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Dying Embers: Fire-lighting Technology and Mortuary Practice in Early Bronze Age Britain

Anne Teather and Andrew Chamberlain

In me thou see'st the glowing of such fire
That on the ashes of his youth doth lie,
As the death-bed whereon it must expire
Consum'd with that which it was nourish'd by.

Shakespeare, Sonnet 73

We examine the known examples of strike-a-light kits within prehistoric mortuary contexts in mainland Britain. Building on the seminal work of Clarke in the 1970s and Needham's recent work on Beaker grave groups, many further examples of this burial practice are documented from both historic and recent excavations. It is evident that strike-a-light kits have a considerable longevity in prehistoric mortuary practice, with all but one dating to between c. 2500 cal. BC and c. 1500 cal. BC. Our analysis presents new radiocarbon dates and data from stable isotope studies of human remains that indicate the practice reached a peak between c. 2200 and c. 2000 cal. BC. Strike-a-light kits appear to be associated both with individuals born local to their burial place as well as those born at a considerable geographical distance. It is argued that strike-a-light kits had a particular significance in the burial of adult males and that kits were symbolic inclusions rather than being linked to the practice of fire-lighting during the men's life-time in this period.

INTRODUCTION

Mortuary practices in prehistoric Britain present a diverse and complex pattern that changed through time. It is commonly understood that during the early and middle Neolithic periods (c. 4000–2500 cal BC) collective burial was the norm (Fowler 2010), with burials during the following Late Neolithic/Chalcolithic (or Primary Beaker period: c. 2500–2200 cal. BC, prior to the 'Fission Horizon': Needham 2005; 2012) and Early Bronze Age (or Phases 2–3 Beaker

periods: *c.* 2200–1600 cal. BC) more often being made individually, frequently within barrows and typically accompanied by grave-goods (*ibid.*). In the Middle Bronze Age (from *c.* 1600 cal. BC) cremation became the predominant form of processing the dead (Brück 2009). Overall this period of time - *c.* 2500 cal. BC to *c.* 1500 cal. BC - is seen as containing changes that demonstrate the transition between the Neolithic and Bronze Age in Britain, when metalworking is introduced for the first time and by the end of the period, agricultural and settlement practices were more intensive. In this study we contribute to the debate about the meaning of grave-goods during this thousand year period by investigating the deposition of strike-a-light kits within graves. Our work builds on that of Clarke (1970, 264–65, 448) who drew attention to the close association of strike-a-lights with male burials of his Northern British and Southern British Beaker burial groups. Subsequently, the work of Needham (2005; 2012) highlighted the importance of strike-a-light kits as an ‘artefact association group’ found in both primary and post-Fission Horizon Beaker traditions spanning the Late Neolithic/Early Bronze Age transition. Effectively, new burial practices emerge at *c.* 2500 cal. BC that have a distinct character and a noticeable chronological development that has been studied in many ways, strike-a-light kits being noted as an artefact group from early examples.

Commonly referred to as the Beaker period in Britain, it is characterized by the introduction of continental styles of pottery, the beginnings of metalworking in copper and gold, and the burial of individuals with sets of grave-goods that in some instances may have indicated the wealth or prestige of the deceased. Interpretations of this shift have been qualified and revised from various perspectives in recent years, including Gibson (2007) who discusses Neolithic antecedents of these burial practices in Britain, and Fokkens (2012) who provides an alternative to the interpretation of grave-goods as indicators of wealth. Still, the distinctive

shift in the archaeological record of grave-goods with burials during the Primary Beaker and subsequent Beaker phases have been subject to much analysis, concurrent with studies of other grave attributes including body orientation and gender (Clarke 1970; Needham 2005; 2012; Sheridan 2007; Shepherd 2012; Fokkens 2012; Frieman 2014; Fowler 2015; Hunter and Woodward 2015). These studies show that there are normative associations in Beaker burial practice that encompass particular sets of artefacts and the position, orientation and gender of the body. However, these associations vary across and even within regions. In following one set of artefacts in graves at this time — strike-a-light kits — we intend to investigate the presence and possible symbolic associations of these superficially mundane and utilitarian items.

STRIKE-A-LIGHTS

‘Strike-a-light’, also referred to in some previous literature as a ‘fire-kit’, is a term used to denote a particular grouping of artefacts that together provide the means to make a spark that is sufficiently hot to start a fire (Nieszery 1992; Stapert and Johansen 1999; Sorensen et al. 2014). This specialized tool kit commonly consists of a *striker* (a piece of flint or other silica-containing material that often exhibit a convex edge), *tinder* (for example dry moss, or the tinder fungus *Fomes fomentarius*) and a *strike-stone* (a piece of metallic or sulphuric iron, usually a nodule of the closely similar iron sulphide minerals, iron pyrites or marcasite, Illus 1.). When the flint and iron mineral are struck together they produce a spark which may ignite the tinder.

The flint/pyrites striking method seems to have been the dominant form of fire-making used in European prehistory (Stapert and Johansen 1999; Sorensen et al. 2014). However a spark could have been obtained from pyrites using many types of edged flint artefacts; the handles

of flint daggers were used as strikers in Early Bronze Age Schleswig-Holstein (Nieszery 1992, 361) and miniature flint daggers placed in Danish graves were used to the same effect (Petersen 1993, 141; Stapert and Johansen 1999, 367). Strike-stones can demonstrate use-wear in the form of single or multiple groove marks (Nieszery 1992), as seen at Rudston (Illus. 2, Greenwell 1877, 264), Basingstoke (Anon. 1883) and in the Amesbury Archer's grave (Illus. 3, Harding 2011, 102, fig. 39, 118). Usually only the component parts of striker and/or the strike-stone are recovered archaeologically as evidence of the presence in a burial of a strike-a-light kit - the archaeological survival of tinder is almost unique to the Ötztaler 'ice man' (or Ötzi, Spindler 1994). However iron pyrites nodules may also be archaeologically absent as they commonly entirely corrode through oxidization, particularly in acidic soil conditions, producing various mineral breakdown products dependent on the environmental conditions (Nordstrom 1982). Traces of mineral elements in the form of a rust-colour staining have been noted during some excavations, and these have been mineralogically tested in two studies, at the Neolithic cemeteries of Aiterhofen-Ödmühle cemeteries in lower Bavaria (Nieszery 1992, 363) and at Ostorf in north-eastern Germany (Friedrich 2007, 418). These tests identified goethite, one of the possible products of the decomposition of pyrite or marcasite, strongly suggesting the past inclusion of a pyrite strike-stone in the grave. Haematite (red ochre) and limonite (yellow ochre) are also possible products of the breakdown of iron pyrites (Nordstrom 1982). Therefore the identification of any of these within a grave could be indicative of a pyrite inclusion within the mortuary context. Due to the variability in the preservation and archaeological retrieval of iron pyrites, it has been argued on the continent that it is useful to view the striker on its own as an indicator of a strike-a-light kit having been included in the grave (Nieszery 1992, 363; Friedrich 2007, 417–18). A single striker may also have served as a synecdoche within the mortuary context, the part standing for the whole of the kit (Tilley 1999, 6). Adopting that criterion would no

doubt facilitate recognition of further examples of this cultural practice, which may be a useful avenue for future research.

