality: Some observations on the dating of Dutch Bronze Age barrows and houses. *Lunula Archaeologia Protohistorica* 4, 3–25
- Bourgeois, Q.P.J. & Fontijn, D.R. 2008. Houses and barrows in the Low Countries. In S. Arnoldussen & H. Fokkens (eds), *Bronze Age Settlements in the Low Countries*, 41–58. Oxford: Oxbow Books
- Boyer, P. 2007. *An Assessment of Archaeological Investigations at Western International Market, London Borough of Hounslow*. Pre-Construct Archaeology Ltd: Unpublished report
- Bradbury, J., Davies, D., Jay, M., Phillip, G., Roberts, C. & Scarre, C. 2016. Making the dead visible: Problems and solutions for ‘big’ picture approaches to the past, and dealing with large ‘mortuary’ datasets. *Journal of Archaeological Method and Theory* 23, 561–91
- Bradley, R. 1981. ‘Various styles of urn’: Cemeteries and settlement in southern England circa 1400–1000 BC. In R. Chapman, I. Kinnes & K. Randsborg (eds), *The Archaeology of Death: New directions in archaeology*, 93–104. Cambridge: Cambridge University Press
- Bradley, R. 2007. *The Prehistory of Britain and Ireland*. Cambridge: Cambridge University Press
- Bradley, R. & Gordon, K. 1988. Human skulls from the River Thames, their dating and significance. *Antiquity* 62, 503–09
- Bradley, R. & Fraser, E. 2010. Bronze Age barrows on the heathlands of southern England: Construction, forms and interpretations. *Oxford Journal of Archaeology* 29(1), 15–33
- Bradley, R., Haselgrove, C., Vander Linden, M. & Webley, L. 2015. *The Later Prehistory of North-West Europe: The evidence of development-led fieldwork*. Oxford: Oxford University Press
- Bradley, T. 2003. *Western International Market: Report on archaeological evaluation and proposed mitigation strategy*. Pre-Construct Archaeology Ltd./Gifford Ltd: Unpublished report No. B2274/LOBAC/RO6
- Briard, J. 1984. *Les Tumulus d’Armorique*. Paris: Picard
- Brindley, A.L. 2007. *The Dating of Food Vessels and Urns in Ireland*. Galway: National University of Ireland, Department of Archaeology
- Bristow, P.H.W. 1998. *Attitudes to Disposal of the Dead in Southern Britain 3500 BC–AD 43*. Oxford: British Archaeological Report 274
- Bristow, P.H.W. 2001. Behaviour and belief in mortuary ritual: Attitudes to the disposal of the dead in southern Britain 3500 BC–AD 43. *Internet Archaeology* 11: <https://doi.org/10.11141/ia.11.1>
- Brück, J. 1995. A place for the dead: The role of human remains in Late Bronze Age Britain. *Proceedings of the Prehistoric Society* 65, 245–77
- Brück, J. 2014. Cremation, gender, and concepts of the self in the British Early Bronze Age. In Kuijt *et al.* 2014, 119–42
- Buck, C.E., Cavanagh, W.G. & Litton, C.D. 1996. *Bayesian Approach to Interpreting Archaeological Data*. Chichester: Wiley
- Burgess, C. 1980. *The Age of Stonehenge*. London: Dent
- Burgess, C., Topping, P. & Lynch, F. (eds). 2007. *Beyond Stonehenge: Essays on the Bronze Age in honour of Colin Burgess*. Oxford: Oxbow Books
- Burrow, S. & Williams, S. 2008. *The Wales and Borders Radiocarbon Database*. Cardiff: Amgueddfa Cymru/ National Museum Wales. Available at: www.museumwales.ac.uk/en/radiocarbon [Accessed: 23 August 2016]
- Calkin, J.B. 1962. The Bournemouth area in the Middle and Late Bronze Age, with the ‘Deverel-Rimbury’ problem reconsidered. *Archaeological Journal* 119, 1–91
- Canmore 2014. *The Scottish Radiocarbon Database*. Available at: <https://canmore.org.uk/project/919374> [Accessed: 29 October 2015]
- Capuzzo, G. & Barceló, J.A. 2015. Cultural changes in the second millennium BC: A Bayesian examination of radiocarbon evidence from Switzerland and Catalonia. *World Archaeology* 47(4), 622–41
- Caswell, E.J. 2018. *Finding a Place to Call Home: Understanding the changing roles of Bronze Age settlements in communities in Britain through the analysis of their environs c. 2200–800 BC*. Unpublished PhD thesis, Durham University
- CBA [Council for British Archaeology]. 2012. *Archaeological Site Index to Radiocarbon Dates from Great Britain and Ireland*. Available at: http://archaeologydataservice.ac.uk/archives/view/c14_cba/ [Accessed: 23 August 2015]
- Cerezo-Román, J.L., Wessman, A. & Williams, H. (eds). 2017. *Cremation and the Archaeology of Death*. Oxford: Oxford University Press
- Childe, V.G. 1947. *Prehistoric Communities of the British Isles*. London/Edinburgh: W. & R. Chambers
- Clark, P. (ed.) 2009. *Bronze Age Connections: Cultural contact in prehistoric Europe*. Oxford: Oxbow Books
- Clarke, C.P. & Lavender, N.J. 2008. *An Early Neolithic Ring-Ditch and Middle Bronze Age Cemetery: Excavation and survey at Brightlingsea, Essex*. Chelmsford: Historic Environment, Essex County Council
- Clay, R.C.C. 1927. A Late Bronze Age urn-field at Pokesdown, Hants. *Antiquaries Journal* 7, 465–84
- Coles, S. 2004. Three Bronze Age barrows at Mockbeggar Lane, Ibsley, Hampshire. *Proceedings of the Hampshire Field Club & Archaeological Society* 59, 31–64
- Cormack, K. 2018. *What Happened to the Unburnt Dead in Middle Bronze Age Britain?* Unpublished BA dissertation, Durham University
- Cooke, N., Brown, F., Phillpotts, C., Allen, L. & Nichols, K. 2008. *From Hunter Gatherers to Huntsmen: A history of the Stansted landscape*. Oxford: Framework Archaeology
- Cooney, G. 2017. Pathways for the dead in the Middle and Late Bronze Age in Ireland. In Cerezo-Román *et al.* 2017, 117–29
- Cooper, A. 2016. Held in place? Round barrows in the later Bronze Age of lowland Britain. *Proceedings of the Prehistoric Society* 82, 291–322

