

# Discussion

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## Introduction

The collection of Anglo-Saxon glass in the Department of Prehistory and Europe of the British Museum consists of 229 items, mostly vessels which are complete, or restored and partially complete, and other artefacts and fragments. My own contact with this collection began in 1947 when, as a volunteer assistant, I had the task of helping to unpack the Anglo-Saxon objects when they were returned to London after war-time evacuation. The glass in this collection can be attributed to Anglo-Saxon contexts from about AD 400–1100, but the close similarity of various types to contemporary Merovingian products in the Rhineland, northern France and Belgium has suggested that many were imported.

The largest number are vessels which were found in Anglo-Saxon graves of the period AD 400–700, a time when, according to Germanic beliefs, personal possessions were placed in the grave, presumably for use in the next world and as an indication of the status of the individual. Many of these graves were brought to light in the course of railway building and other industrial activities of the 19th century. Amongst the variety of shapes there are in the collection examples of all the main types of vessels current in that period with the exception of bottles, and these are rare as there are only six in the country as a whole. Some individual pieces may lay claim to be amongst the finest examples of the types in existence, such as the claw beakers from Mucking grave 843 and from Ashford (cat. nos 57 and 82, **Figs 10, 17**) and the drinking horns from Rainham (cat. nos 47 and 48, **Fig. 8**). A considerable proportion is from the collection of William Gibbs, which was first in the possession of the Victoria and Albert Museum, but was transferred to the British Museum. In 1939 two glass vessels were returned to the Victoria and Albert Museum, but they are included in this catalogue by kind permission, the claw beaker cat. no. 84 (**Fig. 17**) and the bag beaker cat. no. 162 (**Fig. 29**).

Large numbers of glass beads which came from Anglo-Saxon graves are in the Museum collection, but these are not treated here. Included, however, are some large, glass, disc-shaped beads which might have had various uses, as part of a necklace, as toggles or as spindle whorls or sword beads. Also included are glass pendants and fragments of hollow-folded vessel rims which were re-used as beads on a necklace. The vessels are grouped in types and dealt with in chronological order within that type. A few fragments which cannot be identified as belonging to a specific type are also catalogued.

Most Anglo-Saxon glass of the period between AD 700–1100 has only been discovered and identified as the result of recent excavations of settlement sites, but the Museum collection includes some of the earliest fragments to be identified from that period, which were found between 1920–8 at the monastery site at Whitby, North Yorks. Finally, pieces of jewellery are listed which contain small glass insets. Fragments

of Roman glass in Anglo-Saxon contexts are not listed, except for one or two vessel rim fragments used as beads on a necklace. This manuscript was completed in 1998, but the drawing and photography of objects was still in progress. Because of the delay in publication it was updated and closed in 2006.

## Manufacture and chronology

### Chronology

The glass of Anglo-Saxon England is closely related to Merovingian and Carolingian glass found on the Continent, which was produced mainly in glasshouses of the Rhineland, northern France and Belgium. There is a general correspondence throughout north-west Europe in the comparatively limited number of forms and the colours in use, for, after the Roman period, many forms were simple and uncomplicated, and the colours were mostly the light greens, blues and browns which are the natural result in manufacture when no specific colourants are added. Some characteristics, however, distinguish various groups which can be attributed to specific areas by their distribution patterns. When compared, the glass of this period in England corresponds closely with that on the Continent, although differences are evident.

Some of the basic skills of glass manufacture survived in north-west Europe after the arrival of Germanic people, but the loss of some techniques indicates a change of personnel engaged in glass production, as well as a change in the tastes and requirements of the new customers. Although there is a general continuity of glassmaking traditions in England, after the withdrawal of the Romans there was a radical change in the smaller quantity and reduced range of forms available.

An article containing a list of all the glass vessels then known to me in Anglo-Saxon England, together with a discussion, was submitted to the Association for the History of Glass in 1993 and published much later (Evison 2000b). Reference is made here to this list where appropriate, but not all of the British Museum glasses were available in the period before 1993 when this article was being written. Unfortunately there were several mistakes in the list of vessels, and as reference is made between all the vessels catalogued here to this list, a corrected and updated version is included here as Appendix 4.

The glass vessels were studied in four periods based on differences of form and colours supported by contextual evidence: Period I c. AD 400–550, Period II c. AD 550–700, Period III c. AD 700–900 and Period IV c. AD 900–1100. In 1999, investigation into some glasses of Periods I and II established that they were also distinguished from each other to a great extent by the chemical constituents (Freestone, Hughes and Stapleton 1999 and below p.8).

By AD 900 the soda content of the glass was being replaced

by potash generally in Europe with the result that the vessels became less durable, but recent investigation shows that there was some use of plant ash in England in Period II. In Period III vessels were no longer buried whole in England so that remains are only in the form of fragments usually found on habitation sites, and only a few of these are in the collection. The amount of glass in use in Period IV in England seems to have diminished considerably, for very little is so far recorded from dated contexts (Evison 2000b, 90–1; Evison forthcoming i) and there are no examples in the Museum collection.

### **Techniques of manufacture**

All the Anglo-Saxon glass vessels were formed by being blown on a blowing iron. When the paraison (bubble of glass) had been given the required shape and any decoration added, a pontil or punty rod was fixed to the base with hot glass so that the vessel could be severed from the blowing pipe and the rim fire-rounded and shaped. Almost all the vessels show traces of this fixture, but there are a few which were not transferred to a punty, and the rim remained sharp and unsmoothed. These are mostly vessels which were made just before or after AD 400, e.g. the bowls from Great Chesterford and Milton-next-Sittingbourne, cat. nos 1 and 4 (Fig. 1), the cone beaker from Mucking, cat. no. 20 (Fig. 3), and the Mucking claw beaker, cat. no. 57 (Fig. 10). The rims were broken off and sometimes finished by grinding flat. The two Rainham horns, cat. nos 47–48 (Fig. 8), were products of the 7th century, but their rims were not smoothed. Instead, they were broken off and grozed, i.e. trimmed with pincers, for most of the circuit. The reason for this treatment, alien to the 7th century, is no doubt the lack on this curved and twisted form of a suitable point for application of a punty. A small amount of hot glass on the end of the punty rod made the connection between the rod and the base of the vessel. On completion of the vessel the punty rod was detached from the vessel, usually leaving traces of its contact (cat. no. 160, Colour Pl. 7).

Traces of the punty rod connection on the base of Anglo-Saxon vessels can take a negative or positive form. Traces are left because sometimes the act of detaching the punty resulted in slightly chipping the surface of the vessel. At other times a part of the glass used to connect the punty to the vessel remained attached to the vessel, often with jagged edges. Occasionally both types of evidence remain on the same vessel, i.e. both chipping and deposit of glass can occur. There can be traces of a complete ring, or, more often, only part of it.

The subject was touched upon when the empontilling of a group of Anglo-Saxon glass vessels was discussed and illustrated (Bimson 1980). The ring marks on the base of a blue globular beaker from Broomfield, cat. no. 150 (Fig. 26), were illustrated (Bimson 1980, fig. 2), and it was concluded that a glass disc or 'post' on the end of the punty rod was fused to the indented base of the vessel.

There was variety in the shape of the base of Anglo-Saxon vessels for the glass-blower to deal with in attaching the punty, and none were completely flat. A stable base was achieved on a number of types by pushing in the paraison to form a kick, as on the globular beaker type from Broomfield just mentioned. On the contrary, there is a convex base on the pouch bottles and most palm cups where the surface was either smooth or patterned in relief, while the convex base of the bag beaker was

complicated by the applied decoration of crossing trails. Bell beakers also presented a convex surface, sometimes with a knob in the centre. The base or tip of a cone beaker presented a very limited area for the application of a punty.

Bimson (1980, 9) noted an alternative method of empontilling employed by bottle makers of the 19th century, where, instead of using a fresh gather on the end of a rod, the glass-blower used the blowing iron still bearing on its end the reheated remains of the neck of the vessel to attach to the base. Bimson stated that 'These scars are consequently of the same diameter as the neck of the bottle, whereas with the second technique the diameter may be of any convenient size', the second technique being the use of a disc 'post' of glass on the end of the rod. It was further stated that 'the presence of a concave base seems to have been the reason for the use of the 'post' technique.'

The maximum diameter of the scar left by a blowing iron would correspond to the diameter of the blowing iron plus the amount of glass residue on its outer surface. It is evident that where there was a deep indentation of the base of a vessel the glass on the end of a tube or a glass disc would both make contact with the base in the form of a ring, for only the outer edge of the disc would touch the vessel. Both methods, therefore, would leave similar ring marks.

On almost all the Anglo-Saxon vessels in the Museum the scars left are ring-shaped and would be consistent with the blowing iron application, and the external diameters vary up to 27mm. The scars on the three globular beakers with lattice decoration discussed by Bimson vary from 24 to 26mm, the same size as most ring scars. As most other Anglo-Saxon vessels show a tubular scar, these three are presumably no exception. On some vessels the ring scar can be very clear as on the tip of the Kempston cone beaker cat. no. 36 (Fig. 5), or it can be only faintly indicated or more oval in shape. On other vessels the evidence for use of a tube is clear, especially on the Castle Eden claw beaker, cat. no. 58 (Fig. 10), where there are the actual remains of glass in the form of a tube. Similar tubular glass is to be found on the base of the palm cup from Bourne, cat. no. 97 (Fig. 19). On a few vessels the break from the punty has left a smooth, flat surface, which indicated the use of a knob or disc of glass on the punty rod. This occurs on the Longbridge fragment, cat. no. 43 (Fig. 7).

The base of the bell beaker from Howletts, cat. no. 50 (Fig. 9), ends in a very prominent central knob and this is broken off flat, with no other indication of the form of the punty knob. On other bell beakers, however, it is clear that the use of the blowing iron as a punty was particularly advantageous here for tubular contact was made around the knob, leaving the knob undamaged and surrounded by a ring scar, as on Dover bell beakers cat. nos 51–54 (Fig. 9). This is also to be seen on the bell beaker from Mill Hill, grave 93 (Evison 1997, 242, fig. 50c).

There are two exceptions to this practice, both vessels with an indented base. The bowl from Holme Pierrepont, Notts., cat. no. 6 (Fig. 1), has the remains of a lump of glass inside the kick, indicating the use of a knob of glass on the end of the punty rod, and so differs from similarly shaped bowls cat. nos 5 and 7 (Fig. 1), which show the remains of a ring. The globular beaker from Sittingbourne, cat. no. 155 (Fig. 27), also has a lump of glass inside the kick. These are both different from the other glasses in other ways: the Holme Pierrepont bowl with a Latin

inscription comes from the Mediterranean, and the Sittingbourne beaker differs in colour and shape and is probably later than most other vessels of this type. It is significant also that the globular beaker of no provenance in the Victoria and Albert Museum which has been compared with the Faversham beaker, cat. no. 149 (Fig. 26), and considered to be of probable Syrian origin, also has a glass pad inside the kick (p. 18 below).

### Decoration

After blowing, decoration was often added to the vessel. There is one example of decoration by means of an abrading technique which was in general use up to the end of the 4th century, but which declined soon after that: cat. no. 6 (Fig. 1) from Holme Pierrepont, and this bowl fragment is an exception and must have been imported from the Mediterranean (Price 2000b, 24–6). Decoration could be effected by the mould-blowing process, but the patterns produced in this way are very limited. Most common is vertical ribbing as seen on the cone beaker, cat. no. 24 (Fig. 3), and there is a variation of diagonal ribbing on the cone beakers cat. nos 25 and 26 (Fig. 3). Ribbing also occurs on other forms where it is combined with a cruciform design on the base, i.e. the palm cups cat. nos 86–92, the globular beakers cat. nos 153–154 (Fig. 27) and the pouch bottles cat. nos 159–160 (Fig. 28). These vessels were produced in Periods I and II, but mould-blowing continued with less frequency into Period III, and the collection includes one fragment from Whitby, cat. no. 173 (Fig. 30), which illustrates this.

Most decoration was by means of the application of trails, and when these were in the same colour as the vessel itself they were left in relief on the surface. These trails varied in thickness, but most were fine and were often applied spirally to form a horizontal zone on the neck, e.g. a globular beaker cat. no. 125 (Fig. 23). These could be combined with slightly thicker trails applied in vertical loops below on cone beakers and globular beakers cat. nos 36–45 (Figs 5–7) and 141–148 (Figs 25–26). Even thicker trails were applied on the horns and drawn into arcades, cat. nos 47–48 (Fig. 8), and into lattice designs on cone beaker cat. no. 46 (Fig. 7), and globular beakers cat. nos 149–152 (Figs 26–27).

Less often the trail applied was in a contrasting colour, usually white, and these could be marvered into the surface after being drawn into an arcade design, cat. nos 34–35 (Fig. 5) and 164 (Fig. 29). Applied trails of other colours are rare in Periods I and II, but there are blue trails on the claw beaker cat. no. 58 (Fig. 10) and the globular beaker cat. no. 148 (Fig. 26).

Trails of more varied colours, such as yellow and red, came into use after AD 700 in Period III, and three fragments from Whitby give an indication of the more complicated trail designs introduced when trails of two or more contrasting colours were twisted together to form a cable, cat. nos 16–18 (Fig. 2).

A popular form of decoration was a combination of application and blowing when a blob of hot glass was applied to the wall of a cooling vessel while blowing continued, and the blob was hooked downwards to form a hollow shape, round at the top and tapering below. These applications, in two rows of three to five each, produced the extraordinary shape of the claw beaker, cat. nos 57–85 (Figs 10–17), which appeared in Periods I and II, and also in Period III.

### Colour

The vessel colours changed to a certain extent from one period to the next. The number of recognisable Anglo-Saxon vessels in the collection which belong to Period I is 60, and to Period II 100, the greater number in Period II being affected by the comparatively large group of finds from Faversham. In both, the majority are mostly variants of light shades of green with some shades of brown which occur naturally in manufacture when no colourants are added. In the collection of Period I there are 7 nearly colourless glass vessels. There are 16 light green, 16 light blue-green and 12 brown; there are only 3 of light green-blue and 4 light olive.

Some of these colours continued into Period II, such as 8 light greens, 6 brown, 10 light blue-green and an increase in olive green colours to 21, but there are no nearly colourless glasses. Instead, there is an increase in green-blue to 10 and of green-brown to 8. Some more definite colours also appeared at this time, 4 green, 4 vivid green-blue and 17 blue, showing improved access to colourants.

In Period III after AD 700 the few examples available in the collection are of very light green, light green-blue, blue-green, vivid blue, vivid green-blue and 'black' which represent new additions to the colour range, and a larger percentage of definite bright and dark colours. The colours of the beads, pendants, etc. include some translucent vessel colours, but also a variety of others which are opaque, vivid or dark.

### Provenance of vessels and other glass in the collection

It is fortunate that the provenance is known of most of the glass in the collection, and only six items are of unknown origin: cat. no. 30 (Fig. 4) a cone beaker fragment; cat. no. 92 (Fig. 18) a tall palm cup; cat. no. 94 (Fig. 19) a palm cup; cat. no. 163 (Fig. 29) a bag beaker fragment; cat. no. 183 (Fig. 31) a disc bead; cat. no. 213 (Fig. 34) a cabochon glass jewel. Of these, four have an OA number (cat. nos 30, 94, 183, 213), i.e. each of these was an 'Old Acquisition' before the use of the present registration system began. The other two (cat. nos 92 and 163) were acquired from personal collections; cat. no. 92 from the Purnell collection and cat. no. 163 from the Durden collection.

### Earlier finds

The sites are shown on Map 1, and the catalogue numbers of items from each site are listed in Appendix 1. Information on contexts is varied in quality, but associations and full reliable details are available from five of the sites which have been excavated in recent years. Bradstow School, Broadstairs, Kent (site no. 5) is an extension of the inhumation cemetery at Valetta House (Dumpton Park) excavated in 1910 (Hurd 1913). The Bradstow School site was excavated by Leslie Webster in 1970–4 on behalf of the British Museum. One claw beaker was discovered (cat. no. 60, Fig. 11). An inhumation cemetery at St Peter's Tip, Broadstairs, Kent, site no. 6, was excavated by C. Hogarth from 1968 to 1971 (Hogarth 1973) and five glass vessels were found.

Dover I, Buckland Estate, Kent (site no. 17) is an inhumation cemetery of 170 graves excavated by V.I. Evison on behalf of the then Ministry of Works between 1951 and 1953. Six glass items were found (Evison 1987). Dover II, Buckland Estate, Kent (site no. 18) is an inhumation cemetery further down the hill from Dover I, where 250 graves were excavated by K. Parfitt on

behalf of the Canterbury Archaeological Trust in 1994. Some details and a plan showing the relationship of the two cemeteries are published (Parfitt 1995, fig. p. 463). Sixteen glass items are listed (Evison forthcoming f).

Great Chesterford, Essex (site no. 24) is an Anglo-Saxon inhumation and cremation cemetery on the site of a Romano-British cemetery outside the walls of the Roman town. The excavation in 1953–5 of 161 inhumation graves and 33 cremation graves by V.I. Evison on behalf of the Inspectorate of Ancient Monuments has been published (Evison 1994b). There are four glass vessels.

Mucking, Essex (site nos 40–42). This large site consists of an Anglo-Saxon settlement of 53 posthole buildings and 203 sunken huts, and two cemeteries with 51–63 inhumations in Cemetery I and 336 inhumations and 468 cremations in Cemetery II. Excavation was by Mrs. M. Jones and W.T. Jones, 1965–78. Glass vessels were forthcoming from the inhumation graves, plus glass fragments from the settlement and a cremation (a total of 38 items). The settlement has been published, with mention of some of the glass fragments it contained (Hamerow 1993). Post-excavation work on the cemeteries is proceeding by S. Hirst and D. Clark, and a report on the glass vessels is forthcoming (Evison forthcoming c).

The glass vessels found in the inhumations were complete or restorable. Cemetery I produced a bowl fragment of late 4th–early 5th-century date (cat. no. 3 (Fig. 1), a 5th-century bowl (cat. no. 11, Fig. 2) and a claw beaker of type 3c (cat. no. 71, Fig. 13). From the larger cemetery came more variety. Grave 843, a grave of the first half of the 5th century contained bowl fragments of that date in the fill, cat. no. 8 (Fig. 1), but the claw beaker was an heirloom from the early 5th century (cat. no. 57, Fig. 10). There were also two cone beakers (cat. nos 20 and 38, Figs 3, 6) and large disc beads (cat. nos 189, 198, 200 and 203, Figs 32, 33). The settlement fragments included remains of cone, claw and globular beakers, and a recent discovery amongst the settlement debris is a fragment of a large disc bead, cat. no. 192 (Fig. 32). The most interesting find, however, was the cloisonné almond-shaped jewel, cat. no. 208 (Fig. 34).

Mucking is one of the few sites where the settlement and cemeteries have both been excavated and both have produced glass. It may be compared with West Stow in Suffolk, where types selected for burial were found also to be in use in the settlement. At both sites, however, most of the glass fragments in the settlement and unstratified were Roman.

The material from three cemeteries found some time ago has been examined and published in recent times. At Rainham, Essex, site no. 43, the finds from an inhumation cemetery were made in commercial digging for sand and gravel in 1937, and they were published in 1955 (Evison 1955). Two glass drinking horns from the cemetery are in the British Museum and the rest of the objects at Valence House, Dagenham. At Chessell Down in the Isle of Wight, site no. 12, excavations from 1816–55 of inhumation and cremation burials produced many finds now kept at the British Museum and Carisbrooke Castle, Isle of Wight, which were published (Arnold 1982). Three glass items are in the collection. An inhumation cemetery at Droxford, Hants., site no. 19, was discovered in 1900–1 (Aldsworth 1978).

At three sites modern investigation has brought out more information. The discovery of a solitary grave with the globular beaker, cat. no. 152 (Fig. 27), in the garden of ‘The Beeches’, St

Richards Road, Deal, Kent, site no. 15, in 1970 (Bruce-Mitford 1974, 346–8) marks the third grave known of Cemetery II at Mill Hill, Deal, Kent, some distance north-west of Cemetery I excavated in 1984–91 (Parfitt 1991, 220; Parfitt and Brugmann 1997, 6).

Anglo-Saxon graves and cremations were found at Edridge Road, Croydon during building operations at the end of the 19th century (Griffith 1895). A later evaluation conducted by the Museum of London Archaeology Service uncovered five inhumations and seven cremations (Neilsen 1992). Excavations in advance of redevelopment of the site were carried out in 1999 and 2000, when a further 46 inhumations and 2 cremations were discovered (McKinley 2003). Wigber Low is a tumulus in Derbys., site no. 54, which was discovered in 1869, when a fragment of a dark purple bead was amongst the finds, cat. no. 180 (Fig. 31). An excavation in 1975–6 uncovered further objects (Collis 1983).

Some aristocratic burials are well known because of their spectacular contents. Three of them are at present being studied for publication: Taplow, Bucks., site no. 49, Broomfield, Essex, site no. 7 and Caenby, Lincs. (Smith 1923, 86–7; East and Webster forthcoming). Claw beakers from Taplow and globular beakers from Broomfield are in the collection (cat. nos 78–81, Figs 15–16 and cat. nos 150–151, Fig. 26). Other high-ranking burials are often alluded to in archaeological studies, but have not received individual attention in recent times: Wickhambreaux, Kent, site no. 53 (Dowker 1887), and Desborough, Northants., site no. 16 (Baker 1880). The cremations found in a tumulus at Coombe, Kent, site no. 13, produced two swords, one ornamented, and jewellery, and these have been discussed (Davidson and Webster 1967; Evison 1987, 76–7, 90).