STRIKE-A-LIGHTS FROM BURIAL CONTEXTS IN PREHISTORIC BRITAIN

We have identified fifty-two probable examples of strike-a-lights deposited in prehistoric burial contexts ('strike-a-light burials') from mainland Britain, located at sites distributed throughout the country from the south coast of Cornwall to northern Scotland (Table 1; Illus. 4). The occurrences have been identified through analyses of excavation records where the strike-stone (in all but four cases identified as iron pyrites or marcasite) and/or a flint striker has been noted during excavation. Six of the examples were not demonstrably associated with human remains, and of the forty-six where details of the burial context are known, thirty-three (or 72%) were found in inhumation graves, twelve derived from cremation burials and one from a dual inhumation/cremation (28%). Of the twenty sexed human remains associated with strike-a-lights, the overwhelming majority of occurrences are male (90%) with just two examples associated with possible females at Nether Low (Bateman 1861, 52) and Amesbury G58 (Ashbee 1985, 70).

Whilst only a third of the sites have been radiocarbon dated, diagnostic artefacts can be used to broadly categorize the chronological duration of burials with this kit. Only one site is likely to date to the middle Neolithic: Crosby Garrett 174. This dating is based on the inclusion of an antler macehead (Greenwell 1877, 389–91) which resembles examples from other sites that have been directly dated to the second half of the fourth millennium cal. BC (Loveday et al. 2007). Seventeen radiocarbon dates are available with thirteen of these being direct dates on human bone. These radiocarbon determinations have been calibrated with OxCal 4.2 using

the IntCal 13 atmospheric calibration curve and are presented in Table 2. The majority of these calibrated dates fall into the second half of the third millennium BC and only five are likely to post-date 2000 cal. BC. It should be noted, however, that only two of the thirteen cremation burials in this dataset have been radiocarbon dated. The earliest dated examples are found in Wessex (sites in Hampshire and Wiltshire) and in Scotland. The Wessex sites, which include some of the earliest dated Beaker burials, are Chilbolton, the Amesbury Archer and the Boscombe Bowman: the latter two sites being less than 1 km apart and Chilbolton within 20 km of both of them. In Scotland, Upper Largie near Kilmartin and Dornoch in Easter Ross are the earliest but separated from each other by over 130 km. The latest radiocarbon dated site in Scotland is Dunfermline (3581 ± 40 , 2040-1780 cal. BC, SRR-292) but strike-a-lights continue to appear in graves in England with Beaker pottery after 1800 BC, at Amesbury G58 and at Barrow Hills (Illus. 5). However, the pottery items within these burials are likely to be curated or residual as the Beaker dates here are thought to be very late (Needham 2005; Sheridan 2007; Healy 2012).

A number of the burials with strike-a-lights stand out due to the quality of goods within the deposit (Table 1). These include some of the most wealthy single graves of this period (e.g. Kirkhaugh, Amesbury Archer and Acklam Barrow). Removing Crosby Garrett 174 from the burial statistics above to enhance chronological sensitivity, twenty-four of the fifty-one grave contexts (47%) contained valuable grave-goods (a category we define as including gold, copper, bronze, amber, jet and ornate stone artefacts following Woodward and Hunter 2015, 23, though we have excluded bone/antler artefacts such as spatulas and pins). Therefore this categorisation of almost half the examples as being wealthy graves is likely to be considerably higher than the average for the Beaker period. For example, using the same wealthy grave definition to the 189 male Beaker burials included in the Beaker Isotope

Project, less than 10% included valuable grave-goods with a similar proportion for female graves (Parker Pearson et al., forthcoming) and of 218 excavated Bronze Age burial mounds in Derbyshire, approximately 20% contained valuable goods (based on data taken from Marsden 1994). It is possible that the archaeological retrieval of strike-a-light kits is enhanced within multi-artefact mortuary contexts.

Of the twenty sets of human remains where we have an estimation of biological sex, nineteen are from inhumations and one from a cremation. Of these, eighteen inhumations are thought to be male (95%) and one possibly female (5%) with the one sexed cremation of thirteen examples thought to be female. While Brück (2009, 4–5) has suggested that a higher proportion of females than males were subjected to cremation in the Bronze Age (based on data from mainly post-1980 excavations with reliable osteoarchaeological reports), cremated remains with strike-a-light kits represent less than one third of all examples. Thus our data overwhelmingly suggest that these kits were associated with males.

PARALLELS ON THE NEAR CONTINENT

Both Denmark and France have examples of strike-a-light burials that are contemporary with those in Britain. In his discussion of sixty-six Danish Beaker archery burials, Sarauw (2007, 69-70, 72) notes three graves with strike-a-lights at Solbakkegård IV, Ved Rammediget and Kjærgård dating to c. 2350 BC–1950 BC (Sarauw 2007, 66). A further ten graves with strike-a-lights dating to the Danish Middle Bronze Age period IB (1600 BC-1500 BC) have been catalogued by Bergerbrant (2007, Appendix 1) though a late example is noted at Diverhøj and dated to the beginning of Bronze Age period II (c. 1500 cal. BC, Asingh 1987, 135, 152; see also Olsen et al. 2011). Beaker period graves containing flint strikers ('briquets') together with pyrite nodules and/or iron oxide staining on the strikers have also been found in northern

France and Luxembourg dating to between 2500 and 2100 cal. BC (Salanova and Tcheremissinoff 2011).

Further, there are examples on the near Continent that could be contemporary with the anomalously early British example of Crosby Garrett 174. Schipluiden, on the coast of the Netherlands, is a Neolithic settlement dated to 3600–3400 cal. BC (Smits and Lowe Kooijmans 2006, 97). Here, Grave 2 contained a tightly flexed male inhumation burial with his hands positioned by his face and enclosing a strike-a-light set of three flint artefacts and a nodule of pyrite. Near Schwerin in northern Germany the site of Ostorf is a flat grave cemetery of forty inhumations on an island within the Ostorfer See. The site included grave III/35 with a strike-a-light kit that is dated to *c.* 3000 cal. BC (Bastian 1961; Friedrich 2007; Lübke et al. 2009, 324, 330). Nine other graves at this site have been identified as burials with strike-a-lights. Further examples of pyrites nodules have been noted in graves contemporary to Ostorf at Dreetz, Pevestorf, Walternienburg and Tangermünde (Friedrich 2007, 421).

