

Local production and trade in glass vessels in the British Isles in the first to seventh centuries AD

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In the world of goods, what people find a use for and find acceptable is to a great extent socially conditioned. When looking at production and trade in any commodity, it is therefore important to consider it against a background of what is known of the society using it. The availability of a good does not necessarily mean that all parts of society will necessarily want it, and this may not simply be due to purchasing power. This paper examines production and trade in glass vessels in Britain in the early to mid first millennium in this spirit. It seeks to explore what the different communities found a use for, and how this drove trade, production and exchange. The sites mentioned in the text are located on fig. 1.

It is ironic that though Strabo (*Geography* 4.V.2-3) specifically notes that the early 1st century Britain imported glass vessels, there is very little archaeological evidence of this. The British Isles at that time lay outside of the jurisdiction of the Roman Empire, but in the south east of England there were obviously considerable trade contacts with the continent. These clearly extended to the Mediterranean world as the amphora evidence shows that wine and olive oil were being imported (see for example Williams, Peacock 1994). There was also a good trade in pottery table-wares from the Rhineland, and from central and northern Gaul. A quarter of the pottery vessels found in the early to mid 1st century AD cemetery at King Harry Lane, Verulamium, for example, were imported (Stead, Rigby 1989, p. 112-145), and this appears to have the burial place of the middling sort of society and not of the elite. Glass vessels by contrast are extremely rare everywhere. Only six sites have imported glass vessels on them prior to conquest, and at each only very small numbers are represented, often just a single vessel put in a grave. There is very little evidence of any use on domestic sites. Since Price (1996) completed her study of this material, the only possible additions come from the cremation cemetery at Stanway just outside of Colchester. There very rich burials have been found undoubtedly belonging

to the tribal elite who had died just before and just after the conquest in AD 43 (Crummy 1997, p. 23-27). At this site one elaborately furnished burial chamber of an adult included a very large blown amber bowl (rim diameter 252mm), placed within a wooden box (Crummy 1993, p. 496). This burial was clearly made just prior to the Conquest. Another has a blue and white marbled pyxis. The other finds in this burial are Claudian so the individual may have died just after the Conquest. However, the vessel was clearly old by the time it was buried and so there are distinct possibilities that it too was a pre-Conquest import.

With the exception of the pyxis and one blown flask, all of the pre-Conquest imported vessels appear to be bowls. It might be assumed that they were coming into the country as part of the process that brought in wine and were exotic items to drink the wine out of. However, in comparison to the scale of the import of wine itself, pottery vessels and to a lesser extent ones of metal, the amount of glass vessels present is tiny. It does suggest that glass vessels played little role in society even as prestige goods.

The Claudian conquest in AD 43 brought part of the Islands into the Roman Empire. Effectively the Roman province consisted of England and Wales. The north of Scotland and Ireland were always outside of the Empire. The area of southern Scotland that lies between the walls of Hadrian and Antoninus Pius formed part of the province from time to time in the 1st to 2nd centuries, but thereafter lay outside of it. The use of, and trade in, glass vessels closely reflects this history — they are common in England and Wales, scarcer in southern Scotland, rare in the highlands and islands of Scotland, and very rare in Ireland.

Following the conquest, glass vessels flooded into the new province both as personal possessions and as the result of trade. Anyone who works with mid 1st century glass across the empire would be quite familiar with the

