Sheridan, Alison and Andrew Shortland (2004) “...beads which have given rise to so much dogmatism, controversy and rash speculation”: faience in Early Bronze Age Britain and Ireland. In: Scotland in ancient Europe: the Neolithic and early Bronze Age of Scotland in their European context. Society of Antiquaries of Scotland, Edinburgh, pp.263-279 0903903318

http://repository.nms.ac.uk/447

Deposited on: 23 October 2014
Introduction

In a volume that aims to follow Stuart Piggott in studying Scotland’s prehistory within its broader European context, there can be few classes of material more appropriate to examine than faience. Faience is a glazed, non-clay ceramic material – a glass-like substance, consisting mainly of sand or crushed quartz – which was in use in Scotland, as well as elsewhere in Britain, Ireland, parts of continental Europe and further afield, during the second millennium BC. In summarizing the results of a current National Museums of Scotland (NMS)-led collaborative project on Early Bronze Age faience jewellery in Britain, Ireland and adjacent areas of mainland north-west Europe, this paper will attempt to demonstrate that the use of this material in Scotland can only be understood by examining the social and economic dynamics of a much larger area. It will also seek to lay to rest a long-held misconception that faience was introduced to Britain, around 1400 BC, by 18th-Dynasty Egyptian or Mycenaean traders.

Faience in Britain and Ireland: a brief history of research and debate

The aforementioned NMS project (whose many collaborators are acknowledged at the end of this contribution) was triggered by the discovery, in the late 1980s, of what had once been a necklace comprising 25 faience beads at Findhorn in Moray, north-east Scotland. They were associated with the cremated remains of a young adult female and a newborn or final-term baby – both had probably died during childbirth – and all but two of the beads had been placed in a large Cordoned Urn along with the bones. (The other two, which had probably fallen to the bottom of the pyre during the cremation and were substantially heat-damaged, had been subsequently deposited at the top of the infilled grave pit.) Full details of this find have already been published (Shepherd & Shepherd 2001); suffice it to point out here that the 25 segmented, star- and quotient-shaped beads represent the largest single extant find of faience in Britain and Ireland. At the time, the NMS Archaeology Department determined to produce a corpus of all the Scottish finds. However, it rapidly became apparent that Scottish faience could not be understood without reference to faience elsewhere in Britain and beyond; and so the project expanded to encompass the other faience beads from Britain, Ireland and adjacent parts of the north-west European coast. The expanded corpus has built on the work of the late Paul Peek, who attempted a similar task during the 1970s; and on the work of Ralph Magee, who catalogued and analysed the Irish finds in the late 1980s (Magee 1989; Williams et al 1992). Both these projects had been undertaken at Bradford University under the supervision of Stanley Warren.

The current research involves not only corpus compilation, but also fresh analytical and dating work, the latter taking advantage of a technique, developed in the 1990s in Groningen University, for producing AMS radiocarbon dates from structural carbonate (bio-apatite) in cremated human bone (Lanting & Brindley 1998). The research is intended to determine when and how people in Britain and Ireland became aware of faience; how long it continued to be used; how and (if possible) where the beads were made; how they were used (including whether they were worn on the body during cremation); and their social and symbolic significance.

The current project is, however, but the latest in a long series of attempts to understand faience in Britain and Ireland. Interest in the material, and the suggestion of a possible link with Egyptian beads, dates back at least as far as 1812, when Colt Hoare remarked on the similarity between segmented beads from Bronze Age barrows in Wiltshire and from Egypt in his Ancient History of South Wiltshire. The suggestion of importation from Egypt or elsewhere in the eastern Mediterranean was subsequently taken up by several commentators (for example, Skinner 1826; Thurnam 1871; Evans 1909; Abercromby 1912, 65–8; Hall 1914; Sayce 1914; Child 1925). An early challenge to this idea was mounted by Ludovic Mann in 1906 (following Figuier 1870), who argued for local manufacture in Scotland and southern England, on the grounds that incidental to the manufacture of bronze
was the production of a beautiful greenish-blue and sometimes a greyish vitreous slag’ (1906, 401). By 1931, Leslie Grinsell was moved to express his exasperation with the debate, producing the remark reproduced in this paper’s title when discussing the quoit-shaped pendant and segmented beads from Oxsette Bottom, Sussex (Grinsell 1931, 66).

The debate was given fresh impetus with the publication of Beck & Stone’s corpus of British faience in 1936. This seminal study included a careful examination of the evidence then available on dating, distribution and associations, and their experimental work shed useful light on faience bead manufacture. Although compositional analysis was in its infancy at the time, spectrographic analysis of a segmented bead from Wiltshire led them to conclude that ‘there is so great a resemblance between [it] and [an 18th-Dynasty segmented bead] from Tell el Amarna that there can be little doubt that both were made in Egypt and are roughly of the same date’ (Beck & Stone 1936, 252). However, analyses of Scottish beads produced very different results; furthermore, their search for Middle Eastern prototypes for star- and quoit-shaped beads from Britain in general had produced very few candidates, and they were forced to admit that British segmented beads had wider thread-holes than their Egyptian counterparts. In summarizing their findings, they declared the evidence for the origin of faience in Britain to be equivocal and inconclusive but nevertheless felt that, on balance, the beads were most likely to have been imported from Egypt, with the southern English beads arriving around 1400 BC and the Scottish ones somewhat later.

