Tudor and early Stuart vessel glass: an archaeological study of forms and patterns of consumption in England, 1500 to 1640

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Thesis submitted for the degree of Doctor of Philosophy

Department of Archaeology
University of Durham
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Abstract

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The aims of this thesis are twofold. The first is concerned with the establishment of a typology for vessel glass in England between 1500 and 1640. There has been no morphological classification for glass of this period and one is constructed in this thesis from museum collections, published and unpublished material derived from archaeological excavations. The second aim of this thesis is to explore the way that glass vessels were used in Tudor and early Stuart society. The rise of consumerism and role of consumption in early modern Europe has been explored by a number of scholars, but there has been little attempt to link these ideas with excavated material culture.

To achieve these aims twelve groups of glass from a variety of well contexted sites have been examined. The glass from these, in conjunction with seventy-four published excavation reports, forms the basis for the vessel classification. Although classified primarily by their form the typology considers questions concerning the manufacturing provenance and the decorative techniques used on the vessels. Likewise the twelve study sites are used as the basis for a more contextualised material culture study. Differences between assemblages from urban and elite sites are considered, as are their relative forms of disposal. Further questions concerning the role of glass during dining and the importance of vessel decoration as a means of conveying social messages are addressed. Finally contrasting patterns of repair and conspicuous consumption are considered.

Whilst providing a framework for future research into the glass used in Tudor and early Stuart England, this thesis advocates a new methodological approach for material culture studies. It has demonstrated that through a more contextualised study of artefacts, a greater understanding of material culture use can be achieved.

"on one side was to be seen a long train of flagons, leathern bottles, flasks, cans, glass bottles, barrels, nipperkins, pint pots, quart pots, pottles, gallons and old fashioned semaises (swindging wooden pots such as those out of which the Germans fill their glasses)...on another were a hundred sorts of drinking glasses, cups, cisterns, ewers, false cups, tumblers, bowls, mazers, mugs, jugs, goblets, talboys and such other Bacchic artillery."

Rabelais *Pantagruel* 1532.

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Illustrations

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Chapter 1 *Introduction and Present State of Studies*

1.1 *The Aims of This Thesis*

This thesis addresses two related questions. The first is concerned with the vessel glass used in England during the sixteenth and first half of the seventeenth centuries. Although previous general works have devoted chapters to Tudor and earlier Stuart glass (e.g. Thorpe 1961: 94-134; Charleston 1984: 42-108) there has never been a comprehensive survey of the vessel glass of the period. This is surprising considering the quantity of glass that has been recovered from excavations in England. For the production of the typology in this thesis material from seventy-four published excavation reports was consulted, from a total of forty-four different towns or sites (fig. 1.1). Most of these are little more than descriptive catalogues of vessels, although some have been more serious attempts to synthesise the material (e.g. Charleston 1975; 1984c; 1990).

The publication of glass reports reached a peak in the 1980s and early 1990s, although this has now started to decline (fig. 1.2). Inevitably the actual quantity of material recovered is far greater than published, representing a significant unstudied resource. For this reason unpublished groups of glass have also been used to aid the construction of the typology. This thesis redresses this imbalance by providing for the first time a comprehensive classification of all the forms of vessel glass used during the sixteenth and early seventeenth centuries. The material has been grouped and illustrated by typological form, with reference to type of glass, decoration and date. Not only does this enable the easier identification of excavated glass but also allows further contextualised consideration of the material.

The second question addressed in this thesis concerns the use of glass in its contemporary society. Artefact studies often have been criticised for concentrating on questions of production, distribution and attribution, at the expense of other considerations (e.g. Johnson 1996: 8; Dyer 1997: 509). This thesis is intended as a contribution to the growing development away from the traditional discussion of dating and provenance, towards a fully contextualised study of material culture. Although questions concerning production at home and import from abroad are addressed, this thesis concentrates on the use of material culture and the attitudes of its users towards it.

To achieve these aims twelve groups of glass from well contexted unpublished sites have been studied. Intra-site comparisons are undertaken and the relative differences between groups assessed. The result of this analysis has been to answer many of the questions concerned with the use and consumption of glass. This thesis, whilst concentrating on a very particular artefact form, demonstrates the value of such a methodological process to material culture studies generally.

1.2 *The Development of Glass Studies*

Glass studies within England have developed from two traditions. The first analysis of this material was from an art-historical perspective, and this continues today. Glass vessels that survived in collections were categorised and provenanced on stylistic grounds based on their form and decoration alone. Although this approach has had many merits, more recently the importance of material derived from archaeological excavation has become apparent. However before either tradition is explored it is important to define the characteristics of glass itself.

1.2.1 *The Nature of Glass*

Vessel glass from the sixteenth and seventeenth centuries retained most of the same properties as earlier medieval glass. The fluidity of glass resulted in its exploitation and forming primarily through the technique of blowing. During the sixteenth and seventeenth centuries all glass was free-blown, although some vessels were blown into an optic or two-piece mould. Glass from any period consists of three basic ingredients: silica, alkali and lime. The silica, usually derived from sand, is the basic component of the structure, the alkali is used as a flux to lower the melting temperature and the lime acting as a hardening and stabilising agent (Hurst-Vose 1980: 24). During the sixteenth and seventeenth centuries two basic types of alkali were used as a flux, soda and potash; the differences between these fluxes and the resulting glass are discussed at greater length in chapter 3.2.2. Soda glass is typified by the appearance of a hard resistant metal, which was usually made clear with the addition of a decolourant. This metal often has a slight grey or even pink tint, probably the result of natural contamination of the ingredients of the glass. Soda glass sometimes had colourants and opacifiers added, occasionally to colour the base metal of the vessel but more usually to use as applied decoration. Soda based glasses are often very resistant to weathering when buried in archaeological contexts.

Potash or forest glass used a more impure form of alkali. This type of glass appeared in Northern Europe during the early Middle Ages and is assumed to have developed when traditional sources of soda were no longer freely available. The potash was derived from burnt twigs and branches, primarily from the beech tree and bracken (Newton & Davison 1989: 55). Its production was limited to small furnaces in forested areas where there was not only close access to the fuel, but also to the alkali source (Godfrey 1975: 157-158). It would appear that forest glass never had any colourants added. The presence of crucibles and coloured waste has been noted on glass making sites, (e.g. Hurst-Vose 1994: 43), although the lack of coloured potash vessels in the archaeological record suggests that these remains related to window glass production.

1.2.2 *Previous Studies of English Glass*

The first synthesis of glass from this period appeared in 1897 with Hartshorne's *Old English Glasses*, reprinted later as *Antique Drinking Glasses*. This work consisted, in chapters 4-9, of a collation of historical documents relating to the English industry and its production during the sixteenth and seventeenth centuries. It also included a survey of surviving continental glasses of this period in museums and private collections, but made little reference to material produced or used in England. Hartshorne himself acknowledged the limitations of his work and the need for further research (Hartshorne 1968: ix).

The next substantive survey of English material appeared with Thorpe's *English Glass* in 1935 (3rd ed. 1961). In the preface he states that "this book is intended to be a survey of taste in domestic and fancy glass" (Thorpe 1961: vii). Two chapters were dedicated to the glass of the sixteenth and seventeenth centuries. Chapter three, concentrated on the identification of ten glasses thought to be the product of the historically documented glassmaker Verzelini in the last quarter of the sixteenth century. The fourth chapter repeated many of the recorded monopolies, listed by Hartshorne, granted to glassmakers in the first half of the seventeenth century. However, Thorpe also identified three goblet forms, often found during building work in London, to this period of manufacture, the first time archaeological material had been considered (Thorpe 1961: 128-31). He suggested that the inverted baluster, elongated inverted baluster (or cigar) and ladder stems were all products of early seventeenth century production, a hypothesis confirmed in this thesis (chapter 4.3.1-2).

Little advance in the knowledge of English glass was made by the publication of the catalogue of the Victoria and Albert Museum's glass collection, just after the end of the war (Honey 1946). It dealt with English Glass in one short chapter consisting of less than thirty pages. The majority of the catalogue concentrated on eighteenth century material as the view at this time was "that it (*glass of the sixteenth and seventeenth centuries*) shows no very wide range of achievement" (Honey 1946: 95). This view has still prevailed in more recent art-historical literature on the subject. Tait's contributions to the period, *The Golden Age of Venetian Glass* and chapter five of *5000 Years of Glass* produced no new information on the glass used in England (Tait 1979; 1991). The former, although obviously concentrating on Venetian products contributed little to the debate of *façon de Venise* work, whilst the latter consigned only two pages to glass produced outside Venice during the Renaissance (Tait 1991: 15-7).

In 1968 the Masterpieces of Glass exhibition was organised by the British Museum. This and its subsequent publication contained ninety-nine vessels dating from the late fifteenth to the early nineteenth centuries (Harden et. al. 1968: 127-92). Of these, the majority of them were assumed to be Venetian in origin, with some attention also paid to

glass from the southern Netherlands and north Germany. Within the exhibition as a whole there was little reference to English glass, with only two vessels provenanced to Verzelini's workshop (ibid. 143 & 231).

By contrast a display organised the same year in the Guildhall Museum only consisted of glass found during excavations in the City of London. Seventy-nine vessels from a variety of dated seventeenth century contexts, including forty-two fragments from the Gracechurch Street hoard, were on display and catalogued (Charleston, J 1968). This was the first time that the importance of archaeological material was fully realised in the identification of the vessels produced and used in England. No similar exhibition concerned with glass of the period has since been organised in this country.

This is not the case in continental Europe. Between the years 1988-91 the exhibition and publication of three important collections of archaeological glass dating to the medieval and post-medieval periods occurred in Germany, France and the Netherlands (Baumgartner & Kreuger 1988; Sennequier & Foy 1989; Ruempol & van Dongen 1991). These, and the following *Glas Zonder Glans* publication in the Netherlands (Henkes 1994), demonstrated the importance of archaeological material in understanding the glass used during this period. They served to highlight the differences between the types of vessels that tended to survive in historical collections and those found archaeologically. These exhibitions also emphasised the variety of local manufacturing traditions, rather than concentrating on the dominance of Venetian products. Despite a lack of a similar exhibition in England in the last decade, these influences can be clearly seen in the recent reorganisation of the glass display in the Victoria and Albert Museum.

The most influential figure on all aspects of post-Roman glass studies in England was Robert Charleston. Whilst Keeper of the Department of Ceramics at the Victoria and Albert Museum he took an active interest in material that was being recovered archaeologically. He published numerous glass reports from excavations during the 1970s and 1980s, which culminated in 1984 with his book *English Glass and the Glass Used in England.* Although glass from the Tudor and Stuart periods only occupied one chapter, this work laid the way forward for further studies. Not only did he record the documented glass industry but also collated his knowledge gained from writing archaeological reports. The result was a brief but informative study of some of the vessel forms of the sixteenth and seventeenth centuries, although not a comprehensive classification of the material.

1.3 *Glass Production in England in the Sixteenth and Seventeenth Centuries*

The evidence for glass production in England comes primarily from two sources. There has been extensive research into the documented movement of immigrant glassmakers into England during the sixteenth century and the period of English monopolies during the seventeenth century (e.g. Kenyon 1967; Hurst-Vose 1980; Crossley 1990; although the most comprehensive is Godfrey 1975). In addition to these there has been the extensive excavation of furnace sites, which together with the documentary sources combines to give a detailed picture of glass production during this period.

1.3.1 *The Documented Industry*

The existence of a glass industry in medieval England has been extensively discussed (e.g. Kenyon 1967; Charleston 1984; Tyson 1996). However by the beginning of the sixteenth century there seem to have been few furnaces in operation, and these were limited to the production of simple potash vessels. The migration to, and establishment of, a fineware industry by foreign workers in England during the latter sixteenth century has been published in great detail (Thorpe 1961; Godfrey 1975; Charleston 1984). Nevertheless for the purpose of this thesis a brief résumé of the specific influences of these groups is required.

The earliest reference to immigrant glassworkers came in 1549, when eight Muranese were said to have established a furnace in London (Godfrey 1975: 16). However this venture seems to have failed, as within two years all but one had returned to Venice. It was to be a further eighteen years before a more successful attempt was made to found a fineware industry in London. In 1567 Jean Carré, a native of Arras, who seemingly spent most of his career as a glassworker in Antwerp, arrived in London (Godfrey 1975: 17). He obtained a licence to produce Venetian style glasses and within a year had gained a patent, in conjunction with the Flemish merchant Anthony Becku, to be the sole producer of window glass (Godfrey 1975: 19). It was then that Carré established a furnace at Crutched Friars, near the Tower of London, for the production of *façon de Venise* drinking glasses. Documentary evidence suggests that those employed were Flemish in origin, although in 1570 the Venetians Quiobyn Littery and Jacob Verzelini were brought from Antwerp (Godfrey 1975: 19-22).

On the death of Carré in 1572, Verzelini took control of the glassworks. He was an experienced glassmaker, having worked in Antwerp for twenty years. Within two years he had secured a twenty-one year monopoly on the production of *façon de Venise* drinking glasses, preventing the importation of similar vessels from abroad (Godfrey 1975: 28-30). He is known to have employed Muranese workers and the French engraver Anthony de

Lysle (Charleston 1984: 58). Jacob Verzelini appeared to have successfully managed the monopoly for its duration, becoming naturalised and a well-known figure of the mercantile community. In the *Jewell House of Art and Nature* of 1594, Sir Hugh Platt recommends his services;

"For glasses with broade skirts...I doe thinke there are inough to bee had if you can bee so gracious with master Jacob of the glashouse" (Platt 1979: Bk. I, 3).

His control of the English fineware market finally diminished when his monopoly expired in 1595 (Godfrey 1975: 40).

The influence of foreign workers was not only felt on the new fineware industry but also on the established centres of forest glass production. The religious persecutions of the 1570s in France and the Low Countries resulted in the arrival of significant numbers of migrant glassworkers to England (Godfrey 1975: 34-5). Although their establishment of new furnaces was initially restricted to the south of England, by the 1590s they were documented as far north as Staffordshire (Godfrey 1975: 36). It is probable that the increased number of potash vessels and the wider range of styles during the late sixteenth century can be attributed to these new migrants.

With the monopoly of Verzelini due to end in 1595, an Englishman Sir Jerome Bowes was granted in 1592 a revision of that granted to Verzelini, to become effective when the former's expired. This patent was initially issued for twelve years and later extended for a further twenty-one. As soon as it became effective Bowes financed the foundation of a furnace at Black Friars, London, probably staffed by Verzelini's workmen and managed by William Robson (Godfrey 1975: 40). Bowes, a retired courtier, seems to have taken little active role in the running of the glass industry. However, the monopoly suffered serious setbacks, not least with the establishment of a rival glasshouse at Winchester House, Southwark by Edward Salter in 1608 (Godfrey 1975: 45). It avoided Bowes' monopoly rights, which only covered Venetian style drinking glasses, by producing cruets, trencher plates, salts and tall-sided beakers.

Nevertheless, it was not the establishment of rival furnaces that proved the greatest upheaval to the glass industry in the first decades of the seventeenth century. There were growing concerns over the destruction of woodland by both the iron and glass industries, which were using large quantities of charcoal as fuel. This provided a period of uncertainty for the glass monopolies until 1613, when all previous patents were suppressed by the Crown and use of wood as a fuel outlawed (Godfrey 1975: 74). This situation clearly had been anticipated, as early as 1615 a company headed by Edward Zouche secured a patent to produce fineware drinking vessels using furnaces which had been successfully modified

through experiment to use coal (the physical differences of these furnaces has been identified through excavation and are discussed in chapter 1.3.2). Zouche's company was quickly bought out by one of the directors, Sir Robert Mansell, who established a new furnace at Broad Street, London for the production of high quality glasses (Godfrey 1975: 81).

By 1616 there was an apparent scarcity of vessel glass, particularly the cheaper potash glass, probably brought on by the forced closure of the old wood burning furnaces. In response to this situation Mansell opened new furnaces at Wollaton in 1616 and Kimmeridge in 1617, the latter apparently experimenting with oil shale as a fuel (Godfrey 1975: 95). Mansell's situation saw further improvement when during the subsequent year he was able to close down all forest glass competition, effectively dominating the entire market and establish further furnaces at St. Catherine's, London and Newcastle (Hurst-Vose 1980: 116). Over the next two decades he secured the complete domination of the English market; in 1623 his patent was re-issued, then again in 1635 to include Ireland as well (Hurst-Vose 1980: 116). Furthermore, in 1630, he gained a royal decree banning the importation of all foreign vessels.

By 1635, despite being in its strongest position under Mansell, the English glass industry was about to suffer near collapse. The reasons for this were threefold. Firstly the latest revision of Mansell's monopoly resulted in far higher rents to the Crown, which in turn was reflected in higher retail prices (Hurst-Vose 1980: 117). Secondly in 1640 the Scots invaded northern England, curtailing the production at Newcastle and more importantly cutting off the supply of coal for Mansell's furnaces in London (Godfrey 1975: 131). However the final blow came at the onset of the civil war in 1642, when Parliament abolished all patents relating to the glass industry (Godfrey 1975: 133).

It has been suggested that the lack of obvious glass production during the Inter-Regnum was due to the Puritanical aversion to frivolous and luxurious items (Thorpe 1961: 135), although this is an unlikely reason. Bottle manufacture was documented to have been taking place in this period (Godfrey 1975: 134) and this coincides with the first appearance of the wine bottle in England. During the middle of the seventeenth century the industry in Europe as a whole seems to have been relatively depressed. Certainly it was a time of marked stagnation in French glass production and the start of a well-recognised decline in the Venetian manufacturing tradition (Godfrey 1975: 134). It was only in the last twenty years of the seventeenth century, some time after the Restoration, that saw the re-emergence of the English quality industry. Only with Ravenscroft's experiments in the new medium of lead glass did a seriously competitive industry emerge that was to challenge the dominance of Venice and establish new styles throughout Europe.

1.3.2 *The Excavation of Glass Production Sites*

Potash Furnaces

During this century and in particular the last thirty years, there has been the extensive excavation of English potash furnace sites. The pioneer of these inquiries was the Reverend Thomas Cooper. Cooper was a resident of Chiddingfold in Surrey and through his investigations as a local historian of parish records recognised the presence of glassmaking families. He started to look for evidence of the activities of glassmakers and between 1911 and 1918 excavated four sites with evidence of glass dating to the sixteenth century (Kenyon 1967: 5-11). Cooper's work was expanded upon by Winbolt, who surveyed the parishes south of Chiddingfold and dug sections through a variety of furnace sites. His work culminated with the publication of '*Wealden Glass*' that outlined his recording of furnaces and some of the glass found from them (Winbolt 1933). This material dated from the fourteenth to the early seventeenth century and Winbolt was the first person to realise the extent of English glass manufacture in the Weald.

However these early investigations provided little information on the nature of glass production during the sixteenth and early seventeenth centuries. It has only been in recent years that a more thorough identification and excavation of production sites within and beyond the Weald have been undertaken. The historical sources suggested that glass production was limited until the arrival of foreign immigrants in the latter half of the sixteenth century and this has been confirmed archaeologically. Kenyon's research in the Weald has revealed that the forty identified sites can be divided into two clear periods; the early examples dating between 1330-1567 and the later ones from 1567-1618 (Kenyon 1967: 13-4).

Excavations at the sites of Bagots Park, Staffordshire (Crossley 1967) dating to 1530s and Knightons, Surrey (Wood 1982) from the 1550s, have illustrated the classic form of the earlier furnace type. In both cases the furnace was of a similar rectangular shape to their medieval precursors. They had a central flue, with two siege benches on either side which held around six crucibles. Both sites had separate annealing ovens, of which only fragmentary remains survived. In particular, Bagots Park produced the remains of the furnace's products. These consisted of simple forms of the medieval tradition, including flasks and urinals as well as typical plain early sixteenth century beakers (Crossley 1967: 69).

Excavation has revealed the changes in furnace design during the second half of the sixteenth century, presumably brought with immigrant workers, which enabled a more efficient and higher firing temperature (Crossley 1990: 228-9). Examples include Buckholt in the Weald (Kenyon 1967: 214-7), Bickerstaffe, Lancashire (Hurst-Vose 1995) and most

importantly the two Yorkshire furnaces at Hutton and Rosedale (Crossley & Aberg 1972). All these furnaces had wedge shaped 'wing fans' radiating from the end of the flue, which were stokeable from both ends, to help tunnel wind through the furnace. With this greater control of the draft temperatures could be greatly increased, improving the quality of the melt. This was reflected in the quality of the glass produced, which was found in particularly large quantities at Rosedale (Charleston 1972), the furnace of which was magnetically dated to between 1580-1600. The vessel glass was more durable and a clearer colour than the vessel glass produced in the Weald, suggesting a more efficient melting of the batch. There was a more diverse range of vessels produced, including pedestal and cylindrical beakers, pedestal goblets, flasks and bowls. The glass recovered from Rosedale illustrates the problem of identifying products from finds on furnace sites. Several fragments, such as a *Kuttrolf* neck, were clearly not made on the site but represent collected cullet (Charleston 1972: 142, no. CIII). However the vast majority of the glass recovered from Rosedale were production wasters from the site.

The final development of furnace design in this period can be directly linked to the banning of wood as a fuel in 1613 (Godfrey 1967: 74). Comprehensive excavation has been undertaken at two such sites, Haughton Green, Manchester (Hurst-Vose 1994) and Kimmeridge, Dorset (Crossley 1987). The latter of these sites was the one identified as having been established by Mansell in 1617, and subsequently taken over by Clavell, which was in operation until its demolition in 1623 (Godfrey 1975: 95). At Kimmeridge the basic design of the furnace remained the same, however the oil shale fuel was placed in the centre of the furnace, as opposed to at either end of the flues, and on a raised plinth (Crossley 1990: 133-5). The flues also ran further beyond the radiating fans enabling the increased draft, and therefore a greater heat to be achieved, as well as providing easier access to clear them of ash.

The finds from Kimmeridge and Haughton Green (dated by documentary evidence to 1615) were in a higher quality potash glass. Fragments of beakers, flasks, bowls and dishes were recovered from both sites in a durable often near clear metal, resulting from the higher heat generated by the use of coal (Crossley 1987: 355-67; Hurst-Vose 1994: 24-38). The excavations also revealed a further innovation in the design of the crucibles. Whereas open pots could be used in the earlier wood burning furnaces, closed vessels were required to prevent contamination from soot in the coal or oil shale furnace.

Soda or Mixed Alkali Furnaces

Whilst there is an abundance of information on English potash glass production deriving from excavation, the opposite is the case for soda or high quality mixed alkali furnaces. The reasons for this are twofold. Firstly, as can be seen from the contemporary documentation, fewer high quality glass furnaces were built during the period of glass monopolies. There was either not the sufficient demand for higher quality products, or the number of skilled workmen needed to produce a greater quantity of vessels. Secondly, all of the furnaces for high quality glass were built at the heart of their primary market, London. As opposed to the rural location of most forest furnaces, those built in London, such as Crutched Friars, Black Friars, Winchester House and Broad Street, were located in the middle of densely populated areas. Subsequent development on these sites has either destroyed or prevented archaeological investigation of these sites.

Whilst no glasshouse has been excavated in London to date, there is limited evidence to suggest what vessels were being produced. During 1990, excavations in the Old Broad Street area of the city, close to the position of Mansell's glasshouse of 1615, revealed not only dumps of broken glass but also production waste (Shepherd U/P). Perhaps surprisingly the vessels and waste fragments found were in both potash and soda glass, suggesting that both qualities of goods were produced at the same site. The waste included moils, parison ends, unworked lattimo canes and trimmings. The vessel fragments contained half-finished items, and those that could be identified were all goblets of the inverted baluster, cigar and ladder types, which had been previously suggested to be products of the Mansell period (Thorpe 1961: 128-31; Charleston 1984: 68-9).

Although it is not possible to identify the type of furnace in use in the City, it is probable, at least during the Mansell period, that they were of the radiating 'wing-fan' type identified at Rosedale, amongst other sites. Indeed the furnace at Winchester House was described as a 'wind furnace' in the contemporary documentation (Crossley 1990: 235), suggesting it was of a form which effectively tunnelled drafts into the flues. However, until the physical structure of a glasshouse is identified and excavated in the City, it is not possible to postulate further on their appearance.

1.4 *Post-Medieval Archaeology in England*

The study of the archaeology of the post-medieval period in England has only developed in the last thirty years. One of the first recognitions of its establishment as an academic discipline was with the foundation of the Society for Post-Medieval Archaeology, and the publication of its journal, in 1967. It is not the purpose of this chapter to provide a detailed discussion of post-medieval archaeology in England, as more detailed over-views can be found in Crossley (1990: 1-6) and Johnson (1996: 1-19). Of more concern to this thesis is the development of material culture studies within this period, particularly studies which dealt with the consumption and use of artefacts, rather than with their production and distribution. Whilst England has some of the most extensive excavation on, and publication of, sites from this period, there has been surprisingly little theoretical debate concerning material from these undertakings. Only in the last few years has this imbalance started to be redressed, (e.g. Johnson 1996; Courtney in press), and many of the theoretical debates concerning consumption have originated abroad, particularly in the United States.

1.5 *The Development of Consumption Studies*

Before discussing these theoretical arguments it is important to give a definition of the term 'consumption', which will run throughout this thesis. For the purpose of this study the consumption of artefacts can be interpreted on a broad basis. It refers to the way that objects were acquired, used and finally deposited in the past. This could be in functional terms alone, such as the simple use of vessels to contain items or through more symbolic aspects, such as the use and display of objects to convey complicated social messages. Both of these are equally important aspects of artefact consumption and use and should be explored theoretically.

Principally Glassie (1975), Deetz (1977) and Leone (1988) pioneered the study of material culture in the United States. Glassie's early study of the organisation of space in the folk dwellings of Virginia linked housing to material culture and social life. Deetz, who examined the relationship between material culture and its users, further extended this approach. This resulted in the suggestion that shifts in the patterns of material culture could be linked to the changing mentality of the users. In a similar way Leone examined the reflection in eighteenth century material culture of Georgian principles of order and the increased standardisation of artefact types.

Some of the most active research into the role of objects in everyday life has been undertaken through the study of probate records and inventories. Although most of these documents, which record household items of value on the death of their owner, only occur in

larger quantities during the eighteenth century, some survive as early as the sixteenth. Most notably the works of Thirsk (1974), Wetherill (1988) and Schammas (1990) have served to demonstrate the increased expenditure on household goods from the sixteenth to eighteenth centuries. These documentary sources have revealed how there was both an increasing number and diversity of objects in the home, which extended further down the social scale as this period progressed. McKendrick, Brewer and Plumb (1982) have argued that this increase in the number of goods represents an eighteenth century demand for items for reasons of social emulation, although this can be seen as a process that was occurring, to some degree, at least two centuries earlier.