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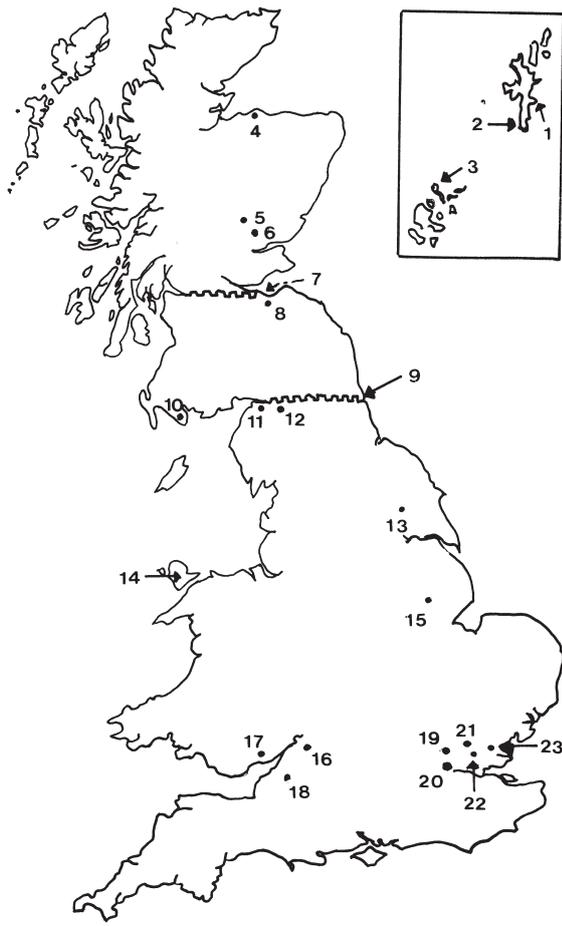


Fig. 1 — Sites mentioned in the text : Airlie (6), Antonine Wall (7), Barnsley Park (16), Bath (18), Birdoswald (12), Caerleon (17), Carlisle (11), Cefn Cwmwd, Anglesey (14), Chignall (22), Clickhimin, Shetland Isles (1), Colchester (23), Covesea (4), Cramond (8), Hadrian's Wall (9), Kingoldrum (5), Lincoln (15), London (20), Old Scatness Broch, Shetland Isles (2), Stansted (21), Verulamium (19), Westray, Orkney Islands (3), Whithorn (10), York (13).

glass found in the forts and the newly developing towns, but they might start to see rather odd gaps on the rural sites. It seems reasonable to assume that during the second half of the 1st century, the majority of the native population lived in the countryside, and on rural sites, when glass is present, the assemblages tend to be dominated by blue/green bottles and large bowls — either pillar moulded bowls (Isings Form 3), or the tubular-rimmed blown form (Isings Form 44). Other parts of what might be thought of as a typical Flavian assemblage in Britain — globular and conical jugs (Isings Forms 52 and 55), collared jars (Isings Form 67c), tubular unguent bottles (Isings Form 8) etc — are surprisingly poorly represented on these sites (Cool, Baxter 1999, p. 84-85).

This appears to be a deliberate choice rather than a problem of supply. The other vessel types were available in the neighbouring towns where, presumably, the bottles and bowls were bought, and it cannot be thought that these would have been noticeably more expensive than the vessel types chosen. Indeed some might have been

cheaper. Instead the pattern seems to reflect a growing interest amongst the British population in whatever was in the bottles and a role for large bowls. Interestingly the desire for large bowls is seen in both glass and pottery as on these rural sites there often appears to be a higher than normal incidence of large decorated samian bowls (Willis 1997, p. 41). Clearly these large vessels were serving some social role, presumably linked to drinking rituals — they would certainly have held more liquid than the contemporary glass cups and beakers popular in the towns. Perhaps we are looking at a tradition of shared, rather than individual, drinking vessels.

Such a pattern could have implications for trade. From time to time we get fragments of pillar-moulded bowls on rural sites where there appears to be no occupation prior to the 2nd century (Barnsley Park: Price 1982, p. 174, no. 1, fig. 59; Chignall: Allen 1998a, p. 94, no. GL2). There is also an example from a rural cremation burial of the early 2nd century at Stansted (Price, Cottam 1998, p. 46, fig. 7a). Clearly no-one was still making pillar moulded bowls in the 2nd century, and it would presumably have been quite difficult even to buy them by late in the 1st century. In the case of the cremation burial the normal explanation would be that this was a long treasured piece, but that seems an unlikely explanation for the 2nd century site finds. One possible explanation might be that a cultural preference for large bowls would mean that there was a market for pillar moulded bowls amongst the rural inhabitants of Britain for sometime after the rest of the world had given them up as hopelessly old-fashioned. Britain could well have been a good place for a merchant to off load otherwise obsolete vessels.