Beck & Stone’s work proved to be a major influence on the subsequent debate, with Stuart Piggott’s 1938 essay on ‘The Early Bronze Age in Wessex’ accepting their argument for importation from the eastern Mediterranean (but not necessarily by Egyptian traders) around 1400 BC. Remarkning on the apparent absence of faience finds from central Europe, Piggott argued for their arrival via ‘the western sea route’ (Piggott 1938, 80). A Mycenaean connection was promoted by Christopher Hawkes in 1940 (cf Evans 1921 on Minoan finds), and this idea was developed further by Grahame Clark in 1952. Clark drew attention to faience finds from east and central Europe that had not been considered by Beck & Stone, and speculated that the Wessex beads could have come either overland, along the central European routes by which amber travelled down to Mycenae, or by sea along the Mediterranean and up the Atlantic.

The first systematic analytical study of faience, using semi-quantitative spectrography to determine composition, was published by Stone & Thomas in 1956. They analysed 55 beads from Britain, Egypt, Syria, Crete, Malta and central Europe, along with samples of sand from Scotland and Egypt, and a few beads of true glass. They also updated Beck & Stone’s overall distribution maps for faience use, clearly demonstrating a gradual expansion in use from the fifth to the second millennium, outwards from Egypt and Mesopotamia as far as India, Russia and Ireland. On the basis of associations and cross-dating with supposed Egyptian counterparts, they concluded that Mycenaean traders were responsible for the appearance of faience in Britain and Ireland around 1400 BC, the beads being made either in Mycenae or the Near East. However, they were also forced to conclude that their analytical results did not ‘provide any unequivocal indication of their source or date of origin’, beyond suggesting some compositional differences between British, central European and Egyptian beads. In particular, British beads appeared to have a higher tin content than virtually all of the other beads analysed.

From the 1960s, radiocarbon dating started to weaken the ‘Mycenaean traders’ argument (for example, Renfrew 1968), and in 1970 Newton & Renfrew revisited the results of Stone & Thomas’s analyses, using multivariate statistical analysis. They concluded that clear compositional groupings could be distinguished, and argued for local manufacture in Scotland, England, central Europe, eastern Europe, the eastern Mediterranean and the Near East, with independent invention being a possibility, albeit not a convincing one. The ‘local manufacture’ model was supported by Doran & Hodson’s subsequent cluster analysis of the same data (1975, 251–7) and by Harding in his review of central and east European faience (1971).

The 1970s saw renewed analyses undertaken, in Bradford (by Arnold Aspinall, Stanley Warren and colleagues) and Edinburgh (by Hugh McKerrell). Aspinall et al used neutron activation analysis (NAA) and X-ray fluorescence spectrometry (XRF), McKerrell just the latter; and by 1976, half of all the British faience beads then available had been analysed, along with examples from Europe and the Near East. To cut a long and complicated story short (see Sheridan et al forthcoming), the two sets of investigators came to opposing conclusions. Aspinall et al supported the ‘local manufacture’ hypothesis (for example, Aspinall et al 1972; Harding & Warren 1973; Aspinall & Warren 1976) while McKerrell persisted with the ‘import from Egypt’ model (McKerrell 1972; 1974; 1976a). In particular, the work of Aspinall et al highlighted the high tin-to-copper ratio that differentiated British beads from the others; and compositional variability within the British beads suggested their manufacture in small batches. McKerrell’s data remain unpublished, and are thus not available for critical re-evaluation.

The debate continued, on an attenuated basis, over the next quarter century, although important new studies...
‘... beads which have given rise to so much dogmatism, controversy and rash speculation’

Food Vessel, is in line with a broader pattern of Irish dates for this kind of Early Bronze Age pottery as established by Anna Brindley and Jan Lanting. Using wiggle-matching, Brindley argues that its calendar date is most likely to have fallen in the range 1850–1830 BC (Anna Brindley, pers comm). At the other end of the chronological scale, support for the currency of use continuing after 1500 BC is offered by the near-spherical bead from Chapel Brampton, Northamptonshire, found with at least one bronze wire bracelet in a plain bucket urn in a cemetery of Deverel-Rimbury pottery (Moore 1973).4

On a broader geographical scale, it is evident that faience was being made and/or used in many other areas during the early second millennium BC, including central Europe and Spain. The origins of faience manufacture lie in fifth- or early fourth-millennium Mesopotamia and Egypt (Shortland 2000). The spread of its use over parts of the Mediterranean, and to areas as distant as Pakistan, Azerbaijan and Siberia, during the fourth to second millennia, is fairly well documented (Ostler-Farquhar 1973; Harding 1984, 87–104). Its spread to central Europe may well be related to contacts across south-east Europe with the Near East (more specifically with north-west Anatolia, via the Middle and Lower Danube), from around 2400 BC, in connection with the demand for central European supplies of tin (Gerloff 1993; Sherratt 1993; Krause 1998; Pare 2000). Faience beads dating to c. 2400 BC have been found at Óbęba in western Romania, near the border with Hungary and Serbia; they are of segmented, faceted annular and four-ray star shapes (Harding 1984, 96–9 and fig 26; Sherratt 1993, 23 and note 16). Faience-use in central Europe continued into the second millennium BC and the beads appear to have been manufactured locally, with the repertoire of forms including some not found in the eastern Mediterranean (Harding & Warren 1973; Harding 1984, 96–101). In other words, and to use Sherratt’s term, faience manufacture was a ‘transferable technology’ (Sherratt 1993, 22).