The vague provenance of ‘Cambridgeshire’, site no. 9, was attached to a claw beaker presented to the Museum by John Evans in 1875, but there is a possibility that this can be allocated to a more precise find spot. The fragments, cat. no. 66 (Fig. 12), form a very competent version of a claw beaker of regular shape with wide, stable foot, the horizontal trails fine and neatly applied, the vertical trails on the claws indented with care in a precise manner, and this may be compared with the claw beaker found at Chatteris, Cambs. in 1757. The find was reported in the *Gentleman’s Magazine* in 1766, with drawings of the glass vessel and other objects in the grave, a sword, spear, shield boss and pot (Stukeley 1766). The drawing of the glass vessel is not very competent and of impossible proportions, but it is clear that it does represent a claw beaker with two zones of horizontal trails and two rows of five claws, each with vertical indented trails. According to Meaney 1964, 63 the finds are in Cambridge University Museum, but they are not conserved there (information D.W. Phillipson). It seems very likely that the Cambridgeshire vessel is the Chatteris claw beaker which had lost its precise provenance between the time of its finding in 1757 and 1875 when it was presented to the British Museum. There are no other claw beakers from Cambridgeshire with which it might be confused.

Many of the other sites were discovered by accident in the 18th–early 20th centuries, and the graves were often investigated by antiquaries, some of whom recorded grave contents in a more or less reliable fashion. As many as 13 glasses catalogued are from Howletts, Littlebourne, Kent, site no. 30,

an inhumation cemetery which was excavated mainly between 1913–18, with a few other objects being found in later years, and a list of grave contents exists in the British Museum (Smith 1917–18). Sleaford, Lincs., site no. 48, was the site of a cemetery excavated in 1881 which was recorded (Thomas 1887), as was Long Wittenham, Oxon., site no. 38, excavated in 1859 (Akerman 1860 and 1863). The grave contents at Long Wittenham, as published, sometimes differ from those recorded from the numbers on the objects when registered at the British Museum. A cemetery at Kempston, Beds., site no. 31, was excavated by the Revd. Fitch, who kept a record of grave groups (Fitch 1864).

There were numerous tumuli at Bourne, Bishopsbourne, Kent, site no. 3, on Lord Londesborough's land, and some were excavated in 1844 on the same day of the British Archaeological Association's Congress as the Breach Down tumuli below. The tumuli had already been sampled by the Rev. Bryan Faussett in 1771, who was pleased to report that he had excavated nine tumuli in little more than two hours (Faussett 1856, 97). A vignette of a pot and a glass vessel on p. 100 of Faussett 1856 was mistakenly allocated by him to Breach Down instead of Bourne Park, an understandable confusion as there had been excavations at both sites on the same day. This allocation was followed by Harden 1956, 165, B X b 9, where it was regarded as lost. The Bourne palm cup (cat. no. 97, **Fig. 19**), was correctly listed (Harden 1956, B X b 11).

Some tumuli at Breach Down, Kent, site no. 4, on land owned by Lord Londesborough were excavated by the Revd. J.P. Bartlett and the finds, including the glass ring fragment, cat. no. 220 (**Fig. 35**), came to the British Museum in 1855 (Bartlett 1846). Other tumuli were excavated at the Congress in 1844, and the objects were retained by Lord Londesborough. The small fragments, cat. no. 177 (**Fig. 30**), a vessel rim, and cat. no. 75 (**Fig. 14**), parts of a claw beaker, were acquired by the Museum at an unknown date. When Lord Londesborough's collection was bought in 1879 it included the disc bead, cat. no. 181 (**Fig. 31**), and the bell beaker, cat. no. 56 (**Fig. 9**) (Conyngham and Akerman 1844).

A number of Anglo-Saxon cemeteries were situated in the neighbourhood of Milton-next-Sittingbourne, Kent. Catalogue nos 4, 26 and 29 (**Figs 1, 4**) were found at Forty Acres Field, site no. 45 (Payne 1893a, 118–19, map A, no. 24; Meaney 1964, 129, Milton-next-Sittingbourne III). Catalogue no. 69 (**Fig. 13**) comes from Bexhill Marsh, Sittingbourne, site no. 44 (Payne 1893a, 118–21, map A, no. 8). The find place of cat. no. 121 (**Fig. 22**) was the Rondeau Estate, site no. 46 (Payne 1893a, 108–11, map A, no. 23; Meaney 1964, Milton-next-Sittingbourne II). Catalogue no. 155 (**Fig. 27**) has more recently come to light, but the provenance is stated in Sotheby's catalogue 1991 as being 'From an adjacent hoard to a glass basin and ewer now in the Pilkington Museum of Glass which have become known as the Sittingbourne Treasure'. This refers to finds from the Roman cemetery found in 1878 at East Hall, Murston, east of Sittingbourne, site no. 47 (Payne 1893a, 33–42, map A, no. 12, pl. IV). No other Anglo-Saxon finds are known from Murston, and the 'hoard' referred to was found by workmen and appears to have been the contents of a Roman burial which also contained two Samian pots. A second site at Murston is indicated by G. Payne as 12A on his map A (Payne 1893a) but there appears to be no further information about this.

Also connected with this group is Chalkwell, site no. 11, situated on the south-west outskirts of Sittingbourne. Two pouch bottles were found there in a grave, cat. nos 159 and 160 (**Fig. 28**).

Only one of the glass vessels, cat. no. 89 (**Fig. 18**), was found in a church cemetery. It was one of a pair, the other missing, found in a stone coffin 20ft (6.096m) under the old portico of the church of St Martin-in-the-Fields, London, site no. 36 (Akerman 1855, 52). Another find from a church site in London is the bead from St Benet's in Gracechurch Street, site no. 35, cat. no. 186 (**Fig. 31**), which was found at the same time as a few other objects of various dates (Smith 1909, 415). Two disc beads were found in a tumulus at Hawnby, North Yorks., site no. 25, (cat. nos 182, 201, **Figs 31, 33**).

A single find only comes from each of the following sites: 1 Asgarby, Lincs., cat. no. 68 (**Fig. 13**); 2 Ashford, Kent, cat. no. 82 (**Fig. 17**); 8 Bungay, Suffolk, cat. no. 157 (**Fig. 28**); 10 Castle Eden, Co. Durham, cat. no. 58 (**Fig. 10**); 22 Ganton Wold, N. Yorks., cat. no. 193 (**Fig. 32**); 26 Hepple, Northumberland, cat. no. 188 (**Fig. 31**); 27 Hoath, Kent, cat. no. 156 (**Fig. 28**); 28 Hod Hill, Dorset, cat. no. 185 (**Fig. 31**); 29 Holme Pierrepont, Notts., cat. no. 6 (**Fig. 1**); 33 Lakenheath Warren, Suffolk, cat. no. 178 (not illustrated); 37 Longbridge, Warwicks., cat. no. 43 (**Fig. 7**); 55 Wye Down, Kent, cat. no. 148 (**Fig. 26**); 39 Moresby, Cumbria, cat. no. 195 (**Fig. 32**). Most of these are known to be from burials.

A great many objects have survived from the most prolific of Anglo-Saxon cemeteries, Faversham, Kent, site no. 21, although no professional excavation or accurate recording took place. It was the cutting of the railway from London and Chatham to Dover which first revealed the cemetery before 1860, in what was called Kingsfield, and then the continued digging of the site for brick earth ensured a steady production of finds up to 1894. The site was regularly visited by collectors and antiquaries who were happy to pay the men occupied in the work for the various finds which turned up. One of the most avid collectors was William Gibbs, a retired grocer of Faversham, and his original bequest in 1870 to the Victoria and Albert Museum now forms a significant part of the British Museum's collection from this place. A catalogue of the Gibbs collection was published by Charles Roach Smith in 1871, another spare-time antiquary who, while living in London as a chemist, took an interest in commercial excavations in London and collected the finds.

It is apparent that some of the objects were transferred from one collector to another, for objects bought by the British Museum on the 18th December 1883 from George Payne Jnr. had earlier been in the Gibbs collection. George Payne had witnessed the beginning of the cutting of the railway, and continued to watch its progress. He was a brewer and a banker who was interested in antiquarian finds in Kent, and who became a Fellow of the Society of Antiquaries and Secretary of the Kent Archaeological Society. The objects which came directly to the Museum in 1870 from the Gibbs collection were registered with the Gibbs collection four-digit listing followed by '70. Objects of the Gibbs collection which had passed to George Payne before arriving at the Museum were entered with the date number 1883,12-13.728–34.

George Payne Junior acquired seven sets of fragments from Gibbs. Five of these lots can be joined with fragments retained

by Gibbs, so that he may have intentionally divided fragments of individual vessels for sale or gift, keeping some of each for his own collection. However, the fact that in two cases there are two Gibbs catalogue numbers beside the Payne Junior number for fragments of the same vessel suggests that the fragments of individual vessels had already been separated before they came into Gibbs' hands, and that he had not noticed that separately numbered fragments belonged to the same vessel. It appears that the relationships of these various fragments escaped the notice of Gibbs and Payne, and everyone else until the present examination. The fact that they were divided into these separate groups suggests that the separation occurred before acquisition by the collectors. It may be that an astute railway or brickearth workman realised that, divided into two or three lots the fragments of one vessel would fetch two or three payments instead of one for one vessel. It might even be that whole vessels were smashed for this purpose. The fragments of a claw beaker, cat. nos 65A and 65B (Fig. 12) were also regarded as two separate items in the Gibbs collection, 1337.'70 being fragments at the top of the vessel and 1336b.'70 being fragments at the foot.

A pair of globular beakers was acquired in 1870 from the Felix Sloane, Pollexfen collection, cat. nos 131, 132 (Fig. 23). Another pair of globular beakers was purchased from a local man, James West of Faversham, cat. nos 107, 108 (Fig. 21). A local collector was David Kennard of Linton near Maidstone (Payne 1893b), and one unusual globular beaker, cat. no. 149 (Fig. 26), was purchased by the Museum from him at a Sotheby sale. Other acquisitions from well-known collectors were a single globular beaker from A.W. Franks, cat. no. 145 (Fig. 25), and three globular beakers, cat. nos 120, 142 and 109 (Figs 22, 25, 21) from Sir Arthur Evans and the Kennard collection. A further indication of division of spoils from one grave may be derived from these globular beakers. They seem often to have been found in a grave as a pair, and two vessels sufficiently close in appearance to be regarded as a pair are cat. no. 109 from Sir Arthur Evans from the Kennard collection and cat. no. 110 from the Gibbs collection (Fig. 21).

Harden inserted a note in his article of 1956 regarding Faversham which has cast doubt on attributions to this site: 'I have heard it suggested that "Faversham" proveniences are particularly suspect, as it was the "correct" place to which a dealer should attribute a Saxon glass. This may be so, but we can never be sure' (Harden 1956, 133, note 3). With this caveat present in his mind, it is difficult to understand why he himself attributed to Faversham (Harden 1956, B V a ii 1, p1.XVI, k) a bell beaker of the type made in northern France in the 5th–6th centuries which is recorded in the Ashmolean Museum (where he was a Keeper for some time) as having been found at the unlikely provenance of Palermo, Sicily (MacGregor 1997, 224, no. 108.1). This glass could have found its way from northern France to Italy at any time after the 6th century.

The total number of Anglo-Saxon glass vessels of all types attributed to Faversham amounts to 74, of which only 8 belong to Period I (AD 400–550), among them 5 at the British Museum, cat. nos 9, 22, 28, 59 and 65 (Figs 2, 3, 4, 10, 12), and these are types which may have been imported from the Continent. In Period I there are two groups of glass vessels which are so numerous that an Anglo-Saxon origin can be suspected: the Kempston-type cone beaker and the types 3a–c claw beaker.

Among these cone beakers there is only one from Faversham, and that is an early type (Evison 2000b, 25/4). Only six are from Kent, and if they were produced in England there is no obvious centre. The claw beakers of type 3c amount to 31, of which only four are from Kent, and none from Faversham. One of type 3b came from Faversham, cat. no. 65 (Fig. 12). The predominance of find spots north of the Thames suggests a source in that area for the type 3c claw beakers.

The other 66 glasses belong to Period II, of which a few are continental types and possibly imported. The rest, however, are globular beakers, bag beakers and pouch bottles, all of which were probably produced at Faversham itself if one can accept that the types actually found almost exclusively at Faversham can be regarded as strong indications of the repertoire of a glasshouse in that location.

The large number of globular beakers at Faversham illustrates the main production series, probably also including the pouch bottle type which was closely related by shape and decoration (Evison 2000b, 61/1–22, 62/5–15, 63/1–7, 64/2, 68/1–2, 72/6). The colours were the usual range of light green and brown but also including for the first time a definite blue. The blue glass was also used for two claw beakers (Evison 2000b 52/1,2) and two bag beakers (Evison 2000b 74/1,2). A blue bag beaker exported to Ålands, Sweden, and bag beakers in other colours found at Faversham (Evison 2000b 73/1–5) establish the use of thick trailing either indented or plain and sometimes arranged in a trellis pattern at this glasshouse. These characteristics link with group 66, blue globular beakers with thick zigzag trails (cat. nos 150–152, Fig. 26), group 67, globular beakers with thick horizontal and vertical trails, and group 68, globular beakers with thick zigzag trails (cat. no. 149, Fig. 26). All except one of the pouch bottles are from Kent, and one of these from Faversham. The finds from Faversham, therefore, show a credible mixture of home-produced vessels, as well as the range of imported goods normally found elsewhere in Kent, and no definite evidence of the placebo attributions feared by Harden.

The final disposal of the finds from this cemetery was recorded in 1964 (Meaney) as being in the British Museum and the following museums: Cambridge University, Ashmolean, Oxford, Maidstone, Rochester, Birmingham, Pitt Rivers Farnham, Victoria and Albert, British Museum (Natural History). To these may now be added: English Heritage (Evison 2000b, 68/2, 73/4), and Corning Museum, USA (Evison 2000b, 45/2).

### Later finds

An excavation of the site on the monastery at Whitby, North Yorks., site no. 52, took place between about 1920 and 1928 and a report was published in 1943 (Peers and Radford). Most of the glass fragments were described and illustrated in that paper. The finds from this site are very different from other glass items in the Anglo-Saxon collection which came from furnished burials where whole vessels were deposited. With the change to unfurnished burial no complete vessels are extant from the late 7th century onwards, but fragments have been found in settlement sites, towns and monastery sites like Whitby. Fortunately, evidence of the complete forms of some vessels exists in some which were preserved complete in graves in Scandinavia, where the old customs were continued till the

end of the millennium. This change in the method of survival affected radically the amount and type of material available for archaeological study, but there was also a change in the forms, and also the colours, of the glass.

There are fragments at Whitby from the rims of two globular beakers, showing that the form continued into the 8th and 9th centuries, but in different colours, here a dark green-blue and 'black', cat. nos 124 and 140 (Figs 22, 24). Three items, cat. nos 16–18 (Fig. 2), are fragments of vessels, either bowls or globular beakers, decorated with twisted trails in contrasting colours, a vessel decoration not known in England before about AD 700 (Evison 2000b, 85). Other pieces are imitation jewels, some of a type found in the latest furnished graves, but others different (cat. nos 210, 211, 215, 217, Figs 34, 35), and there are also glass-working fragments, cat. nos 222–225 (Fig. 35), and window glass, cat. nos 226–228 (Fig. 36).

When the catalogue was written the early finds from Whitby were still in the possession of the British Museum but some of these finds were transferred to Whitby Museum before 2006. From 1993–2002 excavations took place on the north cliff at Whitby near the ruins of the medieval abbey, and amongst the glass items recovered were waste products from glass working, including fragments of twisted trails (Jennings 2005).

At Trewhiddle, Cornwall, site no. 50, a single bead was attached to the end of a silver scourge to act as a kind of grip. This was hidden with a hoard of silver and coins dating the deposition to AD 872–875, and was found in 1774 in an old mine-working (Wilson and Blunt 1961; Wilson 1964, 81, no. 91).

A silver cross was found at Gravesend, Kent, site no. 23, in 1835 or 1838 with a hoard of coins dating the deposition to AD 872, although this is not the date of the cross (p. 26). Different accounts give the exact provenance as Pelham Road or between Perry Street and the cemetery in Gravesend (Wilson 1964, 134–5, no. 20, fig. 17, p. xix).

### Glass production in Anglo-Saxon England

The close similarity of the types of glass vessel in use in England during the Anglo-Saxon period to some of the types produced on the Continent in the Rhineland, northern France and Belgium has in the past been regarded as evidence of an import trade. Exact places of production are not known, for from Periods I and II there is no evidence of the actual glasshouses either in England or on the Continent, with one possible exception at Macquenoise in Belgium (Chambon and Arbman 1951–2), so that any conclusions must be drawn from the vessels themselves and their distribution.

There is, however, evidence of glass working in Roman Britain up to the end of the 4th century (Cool 1995, 13–14), so that the possibility at least must be entertained of some element of continuity of the industry here after the arrival of the Germanic people, and in the following type discussions of Period I this point is considered. The Kempston-type cone beaker was manufactured in the Rhineland and northern France (Evison 1987, fig. 114) but production in England also is suggested by the comparatively large number here and some very early examples (e.g. Lyminge, Evison 2000b, 24/1). Concentrations in the Rhineland, France and Kent no doubt indicate more than one production centre. Other types of cone beakers, and also bowls, stemmed beakers and bell beakers in

Period I occur only as a few examples of each (Evison 2000b, groups 1–20, 24–30) so that import is the most likely explanation for their presence in this case. The occurrence of claw beakers, however, leads to a different conclusion.

Some of the claw beakers also belong to the first half of the 5th century, e.g. cat. nos 57 Mucking (Fig. 10), 59 Faversham (Fig. 10) and 60 Broadstairs (Fig. 11), but these are of shapes so individual that they cannot be attributed to any specific source, although cat. no. 58, a claw beaker from Castle Eden, Northumberland (Fig. 10), is similar to a claw beaker from Krefeld-Gellep in the Rhineland. Catalogue nos 61–62 (Evison 1982, type 3a, Fig. 11) and cat. nos 63–65 (type 3b, Figs 11–12) are of distinctive shapes and so no doubt of insular origin. Then, in the early to mid-6th century a series of well-formed claw beakers were produced by accomplished craftsmen, cat. nos 66–75 (types 3c and 3d, Figs 12–14), and the distribution suggests manufacture in England, with some possibly being exported (map 2; Evison 1982, figs 6–8). All these vessels in Period I have been grouped together by their forms and dating by associated objects to the period from about AD 400 to the middle of the 6th century, and subsequent analysis has shown that there is also a link in chemical composition (Freestone *et al.* below).

From the middle of the 6th century forms changed and some are very sparsely represented, i.e. bowls, cat. nos 14–15 (Fig. 2), and bell beakers, cat. nos 53–56 (Fig. 9), and so are most likely of continental origin. However, the distinctive trellis decoration of the cone beaker cat. no. 46 (Fig. 7), from Faversham, links it firmly to other forms which were produced in England. The claw beakers took on taller shapes and some were in blue glass (types 4a–e). Although they were also few in number, cat. nos 78–85 (Figs 15–17, Evison 2000b, groups 50–2), the only similar beakers were found in Sweden, and it seems likely that these Scandinavian examples were Anglo-Saxon in origin (Maps 2–3; Evison 1982, 54–7). As to palm cups, however, a considerable proportion of the large total of 54 are not distinguishable in form and colours from contemporary products in the Rhineland, northern France and Belgium so that these could have been imported from the Continent, or alternatively the glass-blowers might have transferred their activities across the Channel. Globular beakers in Anglo-Saxon England reached even larger numbers, but the situation is different as this form is not so common on the Continent and manufacture in England is more feasible. This is particularly so with the small, undecorated type cat. nos 104–120 (Figs 21–22), of which 22 were found at Faversham, an obvious candidate for the position of the glasshouse (Map 4). Two further types of globular beakers have trail decoration, on the neck only or overall, and may be of insular manufacture, cat. nos 125–134 (Figs 23–24) and 141–148 (Figs 25–26). Also from Faversham is the globular beaker with thick zigzag trails, cat. no. 149 (Fig. 26), a type of decoration closely connected in style to the cone beakers from Faversham, as cat. no. 46 (Fig. 7), and from the same stable are the distinctive blue globular beakers with thick zigzag trails exclusive to England, cat. nos 150–152 (Figs 26–27, Map 5), except for two which found their way to Norway.

Even more convincing is the witness of two forms which are more or less exclusive to England, the pouch bottle which is a side product of the globular beaker, and the bag beaker. The pouch bottles, as cat. nos 156–160 (Fig. 28), are all from Kent,

with one exception from Suffolk (**Map 6**). The bag beakers, as cat. nos 161–165 (**Fig. 29**), are mostly from Faversham, four others from Kent and two others from elsewhere in England (**Map 7**). A few were exported, to Bergijk, Holland and Hautes Wihéries, Belgium, and no doubt especially valued for their blue colour were the examples at Ålands, Gotland, Helgö, Sweden and Pfahlheim, Germany (Evison 2000a, fig. 55).

### Chemical Analysis

Chemical analyses of 29 of these glasses from Periods I and II were carried out by Freestone *et al.* and are recorded below. The differences in vessel forms which began in the middle of the 6th century and suggested division into Period I and Period II are reflected in the chemical compositions of the vessels which also changed at about that time. All the Period I vessels are of the natron type, similar to Roman glass. The Period II glasses, however, are different and fall into three groups. One group of five vessels is of natron type but with lower manganese oxide (MnO) content. The rest of the Period II glasses show potash and magnesia contents higher than those typical of natron glass. This appears to have been the result of the addition of a small amount of plant ash material to Period I glass. Freestone *et al.* suggest that in Period I the glass workers were able to access the international trade in raw glass or glass cullet which had existed in the Roman period. In AD 536 the disruptive climatic event which was recorded by Cassiodorus had widespread devastating effects on crops and life in general (Gunn 2000). The authors quoted suggest that the supply of natron or natron-based glass was affected and so glass was adulterated with a potassic wood ash-rich material to extend the amount available.