The difference in how urban and rural communities of southern England were using glass vessels lessens as time progresses, but can still be recognised in the 4th century (Cool, Baxter 1999, p. 93). Elsewhere in the province in Wales and much of the north, glass vessels tend to occur in very low numbers on rural sites, even ones which would appear to be of high status. This is a pattern that can be seen in other categories of finds such as pottery (see for example Longley *et al.* 1998, p. 216-217), and it is clear that the population generally found little use for Romanised material culture, other than sensible hobnailed shoes. Where vessels glass is found, it is also sometimes clear that it is present not as functioning vessels but as cullet. This was clearly the case at a recently excavated high status site at Cefn Cwmwd, Anglesey where bead manufacture was being carried out, in part using blue/green vessel glass as raw material (unpublished excavations by the Birmingham University Field Archaeology Unit). Obviously in these regions the lack of production and/or trade in glass vessels is deeply socially embedded.

It is clear that after the Conquest it was not just the vessels that were imported, but also the glass blowers. Industries producing glass vessels in the province were established relatively quickly after the Conquest. There has been evidence for some time that vessels were being

blown in London as early as the late 60s or early 70s (Shepherd, Heyworth 1991, p. 14). Recently even better early evidence has come from the foreshore of the River Thames where part of a harbour installation built in AD 63 has been excavated.

The masonry buildings associated with it are thought to have been warehouses, but manufacturing was also being carried out. A glass workshop producing twisted glass stirring rods decorated with blue trails and small bottles and phials was excavated in one. This activity may have continued for some years in the 60s and 70s as several successive glass furnaces were found (Esmonde Cleary 1996, p. 427; Brigham 1998, p. 27; Shepherd 1997). The combination of products — small bottles and stirring rods — perhaps suggests that we are looking at a glass-house making packaging for cosmetics or medicine.

The context of this activity is remarkably interesting. These harbour installations represent a very high level of investment and were part of the reconstruction of the province after the Boudican rising in AD 60. It is very tempting to see this as an imperial redevelopment. Certainly the military appear to have been involved in building it (Hassall, Tomlin 1996, p. 449, no. 14), and stored in one of the buildings were three imperial lead pigs from the Somerset mines (*ibid.*, p. 446, no. 12) also suggesting state involvement. There are hints, therefore, that the implantation of the glass working industries could have come about, at least in part, as the result of official encouragement or decree. One might even speculate that in some cases glass-houses were set up as part of military supply systems. Though glass flasks and stirring rods might seem a rather frivolous product for the military to make, it is not beyond the bound of possibility especially if these were for medical supplies. We do know that army craftsmen were making a variety of products in late 1st century Britain that have little obvious link with a military lifestyle such as highly decorated enamel vessels (Bayley, Budd 1998, p. 203-221).

Throughout the 2nd to 4th centuries we continue to get evidence of the local production of glass vessels in the form of the typical glass blowing debris and the occasional furnace. Since the survey published in 1991 (Price, Cool 1991), additional groups of glass working waste have been recovered from Bulmore close to the legionary fortress at Caerleon (Allen 1998b, fig. 7), and from the spa resort of *Aquae Sulis* Bath (unpublished excavations by the Bath Archaeological Trust), but the bulk of the new finds have come from London (unpublished excavations by the Museum of London Archaeology Service). Judged by the individual number of glass-working sites and groups of blowing debris recovered, London also dominates. However this may be more apparent than real and the product of the intensive excavation that has gone on in the city of London over the past couple of decades. The distribution of glass blowing evidence tends to be in what we could consider the civilian rather than military parts of Roman Britain. The most northerly site so far studied in detail is at the fortress and *colonia* of York. Some of these