Use, associations, distribution and form

In Britain and Ireland, there are around 300 extant beads and pendants of faience, and records of at least 50 more which have been lost; around 120 findspots are involved. The vast majority of these ornaments have been found in burials, and in all but a handful of cases the funerary rite was cremation; at 14 sites where the cremated remains have been identified, more than one individual has been present. The current project has been able to demonstrate that, in some cases, the items had been worn by the deceased during cremation; proof of this is provided by the tiny fragments of cremated bone that became embedded...
<table>
<thead>
<tr>
<th>Sample Code</th>
<th>Location</th>
<th>Radiocarbon Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>OxA-647</td>
<td>Port-Melitte</td>
<td>3570±70BP</td>
</tr>
<tr>
<td>GrA-24868</td>
<td>Tandderwen</td>
<td>3565±40BP</td>
</tr>
<tr>
<td>GrA-14804</td>
<td>Ballyduff</td>
<td>3550±50BP</td>
</tr>
<tr>
<td>GU-4266</td>
<td>Camps Reservoir</td>
<td>3510±50BP</td>
</tr>
<tr>
<td>GrN-15378</td>
<td>Kilcroagh 2 coal</td>
<td>3510±40BP</td>
</tr>
<tr>
<td>GrN-14816</td>
<td>Kilcroagh 2 bone</td>
<td>3460±40BP</td>
</tr>
<tr>
<td>GrA-22385</td>
<td>Callis Wold 114</td>
<td>3495±40BP</td>
</tr>
<tr>
<td>GrN-14692</td>
<td>Vogelenzang</td>
<td>3470±60BP</td>
</tr>
<tr>
<td>GU-3260</td>
<td>Stoneyburn c3</td>
<td>3450±50BP</td>
</tr>
<tr>
<td>AA-29734</td>
<td>Trelowthas</td>
<td>3435±50BP</td>
</tr>
<tr>
<td>HAR-2220</td>
<td>Shaugh Moor</td>
<td>3430±30BP</td>
</tr>
<tr>
<td>OxA-7622</td>
<td>Findhorn</td>
<td>3410±50BP</td>
</tr>
<tr>
<td>GrA-19180</td>
<td>Tara</td>
<td>3390±60BP</td>
</tr>
<tr>
<td>GrN-17440</td>
<td>King's Low sample 1</td>
<td>3370±35BP</td>
</tr>
<tr>
<td>GrN-17441</td>
<td>King's Low sample 2</td>
<td>3365±40BP</td>
</tr>
<tr>
<td>GrA-24853</td>
<td>Amesbury 61a</td>
<td>3365±40BP</td>
</tr>
<tr>
<td>GU-3259</td>
<td>Stoneyburn c.4</td>
<td>3360±50BP</td>
</tr>
<tr>
<td>OxA-3550</td>
<td>Eagleston Flat</td>
<td>3360±75BP</td>
</tr>
<tr>
<td>GrA-ave of 2</td>
<td>Mill of Marcus</td>
<td>3353±40BP</td>
</tr>
<tr>
<td>Gif-6073</td>
<td>Mez-Nabat</td>
<td>3330±60BP</td>
</tr>
<tr>
<td>GrA-18019</td>
<td>Fordhouse</td>
<td>3325±40BP</td>
</tr>
<tr>
<td>GrA-24867</td>
<td>Long Ash Lane</td>
<td>3315±35BP</td>
</tr>
<tr>
<td>GrA-14815</td>
<td>Kilcroagh 1</td>
<td>3310±40BP</td>
</tr>
<tr>
<td>GrA-18016</td>
<td>Longniddry</td>
<td>3305±40BP</td>
</tr>
<tr>
<td>GrA-22371</td>
<td>Amesbury</td>
<td>3240±40BP</td>
</tr>
</tbody>
</table>

21.1 Radiocarbon dates relating to faience use in Britain, Ireland, Brittany and the Netherlands. Atmospheric data from Stuiver et al (1998); OxCal v3.9 Bronk Ramsey (2003); cub r.4 sd/12 prob usp[chron].
in the surface as it softened, then resolidified, on the pyre (illus 21.2). Others, however, had clearly not been through the pyre; and in many cases it is impossible to tell. The gender association, where it has been determined with any degree of reliability, is almost exclusively female (though masked to some degree in multiple-individual burials); the male youth from Tara, County Meath in Ireland, is a notable exception, and is also remarkable for not having been cremated (Ó Riordáin 1955).

The beads and pendants are usually found singly or in small numbers, but a number of necklaces comprising over five beads are known, mostly from Wessex. The aforementioned Findhorn example is unusual in consisting exclusively of faience beads (illus 21.3.1; the former presence of organic beads cannot be ruled out but seems, to this author, unlikely). Other necklaces, such as the one from Tara, are composite, and usually include beads of amber and jet (or other jet-like substances), and sometimes other materials such as bronze, wood, bone and fossils, or other geological freaks. One necklace from Stockbridge Down, Hampshire, includes beads made from a stalactite, taken from a nearby cave (Stone & Hill 1940); and the famous necklace from Exloo in the Netherlands includes beads of tin and one ‘heirloom’ fragment of a tubular sheet bronze bead (illus 21.3.2). Other Early Bronze Age composite necklaces, which do not include faience beads, are also known (for example, Upton Pyne, Devon: Kirwan 1872). The possible amuletic significance of the various substances and components will be discussed below.

Where pottery has been found in association with faience, it has mostly comprised cinerary urns or small ‘accessory’ vessels of various kinds; there are just two definite Food Vessel associations (from Ballyduff, Co Wexford and Frampton, Dorset; in a third case, at Llangwm, Clwyd, one was found together with a Vase Urn). The urn types vary regionally and chronologically, reflecting broader patterns of urn use (Sheridan 2003), with Cordoned Urns predominating in Scotland and Ireland, and Collared and Biconical (including Trevisker) Urns predominating in England. Of particular interest, bearing in mind the networks of contacts which will be discussed below, is the Trevisker Urn recently found at Amesbury (Solstice Park), Wiltshire, well outside the main distribution area for this pottery type in Cornwall and Devon (Laidlaw, pers comm). Cornish features have
21.4 Distribution of faience finds in Britain and Ireland; the star marks the major concentration of finds in Wessex, and the dot annotated ‘6’ indicates finds located only to Ireland or Northern Ireland.
... beads which have given rise to so much dogmatism, controversy and rash speculation

21.5  Distribution of faience finds in western Europe, excluding southern Spain.
also been claimed for the faience-associated urns from Winterbourne St Martin (5a), Dorset and Ringwould, Kent.

