

PETROLOGICAL EXAMINATION AND COMPARISON OF BEAKER POTTERY FROM BOS SWALLET AND GORSEY BIGBURY

by

MICHAEL RUSSELL and DAVID WILLIAMS

ABSTRACT

The results of thin section analysis of Beaker pottery from Bos Swallet (Taylor, 1964) and Gorse Bigbury (Jones *et al*, 1938) are discussed. Although local manufacture is suggested at each site, similarities in firing technology, paste preparation and temper selection may support earlier comparisons based on typology and decorative style (Taylor, 1964) but might equally reflect a more general tradition of pot-making.

INTRODUCTION

As part of a small-scale programme to examine selected groups of Beaker pottery from non-funerary sites, the authors undertook a petrological examination of Beaker fabrics from the putative habitation site at Bos Swallet (Taylor, 1964; ApSimon, 1997) and the settlement at Gorse Bigbury (Jones *et al*, 1938). These sites are of particular interest because they are just under 3 km distant and possess pottery considered so similar, both typologically and stylistically, that it could have been made by a single family or group (Taylor, 1964). As such, these site assemblages may shed light on the mode of production and distribution of Beaker ware, e.g. site-based manufacture and use or more 'centralised' production supported by some form of distribution network.

METHODS

All Beaker and associated sherds from both sites were examined using a x 10 hand lens and a detailed record made of fabric, surface finish, building technology and decorative treatment. On the basis of these observations, and in order to examine relationships between fabric, vessel typology and decorative style, a representative sample of mainly published illustrated sherds was selected for detailed analysis in thin section under the petrological microscope. The sample of twenty sherds from Bos Swallet and twenty-eight sherds from Gorse Bigbury included material with combed, incised, 'punched', finger-tip and finger-pinched (rusticated) decorative schemes.

The thin sections were coded with the initial letters of the site, e.g. BS for Bos Swallet, followed by the published vessel number (Taylor, 1964 for Bos Swallet and Jones *et al*, 1938 for Gorse Bigbury) or, for unpublished material, the original catalogue number of the sherd (U.B.S.S. site code and category, M.25.6/ for Bos Swallet and T.186.7/ for Gorse Bigbury). They are presently housed in the thin section collection of the Department of Archaeology, University of Southampton.

FABRICS

Bos Swallet

All of the samples examined from Bos Swallet are characterised by having a fairly fine textured clay matrix containing moderately frequent silt-sized quartz grains, shreds of mica and a little opaque iron oxide. Sparse, slightly larger sub-angular quartz grains mostly below 0.40 mm but occasionally up to 0.60 mm, are also present. However, the dominant non-plastic inclusion type in all but one of the samples is angular pieces of crushed grog (i.e. previously fired pottery, pounded and then added to the clay before the forming stage to act as a form of temper). The only sherd that lacks grog is No. 4, which is slightly coarser than the rest of the material.

In addition to the above No. 4 contains a large piece of quartzite, No. 7 a single piece of lithic sandstone and No. 8 a large piece of quartzite. Number 17 together with unpublished sherds M.25.6/A2, M.25.6/53 and a stray sherd from the black Beaker hearth have sparse pieces of soft dolomitic Carboniferous Limestone, with several vesicules indicating the presence of leached or burnt out limestone (the calcite identified by ApSimon for these sherds is actually limestone).

Sections

Published: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 17, 20.

Unpublished: M.25.6/20, M.25.6/29, M.25.6/A2, M.25.6/53 and a stray unnumbered sherd from the black Beaker hearth.

Gorsey Bigbury

Fabric GB1

Many of the samples examined from Gorsey Bigbury also have a silty clay matrix similar to that described above for Bos Swallet. Sparse, slightly larger sub-angular grains of quartz generally under 0.40 mm in size are also present. Grog was noted in all the samples with the exception of No. 32, though it was noticeable that only very small amounts are present in Nos. 3, 11, 22, T.186.7/1134 and T.186.7/411.

Sections

Published: 2, 3, 5, 19, 22, 24, 28, 29, 32, 35, 38, 44, 48.

Unpublished: T.186.7/1134, T.186.7/411 and T.186.7/940.

Fabric GB2

This is probably a variation on Fabric 1. It seems to be a poorly prepared fabric and has a silty matrix that shows many fissures and swirl structures and contains few other visible inclusions.