vessel production sites are clearly civilian being located in close proximity to major pottery production areas. This suggests that in some instances the pottery and glass industries were closely linked. There is, however, a growing amount of evidence suggesting that the army may have been an important influence on the location of production sites as well. As already noted, there is a glass blowing site just outside of the fortress of Caerleon, and at York there is evidence of glass melting and some glass blowing within the legionary industrial area itself at Coppergate. It was here that semi-reacted batch material was found indicating that glass manufacture from raw ingredients was being carried out too (Cool *et al.* 1999; Jackson *et al.* 1998). Recently additional evidence for glass vessel manufacture at York has been recovered. Excavations in 1999 at the Royal Hotel, produced more glass melting pots and glass blowing waste. This material has only been the subject of a preliminary assessment so far, but it does appear to be very similar to the Coppergate finds and may provide a useful date for them as it has a better stratigraphic context than the earlier finds. The bulk comes from late 3rd to 4th century contexts, but it is also present in early to mid 3rd century ones.

Evidence of glass working sites tends to rely on the recognition of the distinctive range of by-products from the blowing process, and the recovery of *in situ* furnaces and other installations is rare. Though it is possible that the bias towards the south will be redressed by future discoveries, there are hints that most insular vessel production was based in south and central England, precisely the areas where the widest range of the population was happiest to adopt them. A considerable amount of vessel glass has been recovered from a large number of excavations in Carlisle, a fort and later town at the western end of Hadrian's Wall (see for example Blackfriars St: 1,100 fragments Price 1990; Castle St.: 500 fragments Cool, Price 1990; Tullie House: 150 fragments Cool 1992; Annetwell St : 1,700 fragments unpublished; The Lanes: 1,100 fragments unpublished, see also Price, Cottam 2000). Here no evidence of vessel production has been recognised. One might hypothesise that the main area of production in Britain was always in the south central area of England with the products being traded locally and far to the north. Long distance trade such as this within the province would not be at all unusual. The most popular cooking wares for much of the province, Black Burnished Ware 1, were made in a very small area of Dorset on the south coast and traded as far north as the Antonine Wall, as well as across the Channel to the coastal areas of north France and the Low countries (Allen, Fulford 1996).

As is normal, it is not possible to say precisely what types of vessels the glass-houses were producing. The regular presence of colourless waste at the sites in addition to the blue/green, suggests that good quality tablewares are as likely to have been made as utilitarian containers. It is only towards the end of the 4th century that distinctive Romano-British forms seem to emerge that cannot be paralleled on the continent (Cool 1995, p. 14, figs 3.8 and

p. 11, fig. 4.3).

Despite the insular manufacture of glass vessels it is may be assumed that material continued to be imported. Where there are distinctive forms, the distribution would appear to suggest it came from the Rhineland and north and central Gaul. Material that can tentatively be attributed to the Mediterranean is rare after the 1st century, but is occasionally found throughout our period. To what extent this material was the result of straightforward economic trade rather than other exchange mechanism may be questioned.

An interesting example of this is the spread of tablewares into the more remote areas of the British Isles during the later 2nd and 3rd centuries. Plain colourless cylindrical cups of Isings Form 85b are very common within the province, often occurring in large numbers. They are also found in areas of the British Isles which tend to have much less glass. It may be noted that two are known from the Highlands (Airlie and Kingoldrum, Angus) and one from Westray in the Orkney Islands (Curle 1932, p. 291). It is possible that others may be present on other native sites in northern Scotland, but as Hunter has noted (2001, p. 301), the lack of a competent survey of the glass vessel finds from native sites in that area currently hinders research. It is possible that the form also reached Ireland as one of the very few fragments of Roman glass from there seems far more likely from the description and drawing to be a rim fragment of this sort of cup rather than the beaker of Isings form 106 as suggested in the publication (Bourke 1996, p. 194, no. 5, fig. 20). It was found with a few other fragments of colourless glass from the royal site of Tara.