Mukerji (1983) argued that the consumer boom in objects can be traced to the Renaissance and saw the increasing diversity of material culture as a result of social shifts brought on through fashionable change. She suggested that contact with the New World and the establishment of colonies stimulated the interest in and demand for new goods. As a consequence changing fashions were the material solutions of the demand for novel goods. The notion of commodification and the demand for goods from the sixteenth century has also been identified archaeologically. Johnson (1996) has argued that the freer accumulation of goods can be seen from 1500 onwards in archaeological contexts, and it is perhaps from contextualised studies that the action of consumption upon goods can best be observed.

The importance of context in the consumption debate is stressed by Appadurai (1986) and more clearly emphasised in Miller's (1985) ethnographic study of ceramic variability in India, in which he demonstrated that the objects could carry entirely distinct meanings in different contexts. Campbell (1987) examines some of these differences which are visible in the consumption of clothing. He suggests that their symbolic significance only exists if they relate to a commonly shared system of meanings of a particular group.

Other studies have focused more specifically on material found archaeologically and linked them with contextualised aspects of food consumption. Goldthwaite (1989) explored the apparent success of Maiolica during the sixteenth century. The increased quantities found on European sites can, in part, be explained by the diverse functional forms produced and the fitting into an intermediate tableware niche by Maiolica, linked to the rise of the middle classes (Goldthwaite 1989: 17). However Goldthwaite continues to argue that this is not the complete reason for Maiolica's popularity. The rich also bought Maiolica and Goldthwaite suggests that this apparent popularity should be linked to the growing rejection of gold and silver as a dead investment and the taste for rarer media of tableware (Goldthwaite 1989: 26). However Raby and Vickers voice a slight caveat on the reliance of the archaeological record in their discussion of Islamic metalwares. Whilst they acknowledge that there may have been a contemporary 'Puritanism' against luxury goods, they warn against basing studies on

archaeological material alone. They point out that precious metalwares are unlikely to survive (Raby & Vickers 1986: 217). Any quantification of vessels with an intrinsic value in their medium is clearly hard archaeologically.

In a similar fashion to Goldthwaite, Yentsch (1991) has compared vessel types against the food traditions in Chesapeake society. Cultural and social change during the seventeenth and eighteenth centuries saw new methods of food preparation and this resulted in a shift in the patterns of material culture use, leading to the increased numbers of serving vessels, for example. Additionally she traced the spread of European dining patterns and ideas into the United States, which reflected heavily upon the material culture. The increased numbers of plates and settings was interpreted against the European development of a more individual style of dining.

1.6 *Summary*

This thesis seeks to work within and extend an already established framework in British archaeology. Against an existing established art-historical and archaeological background this study provides a more comprehensive definition of the glass used in England between 1500 and 1640. The reason that these particular dates have been chosen is that it represents a period when there was renewed popularity in the use of glass in England. By 1500 few vessels are found on sites, whilst at the opposite end of this date range the use of glass seems to once again diminish in popularity. Whether this was in part due to the societal changes brought about by the Civil War and the subsequent collapse of the domestic industry is unclear. However it was not until the end of that century that England again saw the comprehensive use by a large sector of the population of glass.

Having provided this typological framework it is then possible to assess the social importance of the archaeological material. This thesis intends to assess the relative use and contemporary importance that glass held, through the study of its archaeological consumption. In this way a contextualised archaeology can be achieved, of specific importance to material culture studies and wider archaeological methodology.

Chapter 2 *Contemporary Accounts of Dining and Glass*

2.1 *Introduction*

When considering the course of dining and the role that glass occupied within it, it is important to consider the contemporary accounts of the period. These come from sources as wide ranging as commentaries, travelogues, general narratives and satirical prose. Such accounts help illuminate aspects of Tudor and early Stuart life, but are not without associated problems. The most detailed and well known is Harrison's *Description of England*, which is undoubtedly an important source (Harrison 1876). However, an over-reliance on a single view is not sufficiently objective, and an attempt is made here to draw together as many other sources as possible. To this end certain accounts of dining and glass in continental Europe also have been used. Although they might have held some meanings different to those in England, they are still important in gaining a general impression of dining and the use of glass in an increasingly culturally integrated early modern Europe. Finally, it is important to stress that all these sources were written and read by the upper levels of society. Whilst they provide greater depth to the understanding of the way the more affluent dined, they express little about the majority of the population. Even comments made concerning the middling and lower levels of society, such as Harrison's assertion that even the poorest had glass, must be viewed with extreme suspicion (Harrison 1876: II 147).

However, these writings provide information over three broad areas. The first concerns the actual process of dining itself. It is important that the order of the meal and the way food was presented is examined, if the role of vessels at the table is to be put into context. Although contemporary accounts on the progress of meals often lack in specific references to glass vessels, they nevertheless indicate the role they would have played when they were present at the table. Detailed references to dining are rare with writers, such as Montaigne, making only passing comments such as "we dined on Tuesday" or "on Wednesday after dinner" (Montaigne 1958: 868). This is not surprising, as such a mundane process was not thought worthy of mention, unless a particular event had occurred. Detailed descriptions are often only found in the writings of foreigners commenting on the English style, although Harrison does also mention the general rituals of dinner (Platter 1937: 194-5; von Wedel 1895: 263-4; Harrison 1876: II 145-8). These general references make it possible to build an impression of how the meal was served and consumed.

The second aspects to come from contemporary sources are specific descriptions of glass vessels. More often than not the presence of just a 'glass' or 'glasses' are noted (e.g. Rabelais 1532: 390-1). Occasionally reference is made to more specific items or their usage, which can lead to a more informative picture of the vessel types in use. References from

inventories can also be combined with these descriptions. Unfortunately the vessels described in literature and inventories are often vague and can not usually be matched with known archaeological examples. However, matches are occasionally achieved and at the very least the presence of glass at the table can be observed. What is made clearer from these descriptions are the variety of vessels in dining and the functional forms that they took. Differences between drinking, serving and storage vessels can be defined, if not the exact forms themselves. These all combine to produce a more rounded picture of the use of artefacts in dining.

The final area where sixteenth and early seventeenth century sources are useful is in expressing social attitudes concerning glass and its use. This is a subjective area, with each writer expressing their own feelings and trying to convey their own messages. In these terms, any values attached to glass and other vessel media must be regarded as prejudiced by one or more personal motives. However, for this very reason, it is possible to define important meanings and feelings attached to glass during this period. Although these references are often few and far between they do reveal active trends of thought. Coupled with more generalised comments on the role and importance of the meal, it is possible to start to understand the meanings and values of glass and its consumption in both a historical and archaeological context.

2.2 *The Progress of the Meal*

Harrison, writing in 1587, gives the most comprehensive insight into dining in England during the late Tudor period (Harrison 1876). It would be unwise to base a discussion of dining over a period of one hundred and fifty years on a single source such as Harrison. However as there is no other similar English work for this period, it is inevitable that Harrison plays a central role in any discussion of dining.

One important point addressed by Harrison is both the number and timing of meals. He says that before his time there were four meals a day;

"breakefasts in the forenoone, beverages or nuntions after dinners, and thereto reare suppers generallie when it was time to go to rest"

although in his time one;

"contenteth himselfe with dinner & supper onlie" (Harrison 1876: II 162).

He further elaborates on the timing of these two meals by saying that;

"the nobilitie, gentrie, and students doo ordinarilie go to dinner at eleven before noone, and to supper at five...the merchants dine and sup seldome before twelve noone and six at night...the husbandmen dine also at high noone as they call it and sup at seven or eight...As for the poorest sort they generaillie dine and sup when they may" (ibid. 166).

Harrison's assertion that only two meals a day were eaten is probably misleading. Sources, such as the account book of Henry Percy in 1512, show breakfast to be quite varied, with dishes including beef, mutton and fish being eaten (Brett 1968: 36). Harrison, in his mention of just two regulated meals, seems to be emphasising his perception of greater control in his times, as opposed to the gluttony and over-eating of the past. Whatever the case may be it would appear that only dinner and supper were large-scale events. Harrison's timings of the meals were probably a more accurate reflection of reality, dinner being served around mid-day and supper early evening. This pattern would fit with the schedule formally observed in monastic institutions, where meals were taken after the service of Nones and Vespers (Hammond 1993: 105). Finally Harrison's suggestion that the poorest ate when they could is also quite likely. Although there are no records concerning their habits, it is most likely that the meal was fitted around work patterns.

When describing the course of the meal, Harrison does not give a complete description of one from start to finish. However, he does give certain insights into some of the practicalities and rituals that occurred. He emphasises the hierarchy that still existed at the table, similar to the medieval pattern, which involved;

"the principall tables whereat the nobleman, his ladie and guestes are accustomed to side; beside which they have certain ordinarie allowance dailie appointed for their hals, where the chiefe officers and household servants...and with them such inferior guestes doo feed".

The diners might commonly number;

"fortie or three score persons" (Harrison 1876: II 145-6).

The principal tables were served first and when they were satisfied the food was taken to those of lesser rank until finally the scraps ended up with the poor at the household gates

Harrison continues to describe the way that drinks, such as wine and beer, were served to the guest. Drinking vessels were

"seldome set on the table; but each one as necessitie urgeth calleth for a cup of such drinke as him lifteth to have: so that when he hath tasted of it he delivered the cup again to some one of the standers by, who making it cleane...restoreth it to the cupbord". (ibid. 146).

This, he explained, was to cut down on excessive drinking, but it also had the effect of reducing the overall numbers of drinking vessels that were needed. The final comment given by Harrison concerned the size of the meal and the number of dishes served. He suggests that both noblemen and merchants had similar numbers of culinary dishes, four to six normally or only one or two if they were financially strained or eating without guests (Harrison 1876: II 148).

Although Harrison lends an important view into the process of dining, he does not give a complete description of the whole event. There are several eyewitness accounts of

notable occasions in which the meal was described in close detail. The first two of these were concerned with dinners served to Elizabeth I. Both the people who observed these occasions were German travellers who were allowed to watch, but not take part in, them.

The first, Lupold von Wedel, saw the queen dine at Greenwich on the 27th December 1584. Initially, a long table was set and covered, presumably with the knives, napkins and the salt. Then forty gilt dishes were brought in and set before the queen and her cup was brought to her and taken away when she had finished drinking from it. Nobles entered as the main dinner of twenty-four dishes was set before her. There was a separate table for the nobles and this was served from the Queen's food platters once she herself was finished. Finally a basin was brought in for the queen to wash her hands before she left (von Wedel 1895: 263-4). What is apparent from this account is the standardised ritualistic form that this meal took. However as the Queen usually ate alone, the public nature of this meal was unusual.

The second account of Elizabeth dining comes fifteen years later in 1599 and was observed by Thomas Platter. In this case the Queen was not in attendance but rather in a separate room from the main company. However, the same rituals were carried out, even though she was not present. Initially the trestle tables were carried into the room and then laid with plates, knives, bread and the salt. Then the food was carried in with great ceremony, on forty dishes, and laid out. Selections were cut off and carried through to the queen in the joining room and only when she had finished dining was the rest distributed to the seated nobles, who had fresh dishes to eat from (Platter 1937: 194-5). Platter's description is very similar to that of von Wedel. What is more remarkable is that the rituals did not change whether the queen was in attendance or not. Platter specifically mentioned that the food bearers would bow to where the queen would have been sitting, had she been in the room (ibid. 194). Even though this was a dinner at the highest level it helps to demonstrate the hierarchical and inflexible nature of elite dining in general during this period.

John Stow describes a further feast, dating to the reign of Henry VIII. It is different to the above accounts, as it was held in Goldsmith's Hall by the Lord Mayor of London (Stow 1908: note 304, 341-2). In attendance were a group of French ambassadors and English nobles, a total of around one hundred people. They were seated at three large tables and served by the group, each referred to as a 'mess'. Stow records that for the whole feast there were a total of fifteen messes, or roughly seven people eating at each mess. During the dinner three courses were served and cleared, the first consisting of fifteen silver dishes to each mess, the second twelve parcel gilt dishes and the third ten full gilt dishes. In total each mess of seven people received thirty-seven dishes, so the entire dinner required five hundred and fifty five silver, parcel and full gilt dishes. Not only was the quantity of food required for this feast staggering but also the amount of flatware required to serve it. If Stow is to be believed

all the silver and gilt was new, and freshly engraved with the Lord Mayor's mark (Stow 1908: 341). This account shows not only the considerable quantity of vessels required for this particular meal, but also the complexity of the ritual, with their divisions into material types for courses and numbers to a mess.

Whilst these three meals were all of a largely ceremonial nature, both von Wedel and Platter also comment on smaller, more ordinary ones. When dining at the residence of the governor of Berwick upon Tweed in 1584, von Wedel notes that, although he was well treated, there was no silver used at the table, only tin dishes and wooden plates (von Wedel 1895: 240). In a similar fashion Platter when dining with the sword bearer of the Lord Mayor of London in 1599 described a smaller scale meal. First their hands were washed with scented waters and grace was said. The diner's bowls, made of pewter, were each individually taken and filled with meat by the carver before being returned. There was still a great variety of foods and wines, although there was none of the previous ceremony that he witnessed at Elizabeth's dinner (Platter 1937: 158-9).

The final source to be consulted here, Thomas More's *Utopia* of 1518, further illustrates the meal in this period (More 1965: IV 141-145). Although a satirical source, it helps underline aspects of eating that More, through his Utopians, wanted to emphasise. In the paradoxical society that More creates the meal expresses many of the Utopian (and by extension More's) values. Emphasis is laid on the order of seating, but not conforming to the traditions of the early sixteenth century. The local noble, or 'syphogrant', and his wife sat in the middle of the first table at the highest point, as would be expected. However those closest to the lord were not defined by rank but by age and wisdom, being the eldest members of society. It is to them that the best food was served first. However young people were also mixed in with the old, so that the old could supervise and prevent any mischief amongst them. The egalitarian nature of the dining experience was not granted to women, in a contrary fashion to sixteenth century England. In More's Utopia the female role was the same as the slave, responsible only for the preparation and directing of the meal. The meal seems punctuated by control and reading, in a fashion that More remarks used to be observed by monks (More 1965: IV 145). No mention of the drinking of wine or beer is made and the meal here takes on a very puritanical feel. Indeed whether such a form of dinner occurred in this period is uncertain, but it seems to reflect the desire for the elements of gluttony and excess to be eradicated. It also conforms to the new trend towards social control and manners (explored further in chapter 7.2), a clearly different experience to the meal given by the Lord Mayor of London at Goldsmith's Hall (Stow 1908).

Although little mention of glass and its use was made in these descriptions of dining, they still serve as important indications of how the table operated. On the most basic level the way vessels were used around the table can be seen. What emerged were four classes of artefact, the first two concerned with food and the second two with liquid. Initially, when the diner approached the table, an array of vessels was already present, with trenchers of bread or wood set before each person. In addition to this there would be the salt and possibly knives and napkins. The second type of food vessels was the more mobile ones that were brought to the table and taken away again with each course, these being shared between a 'mess' or group of people. Vessels associated with liquids also appear to be mobile. Both Platter and von Wedel mention the ritual of washing the hands with water poured from a jug or ewer into a basin (Platter 1937: 158; von Wedel 1895: 264). Finally, drinking vessels do not normally sit on the table, but on the 'cup bord'. From here they were filled and brought to the table to be taken away once drunk from. Although this seems to be a development away from the medieval idea of a communal cup, the individual diners did not have their own vessel yet.

On a secondary level, these accounts of dining reflect the wider societal values of the period. Concepts of hierarchy and status were confirmed through the seating and order of service. The physical layout and the vessels used helped carry hidden messages. In a similar fashion the rituals enacted at the meals of Queen Elizabeth, even when she was not even present, helped emphasise her regal power and the legitimacy of her position. It is all the more interesting that both Platter and von Wedel were allowed to observe these goings on, even if they were not allowed to partake. Their descriptions indicate that the crown was keen for outsiders to observe these rituals of power

Similar messages were being given at the Lord Mayor's Goldsmith's Hall feast. Here the assembled French ambassadors and English nobles were treated to a display of the new Lord Mayors wealth. The cost of the food, added to the enormous quantity of bullion used, would have left an important impression. Clearly, this was carefully stage-managed, with the use of increasingly more magnificent dishes with each course intended to create amazement. It is not hard to imagine why the Lord Mayor also went to great pains to make sure that his mark was displayed on all the plate.

Through these more exotic manifestations of the meal it is easy to lose sight of the final ritualistic aspect of dining. Even as foreigners, both Platter and von Wedel were received into people's homes for more ordinary meals. Both give accounts of smaller scale meals and their concern is not so much with the grandeur or demonstration of power as with common hospitality. The meal was a chance for the host to show their generosity and kindness by making their home open to passing visitors. Meals were a time when more informal loyalties could be made and these were not so influenced by the vessels on the table.

Von Wedel is still honoured by the governor of Berwick, despite the tin dishes and wooden plates (von Wedel 1895: 240)

The final aspect concerning the meal is hinted at in More's Utopian ideals. He is able to express ideas about his fictitious world that he would like to see in reality. New emphasis is given to the status of people and their conduct. Although most descriptions of meals do not define these ideals, they do appear in other sets of rules and unconscious ideals.

2.3 *The Historical Presence of Glass*

As previously stated specific references to glass are few and far between. However they are occasionally found in contemporary literature, accounts and inventories. In this section of the chapter a few examples are quoted to demonstrate the breadth and the variety of references to glass in the sixteenth and early seventeenth centuries.

One of the earliest descriptions of glass drinking vessels of this period occurs in Rabelais' *Pantagruel* in 1532. At the point in the story when Pantagruel arrives at the Oracle of the Bottle, they pass under a triumphal arch, which is carved with scenes of vessels;

"on one side was to be seen a long train of flagons, leathern bottles, flasks, cans, glass bottles, barrels, nipperkins, pint pots, quart pots, pottles, gallons and old fashioned semaises (swindging wooden pots such as those out of which the Germans fill their glasses)...on another were a hundred sorts of drinking glasses, cups, cisterns, ewers, false cups, tumblers, bowls, mazers, mugs, jugs, goblets, talboys and such other Bacchic artillery." (Rabelais 1532: 390-1).

Although not all these vessels were of glass, this is a most comprehensive list. Two important points arise out of it. Firstly, the large variety of vessel types indicates the complexity of the material culture associated with drinking. This list demonstrates some of the contemporary differences drawn between vessel types. Secondly, an important distinction is drawn between two general categories of vessels. On one side were depicted those used for temporary or semi-permanent storage of liquids. On the other side were carved those vessels that were actually used for the consumption of these liquids. This division would indicate which vessels actually appeared at the table and those that were either kept on the cup board or in the kitchen.

Further insight into vessel types and the divisions between them can be gained from inventories of the period. Very few inventories contain items of glass, which in itself is rather curious. When references are made it is more usually only to an odd vessel. However three inventories do survive which contain more expansive lists of glass vessels.

The earliest was that taken on the death of Henry VIII in 1542 (figure 2.1). A total of three hundred and ninety three vessels were listed and they can be classed into five categories (Hartshorne 1968: 464-5). The first were primarily containers, and the greatest number of these were described as uncovered bottles or bottle flagons. These were probably flasks with

either simple pushed-in bases or in the case of two of the uncovered bottles with a pronounced pedestal base. An archaeological parallel to these bottles with feet might be seen in the *Inghistere*, a Venetian footed soda glass flask with rounded body and tall thin neck. This vessel form was at the height of its popularity in England in the late fifteenth century (Charleston 1984: 43-4). However as late as 1611 Croyat observes that "Ingistera'es" were in use in Italy, and notes that "the middle part of it doth truly represent the shape of a bellie" (Croyat 1905: 425). The next largest group of containers was variously decorated 'cruses' which were either small bottles or pots. The fact that they were coloured and decorated suggests that they were intended to be seen and might have acted as containers for spices or other condiments on the table. In the same class as the cruses two conserve pots were mentioned, both with gilt decoration, probably applied silver gilt mounts.

The second class of vessel was for the serving of liquids. These can be grouped as belonging to two functional types. The first were the layers or ewers and basins used for hand washing at the beginning and end of the meal. The term layer was probably a derivation of the French 'laver'. There was a total of fourteen basins and twenty six layers and ewers, suggesting that some of the ewers were also intended for the filling of goblets and beakers with wine and beer. The form of the final vessel, the jug with four 'ears' is uncertain, but the fact that it had a cover might suggest that it was a drinking rather than a pouring vessel.

The third, and one of the largest, classes of vessel were those used for drinking, numbering one hundred and ten in total. 'Standing' cups (stemmed goblets) make up the largest proportion, although most were described simply as sundry, suggesting they were plain and made in clear glass. Fourteen of these plain goblets are described as 'diaper patterned' indicating that they may have had optic blown bowls. Amongst those specifically mentioned by their design were those of either blue glass or with white enamelling. Most seemed to have a cover, often a silver gilt one. Reference was also made to sixteen uncovered goblets. The difference drawn here between a standing cup and a goblet is unclear, but perhaps a goblet was a smaller vessel with a smaller capacity.

The final drinking vessel type referred to was the one and two handled pot. These were probably round-bellied vessels of a form well known in this period, the Parr pot being a complete example (Glanville 1970). Certainly one of the one handled pots had a silver gilt cover. The hooped pot with one handle might have been an example of a Dutch barrel beaker, although this is uncertain (Henkes 1994: 154, no. 35.6). The two handled pots mentioned were possibly posset pots, although it is hard to match these to archaeologically known forms.

The third and largest class of vessel was the category of flatwares. Sixty glass trenchers and sixty-six platters or dishes were mentioned. The platters were presumably of

the traditional rectangular form, whilst the dishes were round. It is hard to trace anything resembling a glass trencher archaeologically, and dishes were not common during the sixteenth century. It is entirely possible that this represented a unique set, possibly commissioned for an individual event. These vessels may have been similar to those noted in 1618 by the Venetian ambassador to the court of King James. He remarked that after a masque the food was served in "bowls or plates of glass" and that the press of the crowd to the table caused a "crash of glass platters" (Orgel & Strong 1973: 284). Certainly Thomas Platter, when touring the Queen's Palace at Woodstock, in 1599, observed a "lovely glass salver," suggesting that glass platters or dishes were unusual enough to merit comment (Platter 1937: 204). The ten spice plates alluded to are also ambiguous. They may have been small saucers or might have had a more distinctive form. They were all of coloured glass and three were gilt decorated, suggesting they were placed at the table. Indeed Sir Hugh Platt, in 1594, advised that vinegar be placed at the table in glass saucers, these being more resistant than other vessels to the acidity (Platt 1979: III 35). Bowls were more common in this period, being typical Venetian products, and it is surprising that only two are listed.

Finally there were a group of miscellaneous objects. Nine glass candlesticks, five in the traditional 'bell' shape were listed. This was quite a common form in pewter and not unknown in glass (Hornsby et al 1989: 66; Henkes 1994: 114 no. 26.10). The precise form and function of the thin neck bellied glass is unclear, but it might be a Venetian type of water sprinkler (Tait 1991: 169). A few glass handles from knives are known from Dutch and German excavations, (Henkes 1994: 47 no. 11.2, 114 no. 26.9), but they were rare items.

The next significant inventory occurred in 1556, fourteen years after that of Henry VIII (figure 2.2). A fairly large group of fifty-six vessels were recorded in the closet of the wife of Sir William More of Loseley (Hartshorne 1968: 466). Although not as expansive as that of Henry, the inventory was slightly more descriptive in terms of the vessel shapes and functions.

Ten storage vessels were recorded, with four different types of bottle being identifiable. The most interesting was one which was wickered, suggesting a complete outer coating of rush or straw, similar to the flask found on the Mary Rose (Elkerton pers. comm.). Like Henry's inventory there were two glasses for conserves as well as two white enamel 'pots'. The form of the sweetmeat barrels is unclear. In the category of serving vessels only four different ewers were mentioned. One is clearly specified for oil, probably as a cruet for the table. It is not specified whether the others were used for the pouring of drinks or water for the washing of hands. It is unlikely to be the latter as there were no glass basins associated with them.

The majority of the vessels listed here are for drinking and the descriptions are quite specific concerning their use. Only three standing cups were present out of a total of forty-two drinking vessels, although no mention as to their form or decoration was made. These were presumably for the consumption of wine. Eight glasses were specified as being for beer. Two were covered and one was described as being two-handled, possibly of a similar bellied form to the Parr pot (Glanville 1971) and that described in Henry VIII's inventory. The last thirty-one glasses were fairly specifically described, but hard to assign a form to. One was referred to as being for Aqua Composita, whilst twenty-eight were just glasses for waters. Considering that water was not generally drunk, especially at the table, they probably have a different function. When Montaigne was undertaking his travels, in 1580, the spa at Epernay had measured glasses of one hundred ounces, so that people could drink the healing waters (Montaigne 1958: 869). It is possible that the Loseley glasses were for similar medicinal purposes, although glasses for waters might be an oblique reference to urinals. However this is unlikely as urinals were usually specifically referred to by name. The form of the 'little glasses' again is obscure and the only flatwares listed were two unspecified bowls.

The final important glass inventory from this period was that taken at Kenilworth in 1588 (figure 2.3). Here a large total of one hundred and twenty eight vessels were recorded, although the majority were flatware (Hartshorne 1968: 466-7). Only one storage or serving vessel was mentioned, this being a single ewer of unspecified form or function.

The drinking vessels were divided between goblets and beer glasses. In this latter inventory the shape of the goblet was even specified. Twelve were said to be 'bole' glasses, possibly indicating deep or rounded bowls. Of these five were plain, five were 'indented' (optic blown?) and two engraved. A further four goblets were described as tapered, presumably tall fluted glasses and two of these were ribbed. Finally one goblet was 'embossed', indicating it was either prunted or possibly optic blown. Unfortunately the beer glasses were not described in so much detail, being described as of various fashions, three covered and nine uncovered.

The Kenilworth inventory displayed a very large group of fifty-four dishes and forty-four bowls. Ten were 'cinq-foil' with gilt rims, matching known examples of wavy rimmed dishes in seventeenth century pewter, but as yet not in glass (Michaelis 1955: plate 4). A further eight were engraved, presumably like the goblets in diamond point. Regrettably, the remaining thirty-six were just described as sundry of one or other sort. The bowls here were broadly divided between those that were standing and those that were not. The standing bowls were likely to be those on pedestal bases, of which several variations are known (Tait 1979: 28-35). The others were described as either broad brimmed or deep bowled.