INTERPRETATIONS OF THE STRIKE-A-LIGHT BURIAL RITE

It has been suggested that strike-a-light kits found with the Amesbury Archer and in grave 2 at Schipluiden were connected with travel and the need to light one's own fire while journeying (Smits and Louwe Kooijmans 2006; Fitzpatrick 2009;). However, were these journeys that had been completed during the deceased's lifetime, or are we instead seeing symbolic reference to journeys to be commenced in the afterlife? Stable isotope data are beginning to reveal the origins of some individuals buried with strike-a-lights, with the preliminary data indicating considerable geographical mobility within this group between their places of childhood and burial (Table 3). The Amesbury Archer is known to be a

migrant from the Continent with a childhood spent in a geographical zone as far to the east as Scandinavia or Germany (Chenery and Evans 2011, 188–90). The strontium and oxygen isotope signatures of the Boscombe Bowmen, including the strike-a-light burial 25004, are consistent with non-local origins in the north or west of Britain, or alternatively from more distant origins either in southeast Ireland or continental Europe (Chenery and Evans 2011, 186–90). The mixture of local and distant origins inferred from the stable isotope data (Table 3) are consistent with the overall results of the Beaker People Project in which about one third of sampled individuals had moved between region of birth and region of burial (Parker Pearson et al. forthcoming). Although some degree of residential mobility appears to be characteristic of all periods of British prehistory the continental-scale migration evidenced in the Beaker period was not observed in a study of an earlier Neolithic population (Neil et al., 2016). Of the eight examples listed in Table 3, four appear to have local origins, two are definite migrants from continental Europe and the other two are migrants with possible continental origins. Thus the extent of residential mobility in the individuals buried with strike-a-lights may have been typical of their communities and it does not necessarily imply that the inclusion of a strike-a-light kit as a personal grave-good symbolised actual travel that had taken place by the deceased during their lifetime.

For the continental European examples he has studied, Nieszery (1992, 368) suggested that individuals buried with strike-a-light kits may have been travellers who were periodically absent from their community. He suggests the reason for this may have been for activities such as shepherding or hunting, but also notes the association of old men with fire lighting equipment at Aiterhofen. Nieszery observes that a younger man aged at approximately 20-30 years old in grave 55 appears to have a shortened right leg after sustaining a fracture of the femur and, as a result of this, would have had a severe limp. Nieszery (1992, 368) uses this

burial to argue that perhaps some male individuals who were unable to complete physical activities outside the settlement would have been called upon to maintain the fires. The Amesbury Archer provides another example of impaired mobility due to disability; he appears to have suffered from a chronic debilitating infection of the left knee joint and was missing a patella (McKinley 2011). The Ötztaler 'ice man' (or Ötzi, Spindler 1994) also exhibited arthritic changes in the joints of his spine, knees and ankles.

These competing interpretations, based alternately on evidence for mobility versus immobility, both rely on viewing strike-a-light kits as functional tools habitually used by the deceased individual in their lifetime. An alternative interpretation is offered, based on an exploration of the metaphorical associations between material culture, and notions of death and the afterlife as illustrated by the quotation from Shakespeare's sonnet at the start of this paper. Death has common metaphoric associations within literature (Lakoff and Turner 1989) that could, as Tilley (1999, 79) suggests, become enacted as solid metaphors through the use of particular material culture. Lakoff and Turner (1989, 8-14, 52) describe the many metaphors for death in language: that life is often perceived as a journey, and death as the final destination. Hence in modern Western cultures we often refer to a new baby not having yet 'arrived' and someone close to death as 'passing away'. Another common metaphor Lakoff and Turner cite is that life is light and warm, and death is dark and cold. This is perhaps pertinent to our subject. If the strike-a-light kits accompanying biological male burials are related to metaphorical understandings of life and death in this way, then we may be seeing an aspect of prehistoric ritual where biological males are perceived as taking the journey to death in a different way to females. It could be that in terms of religious belief, some men required fire-lighting technology to help them negotiate the darkness and cold of death. Their journey might be longer, or take a more perilous route. The examples of older men and those

with disabilities may be of relevance here as their journey may be impeded by their compromised mobility. The fire they can create themselves through the strike-a-light kits, providing warmth and light, may make the difference between a successful or disastrous transition to the afterlife.

Strike-a-light kits seem to disappear from burial assemblages at the start of the Middle Bronze Age, at a time when fire seems to have taken on an extended array of transformative roles in material production as well as in ritual activities (MacGregor 2008). At this time cremation becomes the predominant method for the transformation of the corpse; the construction of numerous burnt mounds testifies to the extensive use of fire-heated stones to heat water (and perhaps generate steam), and there is a very substantial increase in the smelting of ores for the production of bronze tools and weaponry. With intensification of settlement and the rise of industrial production the symbolic associations of fire may have changed, with the idea of fire as nourishing the deceased traveller being replaced by the concept of fire as an agent for transforming the material world.

CONCLUSION

This paper has discussed the deposition of strike-a-light kits within British and northern European prehistoric mortuary contexts. In Britain only one instance of this practice appears contemporaneous with early continental examples; Crosby Garrett 174, dating to the middle Neolithic *c.* 3500–3000 BC. The remaining examples emerge with the single grave tradition at the beginning of the Beaker period and are related to the Beaker package. Of those dated radiometrically, the majority fall between 2500 BC and 2000 BC, and are therefore broadly contemporaneous with similar examples in Denmark, northern France and Luxembourg.

They have been found throughout mainland Britain, with noticeable clusters occurring in areas of intensively excavated prehistoric monuments, notably Wessex, the Peak District and East Yorkshire. The current data suggests that this was a burial custom particularly related to being biologically male. Strike-a-lights provide autonomy for a person in creating fire, whether for heating, light or cooking. The final journey for early Bronze Age men may have been perceived as lonely and cold, with little comfort along the way. These degraded scraps of stone might have had far more of an emotive component than previously imagined.

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BIBLIOGRAPHY

ALLEN, M. J., GARDINER, J. and SHERIDAN, A. (eds) *Is There a British Chalcolithic? People, Place and Polity in the Later 3rd Millennium*, Oxford: Oxbow

ANON. 1883. *The Reliquary and Illustrated Archaeologist*, **24**, 128

ASHBEE, P. 1985. The excavation of Amesbury barrows 58, 61a, 61 and 72, *Wiltshire Archaeol. Nat. Hist. Mag.*, **85**, 140–41

ASHMORE, P. J. 1989. Excavation of a Beaker cist at Dornoch Nursery, Sutherland, *Proc. Soc. Antiq. Scot.*, **119**, 63–71

ASINGH, P. 1987. Diverhøj - a complex burial mound and a Neolithic settlement, *J. Danish Archaeol.*, **6**, 130–54

BARCLAY, A. and HALPIN, C. 1999. *Excavations at Barrow Hills, Radley, Oxfordshire. Volume 1: the Neolithic and Bronze Age Monument Complex*. Thames Valley Landscapes Monogr., **11**, Oxford: Oxford Archaeological Unit

BASTIAN, W. 1961. Das jungsteinzeitliche Flachgräberfeld von Ostorf, Kreis Schwerin. *Jahrbuch für Bodendenkmalpflege Mecklenburg-Vorpommern*, 1961, 7-130

BATEMAN, T. 1848. *Vestiges of the Antiquities of Derbyshire, and the Sepulchral Usages of its Inhabitants, from the Most Remote Ages to the Reformation*, London: John Smith

BATEMAN, T. 1861. *Ten Years Digging in Celtic and Saxon Grave Hills in the Counties of Derbyshire, Stafford and York*, London: John Russell

BERGERBRANT, S. 2007. *Bronze Age Identities: Costume, Conflict and Contact in Northern Europe 1600–1300 BC*, Stockholm Stud. Archaeol. **43**, Lindome: Bricoleur Press

BORLASE, W. C. 1872. *Naenia Cornubiae, a descriptive essay, illustrative of the sepulchres and funereal customs of the early inhabitants of the County of Cornwall*, London: Longmans, Green and Co.