That faience was used as an indicator of special status (in death, if not also in life) is indicated not only by its relative rarity but also by the other grave goods with which it is associated, and also, in some cases, by the position of the grave and/or the form of the burial monument. In addition to the aforementioned beads and pendants of other substances that formed the composite necklaces (and, in one case in Norfolk, a probable bracelet), grave goods include bronze knife-daggers and awls, V-perforated buttons or studs, and bone tweezers, not forgetting the Chapel Brampton wire bracelet/s. The bronze razor-knives that have been found in Ireland have all come from burials featuring or including males, so they may well be a male status item. The same could be argued for the bronze chisel from Balneil, Wigtownshire, which again came from a deposit featuring more than one individual.

The Wessex faience-associated burials were discussed at length by Sabine Gerloff (1975, 197–234), who grouped all but one into her ‘Aldbourne series’ of elite female burials, ascribed to phase 2 of the ‘Wessex culture’. These, she argued, were somewhat poorer than the ‘Wilsford series’ of ‘Wessex I’ rich female burials, but nevertheless of high status. Space does not permit discussion of this model, which has in any case been revisited recently by several others (for example, Garwood 1999, 284–6 and table 9.4; Needham 2000; Case et al 2003). Suffice it to say that the faience dating evidence now available indicates that the currency of faience use was not restricted to the conventional date range for Wessex 2 burials (c 1750–1450 BC; Garwood 1999, 285).

As regards distribution, there is a massive concentration of faience in Wessex, with almost half of all the known specimens having been found there (illus 21.4). Taking a broader geographical perspective, the map of second millennium faience finds in western Europe as a whole (illus 21.5) shows Britain to have the most numerous findspots. There is a suggestive, thin ‘fringe’ of finds in adjacent coastal regions of continental Europe, with 18 beads* having been found in north-west France, the Netherlands and Denmark; as will be argued below, a strong case can be made for their export from England. There is a considerable geographical gap between these finds and the next nearest Continental examples.

As for the shape of these beads and pendants, the range is wider than the oft-cited trilogy of ‘segmented’, ‘star-shaped’ and ‘quoit-shaped’: examples of biconical or fusiform, spheroidal and oblate (squashed spherical), and annular shapes are known, and there is also one flattish spacer bead, from Wales. Within the categories there is also variation in design and size, and there is also some variability in the geographical distribution of individual bead types.

Commonest, and most widely distributed, is the segmented bead (illus 21.7.1); over 75 per cent of all the known faience items from Britain, Ireland and adjacent parts of Europe are of this form. As discussed below, and previously noted by others (for example, Beck & Stone 1936, 205–6) there is some geographical variation in their method of manufacture, with most Scottish beads differing from most other British and Irish examples. Although many segmented beads are now incomplete, it is clear that their lengths and number of segments had originally varied, with the former ranging from around 11 mm to around 40 mm and the latter from two or three to 14 or more. There does not appear to be geographical patterning as regards size. As Beck & Stone pointed out (1936, 212–14), the segmented form is not restricted to beads made of faience: it appears that human-made and natural skeuomorphs of segmented faience beads were in contemporary use. Examples include beads of jet, bone, tin and also fossil encrinites (crinoids), some of which have been found alongside faience segmented beads (as at Aldbourne barrow G6, Wiltshire: Grinsell 1957, 147), and which may well have been collected largely because of their resemblance to them. That these non-faience examples were skeuomorphs of faience, and not vice versa, is indicated not only by the numerical dominance of the latter, but also by the fact that no pre-faience tradition of making beads of this specific shape existed in Britain and Ireland. On the Continent, although they are not particularly common, segmented faience beads have been found in late third- and early second-millennium contexts in central and Eastern Europe, and in early second-millennium contexts in Spain and France (see Stone & Thomas 1956, 80–1; Butler 1963, 66; Harding 1984, 91–8). Within central Europe, where different areas seem to have specialized in the production of particular bead types, segmented beads appear to have been made in Moravia and used there and in Bohemia, Slovakia, Hungary and southern Poland (Harding 1984, 96). Anthony Harding has remarked on the particularly close similarity between Moravian segmented beads and [most of] those from Britain (ibid, 98).

Less common, with some 34 examples, are star-shaped beads; as illustration 21.8 shows, these vary in size and in the number and angularity of their rays. In addition there is one example of a star-shaped pendant, with a small perforation through one ray; this was found recently in Fordhouse barrow, Angus (illus 21.8). Although widespread in their distribution (illus 21.7.2), they are noticeably absent from southern and south-east England, the only Wessex example having been found at...
‘... beads which have given rise to so much dogmatism, controversy and rash speculation’