Interestingly, a further functional point is mentioned, as the twelve standing bowls that were 'indented' (optic blown?) were specified as being for cream.

From these three inventories it is possible to gain an impression of the types of glassware being used by three different high status households. It is interesting to note that the inventories become more specific over the exact forms of the vessels through time. This might be a coincidence, but it is entirely possible that this was because glass was becoming a more common item and those who wrote the inventories were more familiar with it. However, it is surprising, given the growing number of inventories for this period, that glass still remained largely absent from them. Possibly glass was seen as a disposable item with no monetary value that could be passed on, so was not listed. Whatever the case, these three inventories illustrate what the richer members of society were using.

Probate inventories during the sixteenth and early seventeenth centuries were increasingly made for poorer sections of the population. References to glass do occur amongst these records, but they are usually very vague and refer to only one or two vessels. However, in the collected probate records for Southampton between 1447 and 1575 there are three inventories for shops that sold glass and other goods.

The first was of John Staveley, a grocer, in 1559 (Roberts & Parker 1992: 164-75). In both his little and great shop he had the following vessels;

57 Venice glasses (3d each)
11 Pottle glasses (3d each)
9 Quart glasses (1 1/2d each)
1 Small 'vial' glass (2s)
20 French drinking glasses (1d each)
12 Urinals (1d each)

The pottle and quart glasses were probably flasks holding that equivalent volume. Given that they were the same price as a Venetian glass, they were probably of soda glass. The 'Venetian' glasses were three times the price of the 'French', possibly reflecting the differences between the values of soda and potash glass. It is interesting to note the presence of urinals, which did not occur in any of the higher status inventories. They were the only glass item to be sold in the 'great shop' perhaps reflecting their different functional type.

The next reference to glass from a shop was in that of the apothecary John Brodocke in 1571 (Roberts & Parker 1992: 290-306). In this case it is unclear whether the glass mentioned was for sale itself, or used to hold the pharmaceutical stock. The list included;

3 Two gallon bottles (1s 4d each)
4 One gallon bottles (8d each)
20 Pottle bottles (6d each)
52 Pottle glasses (2d each)
12 Urinals (1d each)
19 Half-pint wicker bottles (1 1/2d each)
6 Small jars (1d each)
12 Vials and small glasses (1/2d each)

This large group of glass was predominately made up of flasks, urinals and jars. These were typical potash vessels, as was reflected in their generally low value (with the exception of the very large two gallon bottles). The fifty-two pottle glasses were possibly forest flasks as well, their four pint capacity being too large to be a drinking vessel. It is interesting to see again the presence of the nineteen wicker bottles, something that rarely survives archaeologically.

The final retailer of glass in these inventories was Richard Goddard a merchant from Poole (Roberts & Parker 1992: 346-71). In 1573 quite large quantities of glass were recorded in his warehouse and in his counting house, almost certainly awaiting sale rather than for his personal use.

26 Beer glasses
10 Sweet water glasses
1 Sweet water bottle
14 drinking glasses

This is the only specific reference to the sale of beer glasses, whilst the fourteen other drinking glasses were probably goblets. The form that the beer glasses took is uncertain, but Sir Hugh Platt in 1594 variously describes two forms, one "of six or eight inches in height and being of one equall bignesse from the bottom to the top" and "streight upright ones, like to our long beere glasses" (Platt 1979: I 80; III 36). The function of sweet water glasses is uncertain, but they might take the form of smaller beakers for drinking medicinal waters or other poultices.

These last three probates help illuminate certain forms of glass not previously referred to in either the contemporary descriptions or the higher status inventories. More utilitarian aspects of glass are usually ignored in favour of better quality tablewares. However other vessel forms are mentioned, particularly in reference to chemical and alchemical practices. As noted, Sir Hugh Platt in his *Jewell House of Art and Nature* makes several references to table glass. In addition, book three of this work is entirely devoted to the art of distillation. For most distillation recipes he advises the use of a glass receiver with a copper cucurbit and pewter alembic (Platt 1979: III 3). For one recipe he suggested that a glass cucurbit be used describing it as a "glasse having a long straight steale (*neck*) of the bignesse of a musket, or double musket bore, with a great round hollow bal in the bottome" (ibid. III 25). In a different recipe he suggests that oils should be separated using "a greate glasse

fonnell" (Platt 1979: III 5). Brief suggestions such as these help give indications of the range of more utilitarian vessels that were in use. These usually operated away from the table, although this might not always be the case. In 1611 Croyat observed that in Rhetia glass pipettes a foot long were being used at the table to transfer wine from wooden pails into the drinking glass or cup (Croyat 1905: 67). Thus the divisions between 'tablewares' and 'chemical-wares' were not always clearly defined.

2.4 *Contemporary Attitudes to Glass*

In this chapter reference has been made to the way that the meal operated and to certain forms of glass vessel that were used. However it is also possible to ascertain some of the feelings held towards glass in the sixteenth and early seventeenth centuries. References occur in the sources that are not merely descriptive but portray some of the more complex attitudes towards glass as a vessel medium. Various, often conflicting, feelings towards glass can be detected.

Some, such as Montaigne in his essay *On Experience*, merely state a preference for it. In one manuscript version he says "earthenware and silver displease me compared with glass...I incline to choose glasses of a particular shape" (Montaigne 1991: 1230). His apparent preference of glass is explained more fully in a different draft of the same essay when he explains "I dislike all metals compared with clear transparent materials. Let my eyes too taste it to the full" (ibid. 1231). Montaigne's preference for glass arose out of the simple aesthetic quality of its transparency. For Montaigne, glass provided a visual effect not achievable in metal wares. Perhaps this is why the cleanliness of the glass was seen to be so important. In Hollyband's dialogue *School and Schoolboys,* dating from the latter part of the sixteenth century, the children are admonished for it;

"Set the glasses on the table. What meaneth this? Doest thou bring them so fowle? Cary them againe into the kitchen, that the maide may rubbe and make them cleane" (Byrne 1930: 15).

Harrison informs us that each time the glass was finished with at the table it was taken and cleaned before being returned to the cup board (Harrison 1876: 146). Montaigne observed that in Austria glasses were washed with white sand (Montaigne 1958: 911). Cleanliness was evidently an essential part of the appeal of glass.

The fact that glass helped emphasise its contents may have appealed to some, such as Montaigne, but it could have also have helped make it unpopular with others. Drinking vessels, and sometimes glass in particular, were linked with undesirable activities. In Rabelais' *Pantagruel* the carved array of drinking vessels were described collectively as

'Bacchic Artillery' (Rabelais 1532: 391). This is a theme echoed in Locker's 1497 version of Brant's *Ship of Fools*;

"Some synge and revell as in Bacchus sacryfyce
and loke, whome this sort most ungoodly can fynde
He shall the brode have ruled by his mynde;
he brastyth a glass or cup at every worde,
so that the drynke overcometh all the borde" (Pompen 1925: 250).

Imagery of this kind is further stressed in 1580 by John Lyly in *Euphues and his England* when he says "the glasses wher-in you carouse your wine make you to be more wanton than Bacchus" (Lyly 1902: 190). Drinking vessels were consequently stigmatised by some who saw them as instruments of drunkenness and depravity. Perhaps it is not surprising that glass might be particularly partial to criticism, given that its transparency helped only to enhance the appeal of any alcoholic liquid that might be inside.

Whilst some might have seen the use of glass vessels for the consumption of alcohol as depraved and 'Bacchic', this is not always the case. In 1518 Thomas More writes of his Utopians using glass;

"While they eat and drink from earthenware and glassware of fine workmanship but of little value, from gold and silver they make chamber pots and all the humblest vessels for use everywhere" (More 1965: 153).

In the Utopian society the normal rules of value are inverted, gold becomes valueless and basic items, such as pottery or glass, are much admired. Although this is a parody of his own times, More is nevertheless commenting on what was to become a growing occurrence during the sixteenth century. The traditional vessels made of gold and silver were becoming, to a certain degree, replaced by glass.

William Harrison, writing in 1587, remarks on the growing popularity of glass.

"It is a world to see in these our daies, wherin gold and silver most aboundeth, how that our gentilitie as lothing those mettals (bicause of the plentie) do now generallie choose rather the Venice glasses, both for our wine and beere...such is the nature of man generallie, that it most coveteth things difficult to be atteind" (Harrison 1876: II 147).

Additionally he notes that this extends further down the social scale,

"and as this is seen in the gentilitie, so in the wealthie communaltie the like desire of glasse is not neglected...The poorest also will have glasse if they may; but sith the Venecian is somewhat too deere for them, they content themselves with such that are made at home of ferne and burned stone" (ibid.).

Whether gold and silver were really as plentiful as Harrison suggests is uncertain, however it appears that the nobility were looking for real alternatives. Traditional metal vessels were being replaced in a number of households with high quality glass. This was not restricted to the nobility alone, but other people with the wealth to buy it. He explains this in part by saying that glass was less widely available than gold and silver and thus its rarity gave it

value. He also noted the universality of its appeal through the wealthy middle classes and even down to the poor, although the latter would not have had access to fine Venetian or even quality home products. The glass referred to by Harrison, as being of burnt fern and stone, was home produced potash or forest glass, not used is this period for the production of high quality drinking vessels. This apparent universal appeal is confirmed in the archaeological record as glass of varying qualities appeared at a wide variety of social scales for the first time in the late sixteenth and early seventeenth centuries (Charleston 1984: 42).

Harrison also indicates that glass appealed to the rich since the cost of the material was a demonstration of disposable wealth:

"in time, all [glasses] go one waie, that is, to shards at the last, so that our great expenses in glasses...are worst of all bestowed in mine opinion, because their peeces doo turne unto no profit". (Harrison 1876: II 147)

Unlike gold, silver and to a more limited extent pewter, glass had no real scrap value when it was broken. Damaged glass vessels were also almost impossible to repair. Consequently, when glass was smashed or thought to be out of style it represented a large wasted expense. The use of glass at the table would have denoted a very visible conspicuous display of wealth, one that was completely lost if the vessels needed to be replaced.

The fact that glass held no value when it was broken apparently influenced people's reactions when it was needlessly smashed. In relating an incident where glass platters were broken at the masque of James I, in 1618, the Venetian ambassador saw it as the culmination of a terrible evening. The vulgarity of the occasion seemed to shock him when he writes of the incident;

"The story ended two hours after midnight, and half disgusted and exhausted we returned home. If your Lordships are writhing to read or hear of this tediousness, you may believe how ill I feel at describing it" (Orgel & Strong 1973: 284).

The evening clearly did not please the ambassador and he doubtless included the seemingly small event of the breaking of the platters to give added emphasis to the vulgarity of the occasion.

Similar disgust was shown towards the destruction of vessel glass, during the course of the Civil War. In 1643 the Royalist army lay siege to Brampton Castle, in Herefordshire. For several months there were substantial exchanges between the two parties, damaging both the castle and its contents. However in the extensive eyewitness account from one of the defenders there was only a single specific mention of any possessions being damaged, despite the fact that the castle was nearly destroyed;

"Thursday August 10th the enemy...gave us three shots out of the steeple which broke some Venice glasses, in a high tower, which had formerly entertained some of those capon-faced cowards" (Hist. Mss. Comm. 1904: 4)

Obvious attention was paid to this glass, with it being the only household goods worthy of mention. It is interesting to contrast this impassioned description with that of the defenders' first fatality, eight days later, when it was merely noted "our cook was shot in the arm with a poisoned bullet and died" (Hist. Mss. Comm. 1904: 25). Part of the emphasis laid on this incident might be the fact that the broken glasses had apparently been used to entertain the attackers before the conflict. Their ensuing destruction was not just a needless loss of high quality tableware, it was an added insult to the previous hospitality of the castle.

2.5 *Summary*

Contemporary views concerning vessel glass in the sixteenth and seventeenth centuries tend to fall into several categories. Firstly, drinking vessels of glass and other sorts are associated with excessive drinking and consequently with bad behaviour. Glass in particular, given its transparency, almost flaunts the contents that it held. The importance of a clean glass was paramount in its role as a vessel of display both in its self and for its contents.

The increasing desire for glass vessels, particularly for drinking, was reflected in the contemporary records and also archaeologically. Glass was seen as an alternative to the traditional conspicuous expense of precious metals. On the other hand glass appears to have been valued also for its relative exclusivity. Glass vessels appear to have become conspicuous symbols of consumption, representing a one-way investment that could not be redeemed. Consequently, it is not surprising that the needless destruction of glass often inspired disgust.

Chapter 3 *The Background to the Typological Construction*

This chapter briefly examines the background to the development of typological studies, as a framework to the construction of the classification of vessel glass presented in chapter four. The traditional approaches are discussed and the methodological basis for the glass classification outlined. The type variations are defined and the decorative techniques described in the typology are explained.

3.1 *The Development of the Concept of Typological Classification*

Montelius (1903) and Pitt-Rivers (1891) founded the study of the typological development of artefacts at the end of the nineteenth century. Concepts born out of Darwinian evolutionary theory were adapted and used to classify artefacts into categories and types in order to explain their spatial relationships and temporal developments. Further work, notably by Petrie, expanded these principles and the process of seriation, based on the examination of inter-related typologies, was conceived (Petrie 1899). These studies formed the basis of typological analysis for the first half of the twentieth century and in some cases are still used extensively today (Adams & Adams 1991: 265).

However, in 1939, the anthropologist Clyde Kluckhohn condemned the lack of a theoretical basis to the study of anthropology and archaeology, and specifically the typological concept, when he stated;

"I am but aware of a single paper...where there has been even a tentative and fumbling consideration of the implications of the typological method...typologies are proliferated without apparent concern as to what the concepts involved are likely to mean when reduced to concrete human behaviours." (Kluckhohn 1939: 338).

Kluckhohn was aware that although the study of classification required a practical basis, it needed to operate within a theoretical framework that would enable it to explain social action. This paper initiated the theoretical debate on typology, which still continues today.

3.1.1 *Statistical Classification.*

Before any typology can be created, the term 'type' must be clearly defined. Krieger defined a type as a unit of cultural practice (Krieger 1944: 272). He suggested that the type concept should provide a means of organising material into groups that have demonstrable historical visibility in terms of behavioural patterns (Krieger 1944: 272). Krieger clearly based his concepts of types on contemporary biological processes of classification, although he acknowledged that biological classification was based on blood relationships and archaeological typology on shared artefact characteristics.

Krieger's concept of type remained the basis for most taxonomic classifications and was used to develop statistically based typologies. Robinson was the first to suggest that archaeological deposits be ordered using a mathematical sampling technique (Robinson 1951) and Spaulding applied the idea using statistics to categorise artefacts. His premise was that statistical techniques would identify the degree of consistency in attribute combinations within any archaeological assemblage (Spaulding 1953: 306). His approach required site by site comparison, in order to show consistency and variations. Spaulding saw a type as a result of sound inferences concerning the customary behaviours of the producers of the artefact and the type was therefore set in a cultural and historical concept. Consequently, statistics were the tool by which variant characteristics inherent in all artefacts, through their production, could be perceived. He calculated the associations of attributes and built his grouping of types using combinations of these characteristics. This, he suggested, was preferable to traditional classification, which failed to describe all the combinations within a given artefact type (Spaulding 1953: 306).

The suggestion that artefacts contained empirical properties that could be identified and then used to categorise and group them into specific types continued as a theme in subsequent work. There was a widespread belief in a 'natural' ordering implicit within material culture which defined the processes by which it was examined (e.g. Clarke 1968: 228). Although there were later refinements in the definition of types, (Whallon 1972; Hill & Evans 1972; Brown 1982; Vierra 1982; Read 1982), they were all based on the same premise that categories were implicit within artefacts. This view is still current and has spawned the development of computer statistics packages. Early attempts to use computers as a better means of sorting large quantities of material (e.g. Plog & Carlson 1989) have led on to the creation of popular software, such as the *Bonn Seriation and Archaeological Statistics Package* which has been used to classify the goods from female Anglian graves (Palm & Pind 1992).

3.1.2 *Contextualised Typology*

In response to the work of Krieger and Spaulding, Ford critically examined the basis of the typological concept. He expressed doubts as to whether cultural types existed in a way that might permit their discovery through typology (Ford 1954: 42). Instead he examined various contextual and behavioural factors that might influence the concept of 'type'. He concluded that there were four dimensions to the culture type. Firstly, the inherent organisation that existed in cultures at all times would reflect on the cultural type, and that this required an analysis of the consistency of association of features (Ford 1954: 45-47). Secondly, the concept of type was formed by the archaeologist at a chosen level of abstraction. No level

was any more real than another, but must be chosen to serve a specific hypothetical purpose. Thirdly, the cultural type was abstracted at one point in space with each location having varying differences, barriers and influences which would affect the variation within that type. Finally, the cultural type would include variations over time and any 'standard' type would only be the variation of that type at that point in time (Ford 1954: 48-51).

Although Ford expressed concerns in the early 1950s as to whether natural types really existed or could be discovered by the archaeologist, much of the academic approach to typologies continued to be directed towards taxonomic and statistical methods for the definition of types. However from the 1980s a growing number of typologies were constructed within a contextual framework.

Miller's work on nineteenth century ceramics in America illustrated the realisation that traditional classification methods did not always prove useful. Miller clearly recognised that a typical ware-based typology would not have provided a clear, useful or relevant system. Instead, he was able to produce a simple four level division between plain wares, those with minimum skilled decoration, those with painted motifs and transfer printed vessels (Miller 1980: 1-4). In combining the archaeological material with historical price lists it was possible to demonstrate that his typology matched with the contemporary nineteenth century perception of ceramic classification.

The study of modern ceramic variability in central India has also indicated the problem of implicit categorisation (Miller 1985). Miller disputed the idea that classifications contained self evident categories, that nominal or continuous variables could detect actual classes and that there were unproblematic cultural categories. When common variables, such as rim form and general pot morphology were chosen these had little relationship to the concepts of the Indian potters or villagers. Many obvious 'types' did not have specific names or functions and were not seen by the makers and users to be categorically separate. Other ethnographic studies of categorisation have produced similar results (e.g. Brown 1985), just as traditional systems of classifying artefacts have been criticised in recent years, so have static biological taxonomies which are also said to ignore the evolution of types and gene variability (Hull 1992).

3.2 *The Methodological Basis for the Classification.*

3.2.1 *The Purpose of the Classification*

As outlined in the previous section there are two schools of thought concerning the construction of typologies. It is generally accepted that the majority of classifications are constructed by the observer at a chosen level of abstraction. However there are fundamental problems regarding the existence of true types and the ability to identify them through calculated or statistical deduction. As the case studies of ceramics from nineteenth century America and contemporary India demonstrate, archaeological classifications do not always correspond with the perceptions of those who used the material culture (Miller 1980; Miller 1985). However this does not invalidate such classifications if they are constructed for a clearly defined purpose. A successful typology must be specifically aimed to answer particular research questions and it is important to understand the limitations involved.

The purpose of this typology is to provide a framework against which vessels from the sixteenth and early seventeenth century can be compared and contrasted. It will serve as an aid to the identification of vessels and facilitate their quantification on English sites. The categorisation is consequently artificial, suiting these purposes rather than attempting to relate to the contemporary perceptions of those who used the vessels. Ethnographic studies from the period in question are lacking, but it would seem that there was a more fluid concept of shape and function, with less differentiation of vessel types than those existing today (chapter 2). However based on the surviving evidence it is difficult to assess the degree to which this might be the case.

The typology outlined below is based on observable similarities, which are used to construct the constituent types. These are user-subjective and fluid; being grouped similarities that "overlap and criss-cross in the same way" (Wittgenstein 1976: 67). There are no inherently 'true' types represented in the typology. The variable and relative nature of similarity can only become clear when confirmed by its context (Goodman 1992: 20-2), something which cannot be achieved for each individual vessel. However it is possible to contextualise the glass if larger deposits are examined in their archaeological setting. The contextual meaning comes not from the typology but from the nature of the deposit and its relationship to other material culture and the site as a whole. Only through the examination of the archaeological and social context of the vessels can the contemporary perceptions of their users be revealed.

3.2.2 *Variations in metal*

Before discussing the divisions within the classification it is important to mention the metal from which the vessels were made. Traditionally, glass reports divide vessels of this period

into two groups, soda and potash glass (e.g. Charleston 1971). All glass contained a quantity of alkali as a flux, to lower the melting temperature of the batch. A high quality soda glass was first discovered by the Venetians in the fifteenth century. This clear glass, called *cristallo* after the rock crystal that it imitated, used a soda alkali derived from sea plants of the genus *Salicornia kali* (Charleston 1984: 43). By the sixteenth century, clear soda glass was being produced in most parts of Europe. The other tradition of glass manufacture used potash, derived from burnt wood and ferns, as an alkali. Glass of this kind was produced, from the thirteenth century onwards, in small-scale furnaces in wooded areas of England (e.g. Crossley & Aberg 1972; Kenyon 1967) and the rest of northern Europe. The so-called forest tradition produced a low quality glass, with a natural green tint that degraded easily in soil conditions.

However there was no clear differentiation between vessels made using soda or potash glass. Almost all forms were produced in both mediums, making classification by metal impossible. Additionally recent research has shown that many vessels do not divide cleanly into these two groups. Many vessels contained both soda and potash, as a mixed alkali flux, so do not fit into either category (de Raedt et al 1997; 1998). Consequently this classification groups together vessels of similar proportions and decorative techniques, despite the fact that their material may be visually different. The very nature of glass ensures that no two vessels were ever identical and this must be borne in mind in any classification. Slight variations in the quality of the metal do not indicate a different form. Over-categorisation of the finest details places every individual vessel in a separate niche and a meaningful categorisation must take a broader approach.

3.2.3 *Division into Type, Group and Subgroup*

For the purpose of this classification all the glass has been divided into three levels of categorisation. The vessels were first divided into broad types, the descriptions of which are detailed in section 3.3. The types were defined as categories that can be differentiated by their functionally determined form. This broadly conforms with Krieger's definition of a type as a unit of cultural practice that has demonstrable historical meaning (Krieger 1944: 272). However in the definition of these types it is important to remember that they have been chosen at a contemporary level of abstraction that might not reflect the same distinctions that existed at the time that they were used. These type categories are nonetheless valid if used for their intended purpose; the broad grouping of vessels by their function. Clearly this approach will exclude some important aspects inherent within the vessels, such as elements of symbolic expression. Despite this the classification into different types on this basis is probably the most valid categorisation that can be undertaken.

The type classes represent the level at which inter-comparisons between groups of material should be undertaken.

Types were then further divided into more specific groups on the basis of more particular aspects of form and manufacture. All the groups share general characteristics or similarities inherent to the whole type class, but differ sufficiently to be subdivided. These groups were not true types in themselves but artificial divisions drawn for the convenient organisation of the material. Although some of these groups would probably have had a past analogy, it is impossible to connect them directly with historical reality. As noted by Ford, many of these groups represent variations of the type that occurred over time rather than being new types in themselves (Ford 1954: 51). All the group variants within the broad types are discussed in the typology outlined in chapter 4.

The final division in this classification sorts the groups into subgroups. This was primarily based on observable differences in the surface decoration of the vessel. The definition of subgroups was completely observer based and as such not a genuine reflection of true types. However it has been undertaken in this classification to aid modern comparisons of the material. It is important that such subgroups are not regarded as significant in themselves, they are all slight variants of the more culturally based groups. It is extremely unlikely that any of the subgroups would have had any contemporary cultural reality.

3.3 *The Type Variations*

As has already been discussed, the type variations were based on a functionally determined form. As such each had a different purpose reflected in the way that the vessel was made. With some type variations, such as jugs, these functional purposes were obvious. However with others, such as the division between beakers and tankards, the differences were less clear. Nevertheless true types can be broadly defined both through their morphology and their historical context. In all, eight separate types have been identified. However the last of these, chemical and medicinal, cover a wide range of vessels that did not fit into the other classes. In this case the group divisions should be regarded as different types in themselves, but were classified together largely for convenience.

3.3.1 *Beakers*

Beakers were open vessels in which the majority of the container held the liquid, having either no stem and foot, or only a small folded or applied base ring. They were usually associated with larger volumes of drink, particularly beer or ale, although their use for other liquids can not be excluded. Beakers were a common vessel form in nearly all periods of glass production, and were used in England from the thirteenth century (Tyson 1996: 52).

Beakers were a type that occurred in all media, including pottery (Medieval Pottery Research Group 1998: 6.1) and pewter (Michaelis 1955: 28). A beaker can be justified as a historically distinct form of drinking vessel, despite the fact that the term appears never to have been used in the sixteenth or seventeenth centuries. The use of the term 'pot' may refer to the beaker form (Rabelais 1532: 390), whilst the term 'beer glass' used in both the Loseley and Kenilworth inventories probably suggests the same.

3.3.2 *Tankards*

Tankards were deep vessels, with a single handle attached to the top and bottom of the body, which were used to consume relatively large quantities of liquid, such as beer or ale. Such vessels could also be referred to as mugs since their height was about one and a half times their breadth. Tankards were historically differentiated from beakers in several sources. The inventory of Henry VIII mentioned thirteen one-handled pots in glass (Hartshorne 1968: 464-5), whilst Rabelais (1532: 390-1) used the term mug, although the media in which these were made are unclear. Glass tankards were uncommon in this period, although their numbers increased during the eighteenth century. Tankards occurred in soda and potash glass, although the former tended to belong to the sixteenth and the latter the seventeenth centuries. The shape was, however, common during this period in Germanic stonewares and other fabrics (e.g. Gaimster 1997: 227; Medieval Pottery Research Group 1998: 6.3), and its neglect in glassware must have been for other reasons. Tankards occurred in soda and potash glass, although the former tended to belong to the sixteenth and the latter the seventeenth centuries.

3.3.3 *Goblets*

A goblet was classed as a vessel with a stem supporting the bowl in which the liquid was held. It is slightly misleading to refer to goblets as wineglasses. Although this would have been the primary function of most, they were probably also used to consume other liquids which were drunk in smaller quantities, such as distilled spirits. Goblets were first used in England from the late thirteenth to mid fourteenth century (Tyson 1996: 53), but it was only during the sixteenth century that they became more prevalent. Goblets were produced in all metal types, although these did vary in relation to the goblet form. The use of the term goblet is somewhat problematic given that *gobletes* is the word used in France for beakers (Tyson 1996: 53). However the term 'cup' frequently occurs in Harrison and others, probably in reference to goblets (Harrison 1876: II 146). Certainly the seventy-eight 'standing cups' mentioned in the Henry VIII inventory must have been goblets (Hartshorne 1968: 464-5).