BRONK RAMSEY, C. 2009. Bayesian analysis of radiocarbon dates. *Radiocarbon*, **51** (1), 337–60

BRÜCK, J. 2009. Women, death and social change in the British Bronze Age, *Norwegian Archaeol. Rev.*, **42**, 1–23

- CAMPBELL, D. 1890. Notice of the discovery of a cist with urn and strike-light at Corran Ferry, Inverness-shire, *Proc. Soc. Antiq. Scot.*, **24**, 436–38
- CANTRILL, T. C. 1898. The contents of a cairn at Ystradfellte, Co. Brecon, *Archaeol. Camb.*, **15**, 248–64
- CASE, H. J. 1956. The Lambourn Seven Barrows, *Berkshire Archaeol. J.*, **55**, 15–31
- CHENERY, C. A. and EVANS, J. A. 2011. A summary of the strontium and oxygen isotope evidence for the origins of Bell Beaker individuals found near Stonehenge, in Fitzpatrick 2011, 185–90
- CLARKE, D. L. 1970. *Beaker Pottery of Great Britain and Ireland*, Cambridge: Cambridge University Press
- CLARKE, D.V., COWIE, T. G. and FOXTON, A. 1985. *Symbols of Power at the Time of Stonehenge*, Edinburgh: National Museum of Antiquities of Scotland
- CLOSE-BROOKS, J., NORRIDGE, M., and RITCHIE, J. N. G. 1974. A Bronze Age cemetery at Aberdour Road, Dunfermline, Fife, *Proc. Soc. Antiq. Scot.*, **104**, 121–36
- COOK, M., ELLIS, C. and SHERIDAN, A. 2010. Excavations at Upper Largie Quarry, Argyll and Bute, Scotland: new light on the prehistoric ritual landscape of the Kilmartin Glen, *Proc. Prehist. Soc.*, **76**, 165–212
- DAY, W. 1972. The excavation of a Bronze Age burial mound at Ysgwennant, Llansilin, Denbighshire, *Archaeol. Camb.*, **122**, 17–50
- DYER, J. F. 1959. Barrows of the Chilterns, *Archaeol. J.*, **116**, 1–25
- EVANS, J. 1897. *The Ancient Stone Implements, Weapons and Ornaments, of Great Britain*. London: Longmans, Green and Co.

FASHAM, P. J., FARWELL, D. E. and WHINNEY, R. J. B. 1989. *The Archaeological Site at Easton Lane, Winchester*, Gloucester: Alan Sutton

FITZPATRICK, A. P. 2009. In his hands and in his head: the Amesbury Archer as a metalworker, in P. Clark (ed.) *Bronze Age Connections: Cultural Contact in Prehistoric Europe*, 176–88, Oxford: Oxbow

FITZPATRICK, A. P. 2011. *The Amesbury Archer and the Boscombe Bowmen: Bell Beaker Burials at Boscombe Down, Amesbury, Wiltshire*. Wessex Archaeology Report, **27**, Salisbury: Wessex Archaeology

FOKKENS, H. 2012. Dutchmen on the move? A discussion of the adoption of the Beaker package, in Allen et al. (eds), 115–25

FOWLER, C. J. 2010. Pattern and diversity in the Early Neolithic mortuary practices of Britain and Ireland: contextualising the treatment of the dead, *Documenta Praehistorica* 2010, **XXXVII**, 1–22

FOWLER, C. J. 2015. Change and continuity in Early Bronze Age mortuary rites: a case study from Northumberland, in R. Brandt, H. Ingvaldsen and M. Prusac (eds) *Death and Changing Rituals: Function and Meaning in Ancient Funerary Practices*, 45–91, Oxford: Oxbow Books

FOX, C. 1939. *Two Bronze Age Cairns in South Wales, Simondston and Pond Cairns, Coity Higher Parish Bridgend*, Cardiff: National Museum of Wales

FRIEDRICH, T. 2007. The strike-a-lights from the Ostorf graves, in L. Larsson, F. Lüth and T. Terberger (eds) *Innovation and Continuity — Non-Megalithic Mortuary Practices in the Baltic*, 415–28, Mainz: Zabern

FRIEMAN, C. J. 2014. Double edged blades: re-visiting the British (and Irish) flint daggers, *Proc. Prehist. Soc.*, **80**, 33–65

GIBSON, A. 2007. A Beaker veneer? Some evidence from the burial record, in Larsson and Parker Pearson 2007, , 47–64

GREENWELL, W. 1877. *British Barrows, a Record of the Examination of Sepulchral Mounds in Various Parts of England*, Oxford: Clarendon Press

HARDING, P. 2011. Flint, Fitzpatrick (ed.), 88–103

HARDY, J. 1889. On British urns, found at Hoprig, near Cockburnspath, Berwickshire, *History of the Berwickshire Naturalists Club*, **12**, 131–37

HARRISON, R. J. 1980. *The Beaker Folk*, London: Thames and Hudson

HEALY, F. 2012. Chronology, corpses, ceramics, copper and lithics in Allen et al. (eds), 144–63

HUNTER, J. and WOODWARD, A. 2015. *Ritual in Early Bronze Age Grave Goods: An Examination of Ritual and Dress Equipment from Chalcolithic and Early Bronze Age Graves in England*, Oxford: Oxbow

LAKOFF, G. and TURNER, M. 1989. *More Cool than Reason: A Field Guide to Poetic Metaphor*, London: The University of Chicago Press

LARSSON, M. and PARKER PEARSON, M. (eds) 2007. *From Stonehenge to the Baltic. Living with Cultural Diversity in the Third Millennium BC*, Oxford: Brit. Archaeol. Rep. Int. Ser, **1692**

LOVEDAY, R., GIBSON, A., MARSHALL, P. D, BAYLISS, A., BRONK RAMSEY, C. and VAN DER PLICHT, H. 2007. The antler maceheads dating project, *Proc. Prehist. Soc.*, **73**, 381–92

LÜBKE, H., LÜTH, F. and TERBERGER, T. 2009. Fishers or farmers? The archaeology of the Ostorff cemetery and related Neolithic finds in the light of new data, *Bericht der Römisch-Germanischen Kommission*, **88**, 307–38

MACGREGOR, G. 2008. Elemental bodies: the nature of transformative practices during the late third and second millennium bc in Scotland, *World Arch.*, **40**, 268-80

MACKENZIE, C. 1885. Notice of a cist, with an urn and strike-light of flint and pyrites, at Flowerburn, Ross-shire, *Proc. Soc. Antiq. Scot.*, **19**, 352–70

MARSDEN, B.M. 1994. *The Burial Mounds of Derbyshire*, Eldwick: Privately Printed

MARYON, H. 1936. Excavation of two Bronze Age barrows at Kirkhaugh, Northumberland, *Archaeologia Aeliana* 4th Series, **13**, 207–17

MCKINLEY, J. I. 2011. Human remains (graves 1236 and 1289), in Fitzpatrick, , 77–87

MORRISON, A. 1971. Cist burials and food vessels – some recent discoveries and rediscoveries in Western Scotland, *Glasgow Archaeol. J.*, **2**, 8–26.