- Cooper, A. & Edmonds, M.R. 2007. *Past and present: Excavations at Broom, Bedfordshire 1996–2005*. Cambridge: Cambridge Archaeological Unit
- Crellin, R., Fowler, C. & Tipping, R. (eds). 2016. *Prehistory without Borders: Prehistoric archaeology of the Tyne-Forth region*. Oxford: Oxbow Books
- Cunliffe, B. 2013. *Britain Begins*. Oxford: Oxford University Press
- Dacre, M. & Ellison, A. 1981. A Bronze Age urn cemetery at Kimpton, Hampshire. *Proceedings of the Prehistoric Society* 58, 147–203
- Darvill, T. 1996. *Prehistoric Britain*. London: Routledge
- Darvill, T. 2010. *Prehistoric Britain* (2nd edn). London: Routledge
- Davies, A. 2012. *Beyond the Horizon: Ornaments in the British Late Bronze Age and Early Iron Age*. Unpublished MA thesis, Cardiff University
- Davies, A. 2016. *Social Organisation in the Upper and Middle Thames Valley from the Late Bronze Age to the Middle Iron Age*. Unpublished PhD thesis, Cardiff University
- Delattre, V. & Peake, R. 2012. The role of the individual in the Bronze Age funerary sphere: An archaeo-anthropological reading of data from the Seine valley (Seine-et-Marne, France). In Béranger *et al.* 2012, 295–316
- Delattre, V., Peake, R. & Pradat, B. (eds). 2015. *La Nécropole de La Croix de la Mission à Marolles-sur-Seine (Seine-et-Marne) et l'étape initiale du Bronze final à l'interfluve Seine-Yonne*. Mémoire de la Société Préhistorique Française 60. Paris: Société Préhistorique Française
- De Mulder, G., Creemers, G. & Van Strydonck, M. 2014. Challenging the traditional chronological framework of funerary rituals in the Meuse-Demer-Scheldt region: ¹⁴C results from the site of Lummen-Meldert (Belgium). *Radiocarbon* 56(2), 461–8
- De Reu, J., De Mulder, G., Van Strydonck, M., Boudin, M. & Bourgeois, J. 2012. ¹⁴C dates and spatial statistics: Modeling intrasite spatial dynamics of urnfield cemeteries in Belgium using case study of Destelbergen cemetery. *Radiocarbon* 54(3–4), 635–48
- Desfossés, Y. & Bernard, V. 2000. *Archéologie préventive en Vallée de Canche: Les sites protohistoriques fouillés dans le cadre de la réalisation de l'autoroute A. 16*. Nord-Ouest Archéologie 11. Berck-sur-mer: CRADC
- Depierre, G. 2014. *Crémation et archéologie: Nouvelles alternatives méthodologiques en ostéologie humaine*. Dijon: Éditions Universitaires de Dijon, Collection Art, Archéologie et Patrimoine
- Doody, M. 2008. *Final Report Templenoe Co. Tipperary N8 Cashel to Mitchelstown Road Improvement Scheme Ministerial Direction Scheme Reference No: A035/000 Registration No: E2290*. Margaret Gowen & Co. Ltd: Unpublished report
- Drewett, P. 1982. Late Bronze Age downland economy and excavations at Black Patch, East Sussex. *Proceedings of the Prehistoric Society* 48, 321–400
- Dunning, G.C. 1931. A Late Bronze Age urnfield at Barnes, Isle of Wight, and notes on the Late Bronze Age in the Isle of Wight. *Proceedings of the Isle of Wight Natural History and Archaeological Society* 2, 108–17
- Ehrenberg, M. 1983. *Connections between Britain and Ireland in the Middle and Late Bronze Age as evidenced by metalwork*. Unpublished PhD thesis, Cardiff University
- Ellison, A. 1975. *Pottery and Settlements of the Later Bronze Age in Southern England*. Unpublished PhD thesis, University of Cambridge
- Ellison, A. 1980. Deverel-Rimbury urn cemeteries: The evidence for social organisation. In Barrett & Bradley 1980, 115–26
- Entwistle, R. 2001. A Bronze Age round barrow and Deverel Rimbury cremation cemetery at Zionshill Copse, Chandler's Ford, Hampshire. *Proceedings of the Hampshire Field Club & Archaeological Society* 56, 1–20
- Erith, F.H. & Longworth, I.H. 1960. A Bronze Age urnfield on Vincas Farm Ardleigh, Essex. *Proceedings of the Prehistoric Society* 26, 178–92
- Evans, C. 2016. *Twice-crossed River: Prehistoric and palaeoenvironmental investigations at Barleycroft Farm/Over, Cambridgeshire*. Cambridge: McDonald Institute for Archaeological Research
- Evans, C. & Appleby, G. (eds). 2013. *Process and History: Prehistoric communities at Colne Fen, Earith: Bronze Age Field systems, Ring-ditch Cemeteries and Iron Age Settlement*. Cambridge: Cambridge Archaeological Unit
- Evans, C. & Knight, M. 1998. *The Butcher's Rise Ring-ditches: Excavations at Barleycroft Farm, Cambridgeshire*. Cambridge Archaeological Unit: Unpublished report
- Evans, C. & Patten, R. 2011. An inland Bronze Age: Excavations at Striplands Farm, West Longstanton. *Proceedings of the Cambridge Antiquarian Society* 100, 7–45
- Evans, H. 2008. *Neolithic and Bronze Age Landscapes of Cumbria*. Oxford: British Archaeological Report 463
- Everett, L. & Boulter, S. 2010. *Archaeological Assessment Report – An Assessment on the Aldham Mill Hill, Hadleigh Excavations* (HAD 059). Suffolk County Council Archaeological Service: Unpublished report
- Feveile, C. & Bennike, P. 2002. Lustrupholm: Et brandgravfelt fra ældre bronzealder under flad mark. *Kuml* 2002, 109–41
- Fily, M., Villard-Le Tiec, A., Ménez, Y. & Lorho, T. 2012. Paysages funéraires de l'âge du Bronze dans le centre-ouest de la Bretagne: Approches multiscallaires. In Béranger *et al.* 2012, 59–76
- Finn, N. 2011. *Bronze Age Ceremonial Enclosures and Cremation Cemetery at Eye Kettleby, Leicestershire: The development of a prehistoric landscape*. Leicester: Leicester Archaeological Monograph 20
- Fokkens, H. & Harding, A. (eds). 2013. *Oxford Handbook of Bronze Age Europe*. Oxford: Oxford University Press
- Fowler, C. 2013. *The Emergent Past: A relational realist archaeology of Early Bronze Age mortuary practices*. Oxford: Oxford University Press
- Fowler, C. & Wilkin, N. 2016. Early Bronze Age mortuary practices in north-east England and south-east Scotland: Using relational typologies to trace social networks. In Crellin *et al.* 2016, 112–35
- Framework Archaeology 2010. *Landscape Evolution in the Middle Thames Valley: Heathrow Terminal 5 excavations*. Vol. 2. Framework Archaeology Monograph. Salisbury: Wessex Archaeology