The classification of goblet forms here differs from that of other vessel types. Most goblets, with the exception of pedestal varieties, were made from at least three separate elements; the base, stem and bowl. The different bowl and stem styles were largely interchangeable, so it is impossible to classify the vessel as a whole effectively. In this typology the goblets were arranged into types by their stem form, the element which displayed the most standardised variation.

The bowls of three part goblets also showed some variation and the major bowl types are illustrated in figure 3.1. The most common was a deep 'U' shaped bowl, no. 1, which occurred on most sixteenth century vessels, but was also popular in the following century. The bowl shape was made in all glass metal types. The second shape, a variation of the first, no. 2, was a broader and still quite deep bowl. Another type, no. 3, popular in both the sixteenth and seventeenth centuries had a straight-sided 'bucket' shaped bowl. Further bowl variations were more prevalent during the seventeenth century. Tall fluted examples, no. 6, and everted or trumpet shaped forms, no. 4, occurred on mixed alkali and soda goblets. The final bowl forms were more unusual and correspondingly rare. A large bellied or thistle bowl, no.5, is known from several vessels from both centuries (e.g. Tait 1979: 70 no.94). Such vessels would have been hard to drink from and may be regarded as display items or centrepieces for the table. Examples were only made in a soda glass. The final bowl form was the tazza, no. 7. However impractical, they were a relatively common shape in the sixteenth century, although they diminished in popularity during the seventeenth. The tazza bowl was restricted to good quality soda glass vessels

3.3.4 *Jugs*

A jug was a vessel used for the movement and dispensing of liquids at the table, having capacious handled bodies, broad necks and a lip to facilitate pouring. Glass jugs were used from the thirteenth century onwards, although their numbers remain relatively low in the medieval period (Tyson 1996: 66-7). This remained true during the sixteenth and seventeenth centuries, with local and imported pottery forms predominating at the table (e.g. MPRG 1998: 3.1). Jugs, although referred to as such, were also known as ewers and layers in the sixteenth and seventeenth centuries, all of these terms occurring in the Henry VIII inventory (Hartshorne 1968: 464-5). Jugs were generally made in a soda or good quality mixed alkali glass, although some forms also occurred in potash glass.

3.3.5 *Flasks*

A flask was a vessel for the storage of liquids, although they could also be used for pouring at the table. Their form, like jugs, reflected their purpose, the body being capacious with a

tall narrow neck and an everted rim which allowed the insertion of a blockage, although no glass stoppers from this period are known. The generally lower status of potash flasks was reflected by the more frequent reference to them in ordinary household inventories. Such an example is that of John Brodocke of Southampton in 1557, whose stock included 'bottols' varying in size from half a pint to two gallons (Roberts & Parker 1992: 290-306). The term bottle, although applicable to flasks, has been avoided in this classification due to the possible confusion with the wine bottle of the latter half of the seventeenth century.

3.3.6 *Bowls & Dishes*

Bowls and dishes were open vessels used for the display, serving and consumption of food at the table. Although not as numerous as drinking vessels, a variety of types existed and these vessels formed an important element of dining equipment. The small number of references to them in inventories mirrors their relative scarcity on archaeological sites. However the Kenilworth inventory of 1588 provides a detailed description of contemporary types (Hartshorne 1968: 466-7). The description of dishes emphasised their brims, whilst bowls were divided between standing and 'deep' forms. These bowl divisions accurately reflect the present classification of bowls into pedestal and hemispherical (chapter 4.6).

3.3.7 *Jars*

A jar was a vessel with a wide everted rim and neck with a capacious body, suitable for the storage of both solids and liquids. Jars were functional items and were always made in potash glass. They occurred during the late sixteenth and throughout the seventeenth centuries. Jars were rarely described as such in contemporary inventories, an exception being the six jars listed in the shop of John Brodocke at Southampton in 1557 (Roberts & Parker 1992: 290-306). However the conserve glasses, sweetmeat barrels and cruses referred to in the Henry VIII inventory were almost certainly jars or similar containers.

3.3.8 *Chemical & Medicinal*

There were several vessel forms associated with chemical and medicinal practices. All vessels in this general category were made in potash glass and were purely functional items. Distillation was practised in England from the fifteenth century onwards and there has been detailed discussion of the equipment used (Moorhouse 1972). Pottery was used as well as glass vessels and the two were probably interchangeable. Distilling was important for production of medicinal solutes rather than alcoholic drinks and glass was used for distillation in England until the late seventeenth century when new techniques using copper alloy vessels developed (Haynes et al 1998: 38-9).

The topic of uroscopy and glass vessels has received sufficient scholarly inspection to merit no further comment (Charleston 1984: 32-3; Tyson 1996: 78-82). Urinals occurred on English sites in a virtually unchanged form from the thirteenth to the middle of the seventeenth centuries. They had a thick convex base, with external pontil mark, thin convex sides, a vertical neck and an everted or horizontal rim. Although always blown in potash glass the thinness of the walls allowed unobscured vision of the contents. The suggestion that liquids other than urine could have been inspected in urinals is worthy of consideration (Willmott 1995: 147).

The final form of vessel glass discussed in this category is the hanging lamp. Although primarily medieval vessels, they survived in use into the late sixteenth century. They were characterised by a tall thick stub base and a hemispherical bowl in which the oil was placed with a floating wick. Lamps were often associated with ecclesiastical buildings, but were found in domestic contexts as well.

3.4 *Discussion of Decorative Techniques Described in the Classification.*

The techniques used to decorate glass vessels can be broadly separated into three groups based on the point at which they were undertaken during the manufacturing process. Formative techniques involved decorating the vessel before its final shape has been achieved, late stage techniques, where the vessel was decorated after the shape was defined, but whilst it was still hot and cold working techniques undertaken once the manufacture of the vessel was complete.

3.4.1 *Formative Techniques.*

Optic blowing

The most common formative decorative technique was optic blowing. The parison of glass was inflated into a single-piece patterned mould. On removal the parison was further inflated and manipulated to produce a vessel with the expanded design on its surface. The finished vessel might be completely covered with the optic decoration. However in areas of the greatest subsequent inflation, such as the body of globular flasks, the decoration might be stretched to a point where it was no longer visible. In a similar fashion the area of glass closest to the blowpipe was often not inflated inside the mould, so this area, usually near the rim of the vessel, remained undecorated. Moulds were almost certainly made in soft workable stone (as is the case for the two examples discussed below), although it is not inconceivable that plaster or clay could have been used.

The most common optic decoration was produced from a mould decorated with vertical ribs. Two examples of vertical ribbed stone moulds were excavated at Solling, in the Netherlands and at Nassachtal, Germany (Henkes 1994: 129; Baumgartner 1988: 35-6) They are also present in one of the engravings which accompanied Agricola's *De Re Metallica* (Hoover 1950). This type of mould was not only used to produce a vertically ribbed design but also the more common spiral ribbed or wrythen pattern. In this instance the parison was twisted as it was removed from the mould. There were a variety of other design forms produced by optic blowing, although as of yet no fragments of their moulds have yet been recovered. Further decorative types seen on vessels consist of impressed diamond or lozenge pattern, impressed roundels or hexagons and raised tear-drops. With all these types, the pattern was often significantly distorted during the removal of the vessel from the mould and its subsequent manipulation. Very occasionally the parison was blown into an optic mould twice to produce a compound decoration. A beaker fragment from St. Peter's Street, Northampton was initially decorated with twisted wrythen and then re-inflated into the vertically ribbed mould, producing a cut wrythen design (Oakley & Hunter 1979: 299 no. 68).

Optic blowing and trailing

The spiral chequered design, produced in the southern Netherlands, is a slight variation of the optic blown decoration that occurs mainly on beakers (Tait 1967). In this technique a trail is wound around the parison of glass before it is inserted into a vertically ribbed mould. On inflation the mould cut and flattened the trail, producing a distinct impressed pattern. The vessel was then formed into the desired shape.

Ice glass

The final formative technique involved a different process. A thick parison of glass was blown and then immersed in water. The sudden cooling to the outer surface caused the formation of small surface cracks which were expanded when the parison was further inflated (Tait 1991: 70). The overall effect of the finished vessel was to produce a frosted and roughened surface appearance, known as 'ice glass'. On some examples of ice glass, it is also possible to see an optic blown pattern that must have been impressed before the parison was immersed in water.

3.4.2. *Late Stage Techniques*

Colourless Trailing

For all trailing techniques the glass was in a finished state but remained attached to the blow pipe or pontil rod. Trailing would only adhere to a surface of the vessel if it was still hot, so the trails were added before the annealing process. All trails were applied by pressing a hot gob of glass to the surface of the vessel and then pulling it in the required direction. Trails varied in thickness from fine threads to prominent ridges and were wound horizontally, spirally or even vertically. Colourless trails were always left prominent of the surface of the vessel. On some vessels, particularly those with a small number of larger trails, the trails were impressed, probably with a rigaree wheel, to produce a milled pattern.

Coloured Trailing

Whilst the majority of trailing was the same colour as the base metal of the vessel, they were coloured in some cases. There were three basic decorative techniques involving coloured trails. They probably originated in Italy and are generally known by their Italian names; *vetro a fili*, *retorti* and *reticello*. Although vessels with coloured trailing were produced throughout the sixteenth and seventeenth centuries, examples found in England tend to date to the former century, especially those decorated in *vetro a retorti* and *reticello*.

The most common of these techniques was *vetro a fili*. This decoration consisted of evenly spaced parallel trails, usually in opaque white or blue. The trails were laid on the vessel surface in horizontal, vertical or spiral rows and, in all but very rare cases, marvered flat. The breadth of these trails varied from very fine thread trails to broad areas of colour, wider than the intervening clear spaces (e.g. Tait 1979: 65, no. 81). Although *vetro a fili* trailing originated in Italy, it was quickly adopted by the *façon de Venise* traditions of northern Europe and Iberia.

More complicated to manufacture was *vetro a retorti* glass. The decoration consisted of canes of glass formed from alternating rods of clear and opaque white glass which were twisted together to form a spiral effect. These canes were then applied to the surface of the vessel and either marvered flat or left slightly prominent. Some vessels were decorated with a mixture of *vetro a fili* and *retorti* creating a highly patterned surface (e.g. Albrizzi 1982: 122, no. 160). Vessels decorated in *vetro a retorti* were relatively uncommon and restricted to higher status sites and occurred only in Venetian or high quality *façon de Venise* glass.

The final coloured trail variation found in England was *vetro a reticello*. This decorative technique required an initial parison of glass to be blown and decorated with fine

prominent spiral *fili* trails. A second parison decorated in the same way, but with spirals running in an opposing direction, was then inflated inside the first parison. As the second parison pressed against the first, the prominent trails crossed in a net pattern and trapped tiny air bubbles between them (e.g. Tait 1979: 80, no. 119). This technique required great skill by the glassblower and appears to have been practised only in Venice. Vessels decorated in this manner were correspondingly rare in England, although occasional examples, such as one from Acton Court (fig. 6.8.6), are known.

Prunts

The application of prunts also occurred at this stage of manufacture and often in conjunction with trailing. Prunts were small blobs of glass applied to the vessel surface and then manipulated. They could be pulled to a point with a tool, flattened, or impressed with a design, one of the most complicated being a stamped frontal lion-mask (Tait 1989: 82 no.123). Less complicated stamps were more commonly used to produce raised dots on the prunt and a possible seventeenth century tool for this purpose survives from the Netherlands or Germany (Henkes 1994: 199). Occasionally, particularly on goblet bowls, prunts were pulled to produce small handle like wings, although these would have been too small and fragile to be functional.

3.4.3. *Cold Working Techniques*

Enamelling

The most exotic and complicated decorations were the result of cold working, which took place after the vessel was completely finished. Enamelling, gilding and engraving all occurred on vessels of this period, although they were comparatively rare and presumably expensive techniques. Enamelling required a high level of expertise. The decoration was painted on the surface and the vessel was reheated in the furnace at the risk of shattering, so that the decoration would fuse to the surface. Although opaque white decoration, often in simple rows of dots, was the most common pattern, many colours such as red, brown, blue green and yellow were also used. Floral and figurative patterns occur on some vessels, whilst others have banded letters, names or phrases.

Gilding

Gilding was a skilled process similar to enamelling. Usually certain areas of the vessel, such as the rim or the stem were decorated with bands of gilt. This was probably done using an amalgam of gold dust and mercury. The mixture was painted onto the surface of the vessel

and heated until the mercury evaporated leaving a fixed film of gold. In some rare examples a sheet of gold leaf could be sandwiched between two layers of clear glass, providing a durable version of the same decoration (e.g. Tait 1979: 40 no. 33).

Engraving

The final cold working decorative technique was engraving. This involved the scoring of the vessel surface with a diamond tipped instrument. A large number of small strokes were used to build up the design. The decorative subjects depicted varied from floral and figural motifs to banded lettering. (All engraved glasses from England are illustrated in figures 7.28-31). However each design element always consisted of an encircling outline, hatched in with a series of parallel strokes to provide texture and shading. Almost all engraved images were enclosed by decorative horizontal bands consisting of two sets of parallel lines encasing a running reversed 's'-shaped, or scrollwork, pattern. This form of decoration is discussed at greater length in Chapter 7.4.2.

Chapter 4 *A Typology for Glass Vessels 1500-1640*

Based on published and unpublished sources

The typology for vessel glass dating to the period in question is outlined in this chapter. As discussed in chapter 3.2, the vessels have been classified into the three divisions of type, group and subgroup. The basic types have already been outlined (section 3.3) and in this chapter the group and subgroup categories are discussed in detail, with examples given which relate to the list of published sites with assemblages of glass in Appendix 1. The symbol * indicates that the vessel comes from an unpublished site, most of which are discussed in chapters 5 and 6.

4.1 *Beakers*

4.1.1 *Cylindrical Beakers*

The cylindrical beaker was a vessel of relatively uniform cross-sectional diameter with a greater height than breadth. All cylindrical beakers were made from a single parison of glass with a base formed from a push-in, usually leaving a distinct pontil mark. The rim was either vertical or slightly everted, whilst the base often had an applied plain or rigaree base ring. Most styles of beaker were been made in soda, potash or mixed alkali glass.

Plain (fig. 4.1.1)

The simplest form of cylindrical beaker was left largely undecorated, the only modification being the application of a base ring. It is possible that a number of fragmented examples, which appear to be plain cylindrical forms, are actually decorated beakers. Since some decorative techniques did not cover the whole body of the vessel, this might lead to the over representation of examples in this category. Nevertheless this was probably the most common variety of cylindrical beaker during the last quarter of the sixteenth and first half of the seventeenth centuries.

Examples:

Acton Court *
Canterbury (Shepherd 1995)
Christchurch (Charleston 1983)
Denny Abbey (Charleston 1980)
Eccleshall Castle *
London, Aldgate (Charleston & Vince 1984)
London, Gracechurch Street *
London, Abacus House *
London, Lambeth (Hinton 1988)
Montgomery Castle (Knight 1994)
Nonsuch Palace *
Norton Priory *
Norwich (Haslam 1993)
Oxford (Hassall 1984)
West Bromwich Manor (Cocroft 1993)

Optic boss (fig. 4.1.2)

Vessels in this subgroup were blown into an optic mould to produce a raised-bossed effect. In some examples the bosses were distinct diamonds, whilst in others they were more amorphous.

Examples:

Canterbury (Shepherd 1985)
London, Southwark (Hinton 1988)
Norwich (Haslam 1993)
Oxford (Hassall 1984)
Plymouth (Charleston 1986)
Poole (Charleston 1992)

Optic mesh (fig. 4.1.3)

The optic decoration of this subgroup was the reverse of the optic blown boss. The diamond shape was depressed by the mould, whilst the areas encircling the pattern were raised to produce a net or mesh effect.

Examples:

Acton Court *
Canterbury (Charleston 1987)
Eccleshall Castle *
London, Gracechurch Street *
Nonsuch Palace *

Optic roundel (fig. 4.1.4)

Although a decorative form more commonly used on goblet bowls, the use of an optic mould to produce depressed round circles on cylindrical beakers is known. Unlike the optic mesh pattern the roundels were small in diameter and in low relief.

Examples:

London, Gracechurch Street *

Optic wrythen (fig. 4.1.5)

The use of twisted wrythen patterning, whilst more widespread on pedestal beakers, also occurred on cylindrical beakers. The larger size of cylindrical beakers resulted in a stretched and flattened wrythen design, sometimes to the point of obscurity. Subsequent surface weathering might result in some wrythen decorated cylindrical beakers being identified as plain variants.

Examples:

Acton Court *
Chester (Anon 1939)
London, Abacus House *
Oxford (Hassall 1984)
Plymouth (Charleston 1986)

Optic vertical rib (fig. 4.1.6)

Simple optic blown beakers with vertical ribbing do occur. However, bases of beakers that appear only to be ribbed might be the lower portion of examples which also have applied trails further up the body. The prominence of the ribs varied, usually in accordance to the vessel size, from quite thick to fainter examples.

Examples:

Beeston Castle (Charleston 1993)
Canterbury (Charleston 1987)
Eccleshall Castle *
London, Aldgate (Charleston & Vince (1984)
London, Gracechurch Street *
Poole (Charleston 1992)

Optic vertical rib and thin spiral trail (fig. 4.1.7)

This subgroup was very similar to the optic vertical rib variety, but the vessel was trailed over the ribbing, in the form of fine spiral trails left prominent on the surface. This type is not to be confused with the cut spiral trail beaker, where the trail was applied first and subsequently cut by inflation into a ribbed optic mould.

Examples:

Bagshot *
London, Gracechurch Street *
Montgomery Castle (Knight 1994)
Norton Priory *
Winchester (Charleston 1990)

Horizontal trail (fig. 4.1.8)

Several forms of horizontal trailing occurred on cylindrical beakers. The thickness of the trail varied and some had a tooled rigaree pattern.

Examples:

Chester, Hunter Street *
London, Gracechurch Street *
London, Abacus House *
Oxford (Hassall 1984)

Coloured trail (fig.4.1.9)

Numerous coloured trail varieties occurred on cylindrical beakers, and to classify them separately would produce an unwieldy typology. Coloured trailing was uncommon and restricted to beakers made in a good quality soda or mixed alkali glass. Most were marvered flat into the surface but others were left prominent. Opaque white and blue are the most the most important colours and were used in a variety of combinations. However cylindrical beakers with more complicated *vetro a retorti* are known.

Examples:

Acton Court *
Bagshot *
Castle Rising (Cool 1997)
Eccleshall Castle *
London, Gracechurch Street *
London, Abacus House *
London, Lambeth (Hinton 1988)
Nonsuch Palace *
Norwich (Haslam 1993)

Thick cut spiral trail (fig. 4.1.10)

Cylindrical beakers with thick cut spiral trailing were produced in the southern Netherlands (Tait 1967). In this form the parison was wound with a thick trail and then inflated into a vertically ribbed mould that distinctly cut and flattened the trails. The vessel was often decorated with an applied raspberry prunt. Some, including two examples from Norwich, were further decorated with enamelled decoration in the form of rows of small dots between the cut trails. This beaker form first occurred at the end of the sixteenth and continued to the middle of the seventeenth century.

Examples:

Canterbury (Charleston 1987)
Chester, Crook Street *
Hereford (Boulton 1985)
London, Gracechurch Street *
Newcastle (Ellison 1983)
Northampton (Oakley & Hunter 1979)
Norton Priory *
Norwich (Haslam 1993)
Plymouth (Charleston 1986)

Thin cut spiral trail (fig. 4.1.11)

This beaker form was produced identically to the thick cut spiral trail. However, in this case the applied trails were finer and only flattened rather than fully cut by the optic mould. Whilst the thick cut variety only occurred in soda glass, the thin cut trail form was always in a potash or low quality mixed alkali metal. Thin cut spiral trail beaker was produced more widely than the Netherlands and several fragments were found at the English production site of Rosedale (Charleston 1972: 132, nos. 18-22).

Examples:

Camber Castle *
Canterbury (Charleston 1987)
Eccleshall Castle *
Exeter (Charleston 1984b)
London, Gracechurch Street *
London, Abacus House *
Newcastle (Ellison 1983)
Norton Priory *
Norwich (Haslam 1993)
Plymouth (Charleston 1986)
Wood Hall *

Ice glass (fig. 4.1.12)

Whilst ice glass cylindrical beakers were fairly well known in the Low Countries (e.g. Bitter 1997b: 91) and are known to have been produced in Venice (Tait 1979: 94) they were unusual in England. The reason for this is unclear when compared with other more common Dutch imports such as the thick cut spiral trail beaker. Examples were often embellished with gilding on the rim and applied rosette prunts.

Example:
London (MOL Ac. No. A27852) *

Enamelled

Enamelled cylindrical beakers were rare throughout Europe and must be regarded as luxury items. Decoration varied from purely floral motifs to figural studies and lettering. Enamelling was restricted to soda glass beakers.

Example:
Acton Court *

Engraved

Diamond point engraving was the most extravagant form of decoration and will be discussed in greater detail in Chapter 7.4.2. Whilst normally associated with goblets, it was also occasionally added to other vessels, such as cylindrical beakers.

Example:
Camber Castle *

4.1.2 *Barrel Beakers*

Barrel beakers were similar to the last group of beakers, although they varied somewhat in form from most cylindrical beakers. Instead of vertical bodies, they were slightly convex sided with an in-turned rim. They were more common in the Low Countries and Northern Germany, where they probably originated (e.g. Henkes 1994: 65-6).

Trailed (fig. 4.2.1)

Barrel beakers decorated in this way could have a variety of styles of trails applied to their surface. This decoration usually consisted of fine threads wrapped around in horizontal bands, sometimes including an impressed rosette prunt.

Example:
Poole (Charleston 1992)

Prunted (fig. 4.2.1)

Cylindrical beakers with applied prunts were not common in England and those found can be regarded as unusual imports. The prunts vary in size and were usually pulled to a point.

Examples:
Plymouth (Charleston 1986) Poole (Charleston 1992) Southampton (Charleston 1975)

4.1.3 *Squat beakers*

Squat beakers were a similar in form to the cylindrical beakers, but their height was the same or less than their breadth. They consisted of a simple pushed-in base, which occasionally had an applied base ring or three pressed prunt feet. Squat beakers were always made of a soda or good quality mixed alkali glass and their presence on Low Country sites in large numbers suggests that they were manufactured there (Willmott in press).

Plain (fig. 4.3.1)

Plain examples of squat beakers lack decoration on the body of the vessel, although their feet may be in a different colour to the body. Occasionally plain examples also had a very fine trail applied to the top of the rim.

Examples:
Poole (Charleston 1992) Wood Hall *

Optic wrythen (fig. 4.3.2)

Wrythen decorated examples had very pronounced optic decoration due to the smaller size of the beaker.

Examples:
Canterbury (Charleston 1987)

Optic boss (fig. 4.3.3)

This was probably the most common variety of decoration and consisted of raised bosses or well defined diamonds.

Examples:
Barnard Castle * London, Aldgate (Charleston & Vince 1984)
Castle Rising (Cool 1997) Wood Hall *

Coloured trail (fig. 4.3.4)

Coloured trails, usually of opaque white or blue were applied to the surface of the vessel and marvered flat. They radiated from the centre of the base in a spiral pattern, terminating at the rim.

Example:
London (MOL Ac. No. ER1605) *

4.1.4 *Pedestal Beakers*

Pedestal beakers were the most common form of drinking vessels on English sites. In the first half of the sixteenth century all examples were of a high quality soda glass and were rare except on high status sites. However, by the end of the century, large numbers of potash examples were being produced in English forest glasshouses (e.g. Charleston 1972: 146-8: Hurst-Vose 1994: 28-9). Pedestal beakers were made from a single parison of glass, the convex end of which was pushed-in and the body manipulated to form a beaker which rested on a raised pedestal with an enclosed base ring.

Plain (fig. 4.4.1)

Plain examples of this beaker form receive no subsequent decoration to the body. There is a discernible difference between earlier soda glass and later potash examples. Soda glass beakers of this form tend to have everted bodies, whilst potash examples usually had a slightly convex sided body and in-turned rim. As is the case with cylindrical beakers, some of the examples classed as plain may belong to decorated groups. Optic blown decoration on pedestal beakers can in some case be indistinct, particularly on base fragments.

Examples:

Acton Court *
Bagshot, Surrey *
Battle Abbey (Charleston 1985)
Beeston Castle (Charleston 1993)
Camber Castle *
Canterbury (Charleston 1987)
Chelmsford (Cunningham 1985)
Chichester (Charleston 1981)
Denny Abbey (Charleston 1980)
Eccleshall Castle*
Exeter (Charleston 1984b)
Hull (Armstrong 1977)
London, Gracechurch Street *
London, Abacus House *
Newcastle (Ellison 1983)
Northampton (Oakley & Hunter 1979)
Norton Priory *
Oxford (Hassall 1984)
Plymouth (Charleston 1986)
Poole (Charleston 1992)
Taunton (Charleston 1984c)
Temple Balsall (Gooder 1984)
Wood Hall *

Optic wrythen (fig. 4.4.2)

The parison was blown into the optic mould before the vessel was shaped. As a consequence the subsequent manipulation of the vessel can lead to the obscuring and flattening of the wrythen decoration. Nevertheless, wrythen decorated beakers were quite common.

Examples:

Beeston Castle (Charleston 1993)
Camber Castle *
Canterbury (Charleston 1987)
Chelmsford (Cunningham 1985)
Chichester (Charleston 1981)
Denny Abbey (Charleston 1980)
Eccleshall Castle *
Exeter (Charleston 1984b)
London, Gracechurch Street *
London, Abacus House *
Newcastle (Ellison 1981)
Nonsuch Palace *
Northampton (Oakley & Hunter 1979)
Norton Priory *
Plymouth (Charleston 1986)
Poole (Charleston 1992)
Wood Hall *

Optic boss (fig. 4.4.3)

Beakers decorated with mould-blown raised bosses were less frequent. These were generally of a better quality metal and were almost certainly imported. Given the popularity of this form of decoration on all forms of Low Country beaker in the first half of the seventeenth century, they probably originated there.

Examples:

Alchester (Booth 1981)
Beeston Castle (Charleston 1993)
Canterbury (Shepherd 1995)
Chester, Crook Street*
Exeter (Charleston 1984b)
London, Abacus House*

Optic mesh (fig. 4.4.4)

This type of decoration seems to have occurred exclusively on potash beakers and was often poorly executed and distorted by subsequent manipulation of the vessel.