21.7 Distribution of faience ornaments by type: 1. segmented beads (major Wessex concentration indicated by star); 2. star-shaped beads and pendants; 3. quoit-shaped beads and pendants; 4. spherical (dots), oblate (squares) and chunky annular (triangle; Ringwould, Kent). (Note: the spacer bead from Holywell, Brynford, Flintshire is not shown here.)
21.9 1. Distribution of fusiform and biconical (including grooved biconical) faience beads; 2. Grooved biconical non-faience beads from Wessex, and apparent copies from Wales and Denmark. (Sources of images: various).
Winterbourne St Martin barrow 5a, Dorset. Star-shaped beads are also rare elsewhere in the faience-using world, with Beck & Stone struggling to find convincing Near Eastern comparanda (1936, 226), and with the celebrated and relatively large example from Arbon Bleiche in Switzerland (Stone & Thomas 1956, pl V.12) standing out as a curiosity in that country. The only area in which star-shaped beads occur with any frequency is Hungary, where small four-rayed examples were made from around 2400 BC until the early second millennium BC (ibid, pl V.5; Harding 1984, 96–101; Sherratt 1993, note 16). Such beads have been found alongside segmented and other-shaped beads, not only in Hungary but also along the Danube in Slovakia, and just across the Romanian border at Obéba (Harding 1984, fig 26). There is one Hungarian-style four-rayed bead from Britain, from Stainsby in Lincolnshire; although slightly larger than its Continental counterparts (not much larger, as Harding claims), it is sufficiently similar in shape to suggest a link with, or derivation from, the Hungarian beads (illus 21.8.2). As for the other star-shaped beads and pendant in Britain and Ireland, these forms might also have originated in Hungary, since five-rayed examples are known to have been made there – as illustrated by McKerrell (1976a, fig 3) with examples from Szőreg C, near Szeged. As with segmented beads; there was no pre-existing tradition of making star-shaped ornaments here.

Quoit-shaped beads and pendants, represented by 21 and 4 examples respectively (plus a fragment which may be from either), also vary widely in size and in details of their design and manufacture (illus 21.8.2–3). Their distribution (illus 21.7.3) echoes that of star-shaped items, although there are a few examples in south-east England, including a small cluster in East Sussex. There is also a Continental ‘outlier’ to the British distribution, from Mont-Ubé passage tomb, Jersey. Further afield, close parallels are hard to find, with the Arbon Bleiche example (Beck & Stone 1956, pl V.12) being as egregious in its local context as the accompanying star-shaped bead (with which it shares the characteristic of being relatively large). Small quoit-shaped beads are known from Bohemia, Moravia and Slovakia (Venclová 1990, pl 59) and from Hungary (Stone & Thomas 1956, pl V upper, 5; McKerrell 1976b, fig 15), but whether they were the prototypes for the British and Channel Island ornaments is uncertain. All that can be said is that, as with the star-shaped ornaments, there had been no pre-existing tradition of making quoit-shaped beads and pendants in Britain; derivation from Early Bronze Age belt rings seems unlikely. As with segmented beads, quoit- or similarly-shaped beads are found in materials other than faience – jet or similar blackish materials, amber, and various types of stone including the aforementioned yellowish stalactite – although here, not all of the non-faience specimens are necessarily skeuomorphs.

The much rarer biconical and fusiform faience beads (illus 21.9.1), comprising ten examples from four findspots, have a regionally distinct distribution which encompasses coastal Brittany and the Netherlands as well as south-west England (illus 21.9.2). With these beads, there can be little doubt that their form copies that of examples in jet and jet-like substances, which were popular at the time, especially in Wessex (illus 21.9). The ribbed biconical form seen at Boscregan, Cornwall and Vogelenzang, Netherlands (illus 21.9.2), clearly echoes that of the grooved biconical shale beads as seen, for example, at Preshute 1a, Wiltshire and Bedd Branwen, Gwynedd (illus 21.9.2), some of which had wire inlays in their grooves. It should be noted that other skeuomorphs of such beads are known from elsewhere: in Denmark, copies of both ribbed biconical and fusiform beads have been found in amber (illus 21.9 bottom row), and at Remoulins, Gard, in the south of France, a gold-covered ribbed biconical bead of grey material was found (Eluère 1977, 393, fig 3.5).

Small spherical, oblate and annular beads (illus 21.8) are also rare, with 20 examples known, and have a regionally distinctive distribution which is almost mutually exclusive to that of star- and quoit-shaped ornaments (illus 21.7.4). Spherical and oblate examples are mostly found in east-central England, with outliers in Wessex and one possible example in Brittany, while the three annular examples are from Ringwould in Kent and Semer in Suffolk (the Semer examples consisting of two beads accidentally fused together during firing). The latter bear a passing resemblance to annular faience beads from central Europe (for example, Harding 2000, fig 7.10), while the former have no obvious comparanda or origins. One spherical bead, from Cosington, Leicestershire, had obviously slumped out of shape during manufacture and now resembles a deformed lemon (illus 21.8 bottom row); this, however, had not precluded its use in a composite necklace.

Finally, the spacer bead from Brynford in north Wales, though unique within a British and Irish context, can be paralleled in the south of France (Briard 1984, 148–50; cf the aforementioned apparent link between Wessex and southern France with regard to the Remoulins bead).

The possible significance of the Continental comparanda for British and Irish faience beads will be considered below.

Technique of manufacture and mode of production

Despite the fact that considerable skill, and a degree of luck, is required to achieve the final product, the basic
recipe for making faience is deceptively simple: quartz (in the form of crushed sand or crushed siliceous stone) is required as the basic constituent for the body and its glaze; a flux is needed to help the individual quartz fragments fuse together during firing, and to create a glaze; and a colourant is required to give the glaze its desired colour. Water is used to make the constituent materials into a paste, and sometimes an additional organic binding agent is used to help it retain its shape. Various materials have been used for the body, flux, binder and glaze colourant. In the British and Irish beads, crushed sand was used for the body, and a copper-based colourant was used to give the beads their turquoise colour; the latter could have been obtained from shavings from bronze artefacts, or from the materials used in bronze manufacture.

Just as details of the recipe may vary, there are various techniques for forming and glazing faience beads. Space precludes a full discussion of the well-known range of Near Eastern techniques, but these are well documented (for example, Tite et al 1983; Vandiver 1983; Tite & Bimson 1986; Shortland 2000). The research undertaken for the current project, together with previous research (for example, on the Varley Halls object), allows us to draw the following conclusions about the constituent materials and methods of manufacture of British and Irish faience.