- Fraser, E.A. 2013. *The Regionality of Bronze Age Burial Traditions around the Irish Sea*. Unpublished PhD Thesis, University of Reading
- Garrow, D., Meadows, J., Evans, C. & Tabor, J. 2014. Dating the dead: A high-resolution radiocarbon chronology of burial within an Early Bronze Age barrow cemetery at Over, Cambridgeshire. *Proceedings of the Prehistoric Society* 80, 1–30
- Garwood, P. 2007. Before the hills in order stood: Chronology, time and history in the interpretation of Early Bronze Age round barrows. In J. Last (ed.), *Beyond the Grave: New perspectives on barrows*, 30–52. Oxford: Oxbow Books
- Germany, M. 2007. *Neolithic and Bronze Age Monuments and Middle Iron Age Settlement at Lodge Farm, St Osyth, Essex: Excavations 2000–3*. Essex: Essex County Council
- Germany, M. 2010. *Land Opposite Alwynds, Braintree Road, Church End, Shalford, Essex. Archaeological Trial Trenching and Excavation*. Essex County Council Field Archaeology Unit: Unpublished report
- Gerritsen, F. 2007. Familiar landscapes with unfamiliar pasts? Bronze Age barrows and Iron Age communities in the southern Netherlands. In C. Haselgrove & R. Pope (eds), *The Earlier Iron Age in Britain and the Near Continent*, 338–53. Oxford: Oxbow Books
- Gibson, C. 2004. *Lines in the Sand: Middle to Late Bronze Age settlement at Game Farm, Brandon*. Hertford: Archaeological Solutions
- Gilmour, N., Dodwell, N. & Popescu, E. 2010. A Middle Bronze Age cremation cemetery on the western claylands at Papworth Everard. *Proceedings of the Cambridge Antiquarian Society* 99, 7–24
- Gilmour, N. & Loe, L. 2015. A Mesolithic cremation-related deposit from Langford, Essex, England: A first for the British Mesolithic. *Mesolithic Miscellany* 23(2), 55–7
- Gray Jones, A. 2017. Cremation and the use of fire in Mesolithic mortuary practices in North-West Europe. In Cerezo-Román *et al.* 2017, 27–51
- Green, C., Gosden, C., Cooper, A., Franconi, T., ten Harkel, L., Kamash, Z. & Lowerre, A. 2017. Understanding the spatial patterning of English archaeology: Modelling mass data, 1500 BC to AD 1086. *Archaeological Journal* 174, 244–80
- Grinsell, L.V. 1957. Archaeological Gazetteer. In R.B. Pugh & E. Crittall (eds), *A History of Wiltshire (The Victoria History of the Counties of England) Part 1*, 21–79. Oxford: Oxford University Press
- Grinsell, L.V. 1959. *Dorset Barrows*. Dorchester: Dorset Natural History & Archaeological Society
- Grinsell, L.V. 1971. Somerset barrows, Part II: North and East. *Proceedings of the Somerset Archaeology & Natural History Society Supplement* 115, 44–137
- Grinsell, L.V. 1987. Surrey barrows 1934–1986: A reappraisal. *Surrey Archaeological Collections* 78, 1–41
- Grinsell, L.V. 1992. The Bronze Age round barrows of Kent. *Proceedings of the Prehistoric Society* 58, 355–78
- Grogan, E. 2004. Middle Bronze Age burial traditions in Ireland. In H. Roche, E. Grogan, J. Bradley, J. Coles & B. Raftery (eds), *From Megaliths to Metals*, 61–71. Oxford: Oxbow Books
- Hamlin, A. & Case, H. 1963. Excavations of ring ditches and other sites at Stanton Harcourt. *Oxoniensia* 28, 1–52
- Hammond, J. 2010. *In Search of 'The People of La Manche': A comparative study of funerary practices in the Transmanche region during the late Neolithic and Early Bronze Age (2500 BC–1500 BC)*. Unpublished PhD thesis, University of Kent
- Harvig, L. & Lynnerup, N. 2013. On the volume of cremated remains – a comparative study of archaeologically recovered cremated bone volume as measured manually and assessed by Computed Tomography and by Stereology. *Journal of Archaeological Science* 40(6), 2713–22
- Holck, P. 1997. Why are small children so seldom found in cremations? In E. Smits, E. Iregren & A. Drusini (eds), *Cremation Studies in Archaeology: Proceedings of the Symposium. Amsterdam, 26–27 October 1995*, 33–8. Padova: Logos
- Holden, E.W. 1972. A Bronze Age cemetery-barrow on Itford Hill, Beddingham. *Sussex Archaeological Collections* 110, 70–117
- Holst, M.K. & Rasmussen, M. (eds). 2013. *Skelhøj and the Bronze Age Barrows of Southern Scandinavia: The Bronze Age barrow tradition and the excavation of Skelhøj*. Højbjerg: Jutland Archaeological Society
- Hounsell, D. 2007. *Papworth Everard Bypass Project*. Cambridgeshire County Council Archaeological Field Unit: CAM ARC Unpublished report 971
- Hughes, G., Leach, P. & Stanford, S.C. 1995. Excavations at Bromfield, Shropshire 1981–91. *Transactions of the Shropshire Archaeological & Historical Society* 70, 23–94
- Hunter, J. & Woodward, A. 2015. *Ritual in Early Bronze Age Grave Goods*. Oxford: Oxbow Books
- Jäger, J.H. & Johansen, V.L. 2013. The cremation of infants/small children: An archaeological experiment concerning the effects of fire on bone weight. *Cadernos do GEEvH* 2(2), 13–26
- Jobey, G. 1980. Green Knowe unenclosed platform settlement and Harehope cairn, Peeblesshire. *Proceedings of the Society of Antiquaries of Scotland* 110, 72–113
- Johnson, M. & Cameron, K. 2012. *An Early Bronze Age Unenclosed Cremation Cemetery and Mesolithic Pit at Skilmafilly, near Maud, Aberdeenshire*. Scottish Archaeology Internet Report 53
- Jones, A.M. 2016. *Preserved in the Peat: An extraordinary Bronze Age burial on Whitehorse Hill, Dartmoor, and its wider context*. Oxford: Oxbow Books
- Kendrick, T.D. & Hawkes, C.F.C. 1932. *Archaeology in England and Wales, 1914–1931*. London: Methuen & Co
- King, A. 1989. A Bronze Age cremation cemetery at Oliver's Battery, near Winchester, and some related finds. *Proceedings of the Hampshire Field Club & Archaeological Society* 45, 13–23
- Kiely, M. & O'Mahony, E. 2011. *Archaeological Excavation Report, Derrybane 2, Co. Tipperary. Bronze Age domestic and funerary activity. N7 Castletown to Nenagh (Contract 1), E3591*. Eachtra Archaeological Projects: Unpublished report
- Kleijne, J.P. 2010. *Approaching High-Flux Interaction: Pottery, identity and overseas contacts in the later Early*