Examples of these cylindrical cups with painted scenes are very rare in the province compared to the volume of plain cups (see Le Maho, Sennequier 1996 for survey). In addition to the sites noted there, examples are also known from Birdoswald (Price, Cottam 1997, p. 348 no. 5, fig. 248) and Lincoln (unpublished). Examples have been found on just thirteen sites within the province and a further one is known from the fort at Cramond at the eastern end of the Antonine Wall. Four have been found on native sites in Scotland frequently far from the border with the province, two remarkably from Shetland. The example from Clickhimin (Hamilton 1968, p. 143 ; no. 161, fig. 62.1) has long been known but tiny fragments from another example were found in 2000 at Old Scatness Broch on the very southern tip of the islands (unpublished excavations by the Dept. of Archaeological Sciences, University of Bradford).

As well as the painted cups, there is also a fragment of a snake thread vessel in the north of Scotland at Covesea (Charlesworth 1959, p. 54). Within the Roman province, painted cups can be described as rare, and snake thread glass can be described as an occasional find, not exactly uncommon but rarely occurring at a scale that suggests more than one or two vessels in the larger assemblages. Given that sites with Roman material, both glass and

other artefacts, tend not to be numerous in the Highlands and Islands (Hunter 2001, fig. 5), the fact that three painted cups and a snake thread vessel have been found is remarkable. Taken with the evidence of the plain cups, it might suggest that in the 3rd century, glass drinking vessels, including ones that were rare in the province itself, were becoming prestige items in areas that in some cases may never have seen glass vessels before. Probably these should not be seen as simple items of trade. It seems more likely that they reached their remote locations as part of elite gift exchange networks.

Similar networks would have existed within the province as the relationship between patron and client in the Roman world was often cemented by the exchange of gifts. These networks could well account for the distribution of other groups of glass that are found widely scattered across the north-western provinces including Britain. The various figure cut bowls and beakers of the mid 4th century (Price 1995) might fall into this category. Their distribution is as likely to be the result of personal patronage as of commercial trade. Other mechanisms that could account for the presence of unusual vessel forms within Britain include religion and the physical movement of people. A recent find from London illustrates this excellently where in 1999 a richly attired young woman was found in a lead and stone coffin at Spitalfields (Swain, Roberts 1999). DNA and oxygen/lead isotope analyses on the tooth enamel indicated that she was a first generation immigrant who had spent her early childhood in Spain, southern France or Italy. Amongst other grave goods she had a pipette unguent bottle of Isings Form 105.

These bottles are most unusual in that they have an empire wide distribution. In Roman Britain they are effectively only found in rich burials such as this, often associated with other grave goods that point to an interest in the saviour or mystery religions (see Cool 2002). It is tempting to think that the trade or exchange of this type of vessel is associated with whatever the contents were, perhaps they played a role in religious ritual. The presence of one with a woman who we know was an immigrant, perhaps hints that part of their widespread distribution could be the result of the mobility of the Roman elite in the 4th century as these individuals often had estates in a variety of provinces.

In British archaeology it is normal to see a great divide occurring in 410 which is the traditional date when the province ceased to be part of the empire. In Britain there has been, until recently, very little interest in the concept of late Antiquity as being part of a continuing process. Instead there has been a Roman period and a post Roman period, frequently studied by different communities of scholars with different research priorities and little interchange of ideas. A study of the glass vessels clearly brings out the danger of this approach as an underlying continuity of process between the periods can clearly be seen. During the 3rd century in the Romanised part of Britain, the range of functions glass vessels served narrowed so

that by the 4th century most were drinking vessels (Cool, Baxter 1999, p. 80) and this is the pattern that continues in the 5th and 6th century. As Evison has noted (2000, p. 65), bottles are a fairly common type in 5th to 6th century France and the Rhineland, yet they are not at all popular in England. From the 4th century onwards therefore most of the population only considered glass to be appropriate for drinking out of.