The 14 samples of Period I glass available for study are mostly of claw beakers and Kempston-type cone beakers, and on typological grounds it appears that most of these were blown in this country. The results by Freestone *et al.* show that the glass shows compositional characteristics closely similar to the glass in post-Roman Europe.

Period II vessels have been divided into three groups according to chemical analysis. It is the first group which includes the two graves of very high status, Taplow and Broomfield. The Taplow claw beakers are outstanding by being taller than all others and they have an additional row of decoration. The Broomfield beakers are in thick blue glass with complicated decoration. A similar pair has more recently been found in the high status grave at Prittlewell (MOLAS 2004, 34). The palm cup from Faversham is undistinguished in its form, but its colour is an exceptionally clear and definite shade of green when compared with the more general uncertain shades of light greens. The Wye Down globular beaker belongs to the type with horizontal trails at the top and vertical looped trails below, but the shape is superior with well-defined globular body and incurved neck and finished with a hollow rim rolled inwards. The vertical loops are uniquely distinguished by being drawn into two points at the top, and they are in blue on a light blue-green base. It is clear that the glass-blowers who worked for the highest levels of society had access to the remaining natron glass stock.

There is no evidence to suggest that the next group of six vessels with high magnesium oxide (MgO) and high MnO were found in graves of the highest status, but the vessels do appear

to belong amongst the most superior products. The pair of globular beakers, cat. nos 125 and 126 (**Fig. 23**), can be seen to be of better craftsmanship than others of the same type. There are no other vessels like the two horns from Rainham which are very elegant representatives of this form, and their decorative trails were thick like those on the Broomfield globular beakers. The Bourne Park palm cup, cat. no. 97, has an especially well-formed body and the rim was formed with a double tubular effect (**Fig. 19**). The bag beakers, cat. nos 161 and 163 (**Fig. 29**), are a type which required a high level of professional competence and again involved thicker trails (Evison 2000a).

The third group of Period II vessels with high MgO and low MnO is distinguished by the rare colour of each vessel. Catalogue no. 88 is part of a blue palm cup (**Fig. 18**) and cat. no. 134, again one of the more competent globular beakers (**Fig. 24**), is also blue. Catalogue no. 121 (**Fig. 22**) is taller and more elegant in thinner glass than other globular beakers and is a light red-brown. The palm cup from Desborough, cat. no. 101 (**Fig. 20**), is larger than the others and the colouring is unusual, being a swirled combination of green-blue and yellow-brown, producing the overall effect of an olive green colour. These last two groups therefore were possessions of a privileged class, but it was apparently only people of the very highest rank as at Taplow and Broomfield who had access to the products of the remaining unadulterated natron glass. It is probable that all of these vessels were made in this country.

The material available for study changed about AD 700 in Period III from complete vessels to small fragments, so that information about form is scarce, but it is evident that there was a considerable increase in the range of colours and an improvement in the quality of the glass. Bright colours and dark opaque colours provided effective backgrounds for the application of trails of contrasting colours, and particularly trails consisting of twisted threads of two or more colours, cat. nos 16–18 (**Fig. 2**). There is little variety of form but the globular beaker and bowl continued without much alteration, and the palm cup continued to become eventually elongated into the funnel beaker. These general forms and colours are common to many sites of AD 700–900 ranging from England through north-west Europe to Sweden. There is evidence of glass working at a number of sites in the north-west of Europe between the 8th and 11th centuries (Steppuhn 1998, 106–10, Abb. 28).

Reticella or bicolour twisted trails had appeared fairly commonly as decoration on Merovingian beads, but a type of disc bead decorated with neat and fine twisted trails, mostly in blue and white, occurred only in England, as cat. no. 201 from Hawnby (**Fig. 33**). The distribution is widespread in Anglo-Saxon areas with the exception of the south coast. There is close connection between these beads and some cabochon pendants (below, p. 25) and the distribution of both is shown on **Map 8**.

Twisted trails in contrasting colours were also used to decorate vessels in Period III, fragments of which have been found widespread from England, north-west Europe and Scandinavia, and the comparatively large number of finds so far made in England may indicate an emphasis of production here (Evison 2000b, fig. 7; Steppuhn 1998, 115–16, Abb. 29).

There are historical records of requests from England to

France and Germany made in AD 675 and AD 758 for glass-blowers to cross the Channel to England to provide vessels, windows and the necessary expertise also for production in this country (Cramp 1970a, 16; Guido 1999, 8). From this it can be seen that at this time it was the glass-blowers themselves who travelled, rather than their wares, and this is supported by archaeological evidence from Münster in Germany, where some glass production appears to have coincided with the building of the Palace (Winkelmann 1977, 123–5; Winkelmann 1985; Stiegemann and Wemhoff 1999iii, 214) and from Ribe in Denmark, a market where industrial sites were occupied periodically by transient artisans (Jensen 1991). There is considerable evidence of glass-working in England during Period III (Bayley 1987), and the remains of four furnaces at Glastonbury Abbey in Dorset were excavated some time ago (Radford 1981; Bayley 2000b; Evison 2000c).

Chemical analysis carried out on some vessel and window glass from Anglo-Saxon, continental and Scandinavian sites showed a general similarity with minor differences. Recent work in this field indicates that primary manufacture of glass took place in the Middle East, that this was imported into north-west Europe in the form of slabs or chunks and secondary working produced the ultimate blown products in the individual countries (Foy *et al.* 1999; Whitehouse 2003; Freestone *et al.* below).

After the substantial production in Period III there is very little evidence in England so far of glass vessels of Period IV, AD 900–1100 (Evison 2000b), and there is no example in the British Museum collection. It may be that there was little or no production in England at this time, but production continued to flourish in northern France, mainly of an unstable type of glass, probably potash, and a few pieces of this have been found in England (de Bouard 1973–4; Motteau 1985; Meyer 1991; Evison forthcoming i). The bowl cat. no. 229 (Fig. 36) does not belong to this series, however, and must be of Middle Eastern origin, and of slightly later date.

## Discussion of vessel types

### Bowls

#### PERIOD I

Some of the glass forms found in Anglo-Saxon contexts had been current during the second half of the 4th century and continued in use in the first half of the 5th century. Along with one or two earlier vessels, Harden in 1956 listed 24 as 'Roman survivals'. In this category the British Museum possesses two hemi-spherical undecorated bowls with unsmoothed, broken-off rim, cat. nos 1–2 (Fig. 1). The first, from Great Chesterford, Essex, grave 33, was excavated in 1953–5, and its associated objects denote a date in the first half of the 5th century for the grave (Evison 1994b, 20–1, fig. 27). The second, cat. no. 2, was found in 1994 in the cemetery at the Buckland Estate, Dover as the only object in grave 355, and although most of the rim was straight and broken off, a short length was grozed, no doubt to rectify an irregularity. A fragment found in Hut 15 at Mucking, cat. no. 3 (Fig. 1), is part of the rim of a similar bowl or cup, but a slightly thicker type more common in the 5th century. Only one other bowl of this type is known from an Anglo-Saxon grave, at Bifrons, Kent (Harden 1956, Appendix I, group A, d.v.i, pl. XVe; Maidstone Museum 1954 620/2). However, six rim

fragments were found in the Anglo-Saxon village of West Stow, Suffolk (Evison 1985, 75, fig. 277, 14–19). Such bowls were common in England and on the Continent. In France the type is allocated mostly to AD 450–490 with later occurrences (Koch 1987, 53–5; Cabart and Feyeux 1995, 31, nos 45, 48; Feyeux 1995, 118, pl. III, T. 80.o; Périn 1995, fig. 5; Feyeux 2003, fig. 33, pls 56 and 57).

A similar type of bowl with broken-off rim but with angular profile and decorated with indents comes from Milton-next-Sittingbourne, Kent, cat. no. 4 (Fig. 1). The type has mainly a Rhineland and Meuse distribution in the 4th and early 5th centuries (Koch 1987, 183–91, Abb.79; Feyeux 1995, pl. 14, type 80.4n, Feyeux 2003, type 80.4, figs 33, 52). There are three other examples from Anglo-Saxon graves, from High Down, Sussex (Welch 1983, fig. 123b) and from Bifrons (Harden 1956, pl. XVf) and Eastry in Kent (Evison 2000b, group 2).

The unsmoothed rim on these bowls is a continuation of a late Roman technique, but from the 5th century it became a universal European technique to transfer the paraison to a pontil rod in the making so that the rim of the vessel could be smoothed by re-heating, and this applies to the following bowls. Catalogue no. 5 (Fig. 1) a wide, straight-sided bowl with smoothed rim and zones of horizontal white trails was found at East Shefford, Berks. It was regarded by Harden as a Roman survival but belongs to a type produced in Germany and northern France in the mid-5th–6th century (Koch 1987, 219–22, Abb. 93; Feyeux 1995, T. 81.1a; Feyeux 2003, 167–70, type 81.1a, fig. 34). A very similar shape can be seen in the very different fragment from Holme Pierrepont, Notts., cat. no. 6 (Fig. 1), which bears incised decoration, including the Latin word 'semper'. The cutting technique in which this is carried out is a late example of a type of Roman craftsmanship which was lost in the Anglo-Saxon period, but which survived into the 5th and 6th centuries in the Mediterranean area (Price 1992, 134; Price 2000b, 24–6) and so the bowl must be an import. The emponitilling method used compares with that on a globular beaker cat. no. 155 (Fig. 27) (p. 18 below).

Another straight-sided bowl, cat. no. 7 (Fig. 1) from Dover grave 437, is decorated with white horizontal and arcaded trails, the hooking process terminating in a lump in the wall at the bottom of each arcade. This is another type produced in northern France and the upper Rhine (Koch 1987, 226–33, Abb. 96; Feyeux 1995, T. 81.1acp; Evison 2000b, group 8; Feyeux 2003, 171, type 81.1acp, pl. 60, 659, 660) which belongs mostly to the first half of the 6th century, and the example from Dover grave 437 was in a male grave with sword and buckle which accord with this dating. It is probable that the fragments in the fill of grave 843 at Mucking, cat. no. 8 (Fig. 1), belong to this form; i.e. while the claw beaker in the grave, cat. no. 54 (Fig. 9), is a product of the early 5th century, these fragments in the fill belong to the same later period as the brooches and other objects in the grave.

A unique brown bowl from Faversham, cat. no. 9 (Fig. 2), is decorated with a zone of horizontal trails at the top and vertical loops below with the unexpected addition of six turns of a white trail near the rim. This general trail pattern was used on many forms of vessel from the 4th century onwards and a series of bowls with this pattern but in a more squat shape was produced in the Rhine and Meuse valleys in the late 5th and early 6th centuries (Koch 1987, 242–53; Feyeux 1995, T. 81.2h;

Feyeux 2003, 172, type 81.2hi, nos 667–8, fig. 34). Most of these have an out-folded rim, and the bowl found at York (Harden 1956, pl. XVIg; Evison 2000b, group 10/3) also has a folded rim and obviously belongs to this production series. However, the other three bowls found in England, like the Faversham bowl, have a rim which is not folded but only slightly thickened, i.e. from Islip, Northants. (Evison 2000b, group 10/1, fig. 2,8), Lackford (Evison 2000b, group 10/2), and Mill Hill, Deal, Kent, grave 61a (Evison 1997, 241, fig. 36a; Evison 2000b, group 10/4, fig. 9a). This bowl series is closely connected in decoration pattern with the Kempston-type of cone beaker (below p. 12), some of which were no doubt made in England, and the brown colour, unusual in both of the two types, and the careless trail application relate the Faversham bowl to the cone beaker from Chessell Down, Isle of Wight (Evison 1972, 57–9, fig. 15). The country of origin of these variants must remain in doubt, however, as a few bowls with simple rims are also known from France and Holland (Evison 2000b, 59; Feyeux 2003, no. 668).

There are two squat bowls with constricted neck and white horizontal trails, cat. nos 10 and 11 (Fig. 2), one from Howletts grave 27 in Kent and one from Mucking, grave 99 in Essex. In addition to the examples in the British Museum there is one with vertical ribbing in grave 28 at Alfriston, Sussex (Welch 1983, fig. 12c), and one at Westbere, Kent (Evison 2000b, 59). These belong to a type which occurred mainly in the first half of the 5th century in the Rhineland and northern France (Koch 1987, 59–65, Abb. 19; Feyeux 2003, 181, type 90.1a, pls 36, 66), but the contexts in England are of the late 5th century or early 6th century. The type was originally regarded by Harden as a Roman survival but he later accepted the contextual evidence for a later date (Harden 1978, 4–5).

Two unusual vessels from Howletts, Kent, cat. nos 12 and 13 (Fig. 2), fall between the forms of bowl and globular beaker. They each have a vertical rim and globular body with indented base and decoration of self-colour trails at the neck. They are very badly shaped and the glass is exceptionally full of bubbles and with dark streaking on one. The cemetery of Howletts appears to be early, with no finds that can be dated after the middle of the 6th century, so that a late date when the globular beaker was fully developed is unlikely. They are therefore regarded here as being distantly related to a type of bowl with slightly wider but vertical neck which occurred at Carisbrooke Castle, Isle of Wight, grave 1632, inhumation burial 1607 (Evison 2000b, fig. 2,11; Evison 2000e, fig. 37,3). The Howletts bowls seem to have no close parallels, and there is only a general resemblance to the French type T.90 (Feyeux 2003, 178) which covers a wide variety of shapes from bowl to globular beaker throughout the Merovingian period (Feyeux 1995, T. 90, 136–7, pls. 15 and 16; Périn 1995, 136, pl. 15).

#### PERIOD II

Although the bowl form was not common, it continued into the 7th century. Only three of these later types are known in England, all of them recent finds and two are in the British Museum collection. Catalogue no. 14 (Fig. 2) from grave 250 at Dover, Buckland, Kent, is an undecorated bowl with convex profile (Evison 2000b, 43/2; Appendix 4), a type found in the Rhineland from the late 5th–7th centuries (Koch 1987, 198–206, Abb. 84–7), and in France (Feyeux 1995, pl. 14, T. 81.o; Feyeux 2003, T. 81.o, 166–7, pl. 58). The associated finds at

Dover included two bell beakers (cat. nos 53–54, Fig. 9), and the grave may be dated to the late 6th or 7th century. A similar undecorated bowl has also been found in grave 190 at Ozengell, Kent (Powell-Cotton Museum, Birchington, Kent; Evison 2000b, 43/1, there misprinted as 'Kent' only; Appendix 4).

Grave 187, St Peter's Tip, Broadstairs contained a bowl with flat base and more or less straight, outplayed sides, cat. no. 15 (Fig. 2). It is mould-blown, with a quincunx of five knobs on the base, and vertical ribbing on the walls. The general, undecorated form is known on the Continent from the 5th–6th centuries (Koch 1987, 198–206, Abb. 85), mostly in the Rhineland, but also in France (Feyeux 1995, 118, T. 81, pl. 14, T. 81, 3k; Périn 1995, fig. 5, T. 81; Feyeux 2003, 173, T. 81, 3k, no. 669). Moulded decoration of similar vertical ribs with a quincunx of knobs on the base is to be found mostly on palm cups of the 6th–7th centuries (Feyeux 1995, pl. 12, T. 55 3KM; Périn 1995, fig. 4, T. 55), see cat. nos 83–88 below (Figs 17–18). The cruciform arrangement of the decoration on the base may well be a long-remembered tradition from the shallow bowls of the 5th century in northern France which had moulded decoration in Christian motifs and often a Chi-Rho or cross on the base (Evison 2000b, 58). A fragmentary exact parallel to the St Peter's bowl is known from Toulon, south France (Foy 1993, 218–20, fig. 10.22) where it was discussed in connection with local bowls with Christian motif of the 5th–6th centuries, but it was allocated to a later date. The accompanying grave goods at St Peter's Tip give a date in the 7th century.

#### PERIOD III

The bowl form is one which continued in use after the period of furnished burials into the 8th century and later, and two of the fragments from the monastery of Whitby decorated with trails of contrasted twisted colours are probably from bowls. The basic form of the York bowl type with out-folded rim and its decoration pattern of horizontal trails with vertical trails below reappears in these later bowls (Baumgartner and Krueger 1988, 70, no. 12; Evison 2000b, fig. 4, III,1).

Cat. no. 16 (Fig. 2) is a vessel fragment which has been trimmed down to a roughly rectangular shape, no doubt so that it could be used as an inset jewel in ornamental metalwork such as a book cover. However, it shows the slight curvature of the vessel from which it came, and so would have been particularly suitable for ornamenting a curved surface such as on a chalice like the Derryflan chalice (Youngs 1989, 130–1, no. 124) which has rectangular amber mounts. The original glass vessel must have been very colourful as the basic colour of both vessel and trails was a vivid blue, and there were two contrasting colours in the trails, white and yellow (For the pattern see Evison 1988b, fig. 12d). Circumference trails laid closely together like these are to be found on the type of bowl found in Valsgårde grave 6, and fragments of numbers of these have been found in England and on the Continent, e.g. Barking, Essex (Evison 1991, nos 67p, 67a), and Hamwic (Hunter and Heyworth 1998, 16, 126, no. 169/1185, pl. 1, fig. 14).

Although also decorated with reticella trails, cat. no. 17 (Fig. 2) differs in that it is shorter and signs of curvature are not evident. The reticella trails are seven deep in alternating colours on a very light green base and it is a neat square suitable for inlay.

Catalogue no. 18 (Fig. 2) is part of a vessel decorated with

a horizontal and a vertical reticella trail. This pattern of trails occurred on the Valsgårde type of bowl, and also on the lower part of globular beakers. The reticella trails are half melted in and the yellow threads show a sideways spread (cf. Evison 1988b, 243, fig. 12, no. 5; Youngs 1989, cat. no. 205a, fig. 205b). Finds of glass fragments from the late 7th–9th centuries have been increasing, both in England and on the Continent as far as Scandinavia, and at many of these sites reticella decoration occurs, showing its popularity at this time (Evison 2000b, fig. 7).

### Cone beakers

#### PERIOD I

Two cone beakers have the broken-off, slightly cupped rim produced in the late 4th–early 5th centuries, as on the bowls above, a technique generally abandoned after the early 5th century (Evison 2000b, group 13, fig. 2, 12). One from East Shefford, Berks., cat. no. 19 (Fig. 3), is light blue-green with yellow streaking, and the tip is slightly pushed in. The other, cat. no. 20 (Fig. 3), from grave 992 at Mucking, Essex is light olive and shorter, with a flat tip. The form is also a continental type (Feyeux 1995, pl. 3, T. 50; Périn 1995, fig. 4, T. 50; Feyeux 2003, 80–1, type 50.0, fig. 52). Fragments of similar cones were found in the Anglo-Saxon settlement of West Stow in Suffolk (Evison 1985, 75, fig. 277, 9–13). There was one in grave 992 at Mucking with two applied brooches, one ring brooch and one penannular brooch, finger ring, etc. which date the grave to the 5th century, probably the first half (Evison forthcoming c).

All other cones manufactured at this time were transferred to a pontil and given a re-heated, smoothed rim. Two in the collection are in uncommon colours, one from Droxford, Hants., cat. no. 21 (Fig. 3), is red-brown, and one from Faversham, cat. no. 22 (Fig. 3), very light grey-olive. Both are fragmentary, and the Droxford cone the smaller of the two. A narrow tip fragment only, cat. no. 23 (Fig. 3), was found in grave 132 at Great Chesterford, Essex, and as it was under the right shoulder of a female skeleton it cannot have been one of the deliberately deposited grave goods, and must have been in the soil excavated for the grave. Its date, however, cannot be much earlier than the late 5th-century date of the grave. In France undecorated cone beakers with smoothed rim occurred between the second half of the 4th century and about AD 600 (Feyeux 2003, 82–5, type 51.0, nos 168–78, pl. 19).

Three cone beakers are mould-blown, two of them also decorated with opaque white trails in a zone below the rim. The cone from Howletts, cat. no. 24 (Fig. 3), has vertical ribbing, a decoration not common on cone beakers, but it does occur on others in England and in France and Belgium (Evison 2000b, group 17; Alénus-Lecerf 1993, 105, no. 12; Alénus-Lecerf 1995, 63–4; Feyeux 1995, pl. 10, T. 51, 3k; Feyeux 2003, 88, T. 51.3k, no. 196).

More common are the cone beakers where the ribbing is diagonal or twisted, as on the cone from Dover, grave 38, cat. no. 25 (Fig. 3). Beginning in the early 5th century as short forms with wide bases, they developed into taller forms with everted rims and narrow tips in the middle of the 6th century (Koch 1987, 80–102; Feyeux 1995, pl. 10, T. 51.31a; Feyeux 2003, T. 51.31a, 88–90, nos 199–208). The Dover cone was in a well-furnished grave which appears to belong to the period AD 575–625 (Evison 1987, 41–2, figs 22, 23). A tip fragment only of

this kind of cone was found at Sittingbourne, Kent, cat. no. 26 (Fig. 3). Parts of the top edge are broken off, but to make the vessel suitable for re-use the edge was made flat for most of the circumference by grinding.

A form which in the 4th and early 5th centuries preceded the fully developed cone was a beaker with stable, pushed-in base and everted rim (Isings 1957, 129–30, form 106c). One example from Chessell Down, cat. no. 27 (Fig. 4), has a hollow in-rolled rim and decoration at the rim by a white trail. The form resembles that of the 'Mayen' type of beaker which has diagonal rippling (Koch 1987, 71–2; Pirling 1966, 104, type 201, 150 type 230, 162, Taf. 46, 9–19). A cone further on in the development series, cat. no. 28 (Fig. 4), Faversham, has a narrower, but still pushed-in base; the colour is light blue-green decorated with self-colour trails below the rim. A similar form is noted in France (Feyeux 2003, 83, T. 51.0, no. 169).