- and Middle Bronze Age (2000–1000 cal BC) of North West Europe. Unpublished MA dissertation, Leiden University
- Knight, M. 1999. *Prehistoric Excavations at King's Dyke West, Whittlesey, Cambridgeshire: A terminal Bronze Age settlement near Moreton's Leam*. Cambridge Archaeological Unit: Unpublished report
- Kuijt, I., Quinn, C.P. & Cooney, G. (eds), 2014. *Transformation by Fire: The archaeology of cremation in cultural context*. Tucson, AZ: University of Arizona Press
- Lachenal, T., Mordant, C., Nicolas, T. & Véber, C. (eds). 2017. *Le Bronze moyen et l'origine du Bronze final en Europe occidentale, de la Méditerranée aux pays nordiques (xviii–xiii siècle avant notre ère)*, Colloque APRAB 'Bronze 2014', Strasbourg 17 au 20 juin 2014. Strasbourg: Mémoires d'Archéologie du Grand-Est 1
- Le Goff, I. & Guichard, Y. 2005. Le dépôt cinéraire comme indicateur chronologique: le cas des nécropoles de l'âge du Bronze de la vallée de l'Aisne. In Bourgeois & Talon 2005, 209–26
- Le Goff, I. & Billand, G. 2012. De la détection des structures fugaces à la reconnaissance d'un système funéraire: les fosses à résidus de combustion de l'âge du Bronze. *Archéopages*, hors série, 138–46
- Lewis, M.E. 2007. *The Bioarchaeology of Children: Perspectives from biological and forensic anthropology*. Cambridge Studies in Biological and Evolutionary Anthropology 50. Cambridge: Cambridge University Press
- Lehoërff, A. (ed.) 2012. *Beyond The Horizon Societies of the Channel and North Sea 3,500 Years Ago: Catalogue of the exhibition of the European Interreg IVa 2 Mers Seas Zeeën project 'Boat 1550 BC'*. Paris: Somogy Art
- Lehoërff, A. & Talon, M. (eds.). 2017. *Movement, Exchange and Identity in Europe in the 2nd and 1st Millennia BC: Beyond frontiers*. Oxford: Oxbow Books
- Longworth, I.H. 1961. The origins and development of the primary series in the Collared Urn tradition in England and Wales. *Proceedings of the Prehistoric Society* 27, 263–306
- Longworth, I.H. 1984. *Collared urns of the Bronze Age in Great Britain and Ireland*. Gulbenkian Archaeological Series. Cambridge: Cambridge University Press
- Lubbock, J. 1865. *Pre-historic times*. Cambridge: Chadwyck-Healey
- Luke, M. 2008. *Life in the Loop: Investigation of a prehistoric and Romano-British landscape at Biddenham Loop, Bedfordshire*. Bedford: Albion Archaeology
- Lynch, L. & O'Donnell, L. 2007. Cremation in the Bronze Age: Practice, process and belief. In E. Grogan, L. O'Donnell & P. Johnston (eds), *The Bronze Age Landscapes of the Gas Pipeline to the West: An integrated archaeological and environmental assessment*, 105–24. Dublin: Wordwell
- Maull, A. 2001. *Excavation of the Deserted Medieval Village of Coton at Coton Park, Rugby* 1998. Northamptonshire Archaeology: Unpublished report
- MacGregor, G. 2008. The uses of bronzes and beads: Excavations at Eweford west and Pencraig wood (2000–1120 BC). In O. Lelong & G. MacGregor (eds), *The Lands of Ancient Lothian: Interpreting the archaeology of the A1*, 99–118. Edinburgh: Society of Antiquaries of Scotland
- Marcigny, C., Ghesquière, E. & Kinnes, I. 2007. Bronze Age cross-channel relations. The Lower-Normandy (France) example: Ceramic chronology and first reflections. In Burgess *et al.* 2007, 255–67
- Marcigny, C., Bourgeois, J. & Talon, M. 2015. Cultural geographies, socio-economic complexes and territories along the Channel/Manche – Southern North Sea Littoral (Belgium, England, France). In P. Suchowska-Ducke, S.S. Reiter & H. Vandkilde (eds), *Forging Identities: The mobility of culture in Bronze Age, International conference (Aarhus 2012)*, 221–29. Oxford: British Archaeological Report S2772
- Marshall, A. 2011. *Experimental Archaeology: 1. Early Bronze Age Cremation Pyres 2. Iron Age Grain Storage*. Oxford: British Archaeological Report 530
- McKinley, J.I. 1997. Bronze Age 'barrows' and funerary rites and rituals of cremation. *Proceedings of the Prehistoric Society* 63, 129–45
- McKinley, J.I. 2000. The analysis of cremated bone. In M. Cox & S. Mays (eds), *Human Osteology: Archaeology and Forensic Science*, 403–21. London: Greenwich Medical Mediaon
- McKinley, J.I. 2004. Compiling a skeletal inventory: Cremated human bone. In M. Brickley & J.I. McKinley (eds), *Guidelines to the Standards for Recording Human Remains*, 9–13. IFA Paper. Southampton/Reading: BABAO, Dept of Archaeology, University of Southampton/ Institute of Field Archaeologists
- Melton, N.D., Knusel, C. & Montgomery, J. (eds). 2013. *Gristhorpe Man: A life and death in the Bronze Age*. Oxford: Oxbow Books
- Melton, N.D., Montgomery, J., Roberts, B.W., Cook, G. & Harris, S. 2016. On the curious date of the Rylstone log-coffin burial. *Proceedings of the Prehistoric Society* 82, 383–92
- Miles, W.A. 1826. *The Deverel Barrow*
- Millett, M. & Schadla-Hall, T. 1992. Rescue excavations on a Bronze Age and Romano-British site at Daneshill, Basingstoke, 1980–81. *Proceedings of the Hampshire Field Club & Archaeological Society* 47, 83–105
- Mullin, D. 2003. *The Bronze Age Landscape of the Northern English Midlands*. Oxford: British Archaeological Report 351
- McQuade, M., Molloy, B. & Moriarty, C. (eds). 2009. *In the Shadows of the Galtees: Archaeological excavations along the N8 Cashel to Mitchelstown Road Scheme*. National Roads Authority Monograph 4. Dublin: National Roads Authority
- Needham, S. 1996. Chronology and periodisation in the British Bronze Age. *Acta Archaeologica* 67, 121–40
- Needham, S.P. 2000. Power pulses across a cultural divide: Armorica & Wessex. *Proceedings of the Prehistoric Society* 66, 151–94
- Needham, S.P. 2005. Transforming beaker culture in North-west Europe: Processes of fusion and fission. *Proceedings of the Prehistoric Society* 71, 171–217