Interestingly during the same period there is a steady diminution of the area where glass vessels were used. The cylindrical cups in the early 3rd century showed a province wide usage, but as Price recently showed (2000, p. 2, fig. 1), 4th century glass is surprisingly uncommon in the northern frontier zone. Distribution maps can be misleading in that they indicate simply where there has been excavation and/or publication. In this case, however, many 4th century sites have been excavated in the gaps on the map in the North and West but glass is conspicuous by its absence at many of them. In part this might be expected given the earlier scarcity on rural sites already discussed. However, it is also apparent that in northern towns and forts there was a decline in the use of vessel glass. By the 5th to mid 6th century, the area of glass vessel use has retreated still further with only the south-east showing regular use, and the south-west being much more poorly represented (Evison 2000, fig. 5).

Is this pattern the result of declining trade and access to glass vessels or a lack of interest in them? If this pattern was only noted in the post Roman period, one could argue that it comes about because of the increasing segmentation of Britain into different kingdoms and possibly the lack of trade opportunities between them. But as we can see the pattern actually starts in the Roman period when such an explanation cannot be upheld. Again the explanation probably lies within the social rather than the trading sphere. For some reason the north and then the west as well stopped using glass vessels. We are back almost where we began with glass vessels a south-eastern phenomenon in the 5th century.

However this time the situation is different as the quantities of vessels recovered are larger and there is a supposition of insular production for Kempston beakers (Evison 2000, p. 62). The mere fact that glass beakers continued

to be made and imported into the south-east of England and its margins in the 5th to 6th century is of considerable interest as in that area pottery tablewares had virtually ceased to be used. Again this hints they might have been special prestige items.

The story may be concluded in the west and north in the 6th to 7th centuries when glass vessels start to occur on sites either side of the Irish sea (Campbell 2000, fig. 1). They are often found on sites that have amphora fragments that suggest wine was being imported from western France, and the glass beakers would appear to be arriving with the wine as the appropriate thing to drink it out of. There is even sufficient interest for them to be local production on the west coast of Scotland at Whithorn (Campbell 2000, p. 43). Again it seems reasonable to suggest that the driving force for both the import and local production was the demand of the elite for prestige items. Glass had become a status symbol as it never had been before in these areas on the mainland during the Roman period when supplies would have been much more easily obtainable.

I am aware that this paper has been a series of snapshots rather than a coherent whole but what I hope it has shown is that there were many mechanisms driving both production and trade within the British Isles. When we discuss trade we often privilege economic considerations, but the patterns that can be observed within British Isles over this period appear to be driven as much, if not more, by social factors.