Cone beakers decorated with a zone of horizontal white trails below the rim were usually in various shades of light green, and appeared in the Meuse and Rhine valleys in the late 5th–early 6th centuries (Koch 1987, 73–7; Feyeux 1995, 116, pl. 10, T. 51.1a; Alénus-Lecerf 1995, fig. 11, A.1; Feyeux 2003, 82, 85, T. 51.1a, pl. 20, nos 179–83). A few were found in England: one with a nearly straight rim from Sittingbourne, Kent, cat. no. 29 (Fig. 4), one fragment of no provenance with slightly everted rim, cat. no. 30 (Fig. 4), and two fragments of one beaker were found in Hut 129 at Mucking, cat. no. 33 (Fig. 4). Two fragmentary cones with slightly everted rim were from Dover graves 254 and 347, cat. nos 31 and 32 (Fig. 4), both in well-furnished graves of the first half of the 6th century (Koch 1987, 73, Abb. 26; Evison 2000b, group 20/6 and 7).

Another related type of cone beaker also has a zone of white trails below the rim, but a second zone of trails in the middle of the vessel was hooked downwards at intervals and marvered, producing a series of arcades. This has been dated to the last quarter of the 5th century and is found mostly in the north of France and Belgium (Koch 1987, 149–51, Abb. 64; Feyeux 1995, pl. 10, T. 51.1ac; Alénus-Lecerf 1995, fig. 10.05; Feyeux 2003, 85–6, T. 51.1ac). The cone from grave 432 at Dover, cat. no. 34 (Fig. 5), is of this type and the associated objects belong to the first half of the 6th century.

A cone in grave 128 at Great Chesterford, cat. no. 35 (Fig. 5), has some of the characteristics of the last type, but differs in its more rounded tip, and the white trail decoration which is dragged in two opposite directions. Cone beakers similarly without a zone of horizontal trails but with trails in the middle drawn in one direction only to form arcades are known from northern France and Belgium (Feyeux 1995, pl. 10, T. 51.1c; Alénus-Lecerf 1995, fig. 10.C6), but the beakers closer in form and decoration to the Great Chesterford cone are found further afield in Germany e.g. one without provenance acquired in Cologne (Corning 1957, no. 434; Whitehouse 2001, 214, no. 780) and one in a 5th-century grave at Oberröblingen, eastern Germany (Schmidt 1961, 115, Taf. 28c). A vessel with very similar decoration has the form of a bell beaker with knobbed tip, and was found in a 5th-century grave at Lechenleh (Kreis Euskirchen [Haberey 1955–6, 502–3, pl. 58.2]). The decoration on these vessels differs from the arcade designs more common at the time as the trails were drawn for a longer distance than usual and in opposite directions. A final twist to the vessel gave them a slanting curve. The drawing of trails in alternate

directions had been used on Roman glass to produce a feather pattern (Whitehouse 2001, no. 772), and the more elongated version appeared on later Lombardic drinking horns (Evison 2000d, 227–8, fig. 22, 21).

As many as ten catalogue items belong to one particular type of cone beaker (cat. nos 36–45 (Figs 5–7); Evison 2000b, 62, groups 24–6). This tall cone beaker type which was decorated with a zone of self-colour horizontal trails at the rim and vertical loops below was given the name ‘Kempston-type’ from the find spot of a complete example. This first appeared in the first half of the 5th century and continued in use well into the 6th century with little variation. Most are in various shades of light green, but a few of the earliest are shorter and broader, and brown, olive green or nearly colourless (Evison 1972, 55–60). There are considerable numbers of these cone beakers, occurring mainly in southern England with some in France, Belgium and further east in Europe. Forty-nine have so far been noted in England, and distribution and types suggest different production areas in England, northern France and Germany (Evison 1972, fig. 23; Evison 1981, fig. 10; Näsman 1984, 78–9, 145–6, 161, fig. 8a where Kempston and Snartemo-type cone beakers were combined; Evison 1987, fig. 114; Koch 1987, 118–45, Abb. 47; Lund-Hansen 1993, fig. 6; Feyeux 2003, T.51, 2fh, T.51, 2hi, nos 192–5).

The seven fairly complete or restored examples of the Kempston-type cone beaker in the British Museum are of the tall variety and exhibit varying degrees of efficiency on the part of the glass-blower. The most successful is the Kempston beaker itself, cat. no. 36 (Fig. 5), where 12 vertical loops are neatly spaced and stop short of the zone of horizontal trails by the rim. On all but one of the others, distance between zones was misjudged and the tops of the vertical loops became entangled with the lowest of the horizontal trails. All except one have from 8 to 11 vertical loops, but the maker of the cone from Dover grave 247, cat. no. 42 (Fig. 7), has attempted only four vertical loops which, like the horizontal trails are carelessly applied and slant away from their intended course. The Kempston beaker, cat. no. 36 (Fig. 5), is light blue-green, and so is the beaker from Howletts, cat. no. 37 (Fig. 5), with execution on nearly as high a level, but on the Mucking beaker of the same colour, cat. no. 38 (Fig. 6), the trails are not as accurately placed, and the extra width at the tip gives a more squat appearance. The light green beakers from Howletts grave 30, East Shefford and Dover graves 22 and 297, cat. nos 39–42 (Figs 6–7), are varied in the competence of the trail application.

A fragment of a light green tip from Longbridge, Warwicks., cat. no. 43 (Fig. 7), has the beginnings of eight vertical loops. A fragment with the top of a vertical loop from Mucking, Well 7, cat. no. 44 (Fig. 7), must have belonged to a beaker of Kempston-type. Another fragment bearing horizontal trails at Mucking, Hut 62, cat. no. 45 (Fig. 7), is most likely part of a cone beaker, although it could have belonged to a light green claw beaker, but that group is less common.

Some of these cones are from furnished graves which can be seen to belong to the late 5th or 6th century. The earliest typologically is the beaker from Mucking, grave 924, as its tip is wider than the others, and this accords with the other objects in the grave which included a pair of backplates of applied brooches with catch plates of early 5th-century type. The

pushed-in tip of the vessel from Howletts grave 30 is also an indication of an early stage in development, and the wheel-thrown pot accompanying it belongs to the 6th century (Evison 1979, 81, no. 3, fig. 16a).

## PERIOD II

Production of cone beakers seems to have waned by the end of the 6th century, but there is one from Faversham, cat. no. 46 (Fig. 7), which is representative of glass-blowing styles of the late 6th or 7th century. It is more squat in form than early cones, with a flat base and rim thickened by rolling in. Decoration is by thick applied trails, one horizontal and indented at intervals below the rim, and four applied horizontally as zigzags, the design accentuated by manipulation so that points touched and formed a trellis pattern. Trails of this thickness, either horizontal and indented, or as a trellis pattern occur on other forms of this period, i.e. horns cat. nos 47–48 (Fig. 8), claw beakers cat. nos 78–80 (Figs 15, 16) and globular beakers cat. nos 148–152 (Figs 26–27).

One other very similar cone exists which is taller, but also is brown with a rolled-in rim, horizontal indented trail and this time six zigzag trails. In spite of the fact that it has travelled far, having been taken to Australia, and is now housed at the Corning Museum of Glass, New York, it is impeccably documented by a record with water colour illustration dated 1878 which states that it was found in the King’s Field at Faversham in Kent in 1862 (Whitehouse 1986, 151–3; Whitehouse 2001, no. 668). This is not a type known on the Continent. There is one cone found at Cipy in Belgium which has fine horizontal trails at the rim but similar zigzag decoration below, the fine trailing and green colour relating it more closely to 6th-century products (Faider-Feytmans 1970, 209, T. 709, pl. 113, 129; Alénus-Lecerf 1995, 58, fig. 1, 8). A chipped knob of glass on the base of the Cipy cone has been interpreted as the remains of a foot, but there are no such contemporary forms and it may simply be the punty metal remaining on a cone beaker. It seems that the two Faversham cones were blown in England, perhaps at Faversham. Connections with the bag beaker series are noted below (p. 19), and the two Faversham cones are included in Map 5 which shows that globular beakers with this zigzag decoration may also have originated at Faversham.

## Horns

### PERIOD II

A pair of fragmentary drinking horns was found at a cemetery site at Rainham, Essex, cat. nos 47–48 (Fig. 8), and they are clearly in the tradition of the Kempston-type of cone beaker, although the form is curved and twisted. The unsmoothed, grozed rim (Evison 1955, pl. LXIII, a–c) first suggested a 4th-century date to Harden (1956, 140, later extended to late 5th or 6th century [Harden 1968, 94, cat. no. 128]), but other horns like this of type III (Evison 1955, 185–7) and also some horns of type IV (Evison 1955, 187–90), which also had unsmoothed rims, were found in 6th–7th-century contexts (Evison 1955). As the narrow tip and curvature of the body offered no seat for the attachment of a punty, all the shaping and decorative work was carried out on the blowing iron and the rim was snapped off and levelled by grozing.

The pattern of decoration is descended from that on the

Kempston-type of cone beakers, but a single thick, horizontal indented trail takes the place of a zone of finer multiple trails, and the vertical looping is achieved by a different technique, for a single, thick horizontal trail is hooked downwards at intervals into arcades, and a single thick vertical trail is laid from each point of the arcades to the tip. These thick trails, arcaded or indented, have already been noted on the Faversham cone beakers above, cat. no. 46 (Fig. 7).

Apart from one tip fragment from Great Casterton, Rutland (Evison 1975, 87, no. 48; Evison 2000b, group 77/3), the find spots of the other few type III horns are in France, Yugoslavia and the upper Rhine (Evison 1955, fig. 11). As they are not sufficiently similar to suggest a single production centre, and the specific trail technique was in use in England on other forms, there is a probability of Anglo-Saxon production for the Rainham horns.

### **Stemmed beaker**

#### PERIOD I

Stemmed beakers are related to some of the cone beakers by reason of colour and decoration, i.e. light greens with opaque white trails, but a cylindrical body with everted rim is nipped in to form a pedestal with folded base. Only three have been found in England and one of these, from Howletts, Kent, cat. no. 49 (Fig. 9), is in the collection. In a number of variations of shape the type occurred mostly in the Rhine valley (Koch 1987, 151–65, Abb. 66) with some in northern France and Belgium throughout the 5th century and into the early 6th century (Feyeux 1995, 115, pl. 9, T. 41.1a; Alénus-Lecerf 1995, 57, fig. 1.3; Feyeux 2003, 75–6, T. 41.1a, pl. 16, nos 142–8).

### **Bell beakers**

#### PERIOD I

One variant of a non-stable vessel, the bell beaker, corresponds to the stemmed beaker in form and decoration, but ends in a point at the base instead of a folded foot. A beaker from Howletts, cat. no. 50 (Fig. 9), is blue-green with zones of horizontal white trails, and a recent discovery from Dover grave 422, cat. no. 51 (Fig. 9), is a very light green with decomposing white trails. The type occurred in France with some in Belgium and Germany from the mid-5th–mid-6th centuries (Feyeux 1995, pl. 12, T. 56.1ae; Périn 1995, fig. 5, 56; Alénus-Lecerf 1995, 64–5, fig. 13; Feyeux 2003, 140, T. 56.1ade, pl. 46, nos 508, 578). Only three were brought to England.

By the beginning of the 6th century the bell beaker developed incurved sides and a carination near the base which retained its central knob. A light olive green beaker of this type from Dover 420, cat. no. 52 (Fig. 9), is decorated with white glass on the knob and as trails near the rim, and the associated objects denote the 6th century. A recent find from Saltwood, Kent is an outstanding example. It is complete, an unusual very light brown with vivid green-blue trails and dark blue knob (Evison forthcoming h). The type occurred mostly in the Meuse valley of northern France during the 6th century, but only seven found their way to England and they were all buried in Kent (Rademacher 1942, 307–9, Taf. 60; Feyeux 1995, 116, pl. 10, T. 52.1a, T. 52.1ae; Périn 1995, fig. 4, T. 52; Koch 1996, Abb. 470, 3 and 4; Feyeux 2003, T. 52.1a, T. 52.1ae).

#### PERIOD II

At the end of the 6th century and into the 7th century the bell beaker became taller and slimmer and lost the knob on the base. A pair of this taller shape occurred in grave 250 at Dover, cat. nos 53–4 (Fig. 9), both being decorated with vertical ribbing, but retaining a smaller knob on the base. Associated objects, including the bowl cat. no. 14 (Fig. 2), indicate a late 6th–7th-century date. Similar vessels occurred frequently in France and Germany but no others have occurred in England (Feyeux 1995, pl. 11, T. 52. Ske; Koch 1996, 614–7, Abb. 470; Feyeux 2003, T. 52.3k).

The last stage in the development of the bell beaker is exemplified by two undecorated beakers from Dover, grave 6 and Breach Down, Kent, cat. nos 55–56 (Fig. 9). They are tall and narrow, without a base knob, and the rim is rolled inwards (cf. Feyeux 1995, pl. 11, T.53.0; Koch 1996, 614, Abb. 467; Périn 1995, fig. 4; Feyeux 2003, 120, T.53.0). The variant of this form with moulded decoration has a distribution which clearly indicates a Rhineland origin (Koch 1996, 615, Abb. 469). Grave 6 at Dover was allocated to the period AD 650–675 (Evison 1987, 97–8, fig. 7, pl. 9a), but the associations of the Breach Down vessel are not known. All of the bell beakers in the collection are continental types and were no doubt imported.

### **Claw beakers**

#### PERIOD I

While glass vessels produced in the Anglo-Saxon period were mostly simple shapes from a single paraison, without substantial applications such as a handle or foot, one type of vessel, the claw beaker, was the exception, and its intricate form remained popular throughout the 5th, 6th and 7th centuries and beyond. Almost without exception, each of these claw beakers was provided with a foot, and the basic shape was that of a footed beaker, or, less frequently, of a footed cone. The types quoted in the following discussion refer to Evison 1982, unless otherwise stated.

The earliest example in England is recognised as such because of its obvious retention of glass-blowing characteristics of late Roman craftsmen. The claw beaker found in grave 843 at Mucking, cat. no. 57 (Fig. 10), does have the basic shape of a footed beaker, but the rim is unsmoothed, and the foot applied separately. The glass is of good colour and quality, and the basic decoration design of a zigzag trail between borders at the rim with the area below divided into panels by trails was one very familiar to glass-blowers in the second half of the 4th century. Also customary at that time was the application of hot blobs of glass which were usually left as a flat, coloured disc but were sometimes hollow blown and drawn into dolphin shapes, as on a stemmed beaker from Cologne (Evison 1982, pl. V,c). The Mucking beaker has developed into a taller and more compact shape, and most of the body is now covered with blown claws which have lost the realistic dolphin appearance. This closeness to late Roman techniques shows that this beaker must belong to the first half of the 5th century and was about a century old when it was deposited in a woman's grave of the first half of the 6th century.

By the next stage of development, exemplified by the beaker from Castle Eden, cat. no. 58 (Fig. 10), very little of the late Roman traditions have been retained. The rim is smoothed and the foot formed in one piece with the body by folding. The

zigzag border and panels have been replaced by a zone of horizontal trails at the rim and the foot. The overall application of full-blown claws with vertical indented trails corresponds with the Mucking beaker, but, like all subsequent Anglo-Saxon beakers the foot is small and not very efficient as a stable base. Uniquely, however, it does retain blue trails common in the late 4th century. A mid-5th-century date is assured by a grave containing a similar beaker at Krefeld-Gellep, grave 43 (Pirling 1966, 19, Taf. 10; Evison 1982, 46, fig. 3). At the same stage in development (type 2b) is the light blue-green beaker from Faversham, cat. no. 59 (Fig. 10), but without the indented trails. The placing of the claws in the middle of the body and well above the foot corresponds with the layout of the design on the Mucking grave 843 beaker, cat. no. 57 (Fig. 10).

One beaker from Broadstairs, cat. no. 60 (Fig. 11), differs from all the others as it has a zone of horizontal trails below the rim only and not at the foot. The basic shape is that of a cone beaker and the top row of claws is drawn down to the foot. It must be developed from the Flavion claw beaker type which has vertical tooled trails extending to the foot (Evison 1982, fig. 2), and where there is no lower zone of horizontal trails, but the zigzag trail between borders still retained at the rim denotes an early 5th-century date. Contemporary with types 2a and 2b, the Broadstairs beaker was assigned to a separate class, type 2c (Evison 1982, 75, note 23). Although it has two zones of trails a claw beaker from Hermes, Oise, is very similar to cat. no. 60 from Broadstairs because of its near-conical shape with slightly flaring rim and two rows of claws applied on a plain zone and drawn into long tails. The Hermes claw beaker was found in a well-furnished grave of the second half of the 5th century (Rademacher 1942, 290; Vallet 1986/87, 246, fig. 6).

In the next stage of development, type 3a, the beaker became taller and more slender, and the claws were applied to the lower two-thirds of the body and followed the curve of the wall. Two brown beakers were found at Dover in graves 20 and 372, cat. nos 61–62 (Fig. 11), both belonging to a woman with brooches. Grave 20 was allocated to the period AD 475–525 (Evison 1987, 38–9, figs 12–13) and grave 372 belongs to the first half of the 6th century. These two beakers show very similar blowing habits or idiosyncrasies, both being blown paper thin, and in the top row of claws two opposite claws were placed at a higher level than the other two. In the lower zone the horizontal trail was turned ten times on each, and both vessels were pushed in at the foot with a pointed tool in a careless manner, one being off-centre and the other being pushed in twice. This amount of detailed correspondence must mean that the same craftsman must have been responsible for both.

Rather shorter than the previous type and based on a cone shape is type 3b (Map 2), which is represented at the British Museum by two claw beakers from Howletts and one from Faversham, cat. nos 63–65 (Figs 11–12). The two from Howletts are fragmentary, but appear to have had horizontal trails covering the whole body. On cat. no. 64 (Fig. 12) from Howletts the tail ends of the claws and trail fragments extended under the foot so that the vessel was entirely unstable. Associated objects indicate the first half of the 6th century, so that the type was contemporary with type 3a. The fragments of cat. no. 65 (Fig. 12) were kept separately under two different numbers in the Gibbs collection and so were presumably regarded as two

separate vessels.

Four claw beakers in the collection belong to the most numerous type, type 3c, cat. nos 66–69 (Figs 12–13, Map 2). Their proportions of height to width of c. 2:1, and the close-set, neat but fully blown claws with vertical indented trails set on the lower part of the vessel combine to give a controlled and compact appearance. The foot is flatter and wider, giving more stability. These four are very similar as they are all decorated with two rows of five claws each: cat. no. 66 Cambridgeshire or Chatteris (see above p. 4), cat. no. 67 Howletts grave 37, cat. no. 68 Asgarby and cat. no. 69 Sittingbourne. All are well executed, the claws are attached to the plain zone so that their outline is not disfigured by contact with the horizontal trails as on cat. nos 63 and 64 (Figs 11–12), and the wall is not pulled out of shape by their application as on cat. no. 58 (Fig. 10). Although of different colours, cat. nos 66 and 69 have a great deal in common in size, proportions, shape and high quality craftsmanship, so that identity of glass-blower might be suspected. The precision of the work on the Sittingbourne vessel cat. no. 69 (Fig. 13) makes it the finest of the Anglo-Saxon claw beakers, and type 3c may be regarded as the highest point in the craftsman's achievement in this form.

Four more claw beakers in the collection also belong to type 3c, i.e. cat. nos 70–73 (Figs 13–14), Great Chesterford grave 122, Mucking grave 92, East Shefford and Croydon, but they each show a distinctive detail which may indicate a single common craftsman or workshop (Map 2): some of the vertical indented trails are looped over at the top in a way reminiscent of earlier Roman work and the decoration on dolphin appliqué, cf. cat. no. 57 (Fig. 10), Mucking grave 843. Nine out of ten claw beakers showing this detail of manufacture were found in counties other than Kent, so suggesting a non-Kentish origin. Catalogue no. 71 (Fig. 13) from Mucking was not a very successful effort as all the eight claws were applied at nearly the same level instead of at two distinct levels, so that they were consequently crowded together, and alternate claws were drawn downwards at some length towards the foot. A final mistake can be seen in the accidental continuance of a vertical trail above one claw.

Some of the fragments of the Croydon beaker, cat. no. 73 (Fig. 14) are at the British Museum and some in Croydon Public Library. One of the claw fragments in the British Museum fits on to one of the claw fragments attached to the foot in Croydon Public Library, so that identity of vessel is certain.

Both the brown fragments from Mucking Hut 166, cat. no. 74 (Fig. 14), and an old acquisition from Breach Down, cat. no. 75 (Fig. 14), have a vertical indented trail and must belong to type 3c, but a claw fragment from cremation 367 at Mucking, cat. no. 76 (Fig. 14), is too small to show whether there was an indented trail or not. Objects associated with type 3c claw beakers indicate a mid-6th-century date (Evison 1982, 48–9). The find spots of claw beakers types 3a–d are shown on Map 2 (see also Evison 1982 figs 6–7). While there are examples of all of these in Kent, types 3a and b do not occur elsewhere in England. A larger proportion of types 3c and d north of the Thames may indicate either a development of more long-range trade from Kent or a separate production centre further north.

The base fragment of a claw beaker from Coombe (cat. no. 77, type 3e, Fig. 14) is sufficient to establish that there were originally two rows of three claws each on this vessel. The

colour, a nearly colourless, very light, dull olive green, is not to be found in Anglo-Saxon claw beakers, and this, together with the arrangement of claws in sets of three points to Rhineland production. The termination of the claws well above the foot indicates the 6th century (Rademacher 1942, Taf. 43; Evison 1982, 50, fig. 4; Böhme 1988, Abb. 29).