- Needham, S.P. 2009. Encompassing the sea: 'Maritories' and Bronze Age maritime interactions. In Clark 2009, 12–37
- Needham, S. 2011. Material and spiritual engagements: Britain and Ireland in the first age of metal. Rhind Lectures. Available at: <https://vimeo.com/97775956> [Accessed: 24 August 2016]
- Needham, S., Ramsey, C.B., Coombs, D., Cartwright, C. & Pettitt, P. 1997. An independent chronology for British Bronze Age metalwork: The results of the Oxford Radiocarbon Accelerator Programme. *Archaeological Journal* 154, 55–107
- Needham, S., Parham, D. & Frieman, C.J. 2013. *Claimed by the Sea: Salcombe, Langdon Bay, and other marine finds of the Bronze Age*. York: Council for British Archaeology Research Report 173
- Nevell, M. 2015. *T25 Part 3: The Ashton Moss Head*. Available at: <https://archaeologyuos.wordpress.com/2015/08/22/t25-part-3-the-ashton-moss-head/> [Accessed: 24 August 2016]
- Nicolas, C. 2017. Arrows of power from Brittany to Denmark (2500–1700 BC). *Proceedings of the Prehistoric Society* 83, 247–87
- Noble, G. & Brophy, K. 2017. Cremation practices and the creation of monument complexes: The Neolithic cremation cemetery at Forteviot, Strathearn, Perth & Kinross, Scotland, and its comparanda. *Proceedings of the Prehistoric Society* 83, 213–45
- Nowakowski, J.A. 2004. *Archaeology Beneath the Towans, Excavations at Gwithian, Cornwall, 1949–1969, Cornwall*. Updated Project Design for Assessment, Analysis and Publication. HES Report to English Heritage
- O'Connor, B. 1980. *Cross Channel Relations in the Later Bronze Age*. Oxford: British Archaeological Report 91
- O'Connor, B., Roberts, B.W. & Wilkin, N. 2017. The ornament horizon revisited: New and old finds of Middle Bronze Age ornaments in southern England. In Lachenal *et al.* 2017, 267–79
- O'Neil, H. & Grinsell, L.V. 1960. Gloucestershire barrows. *Transactions of the Bristol & Gloucestershire Archaeological Society* 79, 5–149
- O'Neil, H.E. 1967. Bevan's Quarry round barrow, Temple Guiting, Gloucestershire, 1964. *Transactions of the Bristol & Gloucestershire Archaeological Society* 86, 16–41
- Olalde, I. *et al.* 2018. The Beaker phenomenon and the genomic transformation of northwest Europe. *Nature* 555, 190–6
- Osgood, R. 2006. The dead of Tormarton: Bronze Age combat victims? In T. Otto, H. Thrane & H. Vandkilde (eds), *Warfare and Society: Archaeological and social anthropological perspectives*, 331–40. Aarhus: Aarhus University Press
- Parker Pearson, M., Chamberlain, A., Jay, M., Marshall, P., Pollard, J., Richards, C., Richards, J., Tilley, C. & Welham, K. 2009. Who was buried at Stonehenge? *Antiquity* 83, 23–9
- Parker Pearson, M., Chamberlain, A., Jay, M., Richards, M., Sheridan, A., Curtis, N., Evans, J., Gibson, A., Hutchison, M., Mahoney, P., Marshall, P., Montgomery, J., Needham, S., O'Mahoney, S., Pellegrini, M. & Wilkin, N. 2016. Beaker people in Britain: Migration, mobility and diet. *Antiquity* 90, 620–37
- Patten, R. 2004. *Bronze Age & Romano-British Activity at Eye Quarry, Peterborough*. Cambridge Archaeological Unit: Unpublished report
- Patten, R. 2009. *Excavations at Eye Quarry: The Southern Extension. Phases 1, 2 and 3*. Cambridge Archaeological Unit: Unpublished report
- Pennington, R. 1875. Notes on some tumuli and stone circles near Castleton, Derbyshire. *Journal of the Royal Anthropological Institute* 4, 377
- Péterváry, T. 2009. *Final report for Rathglass: Co. Galway. N6 Galway to East Ballinasloe PPP Scheme Archaeological Contract 3. Ministerial Directions No: A024. Excavation Registration No: E2069*. Cultural Resource Development Services Ltd: Unpublished report
- Piggott, C.M. 1938. A Middle Bronze Age barrow and Deverel-Rimbury urnfield, at Latch Farm, Christchurch, Hampshire. *Proceedings of the Prehistoric Society* 4, 169–87
- Platell, A., Vyner, B., Caffell, A., Elliot, L., Mole, J. & Jones, J. 2013. A Bronze Age cremation cemetery at Dallam School, Milnthorpe, Cumbria. *Transactions of the Cumberland & Westmorland Antiquarian Archaeological Society* 13, 33–55
- Powell, A.B., Barclay, A., Mephram, L. & Stevens, C.J. 2015. *Imperial College Sports Grounds and RMC Land, Harlington: The development of prehistoric and later communities in the Colne Valley and on the Heathrow Terraces*. Salisbury: Wessex Archaeology
- Preston, J.P. & Hawkes, C. 1933. Three late Bronze Age barrows on the Cloven Way. *Antiquaries Journal* 13, 414–54
- Rebay-Salisbury, K. 2010. Cremations: Fragmented bodies in the Bronze and Iron Ages. In K. Rebay-Salisbury, M.L. S. Sørensen & J. Hughes (eds), *Body Parts and Bodies Whole: Changing relations and meanings*, 64–71. Oxford: Oxbow Books
- Reimer, P.J., Bard, E., Bayliss, A., Beck, J.W., Blackwell, P.G., Bronk Ramsey, C., Buck, C.E., Cheng, H., Edwards, R.L., Friedrich, M., Grootes, P.M., Guilderson, T.P., Hafflidason, H., Hajdas, I., Hatté, C., Heaton, T.J., Hoffmann, D.L., Hogg, A.G., Hughen, K.A., Kaiser, K.F., Kromer, B., Manning, S.W., Niu, M., Reimer, R.W., Richards, D.A., Scott, E.M., Southon, J.R., Staff, R.A., Turney, C.S.M. & van der Plicht, J. 2013. Intcal 13 and marine13 radiocarbon age calibration curves 0–50,000 years cal BP. *Radiocarbon* 55, 1869–87
- Riley, D.N. 1946. A Late Bronze Age and Iron Age site at Standlake Downs. *Oxoniensia* 11–12, 26–43
- Ripoche, J. 2016. Entre Néolithique et âge du Bronze: Ruptures et continuités à la fin du III^e millénaire en Europe atlantique. *Bulletin de l'association pour la promotion des recherches sur l'âge du Bronze* 14, 39–43
- Ritchie, J.N.G. & Thornber, I. 1977. Small cairns in Argyll: Some recent work. *Proceedings of the Society of Antiquaries of Scotland* 106, 15–38