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Bibliography

- Allen (D.) 1998a, "The Roman glass", in Clarke (C.P.), *Excavations to the south of Chignall Roman villa, Essex 1977-81, East Anglian Archaeology* 83, Chelmsford, 1998, p. 94-96.
- Allen (D.) 1998b, *Roman glass in Britain*, Princes Risborough, 1998.
- Allen (J.R.L.), Fulford (M.G.) 1996, "The distribution of south-east Dorset Black Burnished Category 1 pottery in south-west Britain", *Britannia* 27, 1996, p. 223-281.
- Bailey (J.), Budd (P.) 1998, "The clay moulds", in Cool (H.E.M.), Philo (C.) eds., *Roman Castleford Excavations 1974-85. Volume I: the small finds*, *Yorkshire Archaeology* 4, Wakefield, 1998, p. 195-222.
- Bourke (E.) 1996, "Glass vessels of the first nine centuries AD in Ireland", *Journal of the Royal Society of Antiquaries of Ireland* 124, 1996, p. 163-209.
- Brigham (T.) 1998, "The port of Roman London", in Watson (B.) ed., *Roman London Recent Archaeological Work*, Portsmouth Rhode Island, 1998, p. 23-34.
- Campbell (E.) 2000, "A review of glass vessels in western Britain and Ireland AD 400-800", in Price (J.) ed., *Glass in Britain and Ireland AD 350-1100, British Museum Occasional Paper* 127, London, 2000, p. 33-46.
- Charlesworth (D.) 1959, "Roman glass from northern Britain", *Archaeologia Aeliana* series 4, 37, 1959, p. 33-58.
- Cool (H.E.M.) 1992, "The vessel glass", in Caruana (I.), "Carlisle: excavation of a section of the Annexe Ditch of the first Flavian fort, 1990", *Britannia* 22, 1992, p. 45-109 (see p. 63-68).
- Cool (H.E.M.) 1995, "Glass vessels of the fourth and early fifth century in Roman Britain", in Foy (D.) ed., *Le Verre de l'Antiquité tardive et du Haut Moyen Age*, Cergy-Pontoise, 1995, p. 11-23.
- Cool (H.E.M.) 2002, "Bottles for Bacchus?", in Aldhouse-Green (M.), Webster (P.) eds, *Artefacts and Archaeology: Aspects of the Celtic and Roman world*, Cardiff, p. 132-151.
- Cool (H.E.M.), Baxter (M.J.) 1999, "Peeling the onion: an approach to comparing vessel glass assemblages", *Journal of Roman Archaeology* 12, 1999, p. 72-100.
- Cool (H.E.M.), Jackson (C.M.), Monaghan (J.) 1999, "Glass making and the Sixth Legion at York", *Britannia* 30, 1999, p. 147-161.
- Cool (H.E.M.), Price (J.) 1990, "The Roman vessel and window glass", in Padley, (T.G.), "The metalwork, glass and stone objects from Castle Street, Carlisle", in McCarthy (M.R.), *Roman Waterlogged Remains at Castle Street, Cumberland and Westmorland Archaeological and Antiquarian Society Research Series* 5, Kendal, 1990, p. 165-176.
- Crummy (P.) 1993, "Aristocratic graves at Colchester", *Current Archaeology* 132, volume 11, no 12, 1993, p. 492-497.
- Crummy (P.) 1997, *City of Victory*, Colchester, 2000.
- Curle (J.) 1932, "An inventory of objects of Roman and provincial Roman origin found on sites in Scotland not definitely associated with Roman constructions", *Proceedings of the Society of Antiquaries of Scotland* 66, 1932, p. 277-397.
- Esmonde Cleary (S.) 1996, "Roman Britain in 1995. I: Sites explored – England", *Britannia* 27, 1996, p. 405-438.
- Evison (V.) 2000, "Glass vessels in England, AD 400-1100", in Price (J.) ed., *Glass in Britain and Ireland AD 350-1100, British Museum Occasional Paper* 127, 2000, London, p. 47-104.
- Hamilton (J.R.C.) 1968, *Excavations at Clickhimin, Shetland, Ministry of Public Buildings and Works Archaeological Report* 6, 1968, Edinburgh.
- Hassall (M.W.C.), Tomlin (R.S.O) 1996, "Roman Britain in 1995. II: Inscriptions", *Britannia* 27, 1996, p. 438-457.
- Hunter (F.) 2001, "Roman and native in Scotland: new approaches", *Journal of Roman Archaeology* 14, 2001, p. 289-309.
- Isings (C.) 1957, *Roman glass from dated finds*, Groningen, Djarkarta, 1957.
- Jackson (M.J.), Cool (H.E.M.), Wager (C.W.) 1998, "The manufacture of glass in Roman York", *JGS* 40, 1998, p. 55-61.
- Le Maho (S.), Sennequier (G.) 1996, "À propos d'un verre à décor peint trouvé à Rouen fin 2^e-milieu 3^e siècle", *Annales AIHV 13 (Pays-Bas 1993)*, Lochem, 1996, p. 175-184.
- Longley (D.), Johnstone (N.), Evans (J.) 1998, "Excavations on two farms of the Romano-British period at Bryn Eryr and Bush Farm, Gwynedd", *Britannia* 29, 1998, p. 155-246.
- Price (J.) 1982, "The glass", in Webster (G.), Smith (L.), "The excavation of a Romano-British Rural establishment at Barnsley Park, Gloucestershire, 1961-1979 Part II c. A.D. 360-400+", *Transactions of the Bristol and Gloucestershire Archaeological Society*, 100, 1982, p. 65-189 (see p. 174-185).
- Price (J.) 1990 "Roman vessel and window glass" in McCarthy (M.R.), *A Roman, Anglian and Medieval site at Blackfriars Street, Carlisle Excavations 1977-9 Cumberland & Westmorland Antiquarian & Arch. Soc. Research series* 4, Kendal, 1990, p. 164-179
- Price (J.) 1995, "Glass tablewares with wheel-cut, engraved and abraded decoration in Britain in the fourth century", in Foy (D.) ed., *Le Verre de l'Antiquité tardive et du Haut Moyen Age*, Cergy-Pontoise, 1995, p. 25-33.