MORTIMER, J.R. 1905. *Forty Years' Researches in British and Anglo-Saxon Burial Mounds of East Yorkshire*, London: Brown and Sons

MURRAY, H. K. and SHEPHERD, I. A. G. 2007. Excavation of a beaker cist burial with meadowsweet at Home Farm, Udny Green, Aberdeenshire, *Proc. Soc. Antiq. Scot.*, **137**, 35–58

NEEDHAM, S.P. 1995. Chronology and periodisation in the British Bronze Age, *Acta Archaeologica*, **67**, 121–40

NEEDHAM, S. 2005. Transforming Beaker culture in north-west Europe; processes of fusion and fission, *Proc. Prehist. Soc.*, **71**, 171–217

NEEDHAM, S. 2012. Case and place for the British Chalcolithic, in Allen et al. (eds), 1–26

NEIL, S., EVANS, J., MONTGOMERY, J. and SCARRE, C. 2016. Isotopic evidence for

residential mobility of farming communities during the transition to agriculture in Britain. *R. Soc. open sci.* 3, 150522.

NIESZERY, N. 1992. Bandkeramische Feuerzeuge, *Archäologisches Korrespondenzblatt* **22**, 359–76

NOBLE, G. and BROPHY, K. 2011. Ritual and remembrance at a prehistoric ceremonial complex in central Scotland: excavations at Forteviot, Perth and Kinross, *Antiquity*, **85**, 787–80

NORDSTROM, D. K. 1982. Aqueous pyrite oxidation and the consequent formation of secondary iron minerals, in J. A. Kittrick, D. S. Fanning and L. R. Hossner (eds) *Acid Sulfate Weathering*, 37–56, Madison, Wisconsin: Soil Science Society of America Press

OLSEN, J., HORNSTRUP, K. M., HEINEMEIER, J., BENNIKE, P. and THRANE, H. 2011. Chronology of the Danish Bronze Age based on ¹⁴C dating of cremated bone remains, *Radiocarbon*, **53**, 261–75

PARKER PEARSON, M., RICHARDS, M., CHAMBERLAIN, A. and JAY, M. (ed.) forthcoming. *The Beaker People: Isotopes, Mobility and Diet in Prehistoric Britain*, Oxford: Oxbow

PASSMORE, A. D. 1927. Fieldwork in N. Wiltshire 1926–28, *Wiltshire Archaeol. Nat. Hist. Mag.*, **44**, 240–45

PETERSEN, P. V. 1993. *Flint fra Danmarks Oldtid*, Copenhagen, Høst and Søn

PITT RIVERS, H. A. 1888. *Excavations in Cranborne Chase near Rushmore 1880–1888. Vol. II : Excavations in Barrows near Rushmore; Romano-British Village, Rotherley; Winkelbury Camp; Barrows and Anglo-Saxon cemetery, Winkelbury Hill*, London: Harrison and Sons

- PULL, J. 1932. *The Flint Miners of Blackpatch*, London: Williams and Norgate
- ROBERTSON, A. 1855. Notes of the discovery of stone cists at Lesmurdie, Banffshire, containing primitive urns, &c., along with human remains, *Proc. Soc. Antiq. Scot.*, **1**, 205–11
- ROSEHILL, Lord. 1871. Notice of a group of cists at Teinside, in Teviotdale, *Proc Soc. Antiq. Scot.*, **8**, 135–39
- RUSSEL, A. 1990. Two Beaker burials from Chilbolton, Hampshire, *Proc. Prehist. Soc.*, **56**, 133–72
- SALANOVA, L. and TCHÉRÉMISSINOFF, Y. (eds) 2011. *Les Sépultures Individuelles Campaniformes en France*, Gallia Préhistoire Supplement, **51**, Paris: CNRS Éditions
- SARAUW, T. 2007. Male symbols or warrior identities? The ‘archery burials’ of the Danish Bell Beaker Culture, *J. Anthropol. Archaeol.*, **26**, 65–87
- SHEPHERD, A. 2012. Stepping out together: men, women and their beakers in time and space, in Allen et al. (eds), 257–80
- SHERIDAN, A. 2007. Scottish Beaker dates: the good, the bad and the ugly, in Larsson and Parker Pearson (eds), 91–123
- SMITH, I. F. and SIMPSON, D. D. A. 1964. Excavation of three Roman tombs and a prehistoric pit on Overton Down, *Wiltshire Archaeol. Nat. Hist. Mag.*, **59**, 68–85
- SMITS, S. E. and LOUWE KOOIJMANS, L. P. 2006. Graves and human remains, in L.P. Louwe Kooijmans and P. F. B. Jongste (eds) *Schipluiden — A Neolithic Settlement on the Dutch North Sea Coast c. 3500 cal. BC*, 91–112. Leiden: Leiden University Press
- SORENSEN, A., ROEBROEKS, W. and VAN GIJN, A. 2014. Fire production in the deep past? The expedient strike-a-light model, *J. Archaeol. Sci.*, **42**, 476–86
- SPINDLER, K. 1994. *The Man in the Ice*, London: Weidenfeld and Nicolson

STAPERT, D. and JOHANSEN, L. 1999. Flint and pyrite: making fire in the Stone Age, *Antiquity*, **73**, 765–77

STEAD, I. M. 1962. The excavation of Beaker burials at Staxton, East Riding, 1957, *Yorks. Archaeol. J.*, **40**, 129–44

TEMPUS REPARATUM, 1996. *An Interim Statement on the Archaeological Excavations at Church Farm, Bierton, Aylesbury, Bucks.*, Unpublished report

TILLEY, C. 1999. *Metaphor and Material Culture*, London: Routledge

WATKINS, T. and SHEPHERD, I. A. G. 1980. A beaker burial at Newmill, near Bankfoot, Perthshire, *Proc. Soc. Antiq. Scot.*, **110**, 32–43

Table Captions and Figure Legends

Table 1 Evidence for strike-a-lights in British prehistoric mortuary contexts

Table 2 Radiocarbon dates from British strike-a-light burial sites

Table 3 Stable isotope data from strike-a-light burial sites

Table 1 Evidence for strike-a-lights in British prehistoric mortuary contexts. NMR is the primary record number in the national monument records for England, Wales and Scotland