Examples:
Camber Castle *
Chester, Hunter Street *
Denny Abbey (Charleston 1980)
Eccleshall Castle *
Nonsuch Palace *
Northampton (Oakley & Hunter 1979)
Norwich (Haslam 1993)

Optic roundels (fig. 4.4.5)

Depressed mould-blown roundels were usually small and quite often indistinct, sometimes appearing only on the upper portion of the vessel.

Examples:
Camber Castle *
Canterbury (Charleston 1987)
Denny Abbey (Charleston 1980)
London, Gracechurch Street *
Northampton (Oakley & Hunter 1979)

Optic vertical rib (fig. 4.4.6)

Vertically ribbed beakers were another prevalent variety, found on all nature of sites. The ribs were usually distinct, running the full length of the vessel. In many examples they end at the rim of the vessel, in others they terminate in a distinct loop or with a slight wrythen twist.

Examples:
Bagshot *
Basing House (Charleston 1971)
Camber Castle *
Canterbury (Charleston 1987)
Chelmsford (Cunningham 1985)
Chester, Crook Street *
Chester, Hunter Street *
Chichester (Charleston 1981)
Eccleshall Castle *
London, Abacus House *
Newcastle (Ellison 1981)
Nonsuch Palace *
Norton Priory *
Norwich (Haslam 1993)
Poole (Charleston 1992)
Winchester (Charleston 1990)
Wood Hall *

Optic wrythen and vertical rib (fig. 4.4.7)

This was the first of two more complicated optic blown patterns. The effect was achieved by blowing the parison into an optic mould twice. Initially it was inflated into a vertically ribbed mould and twisted on removal to produce a wrythen pattern. It was then blown again into the ribbed mould to cut the wrythen pattern at intervals. This two stage optic blowing produced a heavily patterned surface and was quite uncommon in England.

Examples:
Chester, Crook Street *
Northampton (Oakley & Hunter 1979)

Optic mesh and vertical rib (fig. 4.4.8)

The second duel optic blown pattern was achieved using a single more complex mould. The upper portion of the vessel was decorated with a clear diamond mesh which terminated in raised vertical ribs on the lower section of the body.

Example:
Wood Hall *

Horizontal trail (fig. 4.4.9)

Fine spiral or horizontal trails were applied to the surface of the body of some beakers. These were usually left prominent and were the same colour as the base metal.

Examples:
Chester (Anon 1939) Eccleshall Castle *

Coloured trail (fig. 4.4.10)

Occasionally coloured trails were added to pedestal beakers, but only on examples in a high quality soda glass. They were applied horizontally onto the parison of glass before it was shaped and marvered flat into the surface. Opaque white was the usual colour, although occasional examples were in *vetro a retorti.*

Examples:
Acton Court * Bristol (Good 1987)

Enamelled

As was the case with colour trailed pedestal beakers, enamelling only occurred on high quality soda vessels. The decoration could take the form of banded lettering, figural or floral designs, but finds of such beakers are rare in England.

Example:
Acton Court * Poole (Charleston 1992)

4.1.5 *Pedestal Fluted Beakers*

Pedestal fluted beakers are differentiated from more ordinary pedestal beakers for two reasons. Firstly, they were made from two separate parisons of glass and had an applied foot. Secondly, they were usually tall in comparison to their diameter, which was consistent for the length of the body. Their rims were vertical and they were distributed over most of northern Europe. The form is known in the Netherlands and Germany as the *Pasglas* and it has been suggested that they were sometimes associated with certain drinking games (Laan 1994: 99).

Cylindrical, horizontal trail (fig. 4.5.1)

The simplest form of this beaker had an applied base and a tall cylindrical fluted body. The body of the beaker was decorated with a series of horizontal applied trails, some of which may have had a rigaree pattern. The trail colour was usually the same and the body, but they were also trailed in blue.

Example:
Exeter (Charleston 1984b)

Octagonal, horizontal trail (fig. 4.5.2)

This variant was decorated in the same way as the cylindrical fluted beaker, with a number of clear or blue trails. However the body of this beaker was octagonal in cross-section. This shape was achieved by the insertion of a former into the bowl after its inflation to produce the required shape (Schlüter 1979). The octagonal cylindrical beaker was the most common of all fluted pedestal beakers and occurred in both soda and potash glass.

Examples:

Eccleshall Castle *	Nonsuch Palace *	Plymouth (Charleston 1986)

Vertical and horizontal trail (fig. 4.5.3)

This type of beaker was quite different in the style of its decoration. It was made from two separate parisons and had a fluted cylindrical bowl. It was decorated on the lower portion of the body with thick prominent vertical trails, usually in opaque white, which terminated half way up the body. Above these were one or more bands of similar prominent trailing. Such beakers were always made from a good quality mixed alkali or soda glass.

Examples:

Bagshot *	London, Gracechurch Street *	Taunton (Charleston 1984c)
Castle Rising (Cool 1997)	London, St. Mary Spital (Brehm et al 1997)	

4.1.6 *Roemers*

Roemers consisted of a cylindrical body opening out to an everted or spherical shaped bowl. The body rested on a base which usually, consisted of wound coils. The cylindrical body was decorated with applied prunts, from which a classification can be derived. Despite being a beaker form, the historical and iconographic evidence from this period in the Netherlands suggests that they were used to consume wine (e.g. van Dongen & Henkes 1994: 16). Roemers were made in potash or poorer quality mixed alkali glass throughout the Low Countries and Germany.

Pulled prunt (fig. 4.6.1)

The earliest form of roemer, dating to the early sixteenth century, was decorated on the lower body with applied prunts, which were pulled to a point. Some of this type had coiled bases but others had an applied base ring pulled at intervals into points. This type of roemer continued in use until the beginning of the seventeenth century.

Examples:
Eccleshall Castle *
London, Gracechurch Street *
London, St. Mary Spital (Brehm et al 1997)

Impressed prunt (fig. 4.6.2)

This form of roemer, was decorated with prunts which were applied to the lower body and then impressed with a metal stamp to produce a sharp pointed rosette pattern. It had a multiple coil base, which tended to increase in height through time. This style of decoration first occurred in the early seventeenth century, but continued into the nineteenth.

Examples:
Canterbury (Charleston 1987)
Durham (Ellison 1993)
London, Southwark (Hinton 1988)

Flat prunt (fig. 4.6.3)

The prunts applied to this variant were broad and flat, often leaving space on the lower body for only three or four. This type was an uncommon in England, dating from the first half of the seventeenth century.

Example:
Canterbury (Shepherd 1995)

Rod stemmed (fig. 4.6.4)

This final form is the hardest to classify. The body was decorated with small pulled prunts, however the base consisted of a tall solid plain rod stem with a coiled foot. Its form suggests that it should be classified as a goblet, but it is included here with the other roemers. Such vessels were rare in England but seem to date from the sixteenth century.

Example:
London, Abacus House *

4.2 *Tankards*

4.2.1 *Cylindrical Tankards*

Cylindrical tankards were similar in form to cylindrical beakers, with a pushed-in base and vertical sides. If in a fragmentary state and missing their handle they could be confused with beakers. Similarly the remains of handles might be thought to belong to jugs and this might account for their apparently low numbers. All positively identified cylindrical tankards were made of potash or low quality mixed alkali glass and date to the first half of the seventeenth century.

Plain (fig. 4.7.1)

Plain tankards were undecorated and had simple curved handles, which sometimes had a lower upturn.

Example:
Chester, Hunter Street *

Rigaree trail (fig. 4.7.2)

This type had the same form as the plain cylindrical tankard but possessed a series of horizontal broad trails with a rigaree pattern.

Example:
Chester, Hunter Street *

Prunted (fig. 4.7.3)

The cylindrical body was decorated with a number of applied prunts, tooled and pulled to produce a flower like shape. Two example of this type of prunt were found at the English production site of Hutton (Charleston 1972: 150 nos. 116-7).

Example:
Chester, Crook Street *

4.2.2 *Bellied Tankards*

Bellied tankards had a vertical rim and a spherical body, with a folded pedestal base. Here too elements of the vessel, particularly the base, might look like a jug when fragmented. This may explain the low numbers of these vessels that have been identified. A number of complete examples with silver gilt mounts are known from museum collections, most importantly the Parr Pot (Glanville 1970): although the glass itself was a later eighteenth century replacement. All the vessels were made in soda glass and dates, derived from hallmarks on the gilt mounts, place them in the middle of the sixteenth century, although the form probably continued into seventeenth.

Plain (fig. 4.7.4)

Plain bellied tankards had no external decoration and were of a good clear glass, with a simple curved handle.

Examples:
Nonsuch Palace * Temple Balsall (Gooder 1984)

Coloured trail (fig. 4.7.5)
Colour trailing was applied to the parison before it was manipulated into the final vessel form. Opaque white and blue vertical *vetro a fili* trails, as well as more complicated *vetro a retorti* patterns were used. Regardless of the body trailing, the handle usually was in a clear glass.

Example:
London (MOL Ac. No. A12609) *

4.3 *Goblets*

4.3.1 *Knopped Stem Goblets*

Knopped stems were the most numerous of all goblet types. They were made in three parts, with stem fashioned from a small free-blown parison, to which the bowl and base were added. Between the stem and both the base and the bowl there was always at least one flattened disk of glass, or merese, which helped to secure the join and also acted as a decorative device. Knopped stem goblets first occurred in the second half of the sixteenth century and were the most common form by the seventeenth. They were only made in mixed alkali or soda glass.

Capstan (fig. 4.8.1)

The capstan stem consists of a short compressed parison that was sharply concave in the middle section. This form of stem is hard to identify in fragmented vessels, as the upper merese of other stem forms can resemble this type. Nevertheless the capstan stem appeared to be quite uncommon and restricted in date to the first half of the seventeenth century.

Examples:
Basing House (Charleston 1971) Nonsuch Palace *

Inverted baluster (fig. 4.8.2)

This form of stem resembled a reversed bluster shape, broad at the top and tapering to a narrow end before the merese. This type of stem first occurred in the late sixteenth century, but continued to be popular until the middle of the next century.

Examples:

Acton Court *	Hull (Henderson 1987)	Newcastle (Ellison 1979)
Baconsthorpe Castle	London, Gracechurch Street *	Nonsuch Palace *
(Charleston Forthcoming)	London, St. Mary Spital (Brehm et al 1997)	Norwich (Haslam 1993)
Camber Castle *	London, Westminster (Huggins 1976)	Temple Balsall (Gooder 1984)
Exeter (Charleston 1984b)	Montgomery Castle (Knight 1994)	

Ribbed inverted baluster (fig. 4.8.3)

This stem was identical to the inverted baluster, except that the parison was blown into a vertically ribbed mould before it was shaped. In some examples, such as one from Poole, some gilding survived in the dips between the ribs. They were contemporaneous with the plain inverted baluster stem.

Examples:

Eccleshall Castle *	Norwich (Haslam 1993)	Southampton (Charleston 1975)
Nonsuch Palace *	Poole (Charleston 1992)	

Elongated inverted baluster (fig. 4.8.4)

This type has traditionally been referred to as a 'cigar' stem due to its long tapered appearance. The stem was similar to the inverted baluster but its height is at least five times its breadth. Similar stem styles, dating to the end of the first quarter of the seventeenth century, have been identified in English silverware (Charleston 1984: 68). Their glass counterparts appear to have originated at this time and continued until the middle of the

seventeenth century. The quality of the mixed alkali metal indicates that these were manufactured in England, a suggestion confirmed by examples of half formed production wasters found in Broad Street, London (Shepherd u/p).

Examples:
Acton Court *
Baconsthorpe Castle
(Charleston Forthcoming)
Bagshot *
Camber Castle *
Canterbury (Shepherd 1995)
Chester, Hunter Street*
Eccleshall Castle *
Exeter (Charleston 1984b)
London, Blackfriars (Marsden 1971)
London, Gracechurch Street *
Montgomery Castle (Knight 1994)
Nonsuch Palace *
Norton Priory *
Oxford (Hassall 1984)
Poole (Charleston 1992)
Taunton (Brown 1988)

Round knop (fig. 4.8.5)

Knops formed from a simple spherical parison occur throughout the sixteenth and seventeenth centuries. Those from the sixteenth century were made in a good quality soda glass and some, such as examples from Acton Court, received applied coloured trailing or *vetro a fili* or *retorti* decoration. By the seventeenth century, round knops tended to be plain and occurred in a poorer quality mixed alkali glass. This was one of the few goblet stem forms to survive into the second half on the seventeenth century.

Examples:
Acton Court *
Cannons Ashby (Taylor 1974)
Canterbury (Charleston 1987)
Durham (Ellison 1993)
Eccleshall Castle *
Exeter (Charleston 1984b)
London, Gracechurch Street *
Nonsuch Palace *
Norwich (Haslam 1993)
Poole (Charleston 1992)
Temple Balsall (Gooder 1984)

Ribbed round knop (fig. 4.8.6)

Ribbed knops were formed by blowing the parison into a vertically ribbed mould. Earlier examples from the sixteenth century were comparatively rare, although four of the so-called Verzelini glasses have this style of knop, three of which were slightly compressed (Charleston 1984: plate 12 b-d). This stem form grew in popularity during the seventeenth century and, like the plain round knop, survived late into the century.

Examples:
Acton Court *
Bagshot *
Canterbury (Charleston 1987)
Durham (Ellison 1993)
Exeter (Charleston 1984b)
Hull (Armstrong 1977)
London, Aldgate (Charleston & Vince 1984)
London, Gracechurch Street *
London, Southwark (Hinton 1988)
London, Staines (Wood 1976)
Micheldever (Sutermeister 1975)
Newcastle (Vaughn 1994)
Nonsuch Palace *
Oxford (Hassall 1984)
Plymouth (Charleston 1986)

Optic diamond knop (fig. 4.8.7)

This knop was formed by blowing the parison into a diamond mesh optic mould. The final stem is usually slightly compressed and occurred only on goblets from the second half of the sixteenth century.

Example:

Southampton (Charleston 1975)

Multiple plain hollow knop (fig. 4.8.8)

This was a hollow stem knop, blown as a tall tube and then marvered into a series of stacked inter-connecting round knops. Such stems were uncommon and were always made in a good quality soda glass. They seem to date to end of the sixteenth century.

Examples:
Newcastle (Ellison 1981) Southampton (Charleston 1975)

Ribbed multiple plain hollow knop (fig. 4.8.9)

The form of this knop was identical to the plain type, except that the initial parison was blown into a ribbed mould before being formed into the stem.

Example:
Eccleshall Castle *

4.3.2 *Mould-Blown Stem Goblets*

Although this category of stem came from a three-part goblet, it differed from the more ordinary free-blown knop. In this class the stem parison was inflated into a fixed two-piece mould to impress a pattern onto its surface. The stem was subsequently removed and a bowl and foot added to it. Although no moulds survive from this period it is likely that they were made from a durable metal which could withstand the repeated heating. These stems were always made in a mixed alkali or soda glass.

Lion-mask (fig. 4.8.10)

The lion-mask stem was the most common variety and was distributed throughout Western Europe. Despite its broad dispersal, the decoration remained uniform, consisting of two opposing frontal lion faces with gadrooning above and below. A raised boss and a series of linking roundels usually covered mould seams at the sides, although frequently on the continent and occasionally in England there is a heraldic style pattern in this area (e.g. Goetz 1990: fig. 8-9). Lion-mask stems were almost certainly produced in England and it has been possible to categorise their mould groupings on unprovenanced examples from London to suggest English types (Chapter 7.4.1). Some examples demonstrate further embellishment with the application of gilding. Lion-masks occurred in England from the last quarter of the sixteenth until the middle of the seventeenth century.

Examples:

Baconsthorpe Castle (Charleston Forthcoming)
Bagshot *
Barnard Castle *
Basing House (Charleston 1971)
Berry Pomeroy Castle (Allan 1996)
Chester, Crook Street *
Chester, Hunter Street *
Eccleshall Castle *
Exeter (Charleston 1984b)
London, Gracechurch Street *
London, St. Mary Spital (Brehm et al 1997)
Montgomery Castle (Knight 1994)
Nonsuch Palace *
Norton Priory *
Oxford (Leeds 1939)
Plymouth (Charleston 1986)

Ladder (fig. 4.8.11)

Ladder stems were made in a similar way to the lion-mask stem. However the details of their decoration was more. Generally they consisted of alternating elongated ovals and rows of raised bosses, giving the appearance of an impressed ladder. Some examples also incorporated rosette or *fleur de lis* designs (see chapter 7.4.1). Their distribution suggests that ladder stems may be uniquely English (Thorpe 1961: 128-9), and an unfinished example present in glass waste associated with Sir Robert Mansell's glasshouse at Broad Street, London confirms their manufacture in England (Shepherd U/P: no. 138). Although an early ladder stem is found on one of the so-called Verzelini glasses, dated to 1590 (Charleston 1984: plate 14a), most seem to date from the first half of the seventeenth century.

Examples:

Bagshot *
Beeston Castle (Charleston 1993)
Eccleshall Castle *
London, Gracechurch Street *
London, Southwark (Hinton 1988)
London, St. Mary Spital (Brehm et al 1997)
Nonsuch Palace *
Southampton (Charleston 1975)

4.3.3 *Compound Stems*

These stems formed part of three piece goblets, but were made with twisted, coiled and applied canes of glass manipulated and fused by lampwork. These stems were usually made in good quality soda glass and were traditionally thought to be Venetian or *façon de Venise* work from the Low Countries (Tait 1991: 174-5). They may well be goblets referred to in England by Mansell in 1635 as 'extraordinary fashions' (Charleston 1984: 67). However their manufacture in England and other areas of Europe should not be ruled out, given the prevalence of some types in England relative to the Low Countries (Willmott in press). Due to their delicate nature, these stems are less likely to survive archaeologically, which must contribute to their apparent scarcity.

Loop and wound serpent (fig. 4.8.12)

This form of stem consisted of a hollow ribbed rod of glass which, was manipulated into a lower loop above the base and then wound around the top of the stem several times in a wavy pattern. A blue glass claw was sometimes applied the upper portion of the stem. This type of stem is probably the earliest form of compound stem and dated to around the first third of the seventeenth century.

Examples:
London, Gracechurch Street * Monk Wearmouth * Newcastle (Ellison 1979)

Loop and scroll serpent (fig. 4.8.13)

The stem was made with a single oval loop of ribbed hollow glass tubing and two opposed columns of glass formed from a flattened trail looped into a vertical scroll. Only two examples of this stem type have been identified, both from Gracechurch Street, London, suggesting that this might be an English variation. This form seems to date from the first third of the seventeenth century.

Examples:
London, Gracechurch Street *

Coiled and winged serpent (fig. 4.8.14)

The stem was formed from a coiled rod of hollow ribbed glass that broadened and terminated with an applied blue glass head. Two opposing blue wings were added to the sides, which has led to the use of the term 'dragon stem' to describe this form. This variation of compound stem was the most recognisably zoomorphic and dated to the second quarter of the seventeenth century.

Examples:
Chester, Hunter Street * London, Gracechurch Street * Plymouth (Charleston 1986)

Twisted cable (fig. 4.8.15)

Stems in this category were made from canes of clear glass covering twisted coloured cables. The stem was formed from one or more of these canes looped in figure of eight patterns. The resultant tall stem was often surmounted with applied blue glass impressed wings. Such vessels are extremely rare from English excavations, the illustrated example shows a more complete example

from a pit in Alkmaar, the Netherlands (Bitter et al 1997b: 113). These stems first occurred just before the middle of the seventeenth century.

Example:
Poole (Charleston 1992)

4.3.4 *Pedestal Stem Goblets, single parison*

Pedestal goblets, like the beaker variety, were formed from a single parison, with a pushed-in base and folded base ring. However the base of a pedestal goblet was pulled taller, to nearly half the height of the vessel, and had a narrow stem constriction. The bowl was usually everted or a deep bucket shape. These goblets occurred in all metal types and were relatively common in the sixteenth century. However by the beginning of the seventeenth century they seem to have been largely eclipsed in popularity by the three-part knopped stem varieties. This goblet type was produced initially in the sixteenth century in soda glass, but by the seventeenth century most examples were in potash metal.

Plain (fig. 4.9.1)

This stem form, which was undecorated, was the most common, it is hard to be certain whether a base fragment once belonged to a decorated example.

Examples:

Acton Court *	Chester (Axeworthy-Rutter 1990)	Newcastle (Ellison 1981)
Baconsthorpe Castle (Charleston Forthcoming)	Eccleshall Castle *	Norton Priory *
	Hull (Armstrong 1977)	Norwich (Haslam 1993)
Camber Castle *	London, Abacus House *	Poole (Charleston 1992)
Canterbury (Shepherd 1995)	London, Gracechurch Street *	West Bromwich Manor (Cocroft 1993)
Castle Rising (Cool 1997)	London, St. Mary Spital (Brehm et al 1997)	Winchester (Charleston 1964)

Folded knop (fig. 4.9.2)

The folded knop goblet was made the same way as the plain version except that at the top of the push-in the outer body bulged significantly to create the appearance of a separate knop. The rest of the vessel remained the same as a normal plain pedestal goblet.

Examples:

Acton Court *	London, Gracechurch Street *	Poole*
Bristol (Barton 1964)	London, Abacus House *	Winchester (Charleston 1990)
Eccleshall Castle *	Nonsuch Palace *	

Optic vertical rib (fig. 4.9.3)

This type of goblet was identical to the plain version, except that the initial parison was blown into a vertically ribbed mould before further inflation.

Examples:

Camber Castle *	Poole (Charleston 1992)

Optic bossed (fig. 4.9.4)

As with the vertically ribbed, goblet this form was blown into a raised-bossed optic mould before further shaping.

Examples:

Berry Pomeroy Castle (Allan 1996)	Southampton (Charleston 1975)
	Wood Hall *

Optic roundel (fig. 4.9.5)

Mould-blown depressed small roundels also occurred occasionally as decoration on this form of pedestal goblet.

Example:
Camber Castle *

Horizontal trail (fig. 4.9.6)

Ordinary pedestal goblets were also decorated with horizontal bands of trailing. In many cases this was in the form of fine opaque white threads applied in a region below the rim. A number of such vessels have been found in the Netherlands, suggesting a possible origin for them there (Henkes 1994: 99-100). Trailed pedestal goblets are generally produced only in forest or poorer quality mixed alkali glass.

Examples:
Baconsthorpe Castle
(Charleston Forthcoming)
Camber Castle *
Canterbury (Charleston 1987)
Chester, Crook Street *
Exeter (Charleston 1984b)
London, Abacus House *
London, Gracechurch Street *
Norwich (Haslam 1993)
Poole (Charleston 1992)

Enamelled

Pedestal goblets with enamelling were very rare and occurred only in a good quality soda glass. Enamelled designs include floral, figural or banded lettering.

Examples:
Poole (Charleston 1992)
Wood Hall *

4.3.5 *Applied Pedestal Goblets*

A small number of pedestal goblets were not made from a single parison of glass, but had separate bowl and foot pieces. These examples were always in good quality soda glass and, like the single parison examples, dated to the sixteenth century.

Plain (fig. 4.9.7)

The majority of applied pedestal goblets appear to be undecorated in any way.

Examples:
Chester, Crook Street *
Denny Abbey (Charleston 1980)
Nonsuch Palace *
Norton Priory

Coloured trail (fig. 4.9.8)

Some two piece goblets are decorated with marvered coloured spiral trails in blue and white, and also in more complex *vetro a retorti.* The same colour scheme was used on both elements of the vessel, but they never joined directly as they were from separate parisons.

Examples:
Chester, Crook Street *
Montgomery Castle (Knight 1994)

Enamelled

As with the single parison goblet, those made from two parts were rarely enamelled, but enamelling could depict a diverse range of scenes.

Example:
Nonsuch Palace *

4.3.6 *Rod Stem Goblets*

There was a very small group of goblets, made in three parts, which had a stem consisting of a solid narrow rod of glass. These vessels were always made in a potash glass. Few probably survive due to the fragility of the stems, which appear as unidentifiable plain rods once broken. It would appear that these stems were in use at the end of the sixteenth century, although this is by no means certain.

Solid knop (fig. 4.10.1)

The only variation of this identified group so far has a narrow stem with a small round solid upper knop formed by marvering rather than applied. Other variations may be identified in the future.

Examples:
London, Gracechurch Street * Nonsuch Palace *

4.3.7 *Cage Stem Goblets*

A few three-part goblets had a stem consisting of separate supporting elements, forming a cage. The bowl rested on the top of this arrangement and the vessel would have been as much for display as practical use. Such stems were less likely to survive disposal and archaeological recovery, so it is hard to quantify their frequency. All surviving examples were always made in a good soda glass and would have been high status vessels. They date to the seventeenth century.

Plain (fig. 4.10.2)

A simple form of this stem consisted of three separate reversed 's' curls supporting the bowl, in addition to several applied elements.

Example:
Nonsuch Palace *

Trick glass (fig. 4.10.3)

The only known archaeological example of a so-called 'trick glass' comes from London, and an in-depth discussion of other parallels in Europe can be found in Brehm et al (1997). A complicated cage design was used to support a hollow merese that allowed air to circulate via a curved tube into the bowl. The trick glass was a novelty display item and as such was very uncommon, not only in England, but elsewhere.

Example:
London, St. Mary Spital (Brehm 1997)

4.3.8 *Goblet Lids*

Lids, although not a form in themselves, are classified separately as it is usually impossible to associate them with individual goblets. Lids guarded against the fouling of the wine, but probably served largely for display because the vast majority of goblets did not have lids. All lids were made in the same way. They had a vertical edge, a folded shoulder to rest on the goblet rim and a

domed top with a separately applied finial. All lids were made of soda glass and used for similar vessels. They occurred in both the sixteenth and first half of the seventeenth centuries.

Plain (fig. 4.10.4)

Plain lids had no decoration except for the solid applied finial at the apex of the dome.

Examples:

Acton Court *
Basing House (Charleston 1971)
Eccleshall Castle *
Exeter (Charleston 1984b)
Nonsuch Palace *
Porchester Castle (Harden 1977)

Colour trail (fig. 4.10.5)

A few lids were decorated with radiating *vetro a fili* trails or *vetro a retorti* to match the vessel on which they sat. Lids with this form of decoration tended to date from the sixteenth century. Despite the coloured trailing they always had a clear glass finial on top.