Sections

Published: 9, 33.

Fabric GB3

A poorly wedged paste containing frequent inclusions of calcite, moderately frequent grains of quartz up to 0.40 mm in size, and a scatter of opaque iron oxide. Grog was not positively identified in any of these samples.

Sections

Published: 11, 25.

Unpublished: T.186.7/227.

Fabric GB4

A fine-textured silty paste containing frequent small pieces of dolomitic Carboniferous Limestone. Moderate to sparse amounts of grog are also present. In the hand specimen the sherds show many fine white inclusions of limestone.

Sections

Published: T.186.7/121, T.186.7/626 and T.186.7/449a.

Fabric GB5

This has abundant silt-sized quartz grains (similar to Fabric GB1 but rather more frequent) with rare larger sub-angular quartz grains up to 0.30 mm across, together with some flecks of mica and opaque iron oxide.

Sections

Daub

DISCUSSION

The range of fabrics identified here is typical of late Beaker wares in the region. Virtually all the fabrics from both sites are fine-textured with a silty, reasonably well-prepared clay body. The paste of the Gorsey Bigbury samples was generally found to contain slightly more quartz silt and mica than was noted in the pottery from Bos Swallet. This suggests that there was not a single common source for this particular fabric and that different clay sources were probably used at each site.

At Bos Swallet almost all the samples contain pieces of finely crushed grog, usually under 1 mm in size, including the samples which also contained dolomitic Carboniferous Limestone. Only one sample out of 20 was found lacking in grog inclusions. The rare, often single pieces of stone present in some thin sections, e.g. sandstone, flint and quartzite, are regarded here as either natural or accidental additions to the clay.

The picture is much the same at Gorsey Bigbury. Again, most of the sampled pottery is grog tempered, though there is greater variation in the size and frequency of the grog than at Bos Swallet. The tiny amount of grog in samples 3, 11, 22, T.186.7/1134 and T.186.7/411 is worthy of note. These very small amounts of grog are difficult to account for purely in terms of strict temper addition, while at the same time are too frequent to be accidental, so their presence may

represent another purpose. What appears to be a 'token' amount of grog perhaps relates to a long tradition of adding pieces of previously fired vessels to beaker and associated pottery. These successfully fired pots might have been seen as having special significance (cf. Cleal, 1995, p192, in relation to grog temper in Grooved Ware in Wessex) in helping to create or perpetuate the same conditions for future 'successful' firings, the practice of adding grog having become more symbolic and less understood with time. It goes without saying that these latter comments are speculative, but they might help explain what appears to be in some cases a non-functional addition by the potter. However, since the vessels in this fabric do not appear significantly stylistically or technologically different from others in more conventional grog tempered wares, it may be safer to view this type of fabric as forming part of a diverse range of wares that comprise later beaker domestic assemblages.

At Gorsey Bigbury, in addition to the grog tempered wares, there are also fabrics which have calcite (Fabric GB3) and limestone (Fabric GB4). The rare, arguably natural or accidentally occurring, pieces of stone noted in some of the Bos Swallet samples are absent at Gorsey Bigbury. In general, the pottery fabrics from Bos Swallet appear more homogeneous than those from Gorsey Bigbury. This may be a function of the smaller size of the Bos Swallet assemblage (an estimated 20 vessels compared with over 100 from Gorsey Bigbury), or it may relate to the duration and nature of occupancy at both sites. There is a suggestion, based on the wider range of decorative schemes, variations in vessel shapes and number of pots, that Gorsey Bigbury was occupied for longer, and probably more permanently, than Bos Swallet.

Probably the most striking feature of the two assemblages, particularly when evidence from neighbouring counties is considered, is the overwhelming presence of 'pure' grog tempered fabrics, with only minor occurrences of fabrics containing combinations of other tempering agents. At Gorsey Bigbury grog tempered wares account for almost 70% of all samples examined in thin section: this figure is likely to be nearer 87% when the macroscopic evidence is considered. Accepting that the rare lithic inclusions in the Bos Swallet samples are natural or accidental, all but one of the specimens examined also have 'pure' grog tempered fabrics. Does this signify a regionally defined, perhaps closely prescribed, tempering tradition or technology, and if so what are its geographical boundaries?