#### PERIOD II

The next phase of development is represented by a pair of tall beakers from the tumulus at Taplow, Bucks., cat. nos 78–79, type 4a (**Fig. 15, Map 3**). These now have a conical basis with straight rim, a single, thick and indented horizontal trail in the middle of the body and two rows of four claws each with indented trails, which on alternate claws continue down under the foot.

Two other claw beakers of type 4b were found in the same tumulus at Taplow, cat. nos 80–81 (**Fig. 16**), and from the general appearance of colour, claws and extraordinary height in the region of 300mm, the four could be regarded as a matching set of drinking vessels. However, there are considerable differences between the two pairs which suggest two different makers. The glass used for cat. nos 80 and 81 is of better quality, less bubbly and with a higher gloss. Also, the basic shape is of a stemmed beaker instead of a cone, and the claws have no indented trails. In addition, there is a wide, plain space between the claw area and the zone of trails at the rim which is occupied on cat. no. 80 by a single, thick, indented horizontal trail, and on cat. no. 81 by four hollow-blown knobs. The body of cat. no. 81 is deficient in the middle, so that the exact height and the possibility of further decoration is open to question. All of this might indicate a different glass-blower for the two pairs, and there is also a telling distinctive characteristic in that cat. nos 80 and 81 are pushed in at the base by a pointed tool, as usual, but cat. no. 78 (**Fig. 15**) is pushed in with a flat, disc-ended tool, and cat. no. 79 appears to have been pushed in with a tubular or ring-shaped tool (**Fig. 15**).

A less tall claw beaker from Ashford, cat. no. 82 (**Fig. 17**), is obviously connected with type 4a because of its conical shape, although there are no vertical indented trails on the claws, but, like cat. no. 78 (**Fig. 15**) its base is pushed in with a disc-ended tool. It is extraordinary in two other ways. It has three rows of four claws each instead of the usual two rows. Another beaker with three rows of claws was found in grave XII at Vendel in Sweden (Evison 1982, pl. VI d), and that one is even more remarkable as it has a zigzag border near the top between two thick indented horizontal trails. This kind of horizontal trail is a characteristic of the late 6th or 7th century, and thick zigzag trails of the same period have been noticed on the cone beaker above, cat. no. 46 (**Fig. 7**), so that similarity to the zigzag between border motifs of the late 4th–5th centuries (cf. cat. no. 57 above, **Fig. 10**) is no doubt accidental.

The other peculiarity of the Ashford beaker is that it is in two colours, although the contrast is not very striking. The body and upper zone of trails are light green, but the claws and the lower zone of horizontal trails are light olive green, and this trait of claws in contrasting colours can be traced back to the Roman period. In the late 4th century one of the most popular forms of decoration was the application of coloured blobs to the wall of a vessel. As it is clearly related to the technique of

blowing and drawing a hot blob into a dolphin or claw at the same time, it is surprising that coloured claws did not make a more general appearance. A late Roman footed bowl from Couvrot, Entre-Deux-Voies, Marne (Cabart et Ravauz 1987, 43–5, fig. 7.33), is decorated with blown knobs which have been manipulated into diamond shapes. The vessel is light green but the glass of the blown knobs and the foot contains streaks of vivid blue. There is a considerable time gap between the Couvrot bowl and the Ashford claw beaker but one other beaker with coloured claws is known, from Bellenberg Voehringen, Germany, where the vessel colour is very light green, nearly colourless, and both the upper and lower trail zones and the eight claws are a contrasting translucent brown. The shape, however, is earlier than that of the Ashford beaker, it is only 180mm tall and with an everted rim, and so belongs to the 6th century (Evison 2000d, 271–2, fig. 22.5, pl. 12.B).

Type 4c (**Map 3**) is differentiated from types 4a and b by its blue colour and its shorter stature. The Wickhambreaux beaker, cat. no. 83 (**Fig. 17**), shares one unusual trait with the Ashford beaker as its blown features are arranged in three rows, and the fact that the top row is left as knobs and not drawn down to form claws relates it to the Taplow beaker, cat. no. 81 (**Fig. 16**). A blue beaker from Faversham, cat. no. 84 (**Fig. 17**), is very similar although lacking the row of blown knobs. A new find from the Buckland Estate, Dover, cat. no. 85 (**Fig. 17**), on which the top row of claws is placed a little higher, is a rather slimmer version. A similar blue fragmentary beaker with two rows of four claws each, and a zigzag trail between indented trail borders like the beaker from Vendel XII was found at Grötlingbo/Hablingbo, Gotland (Nerman 1969, Taf. 84,737; Nerman 1975, 33, fig. 737; Evison 1982, 50, 57, 72, no. 16; Evison 1983b, 89; Näsman 1984, 63), and there are two other fragments at Vallstenarum, Gotland (Nerman 1969, fig. 1282; Nerman 1975, 48).

Associated finds with cat. nos 83, Wickhambreaux, and cat. no. 85, Dover grave 353 (Evison forthcoming f), indicate a late 6th–7th century date. The distribution of claw beakers types 4a–c shown on **Map 3** suggests possible production at Faversham, and the occurrence of similar beakers in Sweden no doubt indicates export from England. There is evidence that the decoration by means of blown claws continued at least until the 10th century in France (Evison 1989a).

#### Palm cups

##### PERIOD II

The name of palm cup allocated to this type in English is taken from the idea that the most comfortable way to hold this non-stable form is to cradle it in the palm of the hand. In German it is referred to as *Tummler* and in French as *coupe évasée avec bord à ourlet*. Of the 18 examples in the collection only one has a simple, smoothed rim, all the others are folded inwards or outwards, forming a hollow space. In this detail they differ from the types of vessel considered above, most of which belong to the 5th and first half of the 6th century, while the palm cups occurred mostly in the late 6th–7th centuries.

One of the palm cup types was blown in a mould, which produced a pattern of vertical ribbing and a cruciform pattern on the base. Two fragmentary examples from Faversham, cat. nos 86–87 (**Fig. 18**), have an outspread and out-folded hollow rim, and a base fragment from Kempston, cat. no. 88

(Fig. 18), must also belong to this type. The moulded vertical ribbing has the effect of giving an undulating pattern to the folded rim. These cups are in more distinctive colours than usual, olive green, brown and blue. A later development is larger and taller and with a deeper rim. This comes as one of a pair (the other lost) from a grave at St Martin-in-the-Fields, London, cat. no. 89 (Fig. 18), and as this must be a Christian burial a date in the 7th century or later is indicated. One particularly fine example like this of no provenance in Bonn Museum shows a well-defined zigzag effect in the rim (Rademacher 1942, 304, Taf. 56,3). The total of mould-blown palm cups with simple or out-folded rim in England is no more than 13, so that they may all be imports.

Two other palm cups, cat. nos 90–91 (Fig. 18), from Faversham and Coombe, Kent, continue the technique of vertical ribbing and cruciform design on the base, but the shape is more upright, not outspread, and the rim is hollow-rolled inwards. A similarly moulded type occurs amongst the vessels from the Rhineland, northern France and Belgium (Rademacher 1942, Taf. 55, 1–3; Feyeux 1995, pl. 12, T. 55.3km; Alénus-Lecerf 1995, fig. 17.A, fig. 18a; Feyeux 2003, T. 55.3km). A rim hollow-rolled inwards is a late development, also seen on bell beakers, e.g. cat. nos 55–56 (Fig. 9).

Vessels with bases decorated with a moulded pattern of a cross, Chi-Rho or star began much earlier in the late Roman period and increased in numbers during the 5th century in northern France (Werner 1956). These designs of Christian origin have also been discovered on vessel fragments in the south of France (Foy 1993; Maul 2002, 89–92), and the similarity of cruciform designs on these 6th–7th-century palm cups suggests continuity of tradition (Evison 2000b, 58, 68).

A taller version of the palm cup is represented by cat. no. 92 (Fig. 18) where there is still vertical ribbing with a cruciform base, and the rim is outspread and rolled inwards. This has no provenance but was accessioned in 1872 as Anglo-Saxon. Although this is the only example in England, the form was well known in north-west Europe in the 7th–8th centuries (Rademacher 1942, Taf. 59, 1–2; Feyeux 1995, pl. 13, T. 37.3k; Périn 1995, fig. 5, T. 57; Feyeux 2003, 145–6, T. 57.3k), and the shape continued to develop into the funnel beaker.

Undecorated, squat palm cups with out-folded, hollow rims were common on the Continent in the 7th century (Rademacher 1942, Taf. 57; Feyeux 1995, pl. 13, T. 60.0; Périn 1995, fig. 5, T. 60; Alénus-Lecerf 1995, fig. 18; Feyeux 2003, T. 60.0, pls 52–5), and as many as 34 have been found in England (Evison 2000b, group 57). There are ten in the British Museum collection, on most of which the rim is slightly bent outwards. On some it is also folded out, leaving a hollow nearly circular in section, cat. nos 93–94, 101 (Figs 19–20), while on others the edge was first thickened, then folded flat outwards and pressed on the wall of the vessel, leaving a tubular hollow at the rim, the fold varying from 5mm to 11mm in depth (cat. nos 95–100, Figs 19–20).

One of these, cat. no. 96 (Fig. 19) in red-brown glass, came from a grave at Desborough, Northants., and was accompanied by a larger palm cup, cat. no. 101 (Fig. 20), in which light green-blue and yellow-brown are swirled together, giving the overall impression of an olive green colour. A number of the others also deviate from the more common shades of light green: cat. no. 97 from Bourne Park is olive green, cat. nos 93 and 95 (from

Faversham) are a brighter green than normal, and cat. no. 94 unknown provenance and cat. no. 99 from Wheathampstead are a brighter light green-blue (Figs 19–20). A rim fragment from Faversham, cat. no. 102 (Fig. 20), has an outward fold 12mm deep. As to dating, cat. no. 100 (Fig. 20) from Dover was in grave 160, allocated to the late 7th century, and cat. no. 99 (Fig. 20) at Wheathampstead was accompanied by a ‘Coptic’ bronze ewer, so that a 7th-century date is most likely (cf. Cabart and Feyeux 1995, 88–94, fig. 111; Périn 1995, fig. 5, T. 60).

A single, undecorated palm cup, cat. no. 103 (Fig. 20), with a slightly thickened rim was found in grave 298 at St Peter’s Tip, Broadstairs. Such cups in France are dated to the late 6th–7th centuries (cf. Rademacher 1942, Taf. 55,4; Feyeux 1995, pl. 12, T. 55.0; Périn 1995, fig. 4; Feyeux 2003, T. 55.0, fig. 29).

### **Globular beakers**

Although there is no evidence of the associations of the glass vessels from Faversham, some of the globular beakers are so similar that they appear to arrange themselves into pairs, and perhaps they may be regarded as such as there are recorded occasions elsewhere, such as Gilton and St Peter’s Tip in Kent, which show that globular beakers were sometimes placed in graves in pairs. Some of the undecorated globular beakers have thickened rims only slightly everted, a kicked base and globular body. The plain globular beaker cat. no. 104 is very similar to cat. no. 105 in all respects: size, shape, colour, glass quality and even a similar U-shaped crack at the neck (Fig. 21). It therefore seems very likely that they form a pair, and that they were produced at the same time by the same person. There is also a third, very similar vessel, cat. no. 106 (Fig. 21), but without the crack. Comparisons establish six more probable pairs of plain globular beakers, cat. nos 107–108, 109–110, 111–112 (Fig. 21), 114–115 and 118–119 (Fig. 22), and some of the decorated beakers appear to be pairs also, e.g. cat. nos 125–126 (Fig. 23). This visual judgement derives some confirmation from the random selection for analysis of cat. nos 125–126 by Prof. Freestone (see below) which established close similarity of chemical constituents in these two vessels which on visual judgement had appeared to be a pair.

One pair of plain beakers, cat. nos 107–108 (Fig. 21), is in a similar light olive colour, but with near-vertical rims to a narrow mouth. Two rather smaller beakers, cat. nos 109–110 (Fig. 21), are in light green-blue, and might be regarded as a pair, although they came to the British Museum from two different sources: Sir Arthur Evans/Kennard collection, and the Gibbs collection.

The rest of the plain globular beakers are in more distinctive colours. One pair, cat. nos 111–112 (Fig. 21), is green, and a single beaker with near vertical rim, cat. no. 113 (Fig. 22), is green with yellow streaks. A pair, cat. nos 114–115 (Fig. 22), is in light grey-olive. An unusually small beaker cat. no. 116 (Fig. 22), with near vertical rim is blue with brown streaks, while cat. no. 117 (Fig. 22) is also a small beaker but light blue with darker blue and brown streaks, and the rim is near vertical but folded in. A blue pair, cat. nos 118–119 (Fig. 22), is slightly larger with infolded rim, and also with infolded rim is cat. no. 120 (Fig. 22), olive green with red streaks. All the plain globular beakers in the British Museum collection, with one exception, were found at Faversham, but there are also examples from

other sites in other collections, mostly from Kent, **Map 4** (Evison 2000b, group 61). The exception, the globular beaker from Sittingbourne, cat. no. 121 (**Fig. 22**), however, looks very different from most of the globular beakers at Faversham because of its extra height, its colour and elegant shape, for it is 120mm tall, a streaky red-brown and blown thin. It was found with a conical shield boss of 7th-century type (Evison 1963, fig. 19a, b). A similar tall globular beaker was found at Hadleigh Road, Ipswich (Plunkett 1994, 33; West 1998, 58, fig. 81.3, mistakenly described as a pouch bottle).

As to fragmentary remains, a light blue-green fragment of a hollow infolded rim from a pit at Mucking, cat. no. 122 (**Fig. 22**), was possibly part of a globular beaker. Three blue fragments, cat. no. 123 (**Fig. 22**), were found in a bronze bowl at Sarre, Kent, all globular in shape and undecorated, so that they were probably part of a globular beaker like cat. nos 118–119 (**Fig. 22**). This bowl also contained cat. no. 209 (**Fig. 34**), a glass-inlaid jewel.

The rim fragment from Whitby, cat. no. 124 (**Fig. 22**), is no doubt from a plain globular beaker type of vessel, but it is very different from the globular beakers of Period II in both the thickness and colour of the glass. It is 3mm thick, widening to 4mm at the rim, and the colour is dark green-blue in reflected light and a vivid green-blue in transmitted light, a new colour in the Anglo-Saxon glass spectrum in the 8th century. Little 8th-century glass was accessible for comparison in 1956, and this fragment was then believed to be no earlier than the 19th century because of its thickness (Harden 1956, 152), but vessels of this thickness are known from other contemporary sites, e.g. Barking, Essex, a globular beaker 1563/5224.

Some globular beakers are decorated with a zone of horizontal trails laid below the rim, on the neck, and almost all of this type are slightly larger than the main series of the plain globular beakers. One of a pair in light green, cat. no. 126 (**Fig. 23**), was broken into pieces, but examination showed that, although all these fragments originated in the Gibbs collection, some came to the museum by the Gibbs Bequest, but some of the fragments had passed into the hands of George Payne Junior, so that they came to the museum at different times and were consequently given different registration numbers, a British Museum Register number 1883,12-13.733(a) and Gibbs' collection number 1337c.'70. The other one of the pair, cat. no. 125 (**Fig. 23**), also in fragments, was regarded in the Gibbs collection list as being two separate groups of fragments, 1337e.'70 and 1335.'70, while the third group came via George Payne Junior and was registered as 1883,12-13.734(b). (The addition of the notation (a) to 1883,12-13.733 and (b) to 1883,12-13.734 was necessary in recent examination to distinguish them from other fragments which had also become associated with these numbers.)

One smaller globular beaker, cat. no. 127 (**Fig. 23**), is light blue-green with yellow clouding, and the trails on the neck are grey-white. Two are light olive, but not a pair i.e., one, cat. no. 128, has a smoothed rim and the other, cat. no. 129, is hollow-rolled inwards (**Fig. 23**). An olive green beaker, cat. no. 130 (**Fig. 23**), has a narrow neck and smoothed rim. A pair, cat. nos 131–132 (**Fig. 23**), is light green-brown with red-brown streaks, while a pair with near vertical rim, cat. nos 133–134 (**Fig. 23**), is deep blue.

Some fragments can be allocated to the globular beaker

group with neck trails with some degree of certainty, although other decoration on the missing lower part of the body would also have been possible. These are: light blue-green, cat. no. 135, Mucking North Enclosure ditch and cat. no. 136, Mucking cremation 595; light olive, cat. no. 137, Mucking Feature Double Ditched Enclosure, and cat. no. 138, Mucking Hut 108; and brown with white trails, cat. no. 139, Mucking grave 935 (**Fig. 24**). The latter is not a common combination of colours, but there are similar globular beakers from Ozengell, Kent and Wollersheim, Germany (Evison 2000b, 60).

Catalogue no. 140 (**Fig. 24**) from Whitby is part of an infolded 'black' rim with the remains of three rows of a horizontal decomposed white trail. Dark colours which appear to be black often occurred in Period III, AD 700–900, particularly with trails in the contrasting colours of yellow or white, of a similar rim from Brandon, Suffolk, black with yellow trails (Suffolk County Council, BRD 018 2349). Earlier colour descriptions of this Whitby rim differ: 'opaque ultramarine' (Peers and Radford 1943, 73, no. 125), 'green with dark brown or wine-red streaks, with three incised horizontal grooves on the exterior' (Harden 1956, 152, followed by Cramp 1970a, 16 and Charleston 1984, 11).

A group of globular beakers with overall decoration have horizontal trails at the neck and a trail looped up and down below to give a series of vertical loops which meet at mid-base. These are, also, in general, larger than the undecorated globular beakers. One, cat. no. 141 (**Fig. 25**), is light green, but a second in light green and recorded as partly from Gibbs and partly from George Payne Junior, cat. no. 142 (**Fig. 25**), is clouded with yellow and the beaker is unusually small. Both are from Faversham. One light blue-green beaker is from Faversham, cat. no. 143 (**Fig. 25**), and one from St Peter's Tip, cat. no. 144 (**Fig. 25**). A light olive green beaker from Faversham, cat. no. 145 (**Fig. 25**), is very small, and there is a green-brown base fragment from Kempston, cat. no. 146 (**Fig. 25**). Bicolour products are from Faversham, cat. no. 147, light blue-green with white trails, and cat. no. 148 from Wye Down with blue trails (**Fig. 26**). Beside this difference in colouring, the Wye Down beaker differs from the others as it has a hollow, infolded rim, and the blue trails are thick and extend in points at the upper part of the loops. Its chemical composition is also unusual (Freestone *et al.*).

A different kind of trail decoration appears on the next few globular beakers (**Map 5**). Catalogue no. 149 (**Fig. 26**) from Faversham is light olive and the rim is folded inwards; there is a single indented horizontal trail on the shoulder and three horizontal trails drawn up and down at intervals in zigzag fashion to meet each other and form a lattice pattern below. These trails are much thicker than most other trails, similar thick trails appearing only on the following globular beakers, cat. nos 150–152 (**Figs 26–27**), on the horns cat. nos 47–48 (**Fig. 8**), on bag beakers cat. nos 161–163 (**Fig. 29**) and the Taplow claw beakers cat. nos 78–80 (**Figs 15–16**). A very similar globular beaker, also from Faversham (English Heritage AML 81006066) has recently been published (Evison 2000b, 64, fig. 12a, group 68,2).

A remarkable resemblance has been noted between cat. no. 149 (**Fig. 26**) and a beaker of no provenance in the Victoria and Albert Museum (C.104-1936, Honey 1946, pl. 11D) which was thought by Honey to be Syrian. Nevertheless, an opposite

opinion was given by Harden who regarded it as a 'Western Dark Age piece' (1958, 106, note 5). Fremersdorf (1955) had also noticed the similarity between these two beakers, but a comparison of the photographs of the two he published highlights not only their similarities but also the differences in the condition of the glass and the superior shape and neater trellis work on the Victoria and Albert vessel. The latter has a single thick, plain trail at the neck, a detail which does not occur on any Anglo-Saxon glass, for, although there are 7th-century Anglo-Saxon vessels with a single thick horizontal trail, it is always indented. The method of empontrilling on the Victoria and Albert vessel is also different from that of the Anglo-Saxon glasses, for it is a pad of glass similar to that to be seen on the bowl from Holme Pierrepont, cat. no. 6, which is of Mediterranean origin (p. 9). Other globular beakers of this pattern are in the possession of the Hermitage Museum, where the trellis pattern is described as 'embossed ornamental design of diamond-shaped facets on body' (Kunina 1997, 355–7, cat. nos 415–16, colour pls 210–11). The trellis pattern on the Victoria and Albert Museum vessel is also produced by moulding (information R. Liefkes) and not by trails. The close similarity of these vessels suggests some connection in spite of the different techniques employed in the decoration by moulding or the application of trails.