	<i>Site (County/Authority)</i>	<i>Sex M/F</i>	<i>Burial rite</i>	<i>Principal grave goods</i>	<i>Pyrites</i>	<i>Striker</i>	<i>NMR</i>	<i>References</i>
1	Acklam Barrow K4 (North Yorkshire)	M	I	Beaker, flint knife, flint dagger, jet and amber buttons	✓	✓	59725	Mortimer 1905; Clarke 1970, 505
2	Amesbury Archer (Wiltshire)	M	I	Beakers, copper daggers, gold artefacts, arrowheads, flint knives, stone bracers	✓	✓	-	Fitzpatrick 2011
3	Amesbury G58 (Wiltshire)	?F	C	Bronze/copper dagger, Beaker & Grooved ware (?associated)	✓	✗	219072	Ashbee 1985, 70
4	Angrouse Mullion Cairn (Cornwall)	-	C	MBA urn, bronze dagger	✓	✗	425290	Borlase 1872, 235
5	Arbor Low Barrow (Derbyshire)	-	C	Food vessels, flint implement, bone pin	✓	?	308656	Bateman 1848, 64-65
6	Auchencairn (Dumfries & Galloway)	-	-	Beaker	✗	✓	66011	Clarke 1970, 516
7	Barrow Hills Grave 203 (Oxfordshire)	M	I	Beaker, bronze awl, flint arrowheads and flakes, bone and antler tools	✓	✗	1240966	Barclay & Halpin 1999, 135-141 [Beaker possibly too late: Needham, 2005]
8	Barrow Pleck 21 (Wiltshire)	-	C	Pottery, flint flakes	✓	✗	1301024	Pitt Rivers 1888, 5, 20
9	Basingstoke (Hampshire)	-	I	Arrowheads	✓	✓	240668	Anon. 1883, 128
10	Bierton with Broughton (Buckinghamshire)	-	I	Beaker, barbed and tanged arrowheads	✓	✓	-	Tempus Reparatum 1996
11	Bishopstone (N) G1 (Swindon)	-	C	Animal bone	✓	✗	225592	Passmore 1927
12	Blackpatch flint mine floor 2 (West Sussex)	-	C	Flint tools	✗	✓	392607	Pull 1932, 60-62

13	Boscombe 25004 (Wiltshire)	M	I	Beaker, flint, antler pendant, boar's tusk	✓	✓	-	Fitzpatrick 2011
14	Brigmerston, Milston G1 (Wiltshire)	-	C	Pottery, bone tool, worked flints	✓	✓	916889	Evans 1897, 314
15	Browndge (Derbyshire)	-	I	Beaker, flint knife, jet button	✗	✓	305868	Bateman 1861, 38; Clarke 1970, 446
16	Bulford Torstone (Wiltshire)	-	I	Food vessel, rock crystal, boar's tusk, arrowheads	✓	✓	1358757	Parker Pearson (pers comm)
17	Chilbolton (Hampshire)	-	I	Beakers, gold artefacts, copper dagger, antler spatula	✓	✓	227356	Russel 1990
18	Corran Ferry (Highland)	-	U	Beaker	✗	✓	23580	Campbell 1890; Clarke 1970, 517
19	Corston (Northeast Somerset)	M	I	Beaker, flint knife, flint tools	✓	✓	201095	Clarke 1970, 495
20	Crosby Garrett 174 (Cumbria)	M	I	Antler macehead, chert knife	✓	✓	13180	Greenwell 1877, 389-91
21	Culduthel Mains (Highland)	-	I	Flint arrowheads, stone bracer, amber bead, bone belt ring	✓	✓	13519	Harrison 1980, 92-3; Clarke et al. 1985, 174
22	Dornoch Nursery (Highland)	-	I, C	Beaker, stone bracer, arrowheads, Grooved ware	✓	✓	14841	Ashmore 1989; Sheridan 2007
23	Dowe Lowe (Derbyshire)	-	I	Bronze dagger, flint flakes	✓	✓	305849	Bateman 1848, 96
24	Dunfermline Cist 3 (Fife)	?M	I	Food vessel, flint knife	✓	✓	50851	Close-Brooks et al. 1974
25	Dunstable Downs (Bedfordshire)	?M	I	Pottery, flint flakes	✓	✓	359953	Dyer 1959, 15
26	Easton Lane (Hampshire)	M	I	Antler rods, bone awl, arrow- heads, flint knife and flakes	✗	✓	1248512	Fasham et al. 1989
27	Elton Moor (Derbyshire)	-	I	Beaker, polished flint axe, flint artefacts	✓	✗	311568	Bateman 1848, 53; Clarke 1970, 478

28	Flowerburn Cist (Highland)	-	C	Pottery	✓	?	14531	Mackenzie 1885
29	Forteviot Cist (Perth and Kinross)	-	?I	Copper dagger	~	✓	26565	Noble & Brophy 2011
30	Freefield, Spy Hill (Aberdeenshire)	-	-	Beaker	✗	✓	18252	Clarke 1970, 551
31	Galley Low (Derbyshire)	-	I	Food vessel, bone pommel, worked antler, flint arrowhead	\$	✓	310798	Bateman 1848, 37
32	Garton Slack 37 Burial 6 (East Yorkshire)	-	I	Beaker, flint dagger, jet button, axe hammer	✓	✓	64385	Mortimer 1905, 209; Clarke 1970, 507; Clarke et al. 1985
33	Green Low (Derbyshire)	M	I	Beaker, flint dagger, flint arrowheads, worked bone	✓	✓	311568	Bateman 1848, 59
34	Harrowden (Bedford)	-	I	Beaker, flint dagger	✗	✓	360133	Clarke 1970, 474
35	Hoprig (Scottish Borders)	-	I	-	✓	✓	58716	Hardy 1889
36	Kirkhaugh, Barrow 1 (Northumberland)	-	U	Beaker, gold artefacts, flint arrowhead, cores and flakes	✓	?	15072	Maryon 1936, 207-12; Needham, 2012
37	Lambourn Barrow 17 (West Berkshire)	M	I	?Beaker, flint dagger	✓	✓	1455788	Greenwell 1877, 266; Case 1956: 23- 4; Clarke 1970, 475
38	Lesmurdie (P2) (Moray)	?M	I	Beaker, flint flakes	✓	✓	17297	Robertson 1855, 207-8; Clarke 1970, 515
39	Middleton-on-the-Wolds (East Yorkshire)	M	I	Beaker, flint dagger, jet beads, bone pins	✓	✓	64255	Mortimer 1905, 353-4
40	Nether Low (Derbyshire)	?F	I	Boar's tusk, jet bead	*	?	308557	Bateman 1861, 52
41	Newmill (Perth and Kinross)	-	U	Beaker, flint knife	✗	✓	27015	Clarke et al. 1985, 174; Watkins & Shepherd 1980, 38-9