Examples:

Acton Court *
Canterbury (Charleston 1987)
London, St. Mary Spital (Brehm et al 1997)
Nonsuch Palace *

4.4 *Jugs*

4.4.1 *Pedestal Jugs*

The base of a pedestal jug was pushed in and folded to produce an enclosed base ring. The pedestal base was usually quite low and broad, serving to increase stability. The body was ordinarily spherical with a short vertical neck. Most had a simple pinched pouring lip, but on some examples it was tooled into a trefoil shape. The handle joined the body on the lower spherical side and the neck a short way below the rim. Pedestal jugs were primarily made in soda glass, but a few potash examples are known.

Plain (fig. 4.11.1)

Plain types were not unusual and lack applied surface decoration.

Examples:

Acton Court *	Newcastle (Ellison 1981)	Usk (Courtney 1994)
Bagshot *	Norwich (Haslam 1993)	

Optic vertical rib (fig. 4.11.2)

There was one example of a jug decorated with vertical ribs, produced by blowing the parison into a mould before further inflation.

Example:
Nonsuch Palace *

Coloured trail (fig. 4.11.3)

Pedestal jugs in soda glass were also decorated with the application of coloured *vetro a fili* trails, primarily marvered opaque white but also *vetro a retorti*. The trails radiated from the centre of the base vertically to the rim. The applied handle was usually in a clear glass.

Examples:

Acton Court *	Norwich (Haslam 1993)	Wood Hall *
Montgomery Castle (Knight 1994)	Oxford (Hassall 1984)	
	Winchester (Charleston 1990)	

4.4.2 *Globular Jugs*

Globular jugs were unusual in comparison to the pedestal varieties. This may be partly due to problems of identification, as they had simple pushed in bases like globular flasks. Moreover the form of their body and rim was identical to the pedestal jug.

Plain (fig. 4.12.1)

Only one example of a plain globular jug made in a potash glass is known so far.

Examples:
Battle Abbey (Charleston 1985)

4.5 *Flasks*

4.5.1 *Globular Flasks*

Globular flask had a simple pushed-in base, spherical body and tapering neck. They were produced almost exclusively in potash glass, perhaps indicating that they were not used at the table or only in poorer households. They were produced in forest glasshouses in England (e.g. Charleston 1972: 145) and were frequent finds on all types of sites.

Plain (fig. 4.13.1)

Plain globular flasks were the most frequent form of this group found. No decoration was applied to the vessel.

Examples

Acton Court *	London, Gracechurch Street *	West Bromwich Manor (Cocroft 1993)
Chester Hunter Street *	London, Abacus House *	Wood Hall *
Chichester (Charleston 1981)	Newcastle (Ellison 1981)	
Eccleshall Castle *	Plymouth (Charleston 1986)	

Optic wrythen (fig. 4.13.2)

Optic blown wrythen was the most common form of decoration on potash flasks. However the relative numbers of these vessels are probably underestimated due to the expansion of the wrythen on the wider parts of the body, which made it very unclear.

Examples:

Bagshot *	London, Gracechurch Street *	Poole (Charleston 1992)
Exeter (Charleston 1984b)	Nonsuch *	

Optic mesh (fig. 4.13.3)

Decoration with an optic blown mesh pattern also occurred, although on the spherical body of the vessel this could become quite distorted.

Examples:

Chester, Hunter Street *	Exeter (Charleston 1984b)

Optic vertical rib (fig. 4.13.4)

The final form of optic blown decoration on globular flasks was optic blown vertical ribbing.

Examples:

Camber Castle *	Canterbury (Shepherd 1995)	Chichester (Charleston 1981)

Kuttrolf (fig. 4.14.1)

The kuttrolf was a unique form of globular flask. Whilst its base was a simple push-in and its body spherical, the upper vessel was completely different. It had at least two long necks that intertwined, one to allow the liquid out, the other air in. Kuttrolf were produced in Germany and the Low Countries from the late medieval period into the sixteenth century (Henkes 1994:115-6). Only one such vessel is known from England.

Example:
Eccleshall Castle *

4.5.2 *Oval Flasks*

Flasks with an oval cross-section were less common than those with a round one and tended to be smaller. There was no obvious functional advantage to their shape, except that they could have been laid on their side with increased stability. All oval flasks seem to have been produced in potash glass and the majority date to the sixteenth century.

Plain (fig. 4.15.1)

Plain oval flasks were the least common, with only two known examples.

Examples:
Camber Castle *
Nonsuch Palace *

Wrythen (fig. 4.15.2)

Oval wrythen decorated flasks tend to be quite short, with the smallest being about ten centimetres tall. Due to their small size the wrythen was very heavy and usually stopped at the lower neck. Two examples of this type of flask were found on the Mary Rose, dating them to the 1530s (Elkerton pers. comm.).

Examples:
Camber Castle*
Canterbury (Shepherd 1990)
London, Gracechurch Street *
Nonsuch Palace*
Norwich (Haslam 1993)

4.5.3 *Pedestal Flasks*

Pedestal flasks were similar in form to the globular variety but instead of a simple push-in they had a broad folded base with an enclosed base ring. The body of the flask was spherical with a tapering neck and out-turned rim. Pedestal flasks were produced throughout the sixteenth and early seventeenth centuries, although they tended to be more common in the latter part of this period.

Plain (fig. 4.16.1)

Plain examples were the most numerous and were usually made in a potash glass. The remains of these vessels were quite common finds on English forest production sites (e.g. Hurst-Vose 1994: 27).

Examples:
Acton Court *
Chester, Hunter Street *
Chichester (Charleston 1981)
Eccleshall Castle*
London, Abacus House *
London, Gracechurch Street *
London, St. Mary Spital (Brehm et al 1997)
Newcastle (Ellison 1981)
Plymouth (Charleston 1986)
West Bromwich Manor (Cocroft 1993)
Wood Hall *

Coloured trail (fig. 4.16.2)

A few flasks were clearly made for display as well as for the functional storage of liquids. Occasional soda glass examples occur with coloured *vetro a fili* trailing, either in opaque white or blue. However, such vessels were rare.

Example:
Acton Court *

Enamelled

Enamelled flasks were very unusual and only single example has been found in England. The decorative coloured enamels and applied gilt suggest that this vessel was of a Venetian origin.

Example:
Acton Court *

Cruet (fig. 4.17.1)

A single example of a double-bodied cruet has been found in England. The base was an applied pedestal with a separate ribbed round knop. The body was divided, each part leading to a curving neck, and formed by joining two separate parisons together. This type of vessel allowed two different liquids to be dispensed and was more common on the Iberian Peninsula, where this vessel may have been produced (e.g. APAI 1989: 43).

Example:
Acton Court *

4.5.4 *Conical Flasks*

The conical flask was a small vessel form, usually only between ten and fifteen centimetres in height. These flasks had a flat base, tapering sides and a sheared-off rim with an applied triangular trail just below it. They were used for the storage and movement of small quantities of liquids, perhaps distillates. All were made in potash glass and date to the sixteenth century.

Plain (fig. 4.18.1)

Examples of this form had no decoration at all.

Examples:
Acton Court * London, Gracechurch Street *

Optic vertical rib (fig. 4.18.2)

A single example is known which is decorated with vertical ribbing, applied to the parison before the vessel was shaped.

Example:
Montgomery Castle (Knight 1994)

4.5.5 *Case Bottles*

Case bottles were thick-walled vessels and were known as such because they were packed into crates for long distance transport. However this does not mean that they were restricted to this function alone. Their presence in large quantities on domestic sites suggests a household purpose. Case bottles came in a variety of sizes and shapes. The base and body were formed by the inflation of a large parison into a mould up to the level of its shoulder, with the neck and rim being finished by hand. These bottles were always made in potash glass and first appear at the very beginning of the seventeenth century. Although they continued to be produced in the eighteenth century, their presence in England largely diminished with the introduction of the wine bottle in the latter seventeenth century.

Square (fig. 4.19.1)

Square case bottles were the most numerous type and range in size from around fifteen to forty centimetres in height.

Examples:

Acton Court *
Basing House (Charleston 1971)
Berry Pomeroy Castle (Allan 1996)
Camber Castle *
Canterbury (Charleston 1987)
Chester, Hunter Street *
Christchurch (Charleston 1983)
Eccleshall Castle *
London, Gracechurch Street*
Montgomery Castle (1994)
Norwich (Haslam 1993)
Oxford (Hassall 1984)

Hexagonal (fig. 4.19.2)

Hexagonal case bottles were less common and were probably slightly later in date. They also tended to be small, rarely exceeding twenty-five centimetres in height.

Examples:

Chester, Hunter Street *
Denny Abbey (Charleston 1980)
London, Gracechurch Street *
Norwich (Haslam 1993)
Oxford (Hassall 1984)
Sandal Castle (Moorhouse 1983)

4.6 *Bowls & Dishes*

4.6.1 *Pedestal Bowls*

Pedestal bowls had a wide everted body that rested either on a folded pedestal or a separate applied foot. They varied in size and metal and were capable of holding both solids and liquids. Pedestal bowls during the sixteenth century were usually made in a soda glass, but by the seventeenth potash examples predominated.

Plain (fig. 4.20.1)

Plain pedestal bowls were often made in potash glass from a single parison. However a group of these were also produced in an opaque white, or *lattimo*, soda glass, including three examples from Gracechurch Street, London. These white ground bowls were quite common in the Low Countries and may have originated there (Henkes 1994: 230).

Examples:

Acton Court *
Basing House (Charleston 1971)
Berry Pomeroy Castle (Allan 1996)
Canterbury (Charleston 1987)
Christchurch (Charleston 1983)
Eccleshall Castle *
London, Gracechurch Street *
London, St. Mary Spital (Brehm et al 1997)
Montgomery (Knight 1994)
Norton Priory *
Norwich (Haslam 1993)
Oxford (Hassall 1984)
Poole (Charleston 1992)
Wood Hall *

Optic vertical rib (fig. 4.20.2)

A few examples were known of pedestal bowls decorated with vertical ribbing, produced by optic blowing.

Examples:

Acton Court *
West Bromwich Manor (Cocroft 1993)

4.6.2 *Hemispherical Bowls*

Hemispherical bowls were less common than the pedestal bowls. They consisted of a simple pushed-in base and convex sided body, although in some examples the body could be more everted than rounded. Bowls of this form occurred in both potash and soda glass and date to the sixteenth and early seventeenth centuries.

Plain (fig. 4.20.3)

Plain bowls of this form vary a great deal in size, but had no surface decoration.

Examples:

Chester, Hunter Street *
Norwich (Haslam 1993)
West Bromwich Manor (Cocroft 1993)
Wood Hall *

Optic vertical rib (fig. 4.20.4)

Some hemispherical bowls were decorated with optic blown vertical ribbing which radiated outwards from the bottom of the base.

Examples:

Acton Court *
West Bromwich Manor (Cocroft 1993)

Prunted (fig. 4.20.5)

A single example of a hemispherical bowl decorated with applied-tooled prunts was found in Norwich. I had very similar decoration to the prunted cylindrical tankard already discussed.

Example:
Norwich (Haslam 1993)

Handled (fig. 4.21.1)

A few examples of small hemispherical bowls have been found with two flat horizontal handles applied to the rim, creating a porringer shape. Their function is uncertain, but they probably served as vessels from which liquids were consumed.

Examples:
Eccleshall Castle *
West Bromwich Manor (Cocroft 1993)

4.6.3 *Dishes*

Dishes were flat vessels with a small pushed-in base, shallow body and a broad horizontal rim folded under at the edge. Such vessels were suitable only for the presentation and consumption of small quantities of solids or liquids. They are usually made in potash or poor quality mixed alkali glass, although the occasional soda example has been found. They tended to date to the first half of the seventeenth century.

Plain (fig. 4.21.2)

Plain dishes were quite common. They were uniform in shape and lacked decoration.

Examples:
Basing House (Charleston 1971)
Camber Castle *
Chester, Hunter Street *
Eccleshall Castle *
Exeter (Charleston 1984b)
Nonsuch Palace *
Norton Priory *
Norwich (Haslam 1993)
Oxford (Hassall 1984)
Sandal Castle (Moorhouse 1983)
Usk (Courtney 1994)
West Bromwich Manor (Cocroft 1993)
Wood Hall *

Optic vertical rib (fig. 4.21.3)

A single example of a dish decorated with optic blown ribs is known from Usk.

Example:
Usk (Courtney 1994)

4.7 *Jars*

4.7.1 *Albarello*

The concave sided albarello was the most common jar form. Its name derived from the tin-glazed earthenware that it imitated (MPRG 1998: 4.1.2). It had a widely everted rim, constricted neck and cylindrical sided body with a low basal push-in.

Plain (fig. 4.22.1)

Plain examples were the most numerous and occurred on all varieties of site.

Examples:
Acton Court *
Camber Castle *
Canterbury (Charleston 1987)
Exeter (Charleston 1984b)
London, Gracechurch Street *
Newcastle (Nolan 1980)
Nonsuch Palace *
Norwich (Haslam 1993)
Oxford (Hassall 1984)
Plymouth (Charleston 1986)
Temple Balsall (Gooder 1984)
Wood Hall *

Optic wrythen (fig. 4.22.2)

There was a single known example, from Oxford, decorated with optic blown wrythen.

Example:
Oxford (Hassall 1984)

Optic vertical rib (fig. 4.22.3)

Several examples were decorated with optically blown vertical ribbing.

Examples:
Chichester (Charleston 1981)
Hull (Armstrong 1977)
Norwich (Haslam 1993)
Oxford (Hassall 1984)

Optic mesh (fig. 4.22.4)

Optically blown mesh designs have also been found, although the pattern is often quite distorted or indistinct.

Examples:
Canterbury (Charleston 1987)
Hereford (Boulton 1985)
Oxford (Hassall 1984)

Square (fig. 4.22.5)

The rim and neck of the square jar were identical to the albarello. However the body of the vessel was blown into a fixed square mould up to the level of its shoulder.

Examples:
Basing House (Charleston 1971)
Poole (Charleston 1992)

4.7.2 *Globular Jars*

Globular jars had small everted rims, a broad vertical neck and a globular body with a simple basal push-in. The breadth of the neck separates them from flasks and made them suitable for the storage of liquids or semi-solids. Globular jars first occurred in the early seventeenth century and continued in use into the latter part of the century. They were always made in a potash glass.

Plain (fig. 4.23.1)

Plain versions of the globular jar were rare, but one known example comes from London.

Example:
London, Gracechurch Street *

Optic vertical rib (fig. 4.23.2)

The majority of globular jars were decorated with optic blown vertical ribs, which radiated from the centre of the base.

Examples:

Exeter (Charleston 1984b)
Hereford (Boulton 1985)
Hull (Henderson 1987)
London, Gracechurch Street *
Oxford (Hassall 1984)
Temple Balsall (Gooder 1984)

Optic wrythen (fig. 4.23.3)

A few examples of this jar type were decorated with optic blown wrythen, although this could become quite faint on the spherical body of the vessel.

Examples:

Poole (Charleston 1992)
Southampton (Charleston 1975)

4.8 *Chemical and Medicinal*

4.8.1 *Distilling*

Alembic (fig. 4.24.1)

The alembic was a convex domed vessel with a collecting channel from which distillates ran out through a spout. The heated vapours cooled into liquid form on the inside of the dome so that they could be collected. Alembics remained unchanged in form from the fifteenth to the seventeenth century.

Examples:

Acton Court *
Chester (Anon 1939)
Eccleshall Castle *
Exeter (Charleston 1984b)
London, Gracechurch Street *
Newcastle (Ellison 1979)
Sandal Castle (Moorhouse 1983)

Cucurbit (fig. 4.24.2)

The cucurbit was the vessel on which the alembic sat. It had a thick convex base to withstand heating and long tapering sides to allow the vapours to rise. Cucurbit bases, which were convex and thick, are often mistaken for urinals, but their breadth and greater size differentiates them.

Examples:

Chester (Anon 1939)
Eccleshall Castle *
London, Southwark (Hinton 1988)
Montgomery Castle (Knight 1994)
Newcastle (Ellison 1979)
Sandal Castle (Moorhouse 1983)

4.8.2 *Urinals* (fig. 4.25.1)

Urinals had an everted or horizontal rim, vertical neck and a spherical body. The base was convex and had an external pontil mark. Urinals varied little in form from the thirteenth to the seventeenth centuries and were always made in a potash glass.

Examples:

Acton Court *
Basing House (Charleston 1971)
Battle Abbey (Charleston 1985)
Berry Pomeroy Castle (Allan 1996)
Camber Castle *
Chester, Hunter Street *
Chichester (Charleston 1981)
Eccleshall Castle *
Exeter (Charleston 1984b)
London, Abacus House*
London, Gracechurch Street *
Nonsuch Palace *
Northampton (Oakley & Hunter 1979)
Norwich (Margeson 1985)
Oxford (Hassall 1984)
Sandal Castle (Moorhouse 1983)
West Bromwich Manor (Cocroft 1993)

4.8.3 *Lamps* (fig. 4.25.2)

Lamps had vertical rims, hemispherical bowls that led to a long tapered base. Most lamps date from the thirteenth to fifteenth century, although some are known from the sixteenth. They were made in potash glass.

Examples:

Battle Abbey (Charleston 1985)
Camber Castle *
Chichester (Charleston 1981)
Durham (Ellison 1993)
Exeter (Charleston 1984b)
Newcastle (Nolan 1990)
Northampton (Oakley & Hunter 1979)
Norwich (Haslam 1983)

Chapter 5 *Glass Vessels from Urban Contexts*

5.1 *Introduction*

This chapter examines group deposits of glass from urban contexts in England. Six assemblages are catalogued and discussed: two from London, two from Chester, one from Bagshot and one from Poole. The initial aim was to examine groups of glass from all over England, however there is an unfortunate bias towards London and the south of the country. This southern bias reflects modern excavation patterns rather than a post-medieval reality. All the sites discussed remain unpublished, with the exception of the material from Poole (Horsey 1992), which has been included to supplement the other sites.

5.2 *Urban Archaeology in England*

Urban archaeology has developed considerably in England during the course of the last three decades. Before the 1960s there were few excavations within towns and even fewer that were concerned with the post-medieval period, a situation reflected in the number of published glass reports (fig. 1.2). The first step towards a more formalised programme of urban excavation occurred in 1964 with the establishment of the Winchester Excavation Committee (Ottaway 1992: 11). The committee recognised the need for the systematic recording and excavation of the urban environment to answer specific research questions. This set the model for many subsequent urban field units around the country.

Nevertheless, the Winchester committee remained for some time the exception rather than the rule, causing the Council of British Archaeology to create the Urban Research Committee in 1970, to encourage generally a programme of excavation and research in British towns (Schofield 1981: iii). This group and the newly formed Rescue movement applied pressure on Government to provide increased funding for new urban units during the 1970s (Jones 1984: 57-61). The Town and Country Planning act of 1971 (revised 1990) contained elements designed to assist in the provision of urban archaeology. Planning permission was granted based on the developer allowing archaeological access to the site, but the legislation proved informal and difficult to enforce (Ottaway 1992: 14).

Urban archaeology in England continued in this fashion until 1990, with the publication of the *Planning Policy Guidance,* note 16 (DOE 1990). This Government document gave a set of principles for the consideration of archaeological matters during the planning and developmental stages of future construction. It has caused the rise of developer funded excavation, where the contractor must pay for any required archaeological work. This approach has proved nearly as disastrous as the situation during the 1960s. With all assessments and contracts being granted to the lowest tender, the resulting archaeology has

suffered from insufficient excavation time, resources and expertise. With such tight budgeting the post-excavation work and publication are often neglected and publication is even rarer. This is reflected in the relative numbers of glass reports that have been published in the 1990s, as opposed to the previous two decades (fig. 1.2), despite the real increase in development and excavation.

Although the practice of urban excavation can be seen to have developed to higher standards throughout the 1960s and 1970s, this has often not been the case for the post-medieval period. The view current in the 1970s was that;

"post-medieval archaeology is likely to yield the most fruitless results when linked closely to a study of written sources and standing structures...which are still numerous in the towns" (Rodwell 1975: 21).

This opinion has slowly changed, but the study of post-medieval urban archaeology has still not gained the status of that of earlier periods. The first summary concerned with the archaeology of towns belonging to this period appeared in 1987, and was only eleven pages long (Davey 1987). The majority of urban excavations today still remove the post-medieval archaeological contexts by machine. For instance the York Archaeological Trust, responsible for the majority of the city's excavation, has yet to dig a post-medieval context (Ailsa Mainman, York Archaeological Trust pers. comm.). However despite the limitations of many urban archaeological excavations, it is still possible to identify a number of important groups of well contexted glass. From these it is possible to draw wider conclusions concerning the role of glass in the life of towns during the sixteenth and seventeenth centuries.

The remainder of this chapter will consider each of the six urban study groups of glass on an individual basis. The relationships of the assemblages to their relative contexts are explored and the vessels used ascertained. Once this has been attained the general characteristics of glass use in the urban setting are explored.

5.3 *Gracechurch Street, London*

During spring of 1940, workmen demolishing the remains of All Hallows church broke through the remnant of a brick and chalk built cellar of a building which stood between the church and Gracechurch Street (fig. 5.1). The watching brief who was present observed the presence of large quantities of glass, clay pipes, Delft and other pottery, of which about half was recovered in a brief excavation (Oswald & Philips 1949: 30).

Only a brief note of the excavation was made at the time (Oswald 1940). Although this is the largest single deposit of seventeenth century glass so far found in England, it has still not been comprehensively published. The most extensive report appeared nine years later, giving some examples of the glass and pottery (Oswald & Philips 1949). However many of the conclusions drawn can now be challenged in the light of more recent research.

In the Oswald and Philips report two potentially erroneous conclusions were drawn. Firstly, the deposit and the destruction of the vessels were dated to the Great Fire of 1666 (Oswald & Philips 1949: 30-31). This was based upon the large quantity of burnt material in the cellar. However, this is clearly untrue; of nearly one thousand fragments of glass recovered, only one showed any sign of heat distortion. Original excavation notes, stored in the Museum of London, include a plan and section drawn at the time of the excavation (fig. 5.1). This clearly shows five layers of stratification, one containing the potash glass and the other the soda. The typological dating of both the potash and soda glass provides a date that need be no later than the first third of the seventeenth century.

The second false conclusion was that the deposit was the stock of a glass seller (Oswald & Philips 1949: 31.). The possibility that the assemblage belonged to a wealthy household or an inn was considered, but ruled out. The assumption that the deposit was a glass seller's stock was based on the size of the deposit and the multiplicity of forms present. In 1940 no groups of glass of this size had previously been excavated, so the scale of the group made this a not unreasonable suggestion. However more recent excavations of other assemblages, from sites such as Acton Court, Nonsuch Palace and Eccleshall Castle, suggest that large domestic deposits of glass were not unusual.

The complexity of the archaeological stratification suggests that the Gracechurch Street material represents more than a single 'hoard' of glass, and is instead the accumulated build up of material from either a domestic or an inn context. However, given the crude nature of its excavation, much of the contextual information has been lost. Nevertheless, given that the material was confined to a single cellar, it still remains the largest and one of the most important groups of late sixteenth and early seventeenth century glass to have been excavated in England to the present day.

The deposit from Gracechurch Street contains examples of many of the forms of glass in use in the late sixteenth and early seventeenth centuries (Appendix 1.1 contains the full catalogue of this material, and a number are illustrated in figs. 5.3-5.11). A minimum number of two hundred and forty one vessels were recovered in total, and these are summarised in table 5.2. The majority of the glasses are drinking vessels, representing most beaker and goblet types from the first third of the seventeenth century.

Cylindrical beakers were the most common beaker form, the majority being made from soda or mixed alkali glass. Whilst six were plain the majority had mould-blown designs, including six with optic mesh and thirteen with vertical rib. There were also four examples with vertical rib and spiral trail, as well as four thick and three thin cut spiral trailed examples. At least two cylindrical beakers were decorated with marvered opaque white spiral trails. Potash pedestal beaker varieties were also well represented in the assemblage, the majority of them plain, although there were two examples with optic wrythen, five with optic vertical ribbing and a single example with a spiral thread trail. There were two examples of soda pedestal fluted beakers, with a cylindrical cross-section, and decorated with thick raised horizontal and vertical opaque white trails. The final beaker form was a single example of a potash Roemer with pulled prunts.

A total of one hundred and sixteen goblets were recovered, over half of them knopped stem varieties. Ten of these were inverted baluster stems and a further fifty-five elongated, or cigar stem, inverted balusters. The assemblage also yielded the largest group of mould-blown stems thus far known from England. Sixteen examples of lion-mask and a single ladder stem were recovered, although none retained any evidence for any original surface gilding. The lion-mask stems can be classified into five of the categories identified in chapter 7.4.1. Seven examples of type 'A', one of 'B', three of 'C', one of 'E' and three of 'F' were recovered, with one example being too fragmentary for classification. The single ladder stem was a type 2 scroll design (chapter 7.4.1). The deposit also contained the greatest number of early seventeenth century compound stems to have been found in England, seventeen in total, two loop and scroll examples, four coiled and winged, and eleven loop and wound stems. Ten potash pedestal goblets were also found, eight with a folded central knop, the other two plain with horizontal trailing on their bowls. The final goblet type from the group was represented by two fragmented examples of rod stem goblets with solid stem knops.

In the sample of flasks all of the form variants were represented. The largest group consisted of twenty-one globular flasks, eight decorated in optic wrythen, the remainder being plain. There were nine flasks of the oval type, all decorated in optic wrythen. The group included only three plain pedestal flasks and a single example of a rare plain conical

flask, dating to the latter sixteenth century. The final category of flask was represented by small early case bottles, including six examples each of the square and hexagonal sectioned types.

The Gracechurch Street deposit contained only three very fragmentary bowls, all pedestal examples. They were made in an opaque white metal and were Dutch imports. Eight jars were also recovered, six ordinary plain Albarello types, and single examples of both plain and vertically ribbed globular jars. Finally there were fragments from between two and four alembics, one with an unusually large spout bent at a near right angle. There was only one example of a urinal rim.

All the vessels from the Gracechurch Street deposit can be dated between the late sixteenth and the first third of the seventeenth centuries. The earlier forms were mainly restricted to the potash pedestal beakers and goblets, whilst the seventeenth century glass was mainly in the form of soda, or mixed alkali, goblets and beakers. This division by period is broadly substantiated by the unpublished section from the excavation (fig. 5.1) which shows the context with the 'wineglasses' (soda glass goblets) and Delft overlying the layer containing the 'green glass' (potash vessels). Unfortunately the pottery from the excavation is now lost.