First, it appears that the materials used to provide the flux component were different from those used in the Mediterranean and Near East; and it also seems likely that different materials were used for some of the English and some of the Scottish beads. The results of the current work at RLAHA seem to indicate that seaweed or coastal plant ash may well have been used in Scotland, whereas in England a different plant was used, perhaps a different coastal or inland plant. The particular mix of materials seen in these English beads recalls the low magnesium, high potash composition of the earliest true glass in late second-millennium Europe (Henderson 1988). A similar variability is evident in the sand used to manufacture faience beads, with some Cornish beads having a distinctly grey core colour, as opposed to the creamy or whitish colour of many beads elsewhere. It may be that this reflects the use of local sands, since many sands in Cornwall are grey.

Second – and this is still a matter for debate among the analytical specialists, although the SEM results from RLAHA do tend to support the conclusion – it appears that tin was deliberately added to the recipe, even though it would not have affected the texture or colour of the final product. It had previously been claimed (for example, by Aspinall et al 1972) that the tin-to-copper ratio in British beads is higher than that seen in European and Middle Eastern beads, and greater than would be expected even if Britain’s relatively high-tin bronzes had been used as a source of the glaze colourant. However, there have been problems in using compositional data derived from NAA, XRF or other spectrographic techniques to build this particular argument. The ratio can be affected by the facts that: 1. copper leaches out of faience more readily than tin; 2. some beads have suffered not only normal post-depositional weathering but also cremation; and 3. tin can be distributed unevenly in a bead (illus 21.10).

Using the electron microprobe on an SEM to examine compositional variation across the wall of relatively well-preserved beads does indicate, however, that there is a genuinely high tin content. This supports the NAA results of Aspinall et al which had shown that the British beads had a high absolute tin content when compared with their foreign counterparts, as well as a high tin-to-copper ratio.

Third, a variety of techniques was used in Britain and Ireland to form and glaze the beads. With segmented beads, for example, although all were initially formed by wrapping paste around a narrow tubular former – the use of straw for this, as Beck & Stone had suspected, has been demonstrated in the Findhorn beads – the segmentation was achieved in different ways. With a few exceptions (virtually all in Scotland), the ‘butter pat’ technique of rolling the preform over a ridged former seems to have been used, with varying degrees of skill (illus 21.6.1–2). However, with most of the Scottish beads, segmentation was achieved by jabbing a tool into the surface at intervals (or jabbing and dragging, or perhaps crimping in a few cases), to make more crudely defined divisions (illus 21.6.3–4). The Findhorn beads offer particularly good examples of the ‘staggered jab’ technique (illus 21.6.4). As far as glazing is concerned, there is good evidence in some cases for the ‘application’ technique – where a bead was dipped into, or painted with, a slurry of glaze (illus 21.10.2). Some beads seem to have been glazed using the ‘efflorescence’ technique, where the glaze mix is combined with the body material prior to making the paste, and the glaze works its way to the surface as the bead dries and is fired (Tite & Bimson 1986). And with the Varley Halls bead, a combination of glazing techniques was used; perhaps here, the mixed-in glaze material had served as much to bind the paste together as to glaze the ornament.

Overall, the evidence relating to manufacture, taken together with the beads’ formal and distributional variability, suggests that, by and large, British and Irish faience beads were not imported, but were made in Britain. Furthermore, the compositional evidence indicates that they had been made in more than one place. The variability in shape and size, distribution and technique of manufacture supports this, and...
strengthens Stanley Warren’s suggestion (based on the NAA results) that beads were made in small batches, or even individually. From detailed examination of many segmented beads, where minor variations between sets from different findspots can be discerned, it certainly appears that individual necklaces might well have been ‘made to order’.

A link with the tin trade?

The apparently deliberate addition of pure metallic tin or tin oxide to the recipe may well provide a clue as to the origins of faience use in Britain and Ireland. There are other clues as well, not least the tin beads that appear to be skeuomorphs of segmented faience beads that have been found at Sutton Veny, Wiltshire (Cot Hoare 1812), Exloo, Netherlands and, most recently, Buxheim in Bavaria (Möslen & Rieder 1997). At Buxheim an entire necklace of 47 beads was found in the neck area of a female skeleton ascribed to the early Straubing culture and radiocarbon-dated to 2190–2030 cal bc (at 1σ: GrA-20281/21373).

Tin, of course, is a crucial ingredient in the manufacture of bronze, and there are only a few European sources, with those in Cornwall and Devon ranking among the richest (Pernicka 1998; Pare 2000, 7). Much has been written about the nature and date of the transition from copper metallurgy to tin-bronze production in different parts of Europe (for example, Needham et al 1989; Krause 1998; Pernicka 1998; Northover 1999; Pare 2000). To summarize, it appears that there was widespread awareness of bronze in Europe during the final centuries of the third millennium, with bronze manufacturing being established in Britain and Ireland between 2200 and 2000 BC. That central Europe was a source area for the requisite knowhow (although not necessarily the only one) is suggested by finds such as the dagger from Gravelly Guy, Oxfordshire, whose pommel finds a close parallel at Anzing in Bavaria (Northover 1999, 213; Gerloff, pers comm), and the items in the hoard from Migdale, Sutherland, that echo Bavarian Straubing culture fashions in jewellery and dress accessories. Indeed, the sheet bronze cones, tabular beads and ‘spacer plate cover’ from Migdale might well have adorned a central European-style headdress (whose ultimate stylistic origins in north-west Anatolia have been discussed by Sherratt: 1993, 22). Radiocarbon dating places all these items within the date bracket 2200–1950 BC (Sheridan et al 1995, 424; Northover 1999). Indeed, it may be that central European bronze smiths, who may well have learned bronze working techniques from their East Mediterranean contacts, actively prospected for tin in Britain and Ireland (Pare 2000). Since faience was already in use in central Europe at this time, it is therefore theoretically possible that knowledge of this novel material could have been transmitted to Britain and Ireland at this early date, through these links. This would certainly account for the Buxheim segmented tin beads, if they were of English manufacture. However, alternatively, they could have been made in Bavaria using imported English tin, copying a faience bead design that was popular in Moravia. At present no faience beads dating to before 2000 BC have been found in Britain or Ireland.