The lattice pattern of thick trail decoration is repeated on a distinctive group of nine vessels. The shape is more squat, with a wider body and a narrow, near vertical neck, and the colour is blue which appears quite dark as the glass is thick. Three of these are in the keeping of the British Museum, a pair from one grave at Broomfield, Essex, cat. nos 150–151 (**Fig. 26**), and one from a grave at Deal, Kent, cat. no. 152 (**Fig. 27**). In addition to the three horizontal rows of thick zigzag trails, another trail was applied on the base and hooked towards the centre, forming a rosette. The rosette has four and eight lobes respectively on the Broomfield vessels and seven on the Deal vessel. The Deal rim is slightly thickened and simple, but the rims on the Broomfield vessels are most unusual, the surface being straight inside and curved outside with a well-defined rebate below. Catalogue no. 151 (**Fig. 26**) was in such a shattered state that it seemed possible that disintegration was caused by a fault in the chemical composition of the glass or in the production process rather than an accidental blow in excavation. In fact, the later chemical analysis suggested that they were not blown from the same pot (Freestone *et al.* p. 40, below). The seven-petal rosette and simple rim is matched on a similar vessel from Aylesford (Maidstone Museum AS 194) which shows several small cracks at the rim and also on a pair found in the princely grave at Prittlewell (MOLAS 2004, 34–5). Another comparable vessel was found at Cuddesdon, Oxon. (Akerman 1855, pl. VI.2, lost; Dickinson 1974, pls I and II) and a fragment was found in mound 2 at Sutton Hoo, Suffolk (Bruce-Mitford 1975, appendix A 132–4, fig. 60a–c). A thick, blue glass fragment found in the Snape burial cannot be regarded as definitely one of these vessels as it is lost and there are no other details available. In addition one complete beaker was found at Löländ, Vest Agder, Norway (Rygh 1896, 104, no. 170) and a fragment at Tu, Klepp, Rogaland, Norway (Hougen 1968, 89–92). As these distinctive vessels are not found anywhere else, an Anglo-Saxon origin must be accepted. Decoration by similar thick trails, sometimes indented, has been noted above

as a distinctive characteristic of some late 6th–7th-century Anglo-Saxon vessels. A beaker found at Pfahlheim, Württemberg, Germany (p. 20 below) is a bag beaker which has lost its rim. It is blue in colour and is further closely linked to the Broomfield type of globular beaker by its decoration, which is also by thick trails in a trellis pattern with a rosette on the base. No similar continental examples are known and the Pfahlheim beaker must have been imported from England.

Decorated by a different method is a pair of globular beakers, cat. nos 153–154 (**Fig. 27**), found in one grave at St Peter's Tip, Broadstairs, Kent. There is little variation between them in size and shape, both rims are rolled inwards, and decoration is mould-blown with vertical ribbing and a cruciform impression on the base. A total of seven globular beakers of this pattern have been found in England (Evison 2000b, group 65) and one continental example from Krufft, Mayen, Germany has been illustrated (Rademacher 1942, 314, Taf. 63.4) although the type is not recognised in France. Numbers are insufficient to establish a source, although rarity on the Continent and near identity in form, pattern and technique with two pouch bottles from Chalkwell, cat. nos 159–160 (**Fig. 28**, p. 19 below) suggests the possibility of an English origin. The form and rim type belong to the 7th century.

The vessel from Sittingbourne, Kent, cat. no. 155 (**Fig. 27**), is somewhat similar in shape and proportions to the blue globular beakers from Broomfield and Deal, although it is undecorated. The rim is vertical but is folded outwards. The colouring is distinctive, a vivid green-blue, and there is red streaking at the rim and on the body, a combination which was known in the 8th century, but the fact that this vessel is complete shows that it must have come from a furnished grave, and so presumably belongs to the first half of that century. This vessel, like the bowl from Holme Pierrepont, cat. no. 6 (**Fig. 1**), was fixed to the punt rod by a knob of glass, and so differs from the other vessels where the blowing iron was used as a punt and left a ring-shaped mark. The shape is not otherwise known in this country, but a vessel which may be compared was found at Congy, France, grave 6. The shape of that is also squat and the rim folded in then deeply outwards, although the walls are more vertical and the rim slanting. The colour, however, is similar, described as 'bleu verdâtre'. It is regarded as unique in France (Cabart and Ravaux 1987, 51, fig. 8.43, pl. IV.2). A similar squat form with out-folded rim has also been noted at Charnay (Saône et Loire) (Feyeux 2003, T. 90.2hi, 183, no. 718). There is also a similar squat shape with vertical out-folded rim from Niederbreisig, Germany in the Metropolitan Museum of Art, New York (17.193.335), where the colour is brown and decoration by horizontal trails and vertical loops (Evison 2000d, 273–4, 279, fig. 22.13, pl. 13E). A comparable vessel but more rounded in shape occurred in a late 6th-century grave at Schretzheim (Koch 1977, grave 22,14, Taf. 9, 10 Taf. 214.2).

#### DISCUSSION

While globular beakers are numerous in Anglo-Saxon England the form takes a less prominent place amongst continental glass vessels (cf. Rademacher 1942, 311–14, Taf. 64; Feyeux 1995, pl. 15, T. 90.0, pl. 16, T. 90.2ij, T. 90.3i; Alénus-Lecerf 1995, fig. 9, B–D). There seems little doubt that some, at least, of most types were made in this country, i.e. small and plain, or

with neck trails, with neck trails and vertical loops, with lattice trails, with vertical ribbing, and probably also a type with vertical trails (Evison 1989b).

Most of these globular beakers have been allocated to the late 6th to 7th centuries. Only cat. nos 144, 146, 153 and 154 could be narrowed down to the 7th century. Catalogue no. 155 is of the late 7th to earlier 8th centuries, while cat. no. 124 belongs to the 8th century and cat. 140 may date to the late 7th to 9th centuries.

A large proportion of the globular beakers known from Anglo-Saxon England have the provenance of Faversham. All of the plain beakers and all of the beakers with neck trails in the collection (21 in total) are from Faversham, and an equal number have been found at other sites in Kent and elsewhere. The beakers with neck trails and vertical loops are also represented at Faversham, but of these there is also a wider distribution. This suggests that Faversham may have been the place of manufacture for various types of globular beakers, the decorated beakers possibly being selected for trading further afield. It is noticeable, however, that none of the seven globular beakers with mould-blown ribbing, including the British Museum examples, cat. nos 153–154 (Fig. 27), were found at Faversham.

The blue globular beakers with thick zigzag trails, cat. nos 150–152 (Figs 26–27), have obvious connections with the blue beakers with thick horizontal and vertical trails (Evison 2000b, group 67/1,2) and the globular beakers in other colours with thick zigzag trails as cat. no. 149 (Fig. 26). This last beaker was found at Faversham, but the blue beakers, globular and bag forms (Maps 5, 7) have a widespread distribution from the Kent coast to Somerset and north to Lincolnshire, and the fact that two were also found in Norway suggests that these complicated blue vessels were made in Kent during the 7th century for long-distance trading purposes, as they would command a comparatively high price.

### **Pouch bottles**

#### PERIOD II

The pouch bottle is a form near to that of the globular beaker and with the same kinds of decoration, so that only if the whole vessel, including the base, is available can they be distinguished. In fact, the two types have been confused. Catalogue no. 158 (Fig. 28) from Faversham was listed as a squat jar by Harden (1956, B VIII aiii 5), but, it actually has a rounded base. Listed as two bottles by Harden are: cat. no. 141 (Fig. 25) (Harden 1956, B VII a 6, 1883, 12–13, 729), but this is the top of a globular beaker of which the base is 1337a.'70; and Harden's B VII a 7, 1883, 12–13, 730 is cat. no. 147 (Fig. 26), a globular beaker with 1337b.'70(a) and 1337j.'70(b).

As only the pushing in of the base differentiates the globular beaker from this form, as there are so few of them (a total of 13), and as with few exceptions they do not occur abroad, they may be regarded as a local variation of the globular beaker. Decorated with trails are: cat. no. 156 (Fig. 28), the beaker from Hoath where there are neck trails only, and cat. nos 157 and 158 (Fig. 28) from Bungay, Suffolk, and from Faversham, where there are neck trails and zigzag loops on the body.

The two pouch bottles from Chalkwell, Kent, cat. nos 159–160 (Fig. 28) are close in appearance to the two globular

beakers from St Peter's Tip, cat. nos 153–154 (Fig. 27), for both pairs have an infolded rim, vertical ribbing and a cruciform pattern on the base. One pouch bottle with horizontal trails and vertical loops was found at Charnay (Saône et Loire) (Feyeux 2003, 184, T. 90, Zhi, no. 725). Since the pouch bottle form is almost entirely confined to England (Map 6), it may lay claim to insular production, so that the same origin also may be attributed to the St Peter's Tip globular beakers cat. nos 153–154. Both types occur in the late 6th–7th centuries.

### **Bag beakers**

#### PERIOD II

The form of the bag beaker is tall and cylindrical with a rounded, unstable base, and the decoration usually consists of a zone of fine horizontal trails below the rim, with a single, thicker, indented horizontal trail below this zone and thick trails, either plain or indented, running vertically from neck to base. The bag beaker shape seems to have no obvious antecedent and there is no continental form group which compares closely in shape or decoration. There are connections with other forms, however, as thick, vertical indented trails do also occur on one group of globular beakers (Evison 2000b, group 67), and the deep blue colour is common to this group of globular beakers and some bag beakers, i.e. Tattershall Thorpe, Lincs. (Hinton 1993; Evison 2000a), Ålands, Sweden (Ypey 1957–8, 90, fig. 6h), and Helgö, Sweden (Evison 1988b, 237, figs 1, 2). Some connections between cone and bag beaker forms are to be seen on a cone beaker from Cipy, Belgium which has trellis pattern trails (p. 12 above), and a unique 6th-century bag beaker shape from Junkersdorf, Germany, which is decorated with horizontal and vertical trails like a Kempston-type cone beaker (p. 20 below).

One of the Museum's collection, cat. no. 161 (Fig. 29), is light olive green and is presumably one of a pair as it matches in almost all respects a bag beaker, cat. no. 162 (Fig. 29), also from Faversham, which was transferred from the British Museum to the Victoria and Albert Museum (Ypey 1957–8, figs 2, 3), and both were originally in the Gibbs collection. The only difference is that on cat. no. 161 all the vertical indented trails were dropped on at the neck, trailed down over the base and up the other side, but on cat. no. 162 two trails only cross in this fashion while the other four between stop short of the crossing point on the base. There is also an olive green base fragment of no provenance, cat. no. 163 (Fig. 29), with alternately plain and indented trails as on other bag beakers from Faversham (English Heritage AML 721301, Evison 2000b, group 73/4, fig. 12b, pl. IVg) and Gilton, Kent (M6647, Ypey 1957–8, 89, 90, no. 6).

Cat. no. 164 (Fig. 29) from Faversham is unique. It is included in the group of bag beakers without hesitation because it has the same shape, and because its blue colour is one of the range of bag beaker colours. Here, however, the resemblance stops, and there are many differences. It is very much smaller than the other bag beakers. It has horizontal trails near the rim as seen on other bag beakers, but no others have horizontal trails at the base, nor are they in a contrasting colour as the white trails are here. Other white trails applied at mid-body were drawn up towards the rim, forming festoons, and were marvered.

Two other small fragments from Faversham, cat. no. 165 (Fig. 29), one with a white trail partly melted in, are also blue

and must represent another vessel. It has been assumed that this must have been a second bag beaker, but, because of the small size of the fragments this is not certain (Harden 1956, 163, B VI b 2). The fact that the numbering of cat. nos 164 and 165 in the Gibbs collection is consecutive, 1313.70 and 1313a.70, suggests that there might have been a known connection between them.

The lack of similar beakers elsewhere caused Harden (1956, 141) to be hesitant about the dating of cat. no. 164 (Fig. 29). Objects associated with some of the large bag beakers indicate the late 6th–7th centuries. The main difficulty about the smaller version is that the drawn-trail festoon type of decoration was prevalent in the late 5th–6th centuries, but was not generally current in the late 6th–7th centuries. The evidence of the shape, however, and the blue colouring are convincing elements of the late 6th–7th centuries.

The total of bag beakers has increased to 18 in England, plus five abroad (Evison 2000b, group 73–6). These five are: a complete blue beaker from Ålands, Gotland, a light green-brown beaker from Bergeijk, Holland (Ypey 1957–8, 86, fig. 5), a blue fragment of a probable beaker from Helgö, Sweden (Evison 1988b, 237, fig. 2), a yellow-brown rim fragment with horizontal trails and vertical indented trails from Hantes-Wihèries, Belgium (Brulet 1970, fig. 23,2) and a most interesting blue example from Pfahlheim, Württemberg, Germany (Fremersdorf 1955, Abb.1a,b; p. 8 above; Evison 2000a, distribution map fig. 55). This last beaker has lost its rim, but it has the cylindrical shape and rounded base of a bag beaker although the true shape is somewhat disguised by the decoration which consists of five thick trails hooked into a trellis pattern and a thick trail on the base hooked into a six-petal shape. The similarity to the technique, pattern and colouring of the Broomfield type of globular beaker, cat. nos 150–152 (Figs 26–27), is so close as to suggest the probability of the same source. As these five continental bag beakers are the only examples in their respective countries, they must have been obtained from England. The only other beaker of similar shape was found with a 6th-century buckle in grave 355 at Junkersdorf, Germany, but this is an earlier vessel decorated with fine trails, horizontal with vertical loops below, after the fashion of the Kempston-type of beaker (La Baume 1967, 219). In England ten were found at Faversham, no doubt the production centre, and four were found at other sites in Kent (Map 7).

#### **Fragments of unidentifiable vessels**

These are too small to establish the shape of the vessel. Two fragments from the Mucking settlement, cat. nos 166–167 (not illustrated), are light olive green with a self-colour trail, and these probably belong to the late 4th century or later. More distinctive is a blue fragment with mould-blown ribs, cat. no. 168 (Fig. 30), probably part of a palm cup of the late 6th–7th centuries. More problematic are two joined fragments from Faversham, cat. no. 169 (Fig. 30), for they are a vivid blue-green colour which does not appear before the end of the 7th century. They are body sherds and, although small, show part of a lattice pattern of trails. This is distantly related to the trail design of cat. nos 149–152 (Figs 26–27), or, more closely, to later vessels of the 8th–10th centuries where the trails were sometimes applied vertically and nipped together sideways, as

on a bottle from Wiesbaden, Germany (Baumgartner and Krueger 1988, 83–4, no. 34) and a cup at Birka (Arbman 1940, Taf. 193,2). A comparable glass fragment from a Carolingian layer containing a coin of the first half of the 8th century was found in the Place St Lambert at Liège, Belgium. This has the same type of lattice trail decoration half melted in, and is in a light emerald green colour which did not occur in the pagan period (Evison 1988a, 216, fig. 140,2). Similar decoration is listed in Italy in the 6th–7th centuries (Sternini 1995, 262, fig. 20,51).

A light olive green fragment from Hut 63 at Mucking, cat. no. 170 (Fig. 30), is decorated with an unmarvered trail, and its shape suggests that it belonged to a globular beaker. The rim fragment from a light green-blue bowl from Faversham, cat. no. 171 (Fig. 30), is very similar to the shape of the bowls with constricted neck from Howletts and Mucking (cat. nos 10 and 11, Fig. 2), but there is no sign of decorative trails below the rim. These bowls are usually decorated with white trails, but one bowl from the Runde Berg bei Urach is similar, for, although there are trails on the body, there are none by the rim (Koch 1987, Abb. 20,53). A light blue-green fragment of a double hollow-folded rim from Mucking, cat. no. 172 (Fig. 30), is too small for certain identification, but it would appear to be part of a palm cup rim of the late 6th–7th centuries.

The vessel fragment cat. no. 173 (Fig. 30), with some kind of moulded pattern, has been ignored in earlier considerations of the Whitby glass. The blue-green colour, however, was amongst those produced during the late 7th–9th centuries, but there are few examples of vessel fragments of this period showing the use of a mould for patterns other than ribbing. A vessel moulded with a knobbed effect like the vessels of the Roman period imitating a bunch of grapes was found at Birka, and fragments of others like this have appeared on the Continent and in England (Evison 2000b, 80, fig. 14a). Also, a blue fragment with a moulded pattern of unidentifiable design comes from an Anglo-Saxon beam slot at Barking, Essex (Passmore Edwards Museum, 1553/3071).

#### **Vessel rim fragments used as beads**

Some vessel fragments were of a shape that could be put to a secondary use. These were pieces of vessel rims which had been folded so that they were a hollow tubular shape, and so could be threaded on a necklace and used as beads. Three of these occurred at Sleaford, Lincs., in graves 169, 177 and 196, cat. nos 174–176 (Fig. 30), where the other objects in these female graves indicate the 6th century. These fragments were light green, light green-blue and light blue-green respectively, and the fragments cannot be identified as specific Roman or Anglo-Saxon types, although the fact that Anglo-Saxon folded rims did not become common before the late 6th–7th centuries suggests that they were Roman relics in these 6th-century graves. Two fragments from Lakenheath Warren, cat. nos 178A and B (missing, not illustrated), light blue-green, belonged to the same vessel, and one light green fragment from Dover, grave 428, cat. no. 179 (Fig. 30), may again be Roman relics, cat. nos 178A and B being strung with other beads and associated objects giving a 6th-century date to cat. no. 179 in the Dover grave. Catalogue no. 177 (Fig. 30) from Breach Down, however, is a vivid green-blue, double folded rim and must have been part of a late 6th–7th-century palm cup.

Although an old find, it is strung with other beads which include an orange barrel-shaped bead of contemporary date (Evison 1987, 61–2, where they occur in phases 4–5, AD 625–675).

The idea of re-using rim fragments as beads had occurred to a number of other Anglo-Saxon women. There was one in an infant's grave at Great Chesterford, Essex, grave 154 (Evison 1994b, fig. 56 1B), in a child's grave at Sarre, Kent (Perkins 1989, 293, fig. 2, 7 and 8), and in grave 4, Market Lavington, Wilts. (unpublished, Wessex Archaeology). The later use of a hollow rim fragment from a bowl of Valsgårde 6 type has been noted in a Swedish grave at Saliem, Torsåker, Ångermanland, along with the re-use of other glass fragments (Rasmussen *et al.* 1995, 13). The hollow shape of these rim fragments presented a ready-made addition to a necklace, but fragments of distinctively coloured glass at Dover, Kent, had no such perforation and were nevertheless included with the beads by some other method subject to decomposition such as thread or glue (Evison 1987, 98–9). One was a chip of colourless glass with blue streaks, and the other a fragment of a bright green-blue vessel (Evison 1987, 49/1b and 59/3q, figs 28, 33, colour pl. IV).

### Large disc beads

Beads in general are not included in this catalogue, but a number of large disc beads are distinguishable from the beads of normal size, and could have been put to various uses. When found with other beads at the neck of a female, it is assumed that the function was the same as that of the other beads, i.e. decoration with possible magical properties. If found at the left hip in a container with other objects, it is possible that it was functional as a spindle whorl. Occasionally, when found in a man's grave in connection with a sword, it may be regarded as a sword bead to be used with the 'peace strings', or perhaps it was believed to have healing properties (Evison 1967, 64–6; Evison 1976, 309–15; Meaney 1981, 198f). Some of these large beads are without any recorded close context. Some, however, were found on a necklace or on the chest, or, if not recorded in position were in a female grave which also contained other beads. Catalogue no. 184 (Fig. 31) from a grave at Howletts was used as a sword bead. This was a much less frequent use as swords themselves occurred in only a small percentage of male graves, and sword beads were also made from other materials such as amber and bone.

### UNDECORATED

Five of these beads, cat. nos 180–184 (Fig. 31), are undecorated, four of them disc-shaped and one cylindrical (Guido 1999, 242, pl. 9, iv). Four of these are in translucent vessel glass colours of the 5th to 7th centuries: light green, light green-blue, light blue-green and olive green, cat. nos 181–184. Catalogue no. 182 was in a tumulus at Hawnby, N. Yorks. with the bead cat. no. 201 (Fig. 33). The colours of many beads, however, are opaque and much brighter or darker. Catalogue no. 180 from Wigber Low, Derbys., is a dark purple which relates it instead to the glasses used in bead-making many of which are so dark that, as here, they appear to be black.

### STRAIGHT PARALLEL TRAILS

Amongst the decorated beads, about half of a deep blue bead from Hod Hill, cat. no. 185 (Fig. 31), bears three empty channels round the perforation on one face and these contain

minute traces of white and red glass, indicating the colours of the lost trails. The date of this bead is uncertain for blue disc beads have a long history, and most of the objects retrieved from Hod Hill are of Iron Age or Roman date. There are, however, a few finds from this site which belong to the Anglo-Saxon period (Eagles and Mortimer 1993).

### MARVERED SPOTS

Three of the beads were decorated with marvered spots of a contrasting colour, a form of decoration very common on smaller beads, often in combination with trails (Evison 1987, Text figure 12, D40–D54), but also occasionally without any other decoration (Evison 1987, Text figure 12, D55, D56; Brugmann 2004, 80, 8.3.7). The three are of similar disc shape, but come from widely separated parts of the country, and are in different colours. Catalogue no. 186 (Fig. 31) from St Benet's church in London is a translucent dark blue bead with a diagonal row of empty circular hollows which must have held applied dots (cf. Guido 1999, 54, 6.xiv, map 20, pl. V). Although similar to beads from earlier graves, the Christian provenance may indicate a later date. A similar bead from a cemetery at Droxford, Hants., cat. no. 187 (Fig. 31), is a streaky light/dark brown with a row of five similar hollows (Aldsworth 1978, 138, 173, fig. 36.72) described as 'opaque black' Class XVII and the hollows not noted (Aldsworth 1978, 138, confused with Class XVII 'translucent olive brown': Aldsworth 1978, 173, fig. 36.68).

Catalogue no. 188 (Fig. 31) from a group of graves at Hepple, Northumberland, is colourless/yellowish glass and retains its three light blue-green spots on the circumference. A comparable disc bead, light blue with white circumference spots, was found at Gilton or Kingston, Kent (Faussett 1856, pl. VI, lower left). The finds from Hepple were published in Miket 1974, where this bead was incorrectly described as cut rock crystal (278, fig. 3.7; Miket 1980, 295 no. 15). A bronze chain in the group possibly came from a bronze workbox, indicating a 7th-century date for the group.