The original assertion that the deposit was caused by the Great Fire of London in 1666, (Oswald & Philips 1949: 30-1) has no basis in the archaeological material. As has been stated, only a single fragment showed significant heat distortion. The presence of burnt material in with the deposit could represent a more localised event or merely the dumping of cinders from a domestic hearth. If the deposit was sealed in 1666 it would seem curious that vessel forms dating to this period were not present. There were neither fragments of wine bottles, which first occurred in the 1640s, nor later forms of goblets or beakers. If the deposit was formed in 1666, all of the glass would have been old when destroyed. All the forms recovered were styles current in the first third of the seventeenth century and not a single type would appear to have been manufactured in the second half of that century. Finally the presence of distinct stratification within the deposit would argue against the possibility of a single disaster event destroying the assemblage.

It is also possible to argue against the hypothesis that the glass represented the stock of a glass shop (Oswald & Philips 1949: 30). Although such a large group from a domestic urban context is so far unparalleled in England, finds from cesspits in towns of the Netherlands are known at comparable or even larger scales (e.g. Bitter et al 1997; Bult 1992). However, in an English context, the size of the deposit is more unusual. The duplication of many forms, particularly the seventeenth century knopped stem goblets and the cylindrical beakers, suggests a different origin. Such a deposit would not be out of place

at an inn. It resembles the assemblage from Bagshot (discussed in section 5.6), known through historical sources to have been a coaching inn (Malden 1911: 376). The final argument against it being discarded stock from a glass shop is its very existence at all. Such a large group would have had significant worth as cullet, and whilst a private individual might have discarded it, a glass seller is unlikely to have done so. A glass seller would probably have had the possibility and the financial means to recycle broken or no longer fashionable vessels. The presence of Delftware, and other seventeenth century pottery, dishes and mugs as well as large quantities of tobacco pipes would also support the hypothesis that the deposit was a clearance from an inn or similar establishment.

5.4 *Abacus House, London*

The site of Abacus House at 33-39 Gutter Lane was excavated in 1987 by the Museum of London Archaeology Service. The site remains unpublished, except for a brief summary that appeared shortly after its excavation (Blair 1990). The majority of the excavation revealed first to third century Roman occupation but a single brick lined pit dating from the mid- to late-sixteenth century was found near the Gutter Lane frontage. Documentary sources suggest that from the 1520s the Embroiderers' Hall occupied this site and the pit appears to have been used by the Guildhall (Schofield 1995: 188). Despite being a relatively small glass assemblage, it contains a number of high quality vessels, indicative of a wealthy guildhall in the late sixteenth century. Other finds from this context were quite varied; pins, rings, studs and a group of high quality pottery were also recovered (Blair 1990).

A minimum of thirty-four glass vessels were recovered in total, and these are summarised in table 5.12. Beakers, seventeen in total, comprised half the assemblage (Appendix 1.2 contains the full catalogue, several are illustrated in figs. 5.13-5.14). Five of these were cylindrical, although all were decorated differently. Two were made in potash metal, one with optic blown wrythen and the other decorated with fine horizontal trailing, although both had an applied rosette prunt on the body. Three soda or mixed alkali cylindrical beakers were also found, one with thin cut spiral trail, one with opaque white marvered trailing, and a third was plain. Eleven of the beakers were potash pedestal varieties, one with optic wrythen, another optic vertical ribbing, a third optic bosses and the rest were plain. The final beaker type was a single rod stemmed roemer with pulled prunts, dating to the middle of the sixteenth century.

Two fragments from soda knopped goblet bowls were recovered, although it is impossible to reconstruct the stem form. The first was a plain everted bowl, whilst the second came from a broad shallow tazza, decorated with optic blown roundels. The other nine goblets were all pedestal varieties. Three examples were in potash metal; two plain and one with a folded stem knop. Four low quality mixed alkali pedestal goblets were also found. One was plain, two were decorated with fine opaque white trailing and one with opaque red/brown trailing around the rim. These four goblets were all of the everted bowl form reminiscent of mid-sixteenth century Low Country products (Henkes 1994: 99-100), rather than the slightly later English form. Finally, two higher quality soda metal pedestal goblets were found, both decorated with enamelling. The first was an everted bowl decorated in opaque white with vertical trails, scrolls and the banded lettering ' *S : : SPE* '. The second was of similar form with three horizontal rows of raised enamelled opaque blue dots. Both these examples probably date to the late sixteenth or early seventeenth centuries.

The remaining vessels were all potash glass. The first was a large plain pedestal flask and the other five were all fragments of different urinals.

The assemblage from Abacus House is interesting for several reasons. Firstly, it is unusual, as it seems to date exclusively from the mid- to late-sixteenth century. The majority of larger deposits in urban contexts are usually seventeenth century in date, with sixteenth century material occurring as more occasional finds. It represents a rare opportunity to examine a group of vessels in use at this earlier date.

Secondly, the deposit has different vessel proportions and types in comparison to a later deposit. The change in vessel type is discussed in chapter seven, but it is worth noting that both pedestal beakers and goblets are more common here than their cylindrical and knopped counterparts which predominate in later assemblages.

Finally, the context of the vessels is important. They come from a single brick-lined pit, and were probably deposited towards the end of the sixteenth century. Unfortunately, the soil conditions appear to have been very corrosive to all types of glass metal, and as a consequence only the thick portions of most vessels have survived. This makes it hard to assess the original completeness of the discarded vessels and complicates their quantification. However, it appears that they were discarded together, probably in a relatively complete state. The vast majority of the vessels were for drinking and the association between the pit and the Embroiderers' Hall underlines the importance of such activities in Guild life.

5.5 *Crook and Hunter Streets, Chester*

Two assemblages have been excavated in Chester. Both are quite small and come from urban domestic contexts. They differ from the London assemblages in their smaller size and slightly later date. Both come from sealed pit contexts that contained other pottery tablewares.

5.5.1 Crook Street

The deposit at Crook Street was small, containing a minimum of only fifteen vessels (Appendix 1.3 contains the full catalogue, several are illustrated in figs. 5.16-5.17). The majority of the vessels were tablewares (table 5.15). This corresponds with the pottery assemblage, which contained cups and other drinking vessels in Black-glaze, Saintonge and Anglo-Dutch tin-glazed wares. Other pottery vessels included several dishes in Slipware and Isabella polychrome tin-glaze as well as a German Stoneware jug and Midland Yellow-type bowls. The deposit can be dated contextually to the second quarter of the seventeenth century and seems to have belonged to a merchant or other quite affluent household at this time.

Only four glass beakers were found. One was a cylindrical thick cut spiral trail beaker from the Low Countries in a mixed alkali or soda glass. The three remaining beakers were all English potash pedestal varieties with differing mould-blown decoration. The first had optic blown raised bosses in the form of diamonds and the second simple optic blown vertical ribs. The third pedestal beaker is one of only two known examples decorated with optically blown wrythen and vertical ribs.

Goblets, six in all, were slightly more numerous in the assemblage than beakers. Only one fragment of a simple knopped goblet bowl survived, although it is not possible to determine its stem form. Two examples of finely executed mould-blown lion-mask stems were found, both from mould type 'B' (chapter 7.4.1). One fragment of a simple soda pedestal goblet with horizontal opaque white trailing was also found, although this vessel probably dates to the early-seventeenth century and would have been quite old when discarded. Similarly, two examples of applied pedestal beakers have an earlier date than the rest of the context. Both have deep hemispherical bowls, one was plain and the other was decorated with spiralled opaque white marvered trails. The assemblage also contained one other drinking vessel, a potash cylindrical tankard decorated with large pulled floral prunts. Three flasks also occurred, all in potash glass. The first was a plain pedestal type, whilst the other two were square sectioned case bottles, dating to the second quarter of the seventeenth century. Only one other vessel was found, an ordinary potash urinal.

5.5.2 Hunter Street

The assemblage from Hunter Street is slightly larger than that from Crook Street and contains a more diverse range of vessels (Appendix 1.4 contains the full catalogue, most are illustrated in figs. 5.19-5.20). The site was excavated between 1979-81 and the glass came from a large pit. The bulk of the finds were pottery vessels, including a large number of black and brown glazed redware storage vessels and a quantity of finer tablewares. Amongst these were Anglo-Dutch tin-glaze and slipware mugs, dishes and bowls. The whole deposit was interpreted as the relic of a single disaster that occurred to a table setting (Julie Edwards pers. comm.). Although this is a possibility, it more likely to represents a household clearance. The deposit from the pit can be dated securely to the 1640s by the presence of clay tobacco pipes and a coin of Charles I dated to 1637-42. It is possible that the clearance relating to the Civil War, as Chester was the focus of sustained action throughout most of the conflict.

Nine of the twenty-four vessels were for drinking and three were potash beakers. The first was cylindrical with a horizontal trail, the second a pedestal beaker with optic blown vertical ribs. The final beaker was the bowl from a Low Country roemer, and although the lower portion was missing it probably came from a type with impressed prunts.

Of the two knopped stem goblets, the first had an elongated inverted baluster stem and the second was a tulip shaped bowl from a separate vessel, although it is impossible to reconstruct the missing stem form. There was also the top portion of a mould-blown lion-mask stem of the mould group 'E' (chapter 7.4.1). The final goblet form was a compound coiled and winged serpent stem. It was largely complete and was decorated with blue glass wings and beak. The last two drinking vessels were both soda or mixed alkali cylindrical tankards. The first, although plain, was deep blue in colour, while the second was clear with an applied rigaree trail on the body.

A total of eight potash flasks were recovered from the pit. One was a globular type with optic blown mesh design, the second was a plain pedestal example. The assemblage included six case bottles, two with square sections and four of the slightly later hexagonal variety. Of the five bowls, two were uncommon plain hemispherical types, while three were small plain dishes, all of which were in a poor quality mixed alkali or potash glass. The final two vessels were fragmentary potash urinals.

The two deposits from Chester are useful examples of smaller domestic deposits from an urban context in the north of England in the first half of the seventeenth century. Some differences can be noted between them. The Crook Street assemblage consists primarily of

drinking vessels, particularly goblets (table 5.15). The Hunter Street assemblage, however, contains a high proportion of storage vessels in the form of flasks and an unusual number of bowls. Nevertheless the two deposits have many features in common which are of wider interest.

Firstly, despite their small size, both these deposits demonstrate the presence of high quality drinking and serving vessels in an urban context in the north-west of England. Both sites have good quality lion-mask stem goblets and Hunter Street also has a compound serpent stem, unusual outside of London. Likewise the presence of a *vetro a retorti* applied pedestal goblet at Crook Street indicates access to high quality imported glasswares. However, this vessel, dating to the mid-sixteenth century, would have been quite old when deposited.

Secondly, the glass from Chester shows some slightly different patterns compared to other urban assemblages, perhaps reflecting regional preferences. A total of three potash cylindrical tankards came from the two sites. While this is not a great number, these vessels are comparatively rare in England. This may represent the use of vessels manufactured locally, the excavations of the glasshouse at Bickerstaff, Lancashire revealed that tankards were produced there (Hurst Vose 1995: 12).

Finally these assemblages are important as they represent smaller deposits from two households in Chester. Despite containing relatively high quality, and presumably more expensive vessels, the overall numbers are low. Clearly, glass was not being extensively used at the table in these contexts, with perhaps only a few drinking vessels of diverse types present. These assemblages serve to demonstrate that although glass was in use in the first half of the seventeenth century, it was still relatively scarce. This contrasts with the ceramic assemblages, which contained not only large quantities of locally produced wares but also imported stonewares and tin-glazed wares.

5.6 *Bagshot*

The Surrey Heath Archaeological and Heritage Trust excavated the area of 48-52 High Street, Bagshot, between 1983-88 (fig. 5.21). There is documentary evidence that a coaching inn had originally occupied the site during the seventeenth century (Malden 1911: 376). The glass and other pottery tablewares came from the fill of the inn cellar, a context that appears to have been sealed with occupational debris and rubble in the second quarter of the seventeenth century. As a consequence, all the glass was discarded in a single action, perhaps representing the clearance of stock from the inn. As would be expected from such a deposit, the glass consisted almost exclusively of drinking vessels, summarised in table 5.22. (Appendix 1.5 contains the full catalogue, many are illustrated in figs. 5.23-5.27).

Despite a minimum vessel count of fifty-one, surprisingly few vessel forms are represented in the assemblage. A few fragments of beakers were found. Of the two soda cylindrical beakers, one was decorated with vertical ribs and fine applied spiral trails and the other with marvered opaque white trails. The remaining beakers were potash pedestal varieties, two of which were left plain and two decorated with optic blown vertical ribs.

The majority of vessels recovered were goblets, forty-three in total. These can be divided into two groups; those with knopped and those with mould-blown stems. The knopped stem category contained thirty-four elongated inverted baluster stems and a single ribbed round knop stem. The ribbed round knop stem and four of the elongated inverted baluster all had contemporary lead and gilt wire repairs, a feature discussed in chapter 7.5. Of the eight mould-blown stems, seven were lion-masks of differing mould types other a single ladder stem of type 1. Only two other vessels were recovered, a fragment of body and handle from a potash pedestal flask and a body fragment of a potash globular flask decorated with wrythen ribbing.

The vessel glass from Bagshot is important as it demonstrates the vessels in use in a historically documented inn dating to the first quarter of the seventeenth century. The most striking features of the assemblage are the high numbers of drinking vessels and the restricted nature of their forms. The very low number of beaker types is at first surprising. It may be due in part to the survival rates of potash glass in the cellar context, as all the glass was heavily weathered. However, when the pottery from the same assemblage is examined, there is a clear division in the roles for different media. The lack of glass beakers and the large numbers of pottery cups and tankards suggests that beer was not consumed from glass at the site. By contrast the vast majority of glass vessels from Bagshot were goblets, more suited to the consumption of wine.

That the majority of the drinking vessels were goblets is not surprising. However, the lack of diversity in their form is more unexpected. With two exceptions, all the goblets were of the elongated inverted baluster or lion-mask stem types. This suggests that a uniform style of drinking vessel was used at the site and that the vessels were bought in relatively large numbers. The same holds true for the deposit at Gracechurch Street, another possible inn, showing that such environments can be characterised by a more uniform set of material culture. A further similarity between the two sites is the apparent mass disposal of the drinking vessels. This indicates that vessels were expendable in an inn environment, perhaps as a response to changing fashions in both taste and drinking. However, the presence of five repaired stem goblets, the largest group thus far known, suggests that drinking vessels could fulfil further roles, even when broken, a possibility explored in Chapter 7.5.

5.7 *Poole*

The site of the Old Orchard car park, Poole, was excavated in 1973 and 1975 when a large area, 1650 square metres, of the medieval and post-medieval town was exposed (Horsey 1992: 11). As it was a rescue excavation, many of the features were only briefly recorded and it is hard to relate many of the contexts. However, one area of the excavation revealed the backyard of a house, occupied during the sixteenth and seventeenth centuries, which included a number of inter-cutting pits containing large quantities of pottery and glass (fig. 5.28). Little of the actual dwelling was exposed, but it is still possible to relate the material culture to what would have been quite a prosperous household. The pottery assemblage from this area consisted of a large group of seventeenth century domestic coursewares, imported Dutch tin-glazed finewares and Belamine jugs (Horsey 1992: 70).

The glass assemblage spans a longer time period, containing material from the sixteenth as well as seventeenth centuries. This is the result of material coming from several pits in the same property, but these were not clearly defined. Nonetheless, the group is a good representation of the glass used in a domestic urban context over this period (Appendix 1.6 contains the full catalogue, most are illustrated in figs. 5.30-5.32). A minimum number of thirty-nine vessels was recovered, of which thirty-four were drinking vessels (table 5.29.)

Of the four cylindrical soda vessels, three had optic blown raised bosses, while the fourth had applied pinched prunts up the entire length of its body. Another cylindrical beaker in potash glass was found, decorated with vertical optic blown ribs. However, the majority of the beakers were of the pedestal variety. Six of these were the more ordinary potash pedestal beaker, four of them plain, one decorated with optic wrythen and one with vertical ribs. In addition to the potash pedestal beakers, there were also eight made in a soda or mixed alkali metal. Three of these were plain and the other five were enamelled with various bands of lettering (fig. 5.32). These plain and enamelled soda beakers are considerably more unusual, especially given their high frequency on the site. They probably represent a group in their own right, dating to the early sixteenth century. Two further beaker forms were present, a single example of a barrel beaker with horizontal trailing and a plain squat beaker with opaque white impressed prunt feet.

At least six knopped stem goblets were recovered from the excavations at Poole. The first example was a goblet bowl fragment decorated with optic blown ribbing and applied opaque white enamel dots on the ribs. There were also single examples of elongated inverted baluster and ribbed inverted baluster stems, the latter retaining the traces of surface gilding. The remaining goblets of this type had plain round knops, two with trumpet shaped bowls and one with a bucket shaped bowl. A single fragment of a more unusual compound

cable twist stem was also found. Its core consisted of two twisted rods of red and yellow glass encased in a colourless glass. The fragment is too small to determine the original shape of the goblet, but appears to be a section of rounded loop. The remaining goblets were all pedestal varieties. The remains of two potash forms, with horizontal opaque white thread trailing were found, along with two plain examples, one of which was nearly complete. Of the two soda glass pedestal goblets with folded knops, one was plain and the other decorated with marvered horizontal opaque white trails.

Five other vessels were also found, including two globular flasks, one plain and the other decorated with optic blown wrythen. A single *lattimo* shallow pedestal bowl, of a Low Country type, was found in addition to a square albarello jar and an unusual example of a wrythen decorated globular jar.

The glass from Poole is of considerable interest. Firstly, the assemblage contains a number of rare, and costly, imported vessels. The presence of five enamelled pedestal beakers is unusual. All were of the same style, with banded lettering, but were too fragmentary to reconstruct their mottoes. Such sixteenth century vessels are uncommon in English contexts and the presence of five from the same site suggests that they were imported together, possibly from Venice, perhaps as part of a specific order.

Secondly, the assemblage contained a high proportion of other imported vessels, primarily from the Low Countries. The barrel and squat beakers as well as the lattimo pedestal bowl were both imports from this region, as were probably also the pedestal goblets with fine trailed bowls. Domestically produced glass was also present, including the soda or mixed alkali round knopped, ribbed inverted baluster and cigar stemmed goblets, as well as a number of the potash beakers.

The third important aspect of the assemblage is the division of vessel types. The majority of the high quality drinking vessels were imported beakers, rather than goblets. This seems to indicate a preference for beakers, particularly ones more easily available in a mercantile town such as Poole. The assemblage demonstrates that high quality glasswares were accessible and used in Poole in a domestic household of apparently a middle class or merchant status. The occurrence of high quality imported glass at Poole demonstrates that such vessels were available and used in urban contexts outside London.

5.8 *Glass from Urban Contexts; Summary*

The six assemblages of vessel glass examined in this survey of urban contexts all vary both in their size and composition. However a comparison of the similarities and differences between these groups will allow more general conclusions to be drawn concerning the date of the material, the context of the individual deposits and the vessels used in urban locations.

5.8.1 *Chronological Trends in the Material*

Vessels dating from both the sixteenth and seventeenth centuries were found at the majority of the sites examined in this chapter. They represent a wide range of vessels in use throughout the Tudor and early Stuart period in urban contexts. However, the majority of the assemblages, with the exception of Abacus House, contain mostly vessels that date to the first half of the seventeenth century. Indeed, again with the exception of Abacus House, all the assemblages were deposited in the first four decades of the seventeenth century and earlier vessels within these groups must be considered as having been 'antique' when deposited. It is clear from some of the vessels, such as the five sixteenth century enamelled pedestal beakers from Poole, that they were in use for a considerable time before their discard. These variables aside, it is clear that in the majority of cases glass was deposited in larger urban assemblages only during the seventeenth century, although occasional finds of individual vessels during the sixteenth century are not uncommon (such as the engraved tazza from Minster House, described in greater detail in chapter 7.4.2).

The evidence examined in this chapter indicates that vessel glass only came into general use in an urban context during the seventeenth century. This contrasts with the elite contexts, examined in chapter 6.9.1, where vessel glass was more widely used in the sixteenth century. The apparent exception to the urban situation is the glass recovered from Abacus House in London. In this instance, the stone lined pit contained a group dating almost exclusively to the last quarter of the sixteenth century. This difference can be explained in part by the context of the material. As has already been noted, the deposit was associated with the Guildhall of the Embroiderers, founded on the site in the 1520s (Schofield 1995: 188). As a consequence, the deposit was not therefore from a conventional domestic environment. During the sixteenth century guildhalls acted as social and political centres as well as focal points for celebrations and feasting (Lloyd 1998: 98), so it is not surprising that high quality glass is found in a context associated with such activities.

The final chronological trend within the deposits is the frequency with which imported vessels occurred. During the first two thirds of the sixteenth century the native

glass industry was restricted to the limited production of low quality potash vessels. The only high quality vessels available were either imported or later the products from Verzelini's glasshouse. As a consequence, high quality glassware would have been relatively more expensive during the sixteenth than the seventeenth century. This is confirmed by the cost of vessels quoted by Mansell, which shows a gradual fall in prices throughout the seventeenth century (fig. 5.34). During the sixteenth century only the more wealthy could have afforded high quality glass vessels in any quantity, which may explain why only occasional vessels occurred in more middle class urban contexts. However by the second quarter of the seventeenth century, glass tablewares would have been considerably cheaper and more available to the 'middling sort' living in the urban environment.

5.8.2 *Inns and Household*

The inclusion of two deposits from inns or taverns in this study has already been discussed. The glass assemblages from Gracechurch Street and Bagshot provide the opportunity to compare and contrast the assemblages of glass found in commercial and household contexts. Clear differences between the two groups, commercial and household, can be observed despite the occurrence of similar vessel forms in both contexts. The most noticeable difference is the scale of the deposits. Gracechurch Street and Bagshot produced the largest of all the urban assemblages, with the former site containing over twice as many vessels as all the domestic groups put together (fig.5.33). Clearly, an inn or tavern would require large quantities of vessels of all media to cater for its customers. The rate of breakage was presumably much higher within these contexts than in an ordinary household. Both these deposits date to between 1620-40, a time when good quality glass vessels were available in sufficient quantities and at a reasonable enough price to furnish a high-quality drinking establishment.

A further noticeable difference between the household and inn deposits is the replication of forms in the latter assemblages. The domestic urban assemblages contain a wide variety of drinking vessel types, but with rarely more than a couple of examples of each type. There is nothing resembling matching 'sets' in these groups and the vessels used at the table appear to have been of diverse types and media. However, in the deposits from Bagshot and Gracechurch Street there are multiple examples of some goblet and beaker forms. At Bagshot, where most of the drinking vessels were goblets, elongated inverted baluster and lion-mask stems form nearly the entire assemblage. The glass from Gracechurch Street is slightly more diverse. However if the potash glass and the soda glass are considered as two different deposits, as suggested by the site stratigraphy (fig. 5.1), each of these deposits is more uniform. The first consists primarily of potash pedestal beakers and

goblets, totalling thirty-one vessels. The second is larger, but again the range of forms is quite restricted. All but three of the thirty-two beakers are cylindrical varieties, whilst the goblets are compound, mould-blown or knopped stemmed, the majority of the latter type being elongated inverted balusters.

It is not surprising that there is a large degree of vessel replication at inn but not domestic sites. However, this is unlikely to be the result of a desire for a uniform set, with every drinker receiving the same style of vessel. More probably it is due to the way by which the glasses were bought. In the price lists of Mansell there is no reference to the different shapes of glass. Instead the prices of the vessels were divided in to three categories, 'ordinary,' 'crystal' and 'crystal imported from Venice' (Godfrey 1975: 216). The prices were always quoted per dozen, suggesting that this was the usual number that was purchased directly from the glasshouse. Therefore it is likely that the inn would only specify the quality and number of glasses required, rather than individual designs, and that the glasses delivered would consist of whatever stock was available at the time. The presence of several different forms at both sites could be evidence for a number of orders over a longer period of time.

5.8.3 *The Context of the Deposits*

It is important to consider the contexts from which these urban assemblages of glass were recovered and these can be broadly divided into two categories. The first were those recovered from the intentional fill of cellars. The deposits from both Bagshot and Gracechurch Street belong to this category, which is probably no coincidence. The second category is that of small, often stone or brick lined pits, into which all of the domestic assemblages fall (although the material recovered from Poole came from a succession of small pits).

The nature of rubbish disposal has not been comprehensively addressed for the post-medieval period in England, particularly in urban contexts. It is generally assumed that rubbish was disposed of in the tenement or close to the dwelling, a situation that continued until the nineteenth century. Lined pits, whether they were brick, stone or even buried barrels were probably intended for hygienic disposal of human and animal waste. The occurrence of material culture within these contexts is probably a secondary function. The presence of earth dug pits is harder to interpret. The hypothesis that these were dug to receive household rubbish makes little sense as the material removed to create the pit would need to be disposed of itself. It would seem that many of these pits were dug for a different purpose, such as the extraction of sands, and then filled with household rubbish to level them. What is clear is that there was no universal or standardised method of rubbish disposal

(whatever its origin). This contrasts strongly with other European countries, such as The Netherlands. Recent research on over one hundred cesspits from four towns has revealed a complex but structured system of cesspit construction (Bartels 1999: 25-41). Household rubbish and cess was deposited, usually in large brick pits, until they became full, when they were either cleared out or more usually sealed and a new pit dug (Bult 1992: 54).

If this is the case in England, then it is not surprising that all the glass from domestic contexts came from pits. Lined pits, such as the one from Abacus House, were probably intended primarily for human faeces, although they also served as suitable repositories for other rubbish. In the case of more ephemeral pits, cut only into the natural soil, they were likely to have served other primary functions, but were subsequently useful repositories for household waste.

That the deposits from the two inns were from different contexts, namely cellar fills, further confirms this pattern of deposition. The quantities of glass requiring disposal were greater, and the frequency of breakage probably higher. However, both the deposits from Gracechurch Street and Bagshot appear to result from large clearances of material. In both these contexts, the vessels were collectively deposited in a single action, or in the case of Gracechurch Street on two separate occasions. When whole sets of material culture were disposed of a cellar would provide a suitable repository. These two sites are not unique in this pattern of deposition; when the Evett family moved from their old home at Temple Balsall to a new residence in the early eighteenth century the debris from the household clearance was thrown into the cellar of the house (Gooder 1984: 153). It is possible that the two deposits from the inns in this survey were similar purges of old material culture to make way for new forms and styles.