- Price (J.) 1996, " A ribbed bowl from a late Iron Age burial at Hertford Heath, Hertfordshire ", *Annales AIHV 13 (Pays-Bas 1993)*, Lochem, 1996, p. 47-54.
- Price (J.) 2000, " Late Roman glass vessels in Britain and Ireland from AD 350 to 410 and beyond ", in Price (J.) ed., *Glass in Britain and Ireland AD 350-1100, British Museum Occasional Paper 127*, 2000, London, p. 1-23.
- Price (J.), Cool (H.E.M.) 1991, " The evidence for the production of glass in Roman Britain ", in Foy (D.), Sennequier (G.) eds, *Ateliers de Verriers de l'Antiquité à la période pré-industrielle, 4èmes rencontres de l'AFAV*, Rouen, 1991, p. 23-29.
- Price (J.), Cottam (S.) 1997, " Roman glass ", in Wilmott (T.), Birdoswald, *English Heritage Archaeological Report 17*, London, 1997, p. 341-355.
- Price (J.), Cottam (S.) 1998, *Romano-British glass vessels: a handbook, CBA Practical Handbook in Archaeology 14*, York, 1998.
- Price (J.), Cottam (S.) 2000, " The vessel glass ", in McCarthy (M.R.), *Roman and Medieval Carlisle: the Southern Lanes, Dept of Archaeological Sciences, University of Bradford Research Report 1*, Bradford, 2000, p. 103-105.
- Shepherd (J.D.) 1997, " 60s Glassworking in Londinium? ", *Glass News 3*, 1997, p. 7.
- Shepherd (J.D.), Heyworth (M.) 1991, " Le travail du verre dans Londres romain Londinium: un état de la question ", in Foy (D.), Sennequier (G.) eds, *Ateliers de Verriers de l'Antiquité à la période pré-industrielle, 4èmes rencontres de l'AFAV*, Rouen, 1991, p. 13-22.
- Swain (H.), Roberts (M.) eds. 1999, *The Spitalfields Woman*, London, 1999.
- Stead (I.M.), Rigby (V.) 1989, *Verulamium: the King Harry Lane site, English Heritage Archaeological report 12*, London, 1989.
- Williams (D.), Peacock (D.) 1994, " Roman amphorae in Iron Age Wessex ", in Fitzpatrick (A.P.), Morris (E.L.) eds, *The Iron Age in Wessex: recent work*, Salisbury, 1994, p. 29-32.
- Willis (S.) 1997, " Samian: beyond dating ", in Meadows (K.), Lemke (C.), Heron (J.) eds., *TRAC 96. Proceedings of the Sixth Annual Roman Archaeology Conference*, Oxford, 1997, p. 38-54.