Such issues are unfortunately beyond the scope of this short paper. Moreover, without detailed examination of the pottery from a wider range of sites, they are difficult to test simply through literature searches because of the paucity of relevant well-documented sites in the area and uneven, often inadequate, published fabric descriptions. However, at Brean Down, Somerset, the pottery descriptions for the original excavations (ApSimon *et al*, 1961), and thin section analysis of Beaker from more recent investigations (Williams, 1990, p120), indicate a 'pure' grog temper tradition; only one sherd from the original excavation, No. 9 (M11.7/380), is said to have visible grits. A similar situation probably applies to the Beaker from various sites at Chew Valley Lake (Rahtz and Greenfield, 1977) where most of the Beaker is described as fine without visible inclusions (probably indicating the existence of grog) and only a few sherds had grits. Since no inclusions are recorded for a comb decorated Beaker sherd from Chelm's Combe, Cheddar (Balch and Palmer, 1926), while grits are mentioned for other ceramic types, grog might similarly be inferred. Shell or other calcareous grits are, however, recorded for a comb ornamented Beaker from Cockles Wood Cave, Nettlebridge, Somerset (Hickling and Seaby, 1951, figure 1, No. 4), but it is not clear whether this is temper or a natural calcareous clay.

In contrast, Beaker fabrics at Roughground Farm, Lechlade, Gloucestershire were mostly grog and shell tempered (Allen *et al*, 1993) while those from Shorncliffe Quarry, near Cirencester contained a mixture of grog, patinated flint and rare fossil shell (Morris, 1994).

Cleal's (1995) survey of prehistoric pottery in Wessex illustrates a range of Beaker fabrics in which 'pure' grog tempered wares are only a component. These results were supported and amplified in a recent study of the Beaker from Easton Down, Wiltshire (Russell, *forthcoming*) which demonstrated that 'pure' grog tempered wares comprise a reasonably small element of a series of fabrics in which calcined flint in isolation or with grog is significant. In Dorset, at Cranborne Chase (Barrett *et al.*, 1991) and Maiden Castle (Sharples, 1991), grog tempered wares, often in combination with other inclusions, are secondary to fabrics that contain sand and flint; similar wares may also be represented at Mount Pleasant (Wainwright, 1979).

In so far as can be demonstrated here, the pattern of virtually 'pure' grog tempered Beaker assemblages on Mendip and somewhat further afield appears regional though the precise boundaries of this 'tradition' or technology are far from clear.

Where then was the pottery from Bos Swallet and Gorsey Bigbury made? The dominance of grog temper is unfortunately of little help in provenance studies. Instead, taking the fine-textured clay matrix into account, the clay(s) used for much of the pottery from both sites probably derives from the silty, loamy series of the Mendips with the probability that separate beds of such clay were being exploited at each site. It is equally possible that at Bos Swallet the clay locally available in its entrance may have been used, but this has not been possible to test in the current study. The piece of lithic sandstone in No. 7 from Bos Swallet may have originated from the Old Red Sandstone formations in the area. Equally, dolomitization of the Carboniferous Limestone, especially the Black Rock Limestone, provides a local source for the inclusions in Bos Swallet sample 4 and Gorsey Bigbury fabric 4. For Bos Swallet this could have been rock debris in the floor of Burrington Combe (Green and Welch, 1977, p178, figure 19) while at Gorsey Bigbury the precise source is unclear although Black Rock Limestone is exposed in the Long Wood valley within 400 m of the site. The calcite in Fabric GB3 might also derive from the extensive limestone formations in the immediate area. There is little, therefore, to suggest anything other than local manufacture, with slightly different clay sources having been used at each site.

No obvious difference was detected between fabrics used for fine comb-decorated vessels and those with rusticated or other designs. There was equally no clear distinction between fine wares and coarse wares (Clarke, 1970; Gibson, 1982; Boast, 1995) at either site, unless an arbitrary, and certainly misleading, division of fineness were made by reference to decorative treatment, rusticated wares being equated with coarseness and comb decoration with finewares. Interestingly the surfaces of rusticated vessels, particularly at Gorsey Bigbury, were often smoother and better finished than those of comb-decorated vessels, yet their fabrics were of similar composition and 'quality'. The principal difference is in the thickness of the vessel walls, presumably relating to the larger size of such pots or to their function.