42	Overton Hill 6b (Wiltshire)	M	I	Beaker, bronze awl, flint knife	✓	✓	220841	Smith & Simpson 1964; Clarke 1970
43	Plas-y-Gors (Powys)	-	C	?Food vessel, flint dagger, flint knives	✗	✓	84590	Cantrill 1898
44	Rudston 68 Burial 5 (East Yorkshire)	M	I	Bronze dagger, jet artefacts	✓	✓	81233	Greenwell 1877, 263-5
45	Rudston 68 Burial 6 (East Yorkshire)	M	I	Jet artefacts	✓	✓	81233	Greenwell 1877, 265
46	Simondston Cairn (Bridgend)	-	C	Food Vessels, flint knife	✓	✓	-	Fox 1939
47	Staxton Burial 11 (North Yorkshire)	M	I	Beaker	\$	✓	79802	Stead 1962; Clarke 1970, 509
48	Teindside (Scottish Borders)	-	C	Food vessel, flint flake	✓	✓	54071	Greenwell 1877, 266; Rosehill 1871
49	Townhead, Stevenston (North Ayrshire)	-	I	Food Vessels, flint flakes	✓	?	41073	Morrison 1971
50	Udny Green (Aberdeenshire)	M	I	Beaker, flint knife, fragment of pegmatite rod	✓	✗	211831	Murray and Shepherd 2007
51	Upper Largie (Argyll and Bute)	-	U	Beakers, flint flake knife	✗	✓	39486	Cook et al. 2010
52	Ysgwennant Barrow (Powys)	-	C	Beakers, flint knife	✓	✓	306807	Clarke 1970, 524; Day 1972

Key to Table 1

Burial Rite: I Inhumation, C Cremation, U Body Unpreserved

Striker: ✓ present, ✗ absent, ? possible presence

Pyrites: ✓ pyrites/marcasite, ✗ absent, ? possible presence, ~ limonite, * haematite, \$ ironstone

Table 2: Radiocarbon dates from British strike-a-light burial sites

Radiocarbon dates have been calibrated with OxCal 4.2 using the IntCal 13 atmospheric calibration curve and are quoted as 95% probability ranges (Bronk Ramsey 2009). Beaker phases are taken from Needham (2012).

<i>SITE</i>	<i>C14</i>	\pm	<i>Cal. BC (95%)</i>	<i>Material</i>	<i>Laboratory Number</i>
PRIMARY BEAKER					
Chilbolton	3935	32	2560–2300	human bone	OxA-V-2271-35
Upper Largie	3915	40	2560–2290	charcoal	SUERC-15646
Amesbury Archer	3895	32	2470–2290	human bone	OxA-13541
Dornoch Nursery	3850	40	2460–2200	human bone	GrA-26515
Boscombe 25004	3845	27	2460–2210	human bone	OxA-13624
PHASE 2 BEAKER					
Udny Green	3795	28	2330–2140	human bone	OxA-V-2243-47
Easton Lane	3791	30	2340–2140	human bone	OxA-V-2271-36
Acklam Barrow K4	3774	36	2330–2040	human bone	OxA-V-2197-50
Lesmurdie	3770	33	2290–2050	human bone	OxA-13098
Staxton Burial 11	3765	30	2290–2050	human bone	SUERC-26198
Forteviot Cist	3690	30	2200–1980	charcoal	SUERC-29196
Green Low Barrow	3660	30	2140–1950	human bone	SUERC-26164
PHASE 3 BEAKER/BRONZE AGE					
Dunfermline Cist 3	3581	40	2040–1780	human bone	SRR-292
Bulford, Torstone	3475	30	1890–1700	human bone	SUERC-32173
Ysgwennant Barrow	3423	82	1940–1530	charcoal	Birm-85
Barrow Hills Grave 203	3360	50	1760–1510	human bone	BM-2700
Amesbury G58	3310	80	1870–1420	charcoal	HAR-6226

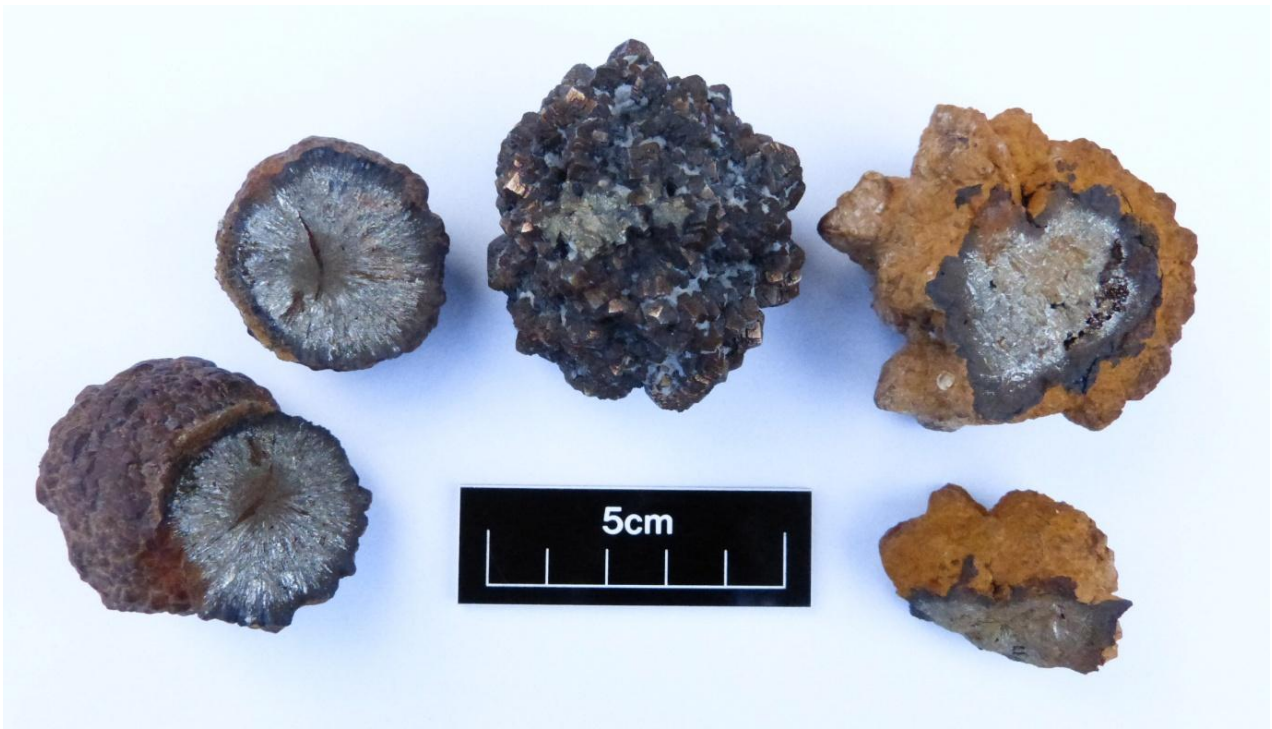
Table 3: Stable isotope data from strike-a-light burial sites. Data are from Chenery and Evans (2011) and Parker Pearson et al. (in press)