- Roberts, B. 2007. Adorning the living but not the dead: Understanding ornaments in Britain c. 1400–1100 cal BC. *Proceedings of the Prehistoric Society* 73, 135–67
- Roberts, B.W. 2013. Farmers in the landscape or heroes on the high seas: Britain and Ireland in the Bronze Age. In Fokkens & Harding 2013, 531–49
- Roberts, B., Uckelmann, M. & Brandherm, D. 2013. Old father time: The Bronze Age chronology of Western Europe. In Fokkens & Harding 2013, 17–46
- Robinson, I. 2007. *Middle Bronze Age Cremation Practice in East Anglia: Continuity and change in cemetery form and development*. Unpublished MA thesis, Cambridge University
- Roth, N. 2012. *Regional Patterns and the Cultural Implications of Late Bronze Age and Iron Age Burial Practices in Britain*. Unpublished PhD thesis, University of Sheffield
- Rottier, S. 2010. Éléments de la “peau sociale” au début du Bronze final (XIVe–XIIIe s. av. J.-C.) dans le sud-est du Bassin parisien. *Bulletin de la Société préhistorique française* 107(1), 121–35
- Schulting, R.J. & Bradley, R. 2013. Of human remains and weapons in the neighbourhood of London: New AMS ¹⁴C dates on Thames ‘river skulls’ and their European context. *Archaeological Journal* 170, 30–77
- Sheridan, J.A. 2003. New dates for Scottish Bronze Age cinerary urns: Results from the National Museums of Scotland Dating Cremated Bones Project. In A.M. Gibson (ed.), *Prehistoric Pottery: People, pattern and purpose*, 201–26. Oxford: British Archaeological Report S1509
- Sheridan, J.A. 2007. Dating the Scottish Bronze Age: ‘There is clearly much that the material can still tell us. In Burgess *et al.* 2007, 162–85
- Shipman, P., Foster, G. & Schoeninger, M. 1984. Burnt bones and teeth: An experimental study of color, morphological structure and shrinkage. *Journal of Archaeological Science* 11(4), 307–25
- Smith, I.F. 1961. An essay towards the reformation of the British Bronze Age. *Helinium* 1, 94–118
- Smith, M.A. 1959. Some Somerset hoards and their place in the Bronze Age of Southern Britain. *Proceedings of the Prehistoric Society* 25, 144–87
- Snoeck, C., Brock, F. & Schulting, R.J. 2014. Carbon exchanges between bone apatite and fuels during cremation: Impact on radiocarbon dates. *Radiocarbon* 56(2), 591–602
- Snoeck, C., Lee-Thorp, J., Schulting, R., de Jong, J., Debouge, W. & Mattielli, N. 2015. Calcined bone provides a reliable substrate for Sr-isotope ratios as shown by an enrichment experiment. *Rapid Communications in Mass Spectrometry* 29(1), 107–14
- Soupart, N. 2009. *L’Etoile et Mouflers (Somme), ZAC des Hauts Plateaux, tranche 1: Rapport de diagnostic*. Amiens: INRAP NP
- Sørensen, M.L.S. & Rebay, K. 2008. The impact of 19th century ideas on the construction of ‘Urnfield’ as chronological and cultural concept: Tales from Northern and Central Europe. In A. Lehoërf (ed.), *Construire le temps. Histoire et méthodes des chronologies et calendriers des derniers millénaires avant notre ère en Europe occidentale*. Actes du XXXe colloque international de Halma-Ipel, UMR 8164 (CNRS, Lille 3, MCC), 7–9 Décembre 2006, Lille, 57–67. Glux-en-Glenne: Bibracte 16
- Speak, S. & Burgess, C. 1999. Meldon Bridge: A centre of the third millennium BC in Peeblesshire. *Proceedings of the Society of Antiquaries of Scotland* 129, 1–118
- Spillane, B. 2017. *A reassessment of Irish Middle and Late Bronze Age cremations: 1600–600 BC*. Unpublished MA thesis, Durham University
- Stanford, S.C., Bayley, J., Colledge, S.M. & Holgate, R. 1982. Bromfield, Shropshire – Neolithic, Beaker and Bronze Age sites, 1966–79. *Proceedings of the Prehistoric Society* 48, 279–320
- Stanley, O. 1867. Ancient interments and sepulchral urns found in Anglesey and North Wales, with notes on examples in some other localities. *Archaeological Journal* 24, 13–34
- Thompson, T.J.U. (ed.) 2015. *The Archaeology of Cremation: Burned human remains in funerary studies, Studies in funerary archaeology*. Oxford: Oxbow Books
- Thomson, A. 2011. *What Happened to the Dead in Late Bronze Age Scotland*. Unpublished BA dissertation, Durham University
- Troy, C. 2015. Contextualising cremations: Evidence from prehistoric burials. In T. Bolger, C. Moloney & D. Shiels (eds), *A Journey Along the Carlow Corridor: The archaeology of the M9 Carlow Bypass*, 131–44. Dublin: National Roads Authority
- Tomalin, D.J. 1988. Armorican Vases à Anses and their occurrence in Southern Britain. *Proceedings of the Prehistoric Society* 54, 203–21
- Vander Linden, M. 2006. *Le phénomène campaniforme dans l’Europe du 3ème millénaire avant notre ère: Synthèse et nouvelles perspectives*. Oxford: Archaeopress
- Waddell, J. 2010. *The Prehistoric Archaeology of Ireland*. Dublin: Wordwell
- Walker, C. 2009. *Archaeological Trial Trench Evaluation on Land at Dishley Grange, Loughborough, Leicestershire*. Northamptonshire Archaeology: Unpublished report
- Walsh, S. 2013. *Identity as process: An archaeological and osteological study of Early Bronze Age burials in northern England*. Unpublished PhD thesis, University of Central Lancashire
- Wang, Q., Strekopytov, S., Roberts, B.W. & Wilkin, N. 2016. Tin ingots from a probable Bronze Age shipwreck off the coast of Salcombe, Devon: Composition and microstructure. *Journal of Archaeological Science* 67, 80–92
- Warden, K., Caswell, E.J. & Roberts, B. 2016. Funerary fragments between the rivers: Analysing the evidence for the dead in the Tyne–Forth region during the Late Bronze Age (c. 1150–800 BC). In Crellin *et al.* 2016, 156–67
- Warne, C. 1866. *The Celtic Tumuli of Dorset: An account of personal and other researches in the sepulchral mounds of the Durotriges*. London: John Russell Smith

- Webley, L.J. 2015. Rethinking Iron Age connections across the Channel and North Sea. In Anderson-Whymark *et al.* 2015, 122–44
- Webley, L.J., Vander Linden, M., Haselgrove, C. & Bradley, R. 2012. *Development-led Archaeology in Northwest Europe*. Oxford: Oxbow Books
- Wells, C. 1976. An urned cremation from a Late Bronze Age cemetery at Shouldham, Norfolk. *Archaeological Journal* 133, 38–42
- White, D.A. 1982. *The Bronze Age Cremation Cemeteries at Simons Ground, Dorset*. Dorchester: Dorset Natural History & Archaeological Society
- Wilkin, N. 2011. Grave-goods, contexts and interpretation: Towards regional narratives of Early Bronze Age Scotland. *Scottish Archaeological Journal* 33(1–2), 21–37
- Wilkin, N. 2017. Combination, composition and context: Readdressing British Middle Bronze Age ornament hoards (c. 1400–1100 cal. BC). In T.F. Martin & R. Weetch (eds), *Dress and Society: Contributions from archaeology*, 14–47. Oxford: Oxbow Books
- Wilkin, N. & Vander Linden, M. 2015. What was and what would never be: Changing patterns of interaction an archaeological visibility across north-west Europe from 2,500 to 1,500 cal. BC. In Anderson-Whymark *et al.* 2015, 99–121
- Willis, C., Marshall, P., McKinley, J., Pitts, M., Pollard, J., Richards, C., Richards, J., Thomas, J., Waldron, T., Welham, K. & Parker Pearson, M. 2016. The dead of Stonehenge. *Antiquity* 90, 337–56
- Woodward, A. 2000. *British Barrows: A matter of life and death*. Stroud: Tempus
- Woodward, A. 2009. Chapter 8: The pottery. In L. Ladle & A. Woodward (eds), *Excavations at Bestwall Quarry, Wareham 1992–2005: The prehistoric landscape*, 200–71. Dorchester: Dorset Natural History & Archaeological Society
- Yates, D.T. 2007. *Land, Power and Prestige: Bronze Age field systems in Southern England*. Oxford: Oxbow Books