A widespread intensification in bronze production – and hence in the consumption of tin – occurred in many parts of Europe during the early second millennium BC, and the concomitant increase in tin exportation from England would have provided further opportunities for the use of faience to spread to Britain and Ireland. In central and southern Germany and south-west Slovakia, according to Pare, this ‘take-off’ in bronze manufacture happened ‘some time between the 20th and 18th centuries BC’ (2000, 19). This corresponds to the period of late Unetice ‘princely’ graves and rich hoards, which were contemporary with both the rich graves of the ‘Wessex 1’ series and with their counterparts in Brittany (Needham 2000: his ‘series 2’ graves) – another tin source area. A further important change around 2000 BC was the opening up of new copper mining areas in Britain and Ireland, and a probable reorganization of distribution networks (Northover 1999; Pare 2000).

Whatever their degree of involvement in the latter process, it seems likely that the elite in Wessex controlled the supply of tin from south-west England to the Continent (and perhaps also to elsewhere in Britain and Ireland) at this time. And although faience does not generally feature in ‘Wessex 1’ graves (see Gerloff 1975, 206 for a discussion of the possible exceptions), a reasonable case could be made for the introduction of faience knowhow to Britain and Ireland, via Wessex’s links with central Europe, between 2000 and 1800 BC. The segmented beads from Ballyduff and Port Mellie are contemporary with the currency of ‘Wessex 1’ burials (illus 21.1), and their composition (as determined by Stanley Warren and Ralph Magee) includes the high tin content that characterizes British and Irish faience in general (Briard 1984, 145–4; Magee 1989). They could well represent exports from Wessex; there is plentiful other evidence for contacts with Ireland and Brittany at this time (for example, Northover 1999; Needham 2000). The fact that faience could have been made in Wessex during the first two centuries of the second millennium suggests a case of Sherratt’s ‘transferred technology’: it was the knowhow, as much as any finished beads, that was being introduced from central Europe.
Subsequent ‘technological transfer’ within Britain would account for the adoption of faience manufacture in south-west England (producing the biconical and fusiform faience beads found there and in Brittany and the Netherlands), and for its adoption in Scotland. In both cases, links with Wessex through the tin trade seem to have been involved. With the former, this seems to have occurred during the currency of the ‘Wessex I’ graves, since the bead forms copy those found in the graves (for example, the gold-bound shale bead from Preshute 1a: Case et al 2003, fig 6.10). With the latter, there is plentiful other evidence for links between Wessex and Scotland during the first half of the second millennium (as reviewed in Sheridan et al 2003). Continuity of these links through the period of ‘Wessex 2’ burials is indicated by finds such as the aforementioned Cornish-style urns in Wessex and the south-east, and by the grave goods from the Knowes of Trotty, Orkney (ibid). This is consistent with a continuing control by Wessex over the supply of south-west English tin. The complex and changing network of cross-Europe contacts involved with the export of tin to the Continent between c 1800 and 1500 BC would account for the copying of British faience bead forms at Arbon Bleiche in Switzerland, and for the presence of amber jewellery originally made in Wessex (using imported Baltic amber) in the shaft graves at Mycenae (Gerloff 1975; Harding 1984; Sherratt 1993).

Finally, this connection with the tin trade could partly account for the relatively high tin content of British and Irish faience ornaments. Even though tin would not have served to improve the beads or alter their appearance, its use could represent the conspicuous consumption of a valuable resource, thereby enhancing their prestige value. Other instances of the conspicuous consumption of tin during the Early Bronze Age include the tinning of Migdale axeheads (Needham & Kinnes 1981) and the inlaying of tin into a jet V-perforated button found at Rameldry, Fife (Sheridan & Davis 2002, 824 and fig 11).

**Supernatural power dressing?**

There could have been another reason for the addition of tin to British and Irish faience ornaments, and this relates to their possible use as amulets. Faience may well have been regarded as a mysterious and exotic substance, whose manufacture involved a magical transformation of the raw materials by those with privileged access to the requisite knowhow. A similarly striking transformation is involved in the production of silver-coloured metallic tin from its blackish parent material. Given that faience beads have been found in a number of composite necklaces, whose other constituents have included special materials such as jet, amber, geological freaks and material from a liminal location (that is, the aforementioned stalactite), there is a strong possibility that such necklaces – and by extension, isolated faience ornaments – could have been accorded special powers, as well as being prestige items (Sheridan & Shortland 2003). Their use as grave goods may therefore have had an apotropaic significance, to protect the deceased on the journey into the Otherworld. Furthermore, Stuart Needham has argued (2000, 181–91) that the Wessex series elite graves are an expression of a re-configured cosmology, in which the deceased are presented as having quasi-divine powers. An explicit association with ‘magical’ materials would be consistent with this.

**Conclusions**

It is hoped that this contribution – whose subject matter would have been dear to Professor Piggott’s heart – has served to lay to rest the ghost of a long-held misconception about the origin and dating of faience in Britain and Ireland. In short, knowledge of faience now seems to have reached here during the early second millennium (if not earlier), probably via Wessex, through contacts with central Europe connected with the tin trade. It continued to be used until at least 1500 BC as a prestigious, and possibly amuletic, material, whose manufacture was carried out on a small-scale, localized basis. Beads found around the adjacent fringe of Continental Europe are likely to represent exports from southern England.