<i>Site Name</i>	<i>BPP no</i>	<i>14C (cal. 95%)</i>	<i>C</i>	<i>N</i>	<i>S</i>	<i>O</i>	<i>Sr</i>	<i>Notes</i>
Acklam Barrow K B 4	SK 61	2340-2040 BC	-21.1	10.9	11.7	16.8	.711765	Migrant from outside Britain (O), from region with Palaeozoic rocks (Sr)
Amesbury Archer	SK 301	2480-2280 BC	-21.0	10.4	10.3	16.2	.710340	Migrant from outside Britain (O)
Barrow Hills Ring Ditch	SK 267	-	-21.3	9.8	5.4	18.0	.708790	Local (skeleton analysed is Ring Ditch 17)
Boscombe 25004	SK 300	2460-2210 BC	-21.1	10.2	11.5	17.5	.713436	Migrant from region with Palaeozoic rocks (Sr), could be within Britain
Chilbolton	SK 164	2570-2300 BC	-21.5	10.5	12.1	18.5	.709093	Local
Easton Lane	SK 166	2336-2136 BC	-21.0	10.6	13.6	18.1	.708827	Local
Green Low Barrow	SK 198	2140-1950 BC	-21.9	11.1	8.5	18.5	.708981	Local
Staxton Burial 11	SK 274	2290-2040 BC	-21.4	10.9	13.9	18.1	.709936	Migrant from non-chalk geology (Sr), could be within Britain; n.b. Staxton Burial 4 is continental migrant

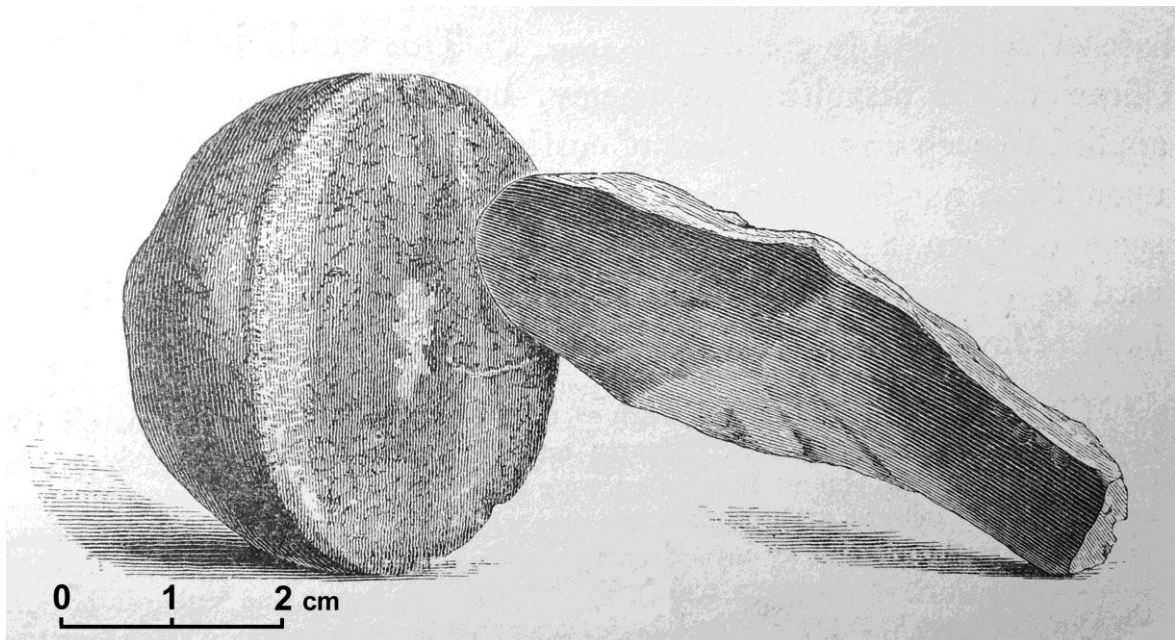
KEY to Table 3

BPP no - skeleton number from beaker People Project (Parker Pearson et al., in press)

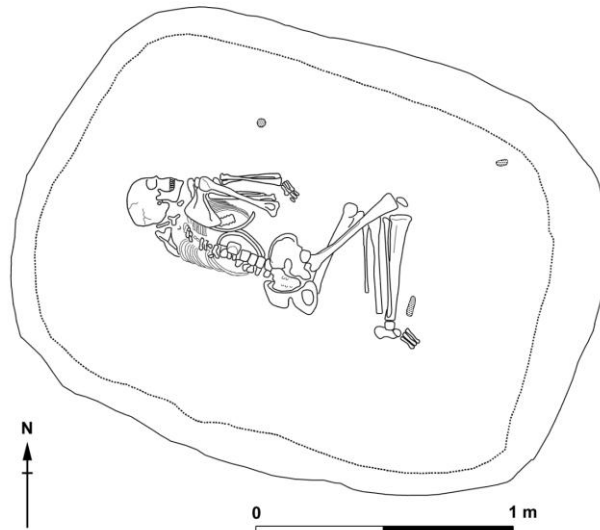
C - Carbon *N* - Nitrogen *S* - Sulphur *O* - Oxygen *Sr* - Strontium



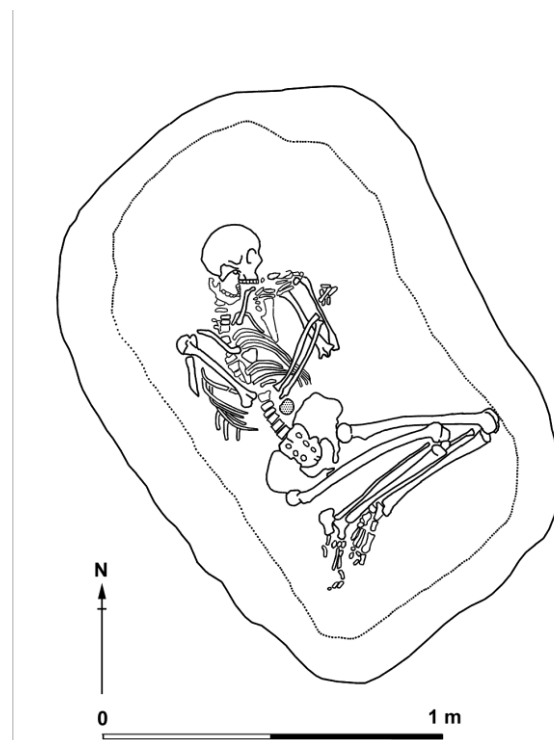
Illus. 1 Whole pyrite nodules. In centre, whole pyrite extracted from chalk bedrock; to the right a freshly broken pyrite nodule extracted from chalk showing oxidised exterior and to the left, a pyrite nodule retrieved from a natural beach deposit and broken (© Anne Teather)



Illus. 2 Pyrite nodule and flint striker from Rudston (from Greenwell, 1877, 41)



Illus. 3 Amesbury Archer grave with the locations of strikers and stone noted (other grave-goods not illustrated; after Fitzpatrick 2011, figs 28 and 29). One flint striker at the feet, one at the north-east of the grave with the pyrite nodule in front of the chest



Illus. 5 Barrow Hills, Radley, Grave 203 with pyrite nodule shown at waist, other grave-goods not illustrated (after Barclay and Halpin 1999, fig 4.76)