In terms of firing technology, few inter-site differences were elucidated. Typically, the sherds are smooth, some lightly burnished, with oxidised orange-brown or brown outer zones and reduced dark brown or black inner zones, the zonal widths varying from 1:1 to 1:2. This might indicate that oxygen was unable to circulate around the interior surfaces of the vessels during firing, perhaps suggesting that the pots were fired rim down and allowed to cool in situ. A few sherds with a thin inner oxidised skin, a more common feature on earlier material, might point to certain vessels having been removed from the fire and placed on their bases thus allowing the free circulation of air. Other sherds have either completely oxidised or patchy oxidised and reduced surfaces (on the same sherds) typical of firing in a bonfire or crude clamp kiln like that suggested by Biek (1986) at Weasenham All Saints, Norfolk.

In conclusion, the evidence presented here is suggestive of pottery manufacture on a site-by-site basis, though using broadly similar materials, rather than more centrally produced. It still remains a possibility that the same group or family occupied and made pottery at both sites but utilised the most immediately available resources for pot-making. The kind of Beaker network envisaged by Clarke (1974) has not yet been recognised by any scientific analyses of Beaker pottery from Britain and Ireland (Parker Pearson, 1995; Russell, 1990; Williams, 1990; 1990a; Cleary, 1983; Brindley, 1984). Much clearer, however, is a tradition, perhaps a technological recipe passed down through families, of making Beaker pottery. Whether this tradition became symbolised in the subconscious addition of small amounts of grog to potting clay in the later Beaker period is not certain and outside the scope of this present study, the variety of fabrics noted at Bos Swallet and Gorsey Bigbury is testimony to the adaptive and creative capabilities of late Beaker potters.

FUTURE WORK

In order to address many of the questions raised in this paper a detailed programme of analysis of Beaker pottery is being planned by the writers. Clearly Beaker pottery from a wide geographical range of sites needs to be systematically examined, together with clay sampling from the find sites. A considered appraisal of the relationship between Beaker funerary and Beaker domestic ceramics is also urgently required.

ACKNOWLEDGEMENTS

The authors wish to express their gratitude to Mr C. Hawkes, the U.B.S.S. Hon. Curator, for making the pottery available for examination.

REFERENCES

- ALLEN, T.G., DARVILL, T.C., GREEN, L.S. AND JONES, M.U. 1993. *Excavations at Roughground Farm, Lechlade, Gloucestershire: a prehistoric and Roman landscape*. (Thames Valley Landscapes: the Cotswold Water Park), 1. Oxford Archaeological Unit.
- ApSIMON, A.M., DONOVAN, D.T. AND TAYLOR, H. 1961. The stratigraphy and archaeology of the Late-Glacial and Post-Glacial deposits at Brean Down, Somerset. *Proceedings of the University of Bristol Spelaeological Society*. 9. 2. p67-p136.
- ApSIMON, A.M., 1997. Bos Swallet, Burrington, Somerset; Boiling site and Beaker occupation site. *Proceedings of the University of Bristol Spelaeological Society*. 12. 1. p41-p82.
- BALCH, H.E. AND REV. PALMER, 1926. Excavations at Chelm's Combe Cheddar. *Proceedings of the Somersetshire Archaeological and Natural History Society*, 72. p93-p123.
- BIEK, L. 1986. Technological appraisal of the ceramin material ('brick' and pottery). In The excavation of two round barrows and a ditched enclosure on Weasenham Lyngs, 1972. In A.J. Lawson (ed) *Barrow excavations in Norfolk, 1950-82. East Anglian Archaeological Report*. 29. p98-p99.