There are many questions that still need to be addressed. Why, for example, has the only Hungarian-style star-shaped bead been found in Lincolnshire, in a context that is probably broadly contemporary with the Eagleston Flat burial c 1750–1500 BC? How can the distributions of star- and quoit-shaped beads, and of those of spherical, oblate and annular forms be explained? Are there any demonstrable imports from the Continent? Was there any faience manufacture in Ireland and Wales, or were the beads there all imported from Britain? What does the apparent link between Britain and the south of France, as suggested for instance by the Brynford spacer bead, betoken? Has the importance of Wessex been overrated? It is hoped that the NMS Faience Project will be able to resolve at least some of these questions. In the meantime, perhaps this contribution will have gone some way to addressing Andrew Sherratt’s comment (1993, note 16) that ‘the significance of the spread of [faience manufacture] has recently been neglected by archaeologists as part of the reaction to the view that all faience beads were Egyptian imports . . .’
Notes

1. Excluded are dates with standard deviations over 100 years and others where there is good reason to doubt their reliability. GrA-dates are from cremated human bone, OxA-647 from unburnt human bone; the rest from charcoal which, in most cases, definitely comes from short-lived species.

2. The recent revision of Mycenaean chronology, which places the shaft graves with their alleged Wessex connections closer to 1650 BC than the conventionally assumed date of c 1550 BC (Manning et al 2002), still rules out this area as the proximate source of British and Irish faience beads or manufacturing knowhow.

3. A unique find, from a ‘dagger grave’ (or rather ‘knife grave’), to use terminology preferred by Case et al 2003) at Rameldry, Fife, suggests that knowledge of elements of faience technology might have reached Britain at an even earlier date. One of the six V-perforated buttons from this male grave (dated to 2280–1970 cal BC at 2σ, GU-9574) is made of a stone called lizardite, and appears to have a glazed surface (Sheridan & Davis forthcoming). As noted elsewhere in this paper, faience was already being made in central Europe at this time, so the knowhow for glazing could theoretically have come from this area.

4. On the dating of Deverel-Rimbury pottery, Needham (1996, 133) regards it as originating during the period 1700–1500 BC and having its main currency between 1500–1150 BC. The Chapel Brampton cemetery produced two radiocarbon dates – Birm 313, 3064±120 BP and Birm 314, 3246±100 BP – but their large standard deviations render them unacceptable. Unfortunately the Chapel Brampton bead cannot now be located, but Paul Peek, who had examined it, accepted it as being of faience rather than glass; individual unfused quartz grains were clearly visible.

5. There are also two possible Food Vessel associations: at Luggacurren, Co Laois, where two beads which may have been of faience were found in a Bowl; and at Amesbury G54, where the pot, now lost, was described as a ‘kind of bason, neatly ornamented round the verge’; Thurnam regarded it as a Food Vessel.

6. Excluded are the two beads from Ty Guen, Landivisiau, Finistère, mentioned by Needham (2000, 165) as possibly being of faience; according to Briard (1984, 147–8), these are most likely to be of Iron Age date and made of glass. Also excluded is a segmented bead from Mol, Belgium, mentioned by McKersell as being of faience (1976a, 299) but actually of stone, possibly fluorite (Beex & Roosens 1963, 17 illus 14).

Acknowledgements

The collaborators in the NMS project, whose assistance is greatly appreciated, are: Dr Stanley Warren; Dr Sheridan Bowman and Dr Karen Leslie (British Museum); Mary Davis (National Museum & Gallery of Wales) and Dr Kathy Eremin (NMS). Paul Wilthw (formerly NMS) assisted at an early stage. Valuable advice has also been given by Dr Ian Freestone (BM) and Professor Mike Tite (RLAHA). The assistance of many curators and fieldworkers around Britain and Ireland has also been invaluable. They are too numerous to list here individually, but especial thanks go to Dr Stuart Needham, Dr Jacky Nowakowski, Moira Laidlaw, Susan Ripper, Dr Gary Lock, Dr Arthur MacGregor, Martin Foreman, Adrian Zealand, Mark Hall, Richard Brewer, Adam Gwilt, Dr Sinéad McCartan and Heather Sebire. In the Netherlands Jan Lanting is thanked for his help, advice and organization of free radiocarbon dates; Dr Wijnand van der Sanden for his assistance with the Exloo necklace; and Anna Brindley for advice on Irish pottery-dating. Muiris O’Sullivan and Jan Lanting are thanked for letting me cite unpublished radiocarbon dates. Duncan Anderson (NMS) provided invaluable assistance with the illustrations. Finally the editors are thanked for their saint-like patience.

References


Butler, J J 1963 Bronze Age Connections across the North Sea. Groningen. (Palaeohistoria, 9)
Evans, A J 1921 The Palace of Minos at Knossos. London.
Gerloff, S 1975 The Early Bronze Age Daggers in Great Britain. Munich. (Prahistorische Bronzezudunde, 6.2)
Hall, H R 1914 ‘Egyptian beads in Britain’, J Egyptian Archaeol, 1, 19.
Hawkes, C F C 1940 The Prehistoric Foundations of Europe. London.
McDonald, A 1991 An Investigation into the Provenancing and Manufacture of an Assemblage of Faience Beads from Findhorn, Moray, using X-ray Fluorescence and Scanning Electron Microscopy. (Unpublished MSc dissertation, University of Bradford)
Mann, L McI. 1906 ‘Notes on . . . (3) a group of (at least) sixteen cinerary urns found, with objects of vitreous paste and of gold, in a cairn at Stevenston, Ayrshire’, Proc Soc Antiqu Scot, 40 (1905–6), 369–401.
‘... beads which have given rise to so much dogmatism, controversy and rash speculation’