APPENDIX 1. DATA COLLECTION DETAILS

Data collection method

Sites containing cremation burials which had the potential to have been created during the Middle Bronze Age were gathered from three national databases: *Heritage Gateway* for England (<http://www.heritagegateway.org.uk/gateway/default.aspx>), *Canmore* (<https://canmore.org.uk/>) for Scotland, and *Archwilio* (www.cofiadurcahymru.org.uk) for Wales using a standardised lexicon of relevant search terms (Funeral Pyre, Cremation Pit, Cremation Grave, Cremation Burial, Cremation, and Cremation Cemetery) and a period filter (first Middle Bronze Age and then Bronze Age). The *Reading University Grey Literature Archive* and the *Archaeological Investigations Project* (<https://cweb.bournemouth.ac.uk/aip/aipintro.htm>) were

queried using a similar methodology. Sites were deemed as having the potential to have been created during the Middle Bronze Age based on the presence of features, material culture, or radiocarbon dates that were indicated as being Middle Bronze Age in date in their report.

Further potential cremation sites were identified through a systematic search of the Archaeological Data Service (ADS) Radiocarbon Index (CBA 2012), Canmore's Scottish Radiocarbon Database (Canmore 2014), and a list of radiocarbon dates known to the National Museum of Wales (Burrow & Williams 2008). These databases were merged, duplicate sites and values were eliminated, and calibrated ranges added where absent (using OxCal v 4.2 (Reimer *et al.* 2013) and the IntCal 13 curve (<http://c14.arch.ox.ac.uk/>)). They were then filtered according to two criteria. The first criterion was that their calibrated range had to cross part of the timespan between 1600 and 1150 cal BC. The second criterion was that their descriptions had to include a reference to a series of terms that might indicate the presence of a cremation burial.

Each Historic Environment Record (HER) office in England and Wales was contacted with a request for a list, and PDF summary, of sites returned when searching these archives using a standardised lexicon of relevant search terms (Funeral Pyre, Cremation Pit, Cremation Grave, Cremation Burial, Cremation, and Cremation Cemetery) and a period filter (first Middle Bronze Age and then Bronze Age). While not all HER offices replied (see Appx S.1.5), only 44 sites were discovered through this latter search. All UK Regional and National Research Frameworks were consulted in order to identify key sites that may not have been recorded in the sources above (England: <https://historicengland.org.uk/research/support-and-collaboration/research-frameworks-typologies/research-frameworks/>; Scotland: <https://www.scottishheritagehub.com/>; Wales: <http://www.archaeoleg.org.uk/intro.html>). Finally, the doctoral research on burials in southern Britain from c. 3500 BC–AD 43 by Bristow (1998; 2001), which provides a searchable gazetteer of sites, is a particularly useful publication that also identified numerous Middle Bronze Age cremation burials sites.

Taken together, these sources provide a comprehensive corpus of published and unpublished Bronze Age funerary sites in Britain to 2002 and a virtually comprehensive list of sites until 2015. Where possible, each of these sites' original excavation reports was

sourced. The details included within these reports were then recorded in a relational database (Microsoft Access 2013). Any further sites cited in these reports that had the potential to contain a Middle Bronze Age cremation burial were also added to the database and recorded when relevant.

Data selection criteria

Radiocarbon: Those sites with radiocarbon dates were evaluated according to: whether their absolute calibrated date range at 2σ lay solely between 1600 and 1150 cal BC; or where dates provided a *terminus ante* or *post quem* that overlapped 1600 cal BC or 1150 cal BC. Those sites with burials meeting these criteria were assigned to the Middle Bronze Age, while those sites with burials whose radiocarbon dates only overlapped with either the 1600 or 1150 cal BC temporal boundaries were deemed transitional.

This paper recognises the issue raised by Snoeck (2015) that most cremation burials are likely to suffer from the old wood effect to some degree. This would suggest that some burials whose date crosses the Early and Middle Bronze Age might in fact be Middle Bronze Age. A methodology for identifying the extent of this effect, or how best to treat cremated remains in this light, has yet to be produced. As a result only selected cremation burials were reclassified as Middle Bronze Age when their dates were only slightly older than 1600 BC and when there was evidence for other Middle Bronze Age cremation burials on the site.

Typological dating: Whilst typo-chronological schemes in metalwork, with a resolution of 150–200 years, are well established throughout the Bronze Age in Britain (Needham 1996; Needham *et al.* 1997; Roberts *et al.* 2013), there are very few bronze or gold objects that have been found in secure and well excavated contexts with cremation burials. The vast majority of the cremation burials that are typologically dated to the Middle Bronze Age) rely upon associated ceramics. However, ceramic typo-chronologies typically have a more extended temporal resolution. For example, Collared Urns (c. 1850–1500 cal BC) and Cordoned Urns (c. 1900–1550 cal BC) are made, used, and deposited in the first

century of the Middle Bronze Age, but are predominantly Early Bronze Age types (c. 2200–1600 cal BC) (see Sheridan 2003; 2007; Brindley 2007). Biconical Urns (c. 1800–1400 cal BC) are more evenly divided across the Early–Middle Bronze divide (Tomalin 1988), whilst Deverel-Rimbury (c. 1700–1200 cal BC) and regional variants such as East Anglian Ardleigh urns are predominantly, but not exclusively, Middle Bronze Age in date (Needham 1996, 132–3; Woodward 2009, 265–70). However, it is recognised that the majority of Deverel-Rimbury ceramics can be placed in the Middle Bronze Age (Needham 1996, 132–3; Woodward 2009, 265–70). A major challenge in chronological attribution has been the frequent revision of ceramic typo-chronologies as well as a wide variation in their adoption by key scholars. For instance, Grinsell's (1959; 1971; 1987; 1992; O'Neil & Grinsell 1960) numerous corpora of barrows published by county, which have been exceptionally useful for identifying cremation burial sites, frequently mention 'Late Bronze Age' pottery types, many of which would now be typo-chronologically dated to the Middle Bronze Age. Similarly, records published prior to the use of radiocarbon dating in the mid-20th century which described 'Middle Bronze Age' pottery would now be placed within the Early–Middle Bronze Age range. In order to overcome this, typo-chronological adjustments had to be made on a site-by-site basis. To be fully transparent, all burials that have been judged to belong to a particular period include a reference that explains the reason they have been grouped this way in the Supporting Material (see column 'Reason-ForDate' in Appx S.1.2).