- BOAST, R. 1995. Fine pots, pure pots, Beaker pots. In I. Kinnes and G. Varndell, '*Unbaked urns of rudely shape*' *Essays on British and Irish pottery for Ian Longworth*. Oxbow Monograph **55**. p69-p80.
- BRINDLEY, J.C. 1984. Petrological Examination of Beaker Pottery from the Boyne Valley sites. In G. Eogan *Excavations at Knowth I*. Dublin.
- CLARKE, D.L. 1970. *Beaker Pottery of Great Britain and Ireland*. Cambridge University Press (2 vols).
- CLARKE, D.L. 1974. The Beaker Network – Social and Economic Models, In J.N. Lanting and J.D. van der Waals (eds), *Glockenbecker Symposion: Oberried 1974*. p459-p477. Bossum/Haarlem.
- CLEAL, R.M.J. 1991. Cranborne Chase - The Earlier Prehistoric Pottery. In J. Barrett, R. Bradley and M. Hall (eds) *Papers on the Prehistoric Archaeology of Cranborne Chase*. Oxbow Monograph **11**. p134-p200.
- CLEAL, R.M.J. 1995. Pottery fabrics in Wessex in the fourth to second millennia BC. In I. Kinnes and G. Varndell, '*Unbaked urns of rudely shape*' *Essays on British and Irish pottery for Ian Longworth*. Oxbow Monograph **55**. p185-p194.
- CLEARY, R.M. 1984. The Ceramic Assemblage. In M.J.O. O'Kelly, R.M. Cleary and D. Lehané *Newgrange, Co. Meath, Ireland: the Late Neolithic/Beaker period settlement*. British Archaeological Reports **190**. p58-p117.
- FINDLAY, D. 1965. *The soils of the Mendip District of Somerset*. Harpenden. Soil Survey of Great Britain.
- GIBSON, A.M. 1982. *Beaker Domestic Sites. A study of the domestic pottery of the late third and early second millennia B.C. in the British Isles*. Oxford, British Archaeological Reports, **107** (2 vols).
- GREEN, G.W. AND WELCH, F.B.A. 1977. *Geology of the Country around Wells and Cheddar*. London, HMSO.
- HICKLING, M.J.L. AND SEABY, W.A. 1951. Finds from Cockles Wood Cave, Nettlebridge, Somerset. *Proceedings of the Somersetshire Archaeological and Natural History Society*. **96**. p193-p202.
- JONES, S.J., GRIMES, W.F., FAWCETT, E. AND TETLEY, H. 1938. The excavation of Gorsey Bigbury. *Proceedings of the University of Bristol Spelaeological Society*. **5**. 1. p3-p56.
- MORRIS, E.L. 1994. Pottery. In C.M. Hearne and M.J. Heaton Excavation of a Late Bronze Age settlement in the Upper Thames Valley at Shorncliffe Quarry near Cirencester 1992. *Transactions of the Bristol and Gloucestershire Archaeological Society*. **112**. p17-p57.
- PARKER PEARSON, M. 1995. Southwestern Bronze Age pottery. In I. Kinnes and G. Varndell, '*Unbaked urns of rudely shape*' *Essays on British and Irish pottery for Ian Longworth*. Oxbow Monograph **55**. p89-p100.
- RAHTZ, P.A and GREENFIELD, E. 1977. *Excavations at Chew Valley Lake Somerset*. Department of the Environment Archaeological Reports. **8**. p173-p190.
- RUSSELL, M.J.G. 1990. *A petrological and technological analysis of Beaker and associated ceramics from Northern Ireland with special reference to Ballynagilly*. Unpublished M.Phil. thesis. University of Southampton.

- RUSSELL, M.J.G. *forthcoming*. A re-examination of Beaker and associated pottery from Easton Down, Winterslow, Wiltshire.
- SHARPLES, N.M. 1991. *Maiden Castle Excavations and field survey 1955-1956*. English Heritage.
- TAYLOR, H. 1964. Bos Swallet, Mendip, Somerset. A disturbed Beaker Age deposit. *Proceedings of the University of Bristol Spelaeological Society*. **10**. 2. p98-p111.
- WILLIAMS, D.F. 1990. A note on the petrology of two Beaker sherds. In M. Bell, *Brean Down. Excavations 1983-1987*. English Heritage Archaeological Report **15**. p120.
- WILLIAMS, D.F. 1990a. A note on the Petrology of the Beaker. In N. Thomas and S. Hartgroves A Beaker Cist Grave at Harrowbarrow. *Cornish Archaeology*. **29**. p59.
- WAINWRIGHT, G.J. 1979. *Mount Pleasant, Dorset: Excavations 1970-1971. Incorporating an account of excavations undertaken at Woodhenge in 1970*. Reports of the Research Committee of the Society of Antiquaries of London, **37**.

M.J.G. Russell B.A., M.Phil.

Royal Commission on the Historical Monuments of England, National Monuments Record, Kemble Drive, Swindon SN2 2GZ.

D.F. Williams B.A., Ph.D., F.S.A.

English Heritage Ceramic & Lithic Petrology Project, Department of Archaeology,
University of Southampton, Southampton SO17