### STRAIGHT AND ZIGZAG TRAILS

A more common type of decoration on this kind of bead is a combination of straight and zigzag trails. This occurs on three beads of different shapes, one plano-convex, cat. no. 189 (Fig. 32), one disc-shaped cat. no. 190 (Fig. 32), and one cylindrical cat. no. 191 (Fig. 32). On cat. no. 189 from Mucking, grave 842 (a late 5th–6th-century grave), the trails are white on translucent green, and on cat. nos 190–191 (Fig. 32) from Howletts and Long Wittenham the trails are white on black. A similar bead to cat. no. 189 was found at Silchester, Hants., (Boon 1959, 81, fig. 41; cf. Gelbe Bürg, Germany (Dannheimer 1962, 66–7, Taf. 18,13)). A disc-shaped bead with the same combination of circumference and zigzag trails as cat. no. 190 (Fig. 32) from Howletts is listed among beads in northern France as a toggle, and dated to between AD 480–580 (Guiry-en-Vexin 1993, 107–8, code 50 and colour plate), and English examples were found at Mitcham, Surrey, grave 223 at a man's waist, and at Alton, Hants., grave 2 with a sword (Evison 1988a, 15, fig. 4, DO4, fig. 22,2,1c). A plano-convex version was found along with other early Saxon beads in a mid-Saxon context at Brandon, Suffolk (Evison forthcoming g, no. 2060). Guido notes the type as 'large black decorated plano-convex or bi-convex beads', Schedules 2 vii (a) and (b), (1999, 23–5, maps

6 and 7). Brugmann calls this the 'sunflower type' and allocates them to the late 4th–5th centuries from Trier (2004, 30–1, 76, 8.3.2, fig. IIIa,b).

#### DRAWN TRAILS

A popular variation of trail design was to lay a trail several times round the bead and then draw these trails in one direction at intervals to form arcades or swags, giving a flower-petal effect. This design is to be seen on the segment of a black and white plano-convex bead from Mucking, cat. no. 192 (Fig. 32), which was found in a recut of Ditch 296, and has not been noted before. Exactly this form and trail pattern is to be seen on a bead type from northern France listed as occurring from AD 480–530 and less frequently to AD 560 (Guiry-en-Vexin 1993, 106, 108, code 51 and colour plate). A similar treatment of the trails occurs on a black and white disc bead from Ganton Wold, N. Yorks., cat. no. 193 (Fig. 32), and on one face of a disc bead from Faversham, cat. no. 194 (Fig. 32). A strikingly different and unusual variation of the same design is to be seen on the bead from Moresby, Cumbria, cat. no. 195 (Fig. 32), flat-based with a conical top, where on a black basis the trails are yellow and red at different registers and the bead has been twisted to give a swirling effect. The flower-petal design was achieved by a different technique on cat. no. 196 (Fig. 32), the disc-shaped light green bead with white trails from Long Wittenham, grave 150. The surface of the bead was simply dented radially six times with a rod on one face, and in the intervening positions on the other face.

The technique of combing parallel trails one way into arcade shapes was most common in the late 5th–6th centuries on glass vessels, as may be seen from cat. nos 7, 8 (Fig. 1) and 34 (Fig. 5), but the technique of combing the trails in two opposite directions was much less common on vessels, although it was used more often on beads as on the reverse of cat. no. 194 (Fig. 32) from Faversham. This technique also produces a petalled flower effect on four plano-convex beads where it is combined with straight and/or zigzag trails in white on a black background, cat. nos 197–200 (Fig. 33), cf. beads from Mitcham, grave 222 (Bidder and Morris 1959, 74, pl. XVII) and Rainham, Essex (Evison 1955, 171, fig. 4.15). Catalogue no. 198 (Fig. 33) was found in the same grave at Mucking as the cone beaker cat. no. 38 (Fig. 6).

Guido (1999, 23–4) classifies beads primarily by colour, and recognises a class of bead 2vii, 'Large "black" decorated plano-convex or biconvex beads (possibly sword beads)'. Continental parallels are noted, and it is concluded that 'In all probability most of these beads were barbarian work dating to soon after, or in some cases, even shortly before the break-up of the western Roman empire'. Her distribution map 6 shows that the plano-convex sub-type is mainly restricted to south-eastern English counties while the biconvex type is less numerous but occurs in Oxfordshire, Wiltshire and Hampshire and extends as far north as Cleveland. Of beads not scheduled for Guido three of the plano-convex beads listed here conform to the distribution as they are from southern counties, but cat. no. 195 (Fig. 32) is from Moresby, Cumbria. Biconvex beads which may be added to Guido map 7 are cat. no. 190 Howletts (Fig. 32), cat. no. 191 Long Wittenham (Fig. 32) and cat. no. 193 Ganton Wold (Fig. 32), in the main conforming to the distribution already recorded.

#### TWISTED TRAILS

Many of these beads are types which occurred in Merovingian territory and were imported into this country. However, although the bead from Hawnby, cat. no. 201 (Fig. 33), is disc-shaped like some of the others dealt with here, it gives a very different impression because of its decoration which is by yellow-white and blue trails twisted neatly and tightly together and marvered into a dark blue ground. Several beads of this type have been noted in various parts of England, with one in Scotland (Evison 1988b, 242, fig. 9; Guido 1989; Guido 1999, 76–7, map 32; Guido and Welch 2000, 116, fig. 2). Three beads which are of this type are illustrated by Faussett from Kentish graves (1856, pl. V. 8,9, pl. VI lower middle). These and graves in Cambridgeshire with such beads belong to the late 7th century: Shudy Camps grave 11 (Lethbridge 1936, 5) and grave 104 (Lethbridge 1936, 25, fig. 4.1). Some recent finds are noted (Brugmann 2004, 41, 63, figs 51, 132, 133, 172).

A smaller disc bead (diam. 16mm) from a coin-dated grave of the late 7th century belongs to this series, but is unusual. It was in grave 93 at Boss Hall, Ipswich (Scull forthcoming), and is a light red-brown colour with a looped trail, similar in all respects except that the blue and white trail is not twisted. In the same grave was a bead with twisted trails, and the contents of the grave indicate a date of AD 680–690 (Brugmann 2004, fig. 132). Margaret Guido's study of beads had detected nothing similar to these beads on the Continent or in Scandinavia (Guido 1989), so that she concluded that they were produced in England, probably in Kent, and this view is maintained in Guido 1999, 76.

Whole disc beads of this type suspended by a metal loop as a pendant have also been found: Burwell, Cambs., grave 26 (Lethbridge 1931, 50–2, fig. 24.2) and Ipswich, Suffolk, Buttermarket (3362), or set in a metal frame, Mere, Wilts., and Sheffield's Hill, N. Lincs., grave 84. These beads are closely related to other artefacts such as cabochon glass pendants decorated with reticella trails which occur in similarly dated graves, e.g. Sibertswold, grave 172 (Faussett 1856, pl. IV,8,9) and Melbourn, Cambs., grave XI (Wilson 1956), cf. also the Gravesend silver cross, cat. no. 217 (Fig. 35), which was found in a later, 9th-century context (p. 25–6 below).

Catalogue no. 202 (Fig. 33), the disc bead from Sleaford grave 144, with coarser blue and white twisted trails on a white base, is unusual, but there is a smaller, cylindrical bead in similar colouring with a finer twisted trail in grave 55 of the same cemetery (BM Reg. no. 1863,4-1.110). Catalogue no. 202 is inferior to 201 in precision of workmanship and of a different pattern, but the blue and white colouring links it to the Hawnby type. Finer work is to be found in a smaller white disc bead with neat blue and white reticella trail found at Holme Pierrepoint, Notts. (BM Reg. no. 1931,3-28.1), and a small white disc bead with neat red, white and blue twisted trails was found at Hoxne or Old Newton, Suffolk (BM Reg. no. 1912,3-28.36).

A similar dexterity in the twisting of neat cable trails, mainly in blue and white, is to be seen in Irish beads found at sites of the 6th–10th centuries such as Lagore and Deer Park Farms, Glenarm, Co. Antrim (Hamlin and Lynn 1988, 44–7, fig. 56), either free-standing or often marvered as on the Sleaford and Hawnby beads. Comparable work is also to be seen on contemporary Scandinavian beads but the beads discussed

here form an easily recognisable homogenous group.

From these distinctive products it can be seen that a supply of canes of twisted glass was available to Anglo-Saxon bead-makers in the late 7th century. The probability is that the canes were being produced in Kent, and that this production continued and was taken over when this type of decoration began to be used on glass vessels. Pieces of coloured glass, fragments of twisted threads and vessel fragments with reticella found at the monastery site of Whitby also are evidence of the preparation of reticella trails in the north of the country in the 8th or 9th century (Jennings 2005). Short lengths of unused reticella rods have also been found at the furnaces of Glastonbury (Evison 2000c, fig. 1,16), at Barking, Essex (MacGowen 1996, 176) and Armagh, Ireland (Youngs 1989, cat. 205a–d). **Map 8** shows that the reticella beads and pendants were widely distributed in Anglo-Saxon England except for the south coast area.

#### FACETTED BEAD

The blue bead cat. no. 203 (**Fig. 33**) from Mucking is shattered into tiny fragments, but what remains, combined with a record of its appearance *in situ*, shows that it was a faceted disc bead which could have been shaped by cutting like the crystal beads of similar faceted form. Occurrences of this form, which is usually in crystal but infrequent in glass, have been noted by Guido in England (1999, 51, pl. V.6v); Alfriston grave 92 (Griffith and Salzmann 1914, 206, pl. XXII,1; Welch 1983, fig. 38); High Down, grave 58 (Welch 1983, 474) and an unpublished bead in Scunthorpe Museum from Cleatham, Lincs. There is also one from Lechlade, grave 20 (Boyle *et al.* 1998, 64, fig. 5.48, gr. 20,1), and another from Castledyke South, Barton-on-Humber, grave 77 (Drinkall and Foreman 1998, 58–9, fig. 79.3). Continental examples were quoted by La Baume in relation to the red-streaked dark glass bead of this type from grave 339 at Junkersdorf (La Baume 1967, 104, 339/2, Taf. 22) i.e. a black one from Samson, Belgium (Museum Namur) and another from Elstertrebnitz, Germany. There are also examples from Deisslingen and Entringen in Germany (Veeck 1931, 52, Taf. T. 11,7) and Herpes in France (Delamain 1892, pl. XVI, 107). Contexts are of the 5th or 6th century, and Mucking grave 998 contained two applied brooches with bronze pins, a knife, two bronze rings, iron pin, a D-shaped bronze buckle and bronze-bound stoup, a group which must belong to the first half of the 5th century.

#### SPECKLED BEAD

The black, speckled annular bead, cat. no. 204 (**Fig. 33**), is unique because its deposition is firmly dated by its context to AD 872–875, for it was found with a hoard of silver objects and coins at Trewiddle, Cornwall. The shape is similar to some of the other large beads, but only two of them are annular with a perforation wider than the bead segment, cat. nos 185 (**Fig. 31**) from Hod Hill and cat. no. 201 from Hawnby (**Fig. 33**). Decoration of beads by speckling was in use from the Roman period (Guido 1999, 27), and black speckled globular beads occurred widely in the earlier Anglo-Saxon period (Guido 1999, 27, map 9). Random speckling is a simple form of decoration technically easy to achieve, and it continued into the 9th and 10th centuries (Callmer 1977, pl. 22, B200201-2, B2004T2).

#### Pendants and other glass items

##### CABOCHON PENDANTS

Two fragmentary circular, light green glass pendants, cat. no. 205 (**Fig. 34**), were included on the bead necklace in grave 1 at Dover, Kent (Evison 1987, 57, 216, fig. 5/4r, only one listed and illustrated there). Other examples of these are known from Kent, i.e. from Chatham (Douglas 1793, 86) and Sarre (Brent 1868, pl. VII, xxiii). They are rare in England, but this type of pendant, listed as occurring in glass colours yellow, caramel, etc. is among bead types recorded in northern France (Guiry-en-Vexin 1993, 106, 107, code 41 with colour plate) which can be dated to AD 590–690. The type, both plain and decorated, was also known in Syria, and this may be the source (Dalton 1901, 137–8, nos 697–706; Zouhdi 1978, 52–4, fig. 1). Dover grave 1 was richly furnished and dated to the period AD 575–625.

Catalogue no. 206 (**Fig. 34**) from Sleaford is a pendant consisting of three parts: the middle section is a trail-decorated disc bead, the suspension loop is a disc bead in a vertical position, and the base is a glass disc, not a bead. Some beads were sometimes in use still connected as they were when made on the rod before division into separate elements, but this assembly is not accidental; the two beads and the base pad were carefully put together to form a pendant. The ring and penannular brooches found with it in grave 191 at Sleaford belong to the 5th or 6th century (Thomas 1887, 401). Two similar pendants were found in a grave chamber at Ephesus in Turkey with objects dating from the middle of the 3rd century AD to the first half of the 5th century (Trinkl 1995, 79, Taf. 17, 42, 43; information J. Thorn). Another came from a cemetery in Jerusalem which contained coins mainly dating from the 2nd century BC to the 6th century AD (D.C.B. 1932, 4–5, pl. VII, 19). This suggests that the Sleaford pendant must have been imported from the Mediterranean area.

The silver trapezoid pendant with a flat, green-blue glass setting, cat. no. 207 (**Fig. 34**) from Dover, grave 413, is a less expensive version of the gold and garnet pendant type found at Kingston Down, Kent, grave 142 (Faussett 1856, 66, pl. IV, 6), which was accompanied by a silver pendant of the same shape set with ‘a purplish stone, or perhaps a piece of glass’ which appears to be flat (Faussett 1856, 66, pl. XI, 19). Pendants like this are more frequently set with cabochon jewels, e.g. in Dover grave 160 (Evison 1987, fig. 62,3), but flat glass settings were used as a half setting in an oval pendant in graves 6 and 29 at Dover (Evison 1987, fig. 7,8b, fig. 17,6). Dover grave 29 contained a tremissis of AD 560–570 and was dated to AD 575–625; grave 6 was dated to AD 650–675.

Sliced garnets were used extensively in cloisonné jewellery of the 5th–7th centuries, and an inset of flat glass was occasionally included in the same setting for colour contrast. The pendant cat. no. 208 (**Fig. 34**) is in a corroded state, but its almond shape contains five cloisons, a central diamond shape with incurved sides surrounded by four larger cells. The description (Hamerow 1993, 291) states that the copper alloy ornament was inlaid with deep purple glass over hatched silver (possibly gilded). From the drawing (Hamerow 1993, 63, 84–5, fig. 180), it appears that two of the large outer cells and the central diamond shape still contained glass at that time. Analysis of the purple glass was carried out (Henderson 1993a), and at present only the central cloison has a visible filling which is decomposed or altered to an opaque rust red colour.

This was described as probably a drop-shaped pendant (Hamerow 1993, 63, 291), but, if this is what it was, the illustration there is upside down (Hamerow 1993, fig. 180.4).

Pendants on necklaces were in vogue in 7th-century England, copying the Byzantine fashion (Vierck 1981, Taf. 8,9), and they took the form of both cloisonné and cabochon jewels. An almond-shaped pendant occurred at Faversham where an intricate cloisonné design in garnets included blue glass (Brown 1915 III, pl. BIII), and at Chartham an almond-shaped pendant is set with a cabochon garnet (Leeds 1936, pl. XXIXa). These were suspended with the narrow part at the top. The glass insets of cat. no. 208 (Fig. 34) are on a larger scale than the accomplished cloisonné work of the Sutton Hoo era, and appear to be a later development cf. cat. no. 209 (Fig. 34) below.

The size, shape and design of cat. no. 208, however, is almost identical to those of the heads of two jewelled pins from Ireland of a later date. A kite-shaped brooch is a long pin with a hinged ornamented head, a type which only occurs in Ireland and has been dated to a period from c. AD 950–1100. Two are of this almond shape, hinged, with the wider part at the top, and are in silver with gold filigree decoration. The mount on the lost pin of no provenance (Somerville 1993, 97–8, no. 11, pl. 6) and the pin from Clonmacnois (Somerville 1993, 98–9, no. 12, fig. 13) are both divided into a cruciform field, with a central rectangular stone in the middle of no. 11 and a circular one in the middle of no. 12. Towards the narrow end of the almond shape the cloisons end in a straight line across the field on both brooches, as on the Mucking jewel, and on both this is the base of a triangular jewelled setting: on no. 11 a triangular jewel, on no. 12 a jewelled and filigree animal head. Both extend even further to terminate in an animal head in the round. The Mucking jewel also has a flat end at its narrowest part so that it, also, could have extended into the triangular shape and animal head terminal. The brooch of unknown provenance and the one from Clonmacnois are the only pins with a large, almond-shaped head, and they are the earliest in the series, probably belonging to the 9th century. Both have been compared with the Alfred jewel which also is almond-shaped with an animal head terminal (Somerville 1993, 74). As the Anglo-Saxon occupation of Mucking ended in the first half of the 8th century this jewel fragment is not likely to have been part of a 9th-century Irish pin. It is a simple version in bronze without gold filigree embellishment which might be regarded as possibly one of an 8th-century Anglo-Saxon series, otherwise unknown, which has some relation to the Alfred jewel and could have provided a pattern adopted into Irish work.

Catalogue no. 209 (Fig. 34) has design similarities to cat. no. 208 as it is part of a pendant or brooch in an iron setting with five flat pieces of light olive glass set with a design of a diamond with incurved sides as centre piece surrounded by four lenticular pieces. It was in a bronze bowl at Sarre, Kent, which also contained fragments of a globular beaker, cat. no. 123 (Fig. 22). An iron brooch of similar size with four flat colourless/light yellow glass insets, two lenticular and two axe-shaped, has been found at Ozengell, Kent (Powell-Cotton Museum, Birchington, Kent).

Catalogue no. 210 (Fig. 34) consists of four flat pieces of colourless glass which come from Chessell Down, and were

probably intended for setting in a brooch, possibly in connection with a small flat bone cross with incised circles which may have been associated with them (OA.6776, diam. 11mm). The keystone shape of the four pieces of glass is very distinctive and suggests a brooch similar to the Kentish disc brooches with keystone garnet insets of the 6th century (Avent 1975). The purpose of a semi-circular cut-out on the edge of two of the pieces is problematic and probably indicates current use of glass in stock by a working jeweller.

Catalogue no. 211 (Fig. 34), a flat piece of blue glass from the later context of Whitby, has been carefully grozed to a disc shape with a bevel, i.e. a convenient shape to be given a metal setting as an imitation jewel.

Catalogue no. 212 (Fig. 34) is a flat blue glass inset ornamented with a gold grille, and the shape of the glass, and more particularly of the grille, is a near square but with one side slightly shorter than the other three. In a jewel executed with as much precision as this, the irregular shaping cannot be because of incompetent workmanship, and the intention must have been to produce an inlay of a shape suitable for a wide, flat circular object such as a chalice foot like that in the Derrynaflan hoard (Youngs 1989, 130–1, 160, no. 124), and it may be noted that there two similar four-sided insets are inlaid on the strainer-ladle bowl (Youngs 1989, 132, 161, no. 126) in red enamel with inset silver grilles in step pattern.

As comparable work there are a number of hemispherical glass studs with inset decorative grille, mostly from Irish contexts, e.g. on a decorative mount from the collection at Killua Castle (Youngs 1989, 147, no. 141). Earlier inlaid hemispherical studs in gold and garnet cloisonné work as on the sword scabbard from the Sutton Hoo ship burial were no doubt models for this type of work (Evans 1986, 41, pl. IV). Two glass studs with grille patterns were found in Anglo-Saxon graves at Camerton, Somerset (Leeds 1936, grave 5, pl. XXXI) and at Roundway Down, Wilts. (Meaney and Hawkes 1970, pl. V), where they formed the middle element of an Anglo-Saxon linked pin suite.

The method of making the glass studs may have been to place the metal grille in the mould first and then fill it from the back with molten glass. An alternative method may be indicated by the find of a mould for a flat circular stud with the glass stud still *in situ* from Lagore Crannog, for the strip pattern is empty and if this stud was to be inlaid with metal this would have to be added afterwards (Youngs 1989, 205–6, no. 209). One almond-shaped cabochon from York was inlaid with glass of contrasting colour instead of metal, and on some studs the channels remained empty (Hencken 1950–1, fig. 63a and c; Evison 1995). There was considerable variety in the decoration of these studs and the surface could be either flat or convex. The origin of the technique is probably Byzantine, cf. a glass rectangle 19 x 17mm from Constantinople with gold strips in a monogram type of pattern (Ross 1965, no. 30, pl. XXVI). It is suggested by Ross that the gold strips held the glass in position, i.e. cloisonné work, but these strips are wider than normal for cloisonné cells, and some of the strips end suddenly without connecting with other strips or the border at points where there is no visible division in the glass. They therefore appear to be surface decoration as at Whitby and not primarily functional.

The design of the strips on the Whitby mount is zoomorphic

for it consists of two serpents in opposing corners, each with a head and silver stud eye, their bodies interlacing in a simple knot with the tails finishing in the other two corners. This pattern was used by the Anglo-Saxons, e.g. in filigree on gold buckles of the 7th century (Youngs 1989, 56–7, no. 43), and it also appears on the Ardagh chalice (Haseloff 1990, 180, no. 123a).

The simple, light brown cabochon, cat. no. 213 (**Fig. 34**), is an old find and has no provenance, and could have been meant for inlay in quoit brooch style jewellery, an Anglo-Saxon disc brooch like that from Dover grave 126 (Evison 1987, 243, fig. 52), or even possibly 8th-century Irish work (Youngs 1989, cat. no. 86).

The light green-blue oval cabochon in a bronze setting, cat. no. 214 (**Fig. 34**), was found in grave 297 at Dover, which also contained the Kempston-type cone beaker, cat. no. 42 (**Fig. 7**), a bronze buckle with disc rivets and other objects which allow the grave to be dated to the first half of the 6th century. Cabochon jewels are extremely rare before the late 6th–7th centuries, except on quoit brooch style pieces (Evison 1965, pl. 10a, 12a, 14d). The precise use of this jewel is not known, but the lug at the back and its position near a buckle and rivets suggest that it was fixed to the belt or a pouch. A belt stud with a very similar attachment loop but garnet, not glass, inlay was found at Bourcq, Ardennes. A number of fittings with beaded wire rims and large attachment loops with garnet or glass settings are known from various places in Europe and North Africa. Datings point to the late 5th or beginning of the 6th century (Marzinzik forthcoming).