Sites that contain Middle Bronze Age cremation burials that have not been assessed: Following the completion of this paper, a further 23 sites were identified which contained Middle Bronze Age cremations burials within them. These sites and their references have been listed in Appx S.1.6, however it has not been possible to study them to the same extent as the main dataset. As such, they are omitted from the statistics, analysis, and discussion within this paper.

RÉSUMÉ

Réévaluation des cimetières collectifs: sépultures à incinération en Grande-Bretagne durant l'âge du bronze moyen (env. 1600–1150 cal av. J.-C.), de Edward Caswell & Benjamin W. Roberts

L'âge du bronze moyen (env. 1600–1150 cal av. J.-C. en Grande-Bretagne est traditionnellement considéré comme représentant une transition funéraire majeure. Celle-ci consiste en une transformation d'un rite funéraire hétérogène incluant essentiellement inhumations et incinérations dans des tertres funéraires, souvent accompagnées de mobilier funéraire, à une pratique homogène et sans mobilier reposant sur des incinérations. Malgré une vaste expansion du nombre de sites soigneusement fouillés, datés au C¹⁴ et analysés ostéologiquement au cours des trois dernières décennies, les interprétations actuelles des sépultures à incinération de l'âge du bronze moyen s'appuient toujours sur un article élémentaire d'Ellison (1980). Alternativement, le présent article analyse 378 sites d'incinération contenant au moins 3133 sépultures qui représentent toutes celles que l'on peut dater avec certitude de l'âge du bronze moyen en Grande-Bretagne. La nouvelle analyse démontre que relativement peu de sites peuvent être caractérisés comme cimetières collectifs et qu'il y a substantiellement plus de sites d'occupation contemporains, bien que peu très proches des cimetières collectifs. Les caractéristiques identifiables des pratiques funéraires reposant sur l'incinération sont compatibles à travers toute la Grande-Bretagne avec peu de preuves de différenciation sociale au moment de l'inhumation. Il est également évident que seule une minorité de la population bénéficiait d'une inhumation à incinération. Il y a une diminution substantielle dans les activités funéraires visibles à l'archéologie du précédent âge du bronze ancien (env. 2200–1600 cal av. J.-C.) et une diminution encore plus importante à l'âge du bronze final qui a suivi (env. 1150–800 cal av. J.-C.) en Grande-Bretagne, ce qui est comparable dans sa forme et partiellement dans sa séquence, aux pratiques funéraires de l'âge du bronze en Irlande et dans plusieurs régions du nord-ouest de l'Europe.

ZUSAMENFASSUNG

Eine Neubewertung von gemeinschaftlichen Gräberfeldern: Brandbestattungen in Großbritannien während der Mittelbronzezeit (ca. 1600–1150 cal BC), von Edward Caswell und Benjamin W. Roberts

Die Mittelbronzezeit (ca. 1600–1150 cal BC) in Großbritannien wird traditionell als Zeit eines wichtigen Übergangs in der Bestattungssitte gesehen. Dieser Wandel vollzieht sich von einem heterogenen Begräbnisritual in Grabhügeln, in denen sich Körper- und Brandbestattungen, häufig mit Beigaben, befinden, zu einer homogenen Begräbnisart bei der beigabenlose Brandbestattungen vorherrschen. Trotz immenser Zunahme der Zahl gut ausgegrabener, C¹⁴-datierter und anthropologisch untersuchter Fundstellen in den letzten drei Jahrzehnten, beziehen sich derzeitigen Interpretationen mittelbronzezeitlicher Brandbestattungen noch immer auf den wegweisenden Aufsatz von Ellison (1980). Der hier vorliegende Beitrag untersucht 378 Brandbestattungsplätze mit insgesamt mindestens 3133 Beisetzungen, bei denen die Datierung in die britische Mittelbronzezeit sicher ist. Die neue Untersuchung zeigt, dass nur recht wenige Fundplätze als Gräberfelder einer Gemeinschaft charakterisiert werden können, und dass es deutlich mehr zeitgleiche Siedlungen gibt, wenn auch nur wenige in unmittelbarer Nähe zu den Gräberfeldern. Die erkennbaren Charakteristiken von auf diesen Brandbestattungen sind in ganz Großbritannien einheitlich und liefern nur wenigen Hinweisen auf eine soziale Differenzierung während der Bestattung. Es wird auch deutlich, dass nur eine Minderheit der Bevölkerung eine Brandbestattung erfuhr. In Großbritannien ist ab der vorhergehenden Frühbronzezeit (ca. 2200–1600 cal BC) ein erheblicher Rückgang archäologisch sichtbarer Begräbnisaktivitäten feststellbar und ein weiterer Rückgang in der nachfolgenden Spätbronzezeit (1150–800 cal BC). Dies ist in Form und teilweise im Ablauf vergleichbar mit den bronzezeitlichen Begräbnispraktiken in Irland und in mehreren Regionen Nordwesteuropas.

RESUMEN

Reevaluando los cementerios: los enterramientos de cremación durante el Bronce Medio (ca. 1600–1150 cal BC),
por Edward Caswell y Benjamin W. Roberts

El Bronce Medio (ca. 1600–1150 cal BC) en Gran Bretaña se ha entendido tradicionalmente como una importante transición en las prácticas funerarias. Esto implica la transformación de un ritual funerario heterogéneo, unido en gran medida a las inhumaciones y cremaciones en túmulos y generalmente acompañado de ajuares, a una práctica funeraria homogénea y sencilla basada en la cremación. A pesar del aumento en el número de sitios arqueológicos bien excavados, datados y del número de análisis osteológicos en las últimas tres décadas, las interpretaciones actuales de los depósitos funerarios del Bronce Medio aún se basan en el influyente artículo de Ellison (1980). Como alternativa, este artículo analiza 378 cremaciones que contienen, al menos, 3133 enterramientos entre los que se incluyen todos aquéllos que pueden datarse con seguridad en el Bronce Medio en Gran Bretaña. Este nuevo análisis demuestra que relativamente pocos sitios pueden ser caracterizados como cementerios y que hay un número sustancial de asentamientos contemporáneos, algunos de ellos en las proximidades de los cementerios. Las características identificables de estas prácticas funerarias por cremación son consistentes a lo largo de Gran Bretaña con pocas evidencias de diferenciación social en el momento de enterramiento. Es igualmente evidente que solo una minoría de la población recibe un enterramiento por cremación. Existe un decrecimiento sustancial en la visibilidad arqueológica de la actividad funeraria desde el precedente Bronce Inicial (ca. 2200–1600 cal BC) y un mayor decrecimiento en el posterior Bronce Final (ca. 1150–800 cal BC) en Gran Bretaña. Esto es comparable en forma, y parcialmente en secuencia, con las prácticas funerarias en Irlanda y en algunas regiones del noroeste de Europa.