The circular blue cabochon, cat. no. 215 (**Fig. 34**) from Mucking, Hut 52, is held by a bronze collar with a toothed upper edge, and this is a form of jewel setting used in the 7th century on gold work. Examples of this were quoted in connection with St Cuthbert's pectoral cross (Bruce-Mitford 1956, 321, pl. XVI, 6,8), and in connection with a pendant from Dover grave 160 (Evison 1987, 56, fig. 62), cf. Chartham Down (Leeds 1936, pl. XXIX), but a pendant from Dover grave 29 also quoted by Hamerow (1993, 63) as having a toothed collar has only a plain ribbon collar. A recently published pendant from Finglesham, grave 138, with toothed collar is a good match to the British Museum piece (Hawkes and Grainger 2006, 98 and fig. 2.117.6).

Catalogue no. 216 (**Fig. 34**) from Whitby was destined for a similar purpose, but is a blue oval cabochon. The Byzantine fashion of cabochon pendants had reached the Anglo-Saxons by the 7th century and some of these are oval in shape (Faussett 1856, pl. IV, 3,14,16,19). Two oval pendants are in blue glass with reticella trails (Faussett 1856, pl. IV, 8,9). In a monastic context like Whitby, however, it would be intended for adorning metal church objects, such as a cross, and it may be compared with a very dark green almond-shaped cabochon with yellow glass cloisonné patterns found at York (Evison 1995, 481–2, fig. 169,6). Cabochon insets have also been found in Scotland: an almond-shaped brown glass cabochon at Alt Clut, Clyde Rock, Strathclyde (Alcock and Alcock 1990, 114–15, illus. 14.80, illus. 15.80), and a green-brown oval cabochon at Dundurn, Strathearn, Perthshire (Alcock *et al.* 1989, 216, illus. 14.32).

#### THE GRAVESEND CROSS

Catalogue no. 217 (**Fig. 35**) is a cabochon glass inset in a silver cross which was found at Gravesend, Kent, with 552 coins, giving a date of c. AD 872 for the deposition of the group (Wilson 1964, 134–5, no. 20, fig. 17, pl. XIX). The cabochon is of poor quality as the base, consisting of light blue-green glass, is very bubbly, and the blue and white twisted trails are very irregular and set in no particular pattern. This is in contrast to the reticella cabochons which were found in grave 172 at Sibertswold, Kent, of the late 7th century, and consist of neatly twisted trails in a criss-cross pattern set in gold frames (Faussett 1856, pl. IV, 8,9; Meaney and Hawkes 1970, pl. VI top, one is now lost). The same criss-cross pattern appears on an almond-shaped silver-set pendant at Riseley, Horton Kirby, Kent (Campbell 1982, 49, fig. 5), and on an oval cabochon in grave 148 at Lechlade, Glos. (Boyle *et al.* 1998, 117, no. 18, fig. 5,90). An oval silver pendant from Everthorpe, Yorks., (Hull Museum) has a cabochon nearer in design to the Gravesend boss as the twisted trails are thicker, more regular and laid parallel to each other in a diagonal direction.

The close connection with disc beads inlaid with similar cables such as the Hawnby and Sleaford beads, cat. nos 201–202 (**Fig. 33**), has been noted above, and production by the Anglo-Saxons has been suggested. A list of disc beads and related pendants is appended (Appendix 2) and the distribution shown on **Map 8**. Some of these beads were mounted whole in metal for use as pendants: Burwell, Cambs., grave 26 (Lethbridge 1931, 50,2 fig. 24.2), with a wire suspension loop, Ipswich, Buttermarket, grave 3362, with remains of an iron suspension loop, and Barnes' Place, Mere, Wilts., where a complete disc bead was mounted like a pendant with gold collar, back plate and suspension loop, and there was a residue of some material in the central hole. At Sheffield's Hill, Roxby, N. Lincs., grave 84 (Scunthorpe Museum), a disc bead with reticella trails was also mounted as a pendant, but in addition with a square stone set in the central perforation of the bead. Where the insets are not complete beads, but cabochon shape, they may have been made expressly for this purpose, i.e. Gravesend, Sibertswold, Melbourn, Riseley and Everthorpe, but they are mounted so that the backs are not visible, and it is also possible that some of them are segments only of beads. In fact, the same distinctive trellis pattern in a blue cable as on the Sibertswold pendants is to be found on a segment of an Irish barrel-shaped bead (BM Reg. no. 1890,2-15.10). The cabochon at Lechlade, Glos., is unmounted, but may have been separated from a silver loop and backing (Boyle *et al.* 1998, fig. 5.90, 10 and 18).

When these comparable pendants and their contexts are taken into account, it must be suspected that the date of the making of the Gravesend cross, cat. no. 217 (**Fig. 35**), is earlier than the date of its deposition, as was noticed by Thea Haevernick (1979). The cross itself may further be compared with an electrum cross (86% silver, 12% gold, 2% copper) found in a girl's grave from Chartham, Kent, grave 9 (Faussett 1856, 189, pl. XI,17; Hawkes *et al.* 1966, 115, 121, fig. 4 L.36). The arms of both crosses are slightly curved and expanding, although the vertical lower arm at Chartham is also extended. On both there is a central boss with filigree surround in contrasting colour, gilt-bronze at Gravesend and gold at Chartham, and decoration on the arms of both is by a crude, scratching technique. The Chartham cross is also very close in shape and size to a pale

gold pendant cross from Thurnham, Kent, set with cabochon garnets in the centre and on the arms, and further decorated with filigree (Wilson 1968, 159, pl. XXIVA). These three crosses appear to reflect the growing scarcity of gold in 7th-century Anglo-Saxon England, the pale gold of the Thurnham cross no doubt debased with silver and the later electrum cross from Chartham further debased and belonging to the first half of the 8th century. Although stylistic details suggest that it is near contemporary with the Chartham cross, the Gravesend cross has no added gold beyond the mercury gilding on the bronze wire setting according to the analysis by Dr. D.R. Hook of the Department of Conservation, Documentation and Science at the British Museum (Appendix 3) and so is probably a slightly later product.

#### THE WHITBY IMITATION JEWEL

The imitation jewel, cat. no. 218 (Fig. 35), from Whitby in the form of a portrait bust is unique in an Anglo-Saxon context, and must have been intended for mounting on metalwork such as a cross or book cover, like cat. nos 215–216 (Fig. 34). The glass of which it is made is a vivid blue-green in transmitted light, although its thickness and matt surface give the impression in reflected light that it is a dull, dark green. The vivid blue-green is a colour which frequently occurs in vessel glass of the 8th–9th centuries, and the high bubble content is not out of place in this context. The large bubbles, however, suggest that the craftsman was not an expert in the technique of moulding glass jewels, and it is a technique not practised by the Anglo-Saxons, although there are a few plain cast jewels such as the cabochon above, cat. no. 215 (Fig. 34).

The plaque is reminiscent of cameo work of the classical period, and a garnet pendant in a gold setting, carved with a profile head, found at Epsom in Surrey, shows that such work was not unknown in the 7th century, and it is probable that this garnet found its way from Byzantium to Anglo-Saxon England (Webster and Backhouse 1991, 54, no. 35). Its portrait is similar to a carved garnet allocated to the 4th century (Ross 1962, 94, no. III, pl. LV II). There is no evidence for the production of glass jewels with a moulded design in England of this period, although exceptionally there are two small glass insets in the shape of human heads in relief on the Tara brooch from Bettystown, Co. Meath, Ireland (Youngs 1989, 77).

The technique of pressing a mould bearing a design on to some molten glass was used by the 6th century to produce glass money weights in the Middle East (Ross 1962, 88; Dalton 1901, 133–5, cat. nos 660–85) and also decorated glass pendants (Dalton 1901, 137–8, cat. nos 697–706). In the Germanic world a moulded glass disc with a profile head and runic inscription was found at Mainz in the same pre-Middle-Ages level as a brooch in the same technique, and another glass disc with profile head was discovered in a church at Esslingen, Germany (Haevernick 1979, 162–3, Abb. 4,2, Abb. 1,12, Abb. 4,1). The brooch at Mainz, however, was more complicated, a gilt bronze frame held a dark flat oval plate of glass decorated with a border row of small applied gold triangles and squares, and on top was a winged animal in moulded white glass. This belonged to a production series indicated by a number of similar brooches with a probable source in the Rhine valley (Ypey 1962–3, 138–41, Abb. 21A, 38, 1 and 2; Haevernick 1979, Abb. 4). The pattern of rows of triangles and squares in gold

leaf is repeated on glass vessels from 8th- and 9th-century contexts at Helgö and Åhus in Sweden, Dorestad in Holland, Paderborn and Niedermünster in Germany, Liège in Belgium, the Lofoten islands in Norway, San Vincenzo al Volturno in Italy and Ipswich in England (Evison 1988a, 216–18; Stiegemann and Wemhof 1999.I, 180, cat. no. III.89; Evison 2000b, 85).

A number of glass cameos were inset on Carolingian metalwork, as on a book cover at Utrecht and the reliquary of St Maurice d'Agaune, and there were as many as 18 on the cross of Brescia (Snijder 1933, Taf. 14, Abb. 1–4, Taf. 15), and nine of these were busts in profile. The reliquary at Cividale has cameos in profile and full face (Conway 1919, 227, fig. 5).

Clearly connected with this series is a mount with profile bust found in Constantinople, now in the Dumbarton Oaks Collection (Ross 1965, 126–8, no. 173). This is particularly relevant to the Whitby mount although it is in two colours, a female profile bust in white glass on a dark green background. The woman is turned to her right, and is wearing an earring with three pendant pearls; in her left hand is a leafy stem interpreted as a palm branch, and in her right hand is a human face which Ross suggested may represent a sceptre surmounted by a human head. Some of these details correspond with the full-face Whitby bust, although there the plant is in the right hand and the object in the left hand is a pointed oval shape like the human head but without details of features. The Whitby plaque therefore probably represents a female of high rank rather than a beardless Christ or youth as suggested (Webster 1991, 144; Jennings 2005, 208). Opinions differ as to place of origin but most of these glass cameos are inlaid in Carolingian objects, and two of the animal brooches were found in Merovingian graves, so that a late 7th–8th century date is indicated for their production. There is not enough evidence to determine whether the Whitby cameo was a product of the Byzantine-Lombardic world or the Rhineland.

#### OTHER GLASS ARTEFACTS

The bronze pin with a blue-green glass bead, cat. no. 219 (Fig. 35), was found in an Anglo-Saxon grave at Chessell Down with brooches, etc., but is probably Roman in origin. There are occurrences of such pins in other possible Anglo-Saxon contexts, e.g. at West Stow, Suffolk, Shakenoak, Oxon. and Cheddar, Somerset (Evison 1955, 75).

The fragment of a black glass finger ring, cat. no. 220 (Fig. 35), possibly had a bezel on its missing part. Although this was probably found in an Anglo-Saxon tumulus at Breach Down, and other glass finger rings occurred in Anglo-Saxon contexts, they are no doubt survivals from the Roman period (Evison 1985, 75, fig. 27, 6–8).

Catalogue no. 221 from Faversham (Fig. 35) is a slightly curved disc of light olive glass roughly cut from a vessel, and appears to have been attached to a broad ring of bronze, possibly for use as a finger ring, although the diameter is rather small for this purpose.

Catalogue no. 222 (Fig. 35) from Whitby is a fragment of a blue D-section glass bracelet of Roman type, and similar fragments have been found in other 8th–10th-century contexts, e.g. Thetford (Harden 1984), Lurk Lane (Henderson 1991, 128–9, fig. 101,291) and Ostbevern, Schirl, Kr. Warendorf, Germany (unpublished). Roman bangles are usually decorated, and no plain blue examples were listed, for example, in a recent

study of these objects in east Yorkshire (Price 1988). The few bangles which occurred in 5th-century graves were probably imported from the Meuse valley (Evison 1965, 21–2, figs 9a–c, 15b). The few fragments found in 7th–10th-century contexts are of unknown origin, but the type was being produced at this time elsewhere, for instance a series of Irish early medieval glass bangles dated to between the late 7th and 9th centuries. These are blue or green decorated with white marvered dots and reticella trails, but the undecorated Whitby bangle has been regarded as the only example of this series in England (Carroll 2001, distribution map fig. 9.6a and b). However, the English provenance and lack of decoration would seem to set it apart. The purpose of the ornamented Irish bangles must be for some kind of decoration, although the exact function is not known and some are too small to be used as adult bracelets. The blue bangle fragments found in these mid-Saxon contexts may have been made or used as some kind of ingot for re-use in colouring glass metal, for trail decoration or bead-making, a purpose the bi-coloured bangles would not have fulfilled efficiently.

#### GLASS ROD

The small rod of opaque light blue-green glass from Whitby, cat. no. 223 (Fig. 35), is square in section, and would therefore have been suitable for use as one element in a bundle of rods to be reheated and extended to create a millefiori pattern of chequers, such as the completed and sliced pieces at Lagore (Hencken 1950–1, fig. 64) and Monkwearmouth and Jarrow (Cramp 1970a, fig. 1, 1-f).

#### TESSERAE

Two fragmentary tesserae from Whitby, cat. nos 224–225 (Fig. 35), are in the same opaque light blue-green glass as the rod cat. no. 223. Tesserae have been found in very small numbers in Middle Saxon contexts in this country: at Lurk Lane, Beverley, Yorks., no. 6 opaque light green and no. 694 opaque blue (Henderson 1991, 129, fig. 101), Flixborough, Lincs., no. 14334 streaky blue (Evison forthcoming d), Glastonbury, chip of tessera opaque light blue-green (Evison 2000c, 197, furnace 4, 102d) and Jarrow (Cramp 2000, 107).

On the Continent and in Scandinavia they occur in larger quantities, e.g. at Hedeby (Steppuhn 1998, 86–7); Paderborn (Stiegemann and Wemhoff 1999i, 160–2, cat. nos II.61 and 62) and Paviken, Sweden (Lundström 1976, 5). Over 1,000 have been found at Ribe, Denmark where they were used in connection with bead making (Jensen 1991, 37). Other uses include the colouring of glass particularly for decorative trails. Their use as colourants for vessel or window glass is demonstrated by crucible fragments at San Vincenzo where some tesserae have been found partly fused at the bottom of the glass contents (Hodges 1991, 76). As to sources, there was no doubt considerable re-use of mosaics from crumbling Roman buildings, but the production of tesserae appears to have continued after the Roman period in north Italy, e.g. at Torcello where tesserae were found in connection with a glass workshop (Leciejewicz *et al.* 1977, 289).

#### WINDOW GLASS

Three fragments of window glass are included in the group of glass from Whitby, and, inexplicably, this does not accord with

the definite statement in the report that ‘no pieces of window glass were found’ (Peers and Radford 1943, 72). Two of the fragments, cat. nos 226 and 227 (Fig. 36), are in durable glass and are 2mm and 1.5mm thick respectively. These two fragments appear to have no original edges, so that the quarries must have been at least 45mm and 35mm long. The colours are light blue and a more definite blue so that they are similar to window glass of the late 7th–9th centuries found elsewhere. The most common colours at this time were variations on light green, but there were also other colours such as blue, brown, red and red-streaked.

Excavations have revealed window glass of this period mainly at ecclesiastical and monastic sites in England and in Europe. Some which have been published are from Monkwearmouth and Jarrow (Cramp 1970a, 1970b, 1975), Winchester (Biddle and Hunter 1990), Glastonbury (Bayley 2000b, Evison 2000c), San Vincenzo al Volturno, Italy (Dell’Acqua 1997; Stiegemann and Wemhoff 1999i, 180–3, cat. nos III.89 to 92), and Paderborn, Germany (Stiegemann and Wemhoff 1999i, 163–5, cat. nos III.63–66). Anglo-Saxon window glass has been found at more than 17 sites in Britain (Cramp 2000, 105, fig. 1), a spread through most of Anglo-Saxon England with the exception of Kent.

The glass was in small quarries, often rectangular or triangular and was shaped by cutting or grozing for setting in lead cames, the lead framing for the window. More ambitious shaping and colouring to represent figures is suggested by the imaginative assemblage of glass fragments from Jarrow, which produced a polychrome figure in an arched frame (Webster and Backhouse 1991, 138–9, no. 105a). Fragments have been found in the old market place at Liège, Belgium, and splendid coloured pictures like this are recorded in the episcopal palace there by the Irish poet Sedulius in the 9th century (Helbig 1961, 9; Evison 1988b, 215), for Sedulius, a man fond of food, wine and beautiful surroundings, was complaining that his own dwelling was dark and not as fine as his bishop’s palace.

Catalogue no. 228 (Fig. 36) is a complete window quarry of sub-quadrangular shape with three straight sides and one curved, and a thickness of only 1mm. The very light green glass is less durable than the other two pieces and its pitted and iridescent appearance no doubt means that it is potash glass. The main change from durable soda glass to potash glass began in the 9th century, but traces of potash appeared even earlier (Cramp 2000, 105–7) as natron became less available (Freestone *et al.*, this volume).

#### 12TH–13TH-CENTURY BOWL

Cat. no. 229 (Fig. 36) was included by Harden as a ‘Dark Age piece’ (1956, 155, no. 4, pl. XIXa). It is a large part of a bowl found in London, but must have been imported in the 12th or 13th century. Very similar bowls have been noted in the Middle East (Lamm 1929, Taf. 32.12; Carboni and Whitehouse 2001, 140–2, no. 56), there is one at Padua in Italy (Moschetti 1938, 308–10) and another in the Ashmolean Museum at Oxford has been attributed to Egypt (Pinder-Wilson 1976, 146, no. 144). The method of application of the trails is of special interest in connection with Anglo-Saxon vessels, as the white trails on the lower part were applied first and so became marvered in the operation of blowing in a mould with ribs, but the green trails at the top were applied after mould blowing, to achieve broken

lines or a dash effect. There are traces of the adoption of this technique in late 7th–early 8th-century vessels, on a globular beaker from Portchester (Harden 1976, fig. 145,9; Evison 2000b, fig. 15b), a palm cup from Barking, Essex (Evison 1991, 91, 67(0); Evison 2000b, 84–5, fig. 15a–c) and a globular beaker from Beuel Ramersdorf, Germany (Evison 2000b, fig. 15c, pl. 5e).

### **Small glass settings**

Beside the glass products listed in this catalogue small amounts of glass were used in Anglo-Saxon jewellery. Most of the colour was provided by garnets, but occasionally white settings of shell, or composition, or glass insets of various colours were added for contrast. A study by M. Bimson and I.C. Freestone (2000) of some jewellery of the 6th and 7th centuries has established that the glass inlaid in jewellery at that time was closely related to contemporary vessel glass and was not a specialised product.

The following additional items in the collection of jewellery containing glass insets have also been noted: An iron disc brooch with bronze repoussé front plate from Howletts, Kent, has a small blue glass cabochon centre, and was made in the 5th century (BM Reg. no. 1936,5-11.100; Evison 1978, 263, fig. 2c–j). Also from Howletts and of similar date is a kidney-shaped buckle plate set with sliced garnets in cloisons, but in one triangular cloison are blue-green glass fragments (BM Reg. no. 1936,5-11.116).

During the first half of the 6th century Kentish jewellers occasionally used coloured glass settings in keystone garnet disc brooches and square-headed brooches, e.g. Howletts BM Reg. no. 1936,5-11.62 (Avent 1975, no. 57, class 2.5); Howletts BM Reg. no. 1936,5-11.63 with a green glass disc in the middle of the head, and a matching brooch, and BM Reg. no. 1936,5-11.64

with a blue glass disc in the middle of the head. In a tumulus at Stodmarsh, East Kent a square-headed brooch had a gold disc with green glass setting, probably fixed to the bow, BM Reg. no. 1854,12-2.13 (Åberg 1926, 86, fig. 146).

Four disc brooches from Faversham, Kent are in a slightly later stage of development: BM Reg. no. 1031.70 three keystone-shaped cells are filled with translucent bright green glass (Avent 1975, no. 115, class 6.1); 1035.70 three keystone insets in green glass (Avent 1975, no. 76, class 3.1; Bimson and Freestone 2000, col. pl. 4); 1034.70 a ring of deep blue glass in the central setting (Avent 1975, no. 64, class 2.8); 1031.70 the tips of two triangular cloisons are filled with opaque blue glass (Avent 1975, no. 145, class 1); Dover grave 126 a disc brooch with translucent yellow and opaque light blue cabochons (Evison 1987, 243, fig. 52); 1110.70 the triangular plate of a bronze buckle is ornamented by border rows of small disc insets, two opaque blue, one opaque light green (Smith 1868, 143, pl. XXV, fig. 4); Dover grave 6 semicircular setting of light amber glass in a pendant, (Evison 1987, 217, fig. 7,8a,b); and Dover grave 29 semicircular setting of light blue glass in a pendant (Evison 1987, 224, fig. 17,6). The use of colourless glass alongside garnets in this way reflects the value placed on even fragments of coloured glass.

Since this catalogue was written in 1992–3, no more glass vessels have been added to the collection with the exception of 13 accessed from the excavation of the cemetery Dover II in 1995. Full details of these are available in Evison forthcoming f. Further glass vessels, including some claw beakers from a cemetery at Ringlemere, Kent are being treated in the Museum laboratory, but these are not available for study yet (*Kent Archaeological Society Newsletter* no. 64, Spring 2005, 13; S. Marzinzik, pers. comm.).