5.8.4 *The Use of Glass in the Urban Setting*

Despite coming from two different types of social setting, the inn and the household, there are many similarities between all the urban glass assemblages in this study. Most striking is the predominance of drinking vessels over other forms in all the assemblages. This is not unexpected in the context of the inn. At both Bagshot and Gracechurch Street, the glass comprised primarily drinking vessels, although there are variations between the two assemblages. At Bagshot glass was almost exclusively used as goblets, presumably for the consumption of wine. The small number of beakers would suggest that other media, most likely pottery, were used for drinking beer and ale. The Gracechurch Street assemblage contains large numbers of both beakers and goblets, indicating that glass was used for the consumption of both beer and wine. However, both inn sites seem to have used very little glass for other table functions. Despite the size of the deposit at Gracechurch Street, there

were no examples of jugs and only three fragments of bowls. Likewise at Bagshot there were only two vessel fragments which were not drinking vessels, a single jug and a single flask. Clearly, in both these environments, other vessel media were in use to fulfil these functions.

This pattern also existed at other domestic urban sites. The remaining four assemblages in this study contained few other tablewares. All contained potash flasks for storage and the occasional piece of chemical-ware, but with the exception of the five bowls from Hunter Street, none of the sites produced more than a single example of a bowl or jug (fig. 5.33). As at the inn contexts, glass tablewares appear to have been largely restricted to drinking vessels. There is no obvious explanation of this pattern, as jugs, bowls and dishes were all being produced in the early seventeenth century when the majority of these deposits were formed. This pattern contrasts with that at elite sites (see chapter 6.9.3). However, in the domestic context this pattern might relate to the numbers of vessels found generally on the sites.

With the obvious exception of the inn deposits, the assemblages of urban glass are quite small. In this study, the minimum vessel number varied between fifteen and thirty-nine. However, this is inevitably a very biased picture, as these sites were chosen for investigation precisely because they had produced groups of vessel glass. An overall picture of the material culture used in English towns gives the impression that the use of glass was quite restricted. Many substantial urban deposits of the seventeenth century contain little or no vessel glass. For example, a pit in Plymouth dated to 1625-35 from a similar domestic context to those discussed in this chapter produced over two hundred assorted ceramic vessels, but only four glass fragments (Allan & Barber 1992). Where households did have glass vessels, they tended to be in smaller quantities. This would possibly explain why drinking vessels were the type of tableware most likely to be present in an assemblage. Goblets and beakers were the most visible form of glassware to be used at the table, so if only a limited investment was to be made in glass then it was most likely to be in these forms. This would also explain the diversity of types that existed within the drinking vessels. Vessels were perhaps bought on a limited or even individual basis, so that an assemblage of diverse forms accumulated.

The final observation concerning these urban assemblages is the low numbers of imported vessels at almost every site. Most of the groups contain vessels that are demonstrably English in origin, particularly the elongated inverted baluster and lion-mask stemmed goblets as well as most of the potash pedestal beakers. This may in part be due to the later date of these groups. By the early seventeenth century the domestic industry was providing high quality wares and there were heavy restrictions on imported vessels (Chapter

1.3.1). However, two deposits, from Abacus House and Poole, did contain significant numbers of imported vessels. Their occurrence at the first of these sites can be explained by its sixteenth century date when there was less access to domestic wares. However, the presence of seventeenth century imported Dutch vessels at Poole probably relates to its location. During the fifteenth century Poole had grown to become the most important port in southern Dorset (Horsey 1992: 6). Although its fortunes declined during the sixteenth century, it was still an important international trading centre in the seventeenth century. It is no surprise that its residents had greater access to imported foreign goods.

5.8.5 *Conclusions*

The glass assemblages from urban contexts can be broadly divided into two groups, those from domestic dwellings and those from inns. The former groups tended to be small in size and contained a variety of different forms, with few being replicated. Assemblages from inns offer a contrasting picture. The vessel numbers were greater and many of the vessel forms were replicated in large numbers, a possible result of the way glass was obtained.

However, in both environments there were shared trends. The glass, with the exception of storage vessels such as flasks, was almost exclusively restricted to drinking vessels. Few jugs, bowls or dishes were present in any of the assemblages examined. In both inn and domestic contexts other media, such as pottery, were used to fulfil these roles and the glass reserved for the more conspicuous drinking vessels. The second similarity between most of these sites was the date of their deposit. With the exception of the material from Abacus House, all the groups date to the first third of the seventeenth century. Although glass did occur as occasional finds in the preceding century, it was not until the seventeenth century that large groups were being used and deposited.

The increased development and rescue excavation within towns during the last four decades has produced a large quantity of material culture in many towns in England. It has only been possible to examine some of the larger groups with better contextual information in this study. Inevitably, there has been a bias in the data towards the south of England and London in particular. However, it has been possible to demonstrate some of the general characteristics of the patterned use of vessel glass in the Tudor and early Stuart town.

Chapter 6 *Glass Vessels from Palaces, Castles and Manors*

6.1 *Introduction*

This chapter considers glass assemblages recovered from elite contexts, the majority of which were in non-urban environments. To term them as 'rural' sites would be deceptive, as virtually no glass vessels, with the exception of a few fragments, have been recovered from excavations of villages, farms or other lower status non-urban sites. Instead the glass in this chapter has been found on higher status or elite dwellings including palaces, castles and manor houses.

The term elite is used to refer to the upper sections of Tudor and early Stuart society, although it is hard to reconcile this with contemporary status distinctions. In 1583 Sir Thomas Smith divided Tudor society into four tiers when discussing *The Division of the Parts and Persons of the Common Wealth.* These were gentlemen, citizens or burgesses, yeoman artificers and labourers (1982: 64-77). Based upon this model the elite groups who were occupying palaces, castles and manors are likely to have fallen into the 'gentlemen' group, whilst the urban assemblages may have derived from the citizens or burgesses. Although it is hard to make such simplistic divisions, Sir Thomas Smith subdivides gentlemen into four further categories ranging from *noblitas major* to esquires, although it is likely that the elite groups detected archaeologically can all be classed as 'gentlemen'.

6.2 *The Archaeology of the Elite*

There are a number of problems associated with investigating glass assemblages in these contexts. Until recent years excavation of such sites has been biased towards the southern half of England whereas this study has attempted to include excavations from the north as well. Additionally, many high status sites, and castles in particular, were crudely cleared in the nineteenth and early twentieth centuries, for example during Sir Charles Peers' unpublished excavations at Richmond Castle or Rievaulx Abbey. Much of the archaeological deposits were destroyed in these actions and where they survived it is often impossible to relate them to the context of the structure from which they originated. The final problem in investigating such sites is the lack of redevelopment that has occurred in the countryside, where many of these sites are located, compared with towns. Urban regeneration has provided the opportunity for the extensive excavation and examination of urban archaeological deposits. The same is not the case for many rural areas, and most archaeological investigations have been restricted to smaller scale research excavations. Indeed many of the important rural castles and manors have continued to be developed and lived in until the present day, thus largely removing the possibility of excavation.

The study of elite sites has tended to concentrate upon their architectural development rather than their artefact remains. Little synthesis has occurred of palace sites, beyond the listings of royal properties (Loades 1986: 193-203), or descriptions of surviving buildings, illustrated with contemporary documentation and occasional archaeological examples (e.g. James 1990; Steane 1993). A similar situation characterises the study of stone castles. Many general publications consist purely of architectural and military narratives (Allen Brown 1989; Kenyon 1990) although more recent accounts have incorporated and discussed the archaeological evidence (Pounds 1990). Finally the comprehensive study of moated sites has had a firmer base in the archaeological record. Such sites normally only remain as earthworks; and consequently surveys and excavations have been undertaken at both a regional (le Patourel 1973) and wider European level (Aberg & Brown 1981).

Despite the limitations of the study and excavation of elite sites, there are sufficient assemblages of glass to provide a detailed understanding of the patterned use and disposal of glass vessels in these contexts. In this chapter, six sites which have produced relatively large quantities of glass are discussed. All are unpublished at this time, although with the exception of Eccleshall Castle this situation will be redressed over the coming few years. Although unpublished, the glass from Eccleshall Castle has been comprehensively reported upon as an MA dissertation (Sheale 1993). The remainder of this chapter will consider each of the six elite study groups of glass on an individual basis. The relationships of the assemblages to their relative contexts are explored and the vessels used ascertained. Once this has been attained the general characteristics of glass use in the elite setting are explored and contrasted with patterns already observed with the urban sites.

6.3 *Camber Castle*

Camber Castle was constructed between 1512-14 and received extensive modification between 1539-43. Although dismissed as a defensive artillery fort by some scholars (Allen Brown 1989: 71), excavations at Camber Castle have revealed all the domestic features associated with an ordinary castle. Henry VIII had it built as part of a wider defensive programme in Kent, which included forts at Deal, Walmer and Sandown (Platt 1982: 191). Camber Castle was constructed with permanent occupation in mind, although due to silting of the waters of the river Camber, it was abandoned in 1637 (Allen Brown 1989: 71). As a consequence the castle was occupied for a little over a hundred years, providing the opportunity to examine the material culture of a site which never saw subsequent development.

Two main phases of excavation have been undertaken at Camber Castle, the first was directed between 1963-5 by Martin Biddle and since then periodic excavation on behalf of the Department of the Environment took place between 1973 and 1983 (Ames 1975: 233). As a consequence the majority of the castle has been excavted, with the exception of the southern bastion, and a large group of glass recovered. Due to significant site disturbance by the sea and erratic excavation recording, much of the contextual basis for the glass recovered has been lost. However the majority of the vessel fragments come from the area of the north bastion and ranges (fig. 6.1) and serve to illustrate the variety and types of vessels in use on the site as a whole (fig. 6.2).

The majority of the glasses found were drinking vessels, although there were also significant numbers of flasks (Appendix 1.7 contains the full catalogue, the majority are illustrated in figs. 6.3-6.5). Three cylindrical beakers were recovered from the site. The first was a small body fragment of soda glass with diamond engraving, depicting a floral motif. The other two cylindrical beakers were both thin cut spiral trailed examples. Far more numerous than the cylindrical were the potash pedestal beakers, with sixteen being recovered in total. Seven of these had optic blown decoration, three wrythen, two mesh, one roundel and one vertical rib. The remaining nine were left plain. The final beaker fragment was the base from a plain pedestal fluted type.

Only three goblets with knopped stems were found at Camber Castle, all dating to the late sixteenth or early seventeenth century. Two of these were elongated inverted balusters, one of which had suffered severe heat distortion. The third was an inverted baluster stem with a fragment of bowl, decorated with diamond engraved scroll and floral design. The remaining goblets were all earlier sixteenth century pedestal forms. The majority of these appear to have been decorated examples, although the bases would have remained largely plain, so it is hard to calculate their exact minimum number. Three

fragments of a *vetro a retorti* pedestal goblet bowl were found. The first was the everted rim from a trumpet shaped bowl and the remaining two fragments, probably from the same vessel, came from a large thistle shaped bowl. Two fragments of different pedestal goblet bowls with enamelled decoration were also found. The first was a vertical rim fragment with two dots of enamel, one blue and one white, whilst the second had two bands of opaque white trails with dots above and below, possibly with gilded lettering between which has now completely disappeared.

The majority of the pedestal goblets were decorated with fine horizontal opaque white trails closely clustered below the rim. These vessels were almost certainly Low Country products (Henkes 1994: 99) and ten were recovered in total. Most were very fragmentary, although one example had optic blown vertical ribs decorated with opaque white dots on the lower bowl. They date to the middle of the sixteenth century. Three further pedestal goblets of this date were recovered, one with optic blown roundels and two with vertical ribs.

A total of nine flasks were also found. Four were globular varieties, one decorated with optic vertical ribs and the remaining three left plain, whilst two sixteenth century oval flasks, one wrythen and the other plain were also recovered. The final flasks were all later square-section case bottles. Of other forms present only one fragment of a small dish was found and the rim from an albarello jar, whilst the chemical glass consisted of three urinals and one lamp base.

That such an assemblage of glass was found at what is usually thought to be a purely defensive fort is significant. The number of drinking vessels, as opposed to long term storage vessels, would indicate that the castle played a significant domestic role, at least during the middle of the sixteenth century. Other features of the castle, such as large ovens in the western bastion and extensive garderobe chutes in the south-western range, suggestive of high quality accommodation, would seem to confirm this picture. The majority of the glass came from the north-eastern range, the area suspected to be the location of the hall (Cecily Cropper pers. comm.). Clearly Camber Castle was used as a residence and a centre in which high status dining took place.

However the assemblage would seem to indicate that by the seventeenth century this was no longer the case. Only three drinking vessels can be positively dated to the period after 1600, these being the two cigar stems and the pedestal fluted beaker. This suggests that by the seventeenth century the castle was no longer an elite residence a factor likely to be related to the gradual silting of the river Camber and the eventual obsolescence of the site.

A further point of interest is the high proportion of imported drinking vessels in the assemblage. The presence of *vetro a retorti* goblets of Venetian or *façon de Venise*

manufacture, enamelled goblets and large numbers of Low Country trailed pedestal goblets suggests that this was a high status assemblage. It is possible that the custodian can be identified as a Philip Chute, who was the recorded keeper and captain of the castle between 1540-70 (Biddle U/P). Clearly Chute had access to, as well as a desire for, high quality drinking vessels.

6.4 *Acton Court*

The moated manor of Acton Court in Gloucestershire was thirteenth century in origin, with several ranges of masonry buildings that were constructed in the fifteenth century. During the 1530s the eastern range was demolished and rebuilt, probably to coincide with a visit to the manor by Henry VIII in 1535 (Vince & Bell 1992: 101). The majority of the glass from Acton Court came from two contexts, both dateable to no later than the middle of the sixteenth century (Courtney forthcoming). The first was the result of accumulation under the floorboards of the west range and in some of the associated features, such as drain fills. The second was within the south arm of the moat, a feature that was deliberately backfilled in the middle of the sixteenth century (Vince & Bell 1992: 102).

A small amount of glass from this date to the early seventeenth century was also recovered from other areas of the site, amongst occasional occupational debris. A varied group of pottery vessels was associated with the glass, that comprised not only local wares but also Rhenish, Iberian, French and Italian imports (Vince & Bell 1992). As a consequence the assemblage from Acton Court can be viewed as a large group, probably purchased at the same time as the rebuilding of the 1530s, and deposited shortly afterwards.

The glass from the site includes most vessel forms (Appendix 1.8 contains the full catalogue; and most are illustrated in figs. 6.7-6.10). A minimum number of seventy-four vessels were recovered, of which forty-nine were drinking vessels (fig. 6.6). Seven cylindrical beakers were found. One fragment was from the folded base-ring of a *vetro a fili* trailed beaker with a small applied lion face prunt. Another highly decorated cylindrical beaker was decorated with horizontal rows of red and green enamel dots, along with small patches of gilt. The remaining cylindrical beakers were less decorated. One had optic blown mesh decoration, another optic wrythen and the remaining three were left plain, although one had an applied face prunt to the body. Only five pedestal beakers were found, two in soda glass and three in potash metal. The soda glass examples were decorated with *vetro a retorti* and a red, white and blue enamelled rosette design bounded by gilt respectively. The three potash pedestal beakers were all plain.

Thirty-seven goblets were found, of which all but six were knopped varieties. The latest goblets represented in this assemblage were three elongated inverted baluster stems, dating to the first half of the seventeenth century. The fragment of flaring base with diamond point engraving from a knopped goblet of indeterminate stem form, might also date to the seventeenth century, although an earlier date cannot be discounted. Likewise a later date, compared to the majority of the goblets, can be attributed to the ice glass goblet bowl and inverted baluster stem.

The remaining goblets can all be dated to the middle of the sixteenth century. The most unusual was the bowl from a *Nef.* This shape was achieved by the pinching-in of a shallow goblet bowl sides to produce a simple boat shape, that could be further adorned with trails of glass to represent masts and rigging. This example from Acton Court is the only archaeological example thus far known from an English site, although several examples can be found in museum collections (Tait 1991: 166). A single example of a more ordinary ribbed round potash stem was also found, of a type usually associated with the latter half of the sixteenth century. Five soda glass round knopped goblets were amongst the assemblage. Two were left plain, although the trumpet shaped bowl of the first was decorated with an optic blown mesh design. A third round knop and base was decorated with *vetro a retorti,* whilst two were ornamented in fine *vetro a fili.* One of these examples retained the majority of its deep bucket shaped bowl, decorated with interlacing *retorti* canes on the base and horizontal trailing further up. A single fragment of out-turned goblet rim in *vetro a reticello* had a thin layer of gold leaf trapped between the two parisons of glass and is an extremely rare vessel.

Six different bowls from tazzae were found, although they can not be associated with any particular stem form. Two were near identical shallow examples in *vetro a retorti* whilst the remaining four were decorated only with horizontal trailed bands. A further four knopped vessels were all decorated with coloured trailing. Two hemispherical goblet bowls were decorated with several horizontal bands of twisted canes. A rim from a deep bowl decorated with vertical *fili* and broad *retorti* trails. The final knopped vessel had a more unusual form spherical form, with a distinct upper shoulder that tapered to a narrow neck. The lower portion was decorated with marvered vertical opaque white trails, and the upper body with horizontal fine colourless trails.

Only six pedestal goblets occurred at the site. Three appeared to be plain examples, the other had applied prominent trails to its lower bowl. One rim fragment from a pedestal goblet was decorated with elaborate opaque white enamelling in horizontal trails and dots, set within a scratched gilt border. The final pedestal goblet was a more ordinary potash stem, with a folded central knop. The remaining goblet fragments all came from folded shoulder lids. Two of the lids were decorated in *fili* and one in *retorti* trailing, whilst a further two were plain. The two remaining fragments were colourless finials from the top of the lid, but it impossible to know whether the rest of the vessel was decorated or likewise plain.

Within the assemblage were the fragmentary remains of nine pedestal jugs. Three of these were decorated with coloured trailing, one fragment of base-ring with *retorti* trailing and a shoulder and rim fragment decorated *a fili.* A further plain jug was represented by a

pinched trefoil rim, whilst all the other fragments were from different jug handles. Three potash plain globular flasks occurred at the site as well as four pedestal examples. Of these, one was decorated with elaborate triangles of gilt interspersed with enamelled dots, now of indeterminate colour. The final pedestal flask was a rare double-necked cruet with a ribbed knop stem. The remaining flasks were all case bottles, probably of a later seventeenth century date.

The final tablewares in the assemblage consisted of five pedestal, and one hemispherical, bowls. One of the pedestal bowls was plain, whilst three had optic blown vertical ribs. One of the ribbed bowls was in opaque white or *lattimo* glass and had an associated cover or lid, which also was ribbed. The final pedestal bowl had a very shallow vertical body and rim and was blown in Chalcedony glass, a very rare metal colouration. (Tait 1992: 163-4). The remaining vessels were all potash glass, consisting of two albarello jars, a spout possibly from an alembic and three urinals.

Although the glass recovered from Acton Court was highly fragmentary and appears to have gradually accumulated as household rubbish, rather than being discarded as a group, it is still nevertheless informative. It represents the largest group of high quality soda vessels decorated with *a fili* and *retorti* trailing found to date in England. All of these imported vessels were almost certainly manufactured in Venice. The glass would have represented a considerable investment during the middle of the sixteenth century. It seems to have been only one part of a larger act of conspicuous display. Literary and archaeological evidence for the rebuilding of parts of the manor in preparation for a visit from Henry VIII is well documented (Vince & Bell 1992: 101). This included not only the erection of new buildings, but also the provision of new vessels for the table. Clearly in 1535, when the majority of the vessels date to, the glass was considered of suitable quality for royal entertainment. The range of vessels demonstrated the need for both utilitarian purposes and also for display, such as the fragment of *Nef*.

Much of the glass had already been discarded by the middle of the sixteenth century in the sealed moat and few glass tablewares, with the exception of the seventeenth century elongated inverted baluster stems, were used in the later phases of the site.

6.5 *Nonsuch Palace*

The royal palace of Nonsuch was sited in the parish of Cuddington on the edge of the North Downs, close to the modern town of Cheam. The site was chosen as the location of a new palace for Henry VIII in 1538 and was still incomplete by his death in 1547 (Dent 1962: 52). By then it had gained a reputation as one of the most magnificent palaces in Western Europe, having been decorated in the most fashionable Renaissance styles. These incorporated patterned brickwork, painted and gilded stucco frescoes and elaborately carved Italianate slate panelling. On the death of Henry VIII the palace passed into the hands of the Earl of Arundel and remained in private occupation until 1687, when it was demolished (James 1990b: 162).

The excavation of the site directed by Martin Biddle took place in 1959, and the majority of the main palace was hastily exposed in just over three months (Dent 1962: 245-55). The excavation revealed the ground plan based around two courtyards (fig. 6.11), although much of the archaeological deposits, aside from the wall foundations, had been severely disturbed by the demolition and subsequent clearing of the site.

Despite the site's disturbance and its rapid excavation, Nonsuch Palace produced large quantities of material culture dating to the second half of the sixteenth and seventeenth centuries. As well as the glass assemblage, large quantities of coarse and imported pottery finewares were found. These included many largely intact tin glazed Delft bowls, platters and mugs as well as Bellarmine jugs. The glass from Nonsuch, unlike the majority of other sites in this survey, did not come from one or more discrete contexts. The majority of the material was excavated from the eastern ranges, often just outside the outer walls. However despite the inability to link the glass to individual contexts within the palace, it still remains one of the most important assemblages of the period. It helps to demonstrate the diversity of material culture in use in a Tudor palace, which subsequently became an elite household during the latter sixteenth century (James 1990b: 162).

Although the glass assemblage was largely fragmentary it is possible to reconstruct a number of the forms, which represent a diverse range of vessel types (Appendix 1.9 contains the full catalogue, and several are illustrated in figs. 6.13-6.15). A minimum number of seventy-two vessels were recovered, of which forty-six were drinking vessels (fig. 6.12). Of the comparatively few beakers found, four cylindrical types were recovered, one plain, two with optic blown mesh patterns and a small fragment decorated with marvered opaque white and blue trailing. Of the four potash pedestal beakers recovered, two were decorated with optic blown mesh decoration, one with optic vertical ribbing and the final example with wrythen. The only other beaker from the site was an octagonal pedestal flute base fragment, decorated with fine horizontal trails. The pedestal beakers probably

represent the earliest drinking vessels used at the palace, dating to the latter half of the sixteenth century, although the cylindrical and pedestal fluted examples may be somewhat later.

With the exception of a single rim fragment from a plain-bellied tankard, the other thirty-six drinking vessels were all goblets. The most common were those with knopped stems. Two examples of the uncommon capstan stem were recovered, one of these having a bowl with an applied 'ear'. Only a single elongated inverted baluster was found, although nine ordinary inverted balusters, two of which were vertically ribbed, occurred at the site. More unusual and probably dating to the sixteenth rather than the seventeenth centuries were two goblet bowl fragments. One was decorated with fine diamond engraving of scrollwork and the top of a floral design and the second was enamelled with an opaque white vertical and interlaced trail. A single complete profile of a ribbed multiple hollow knopped goblet was found. The bowl was decorated with fine trailing and appears to also have had patches of applied gilding. Six seventeenth century round knopped goblets, five of which were ribbed, were also recovered.

Many knopped goblets from Nonsuch were represented by their unusual bowl decoration, rather than by their stem form, which was harder to reconstruct. There was a single shallow tazza bowl from a goblet. Less common were four pairs of applied curled and trailed 'ears' that were applied to bucket shaped bowls, purely for decoration. Most of these were in a clear glass, but one example had a pinched blue trail overlaid on a clear curl.

The six mould-blown stems comprised two ladder stems, both of type one (The mould groupings of all the mould-blown stems are discussed in chapter 7.4) and four lion-mask stems, all but one of which were very fragmented. The complete example had most of a deep bowl attached, decorated with mould-blown roundels. Of only three pedestal stem goblets at the site, one comprised the central portion of a folded knop in a poor quality mixed alkali or potash glass. The other two soda examples were more complete, one was plain and the other was decorated with coloured enamelling and gilding. The final three goblets were more unusual. Two rod stem vessels with solid knops and lower broad bowls were found, made in a soda glass. The final form was an elaborate cage stem. This consisted of two sets of three curved '*S*' shaped supports which held the bowl above the lower flattened plain knop. This cage stem, alongside the trick glass from St. Mary Spital (Brehm et al 1997: 157), is the only known example of this form of goblet derived from an archaeological context. In addition to these stem forms two goblet lids were also found. One was left plain and the other decorated with opaque white *retorti* trailing.

The glass assemblage contained a number of utilitarian potash vessels. The first, a poor quality jug decorated with optic blown vertical ribs, may have been used at the table.

However there were at least a further nine potash flasks. Seven of these were globular types, two decorated with optic wrythen whilst the others were plain. The two remaining flasks were oval shaped, decorated respectively with optic wrythen and left plain.

Four bowls were also found. The most unusual is the hemispherical upper portion of a pedestal bowl in an uneven swirled opaque red. The date and provenance of this vessel is uncertain, but is very similar to an unpublished fragment from the churchyard at Wharram Percy, possibly dating to the early sixteenth century. The other bowls were two ordinary pedestal examples with deep low bodies and a nearly complete small flat dish. The final vessels from this group were five albarello type jars and the remains of eight urinals.

The assemblage from Nonsuch Palace contains a number of diverse forms. The earliest vessels are the bellied tankard, enamelled pedestal goblet, and the fragments of diamond engraved and enamelled goblet bowls. However the majority of the forms found can be dated to the early seventeenth century. This is an interesting division between period and usage. The royal occupation of the palace during the sixteenth century saw little glass being discarded, whilst non-royal habitation of the site during the seventeenth century witnessed the more extensive survival of glass vessels.

What is also of interest from the assemblage is the predominance of goblets over other forms of drinking vessels. The nine beakers that were recovered were mainly in a low quality potash glass and of common forms, and were presumably not used during the dining of the elite. The greater numbers of goblets is perhaps not surprising, given that wine would have been a higher status drink, although the diversity of stem forms is intriguing. Although knopped stems predominate amongst the goblet forms, there was a wide range of types, such as mould-blown, rod and cage stems albeit in very low numbers. This would suggest that a diverse number of goblet types would have been used at the table at once, perhaps this diversity adding to the status of the glass. The presence of at least four goblets, whose bowls were enhanced with purely decorative wings, demonstrates that highly elaborate vessels were considered desirable. If this is the case it is perhaps surprising that no compound stems were represented in the assemblage. These stems, like the cage stem found at the site, were the most elaborate produced during the seventeenth century. However the Nonsuch assemblage does suggest that, during the first half of the seventeenth century, glass was important item of table display.

6.6 *Norton Priory*

An Augustinian priory was first founded at Norton, Cheshire, in 1134 and had developed into a large and prosperous abbey by the sixteenth century (Greene 1989). The monastery was finally dissolved in 1536 and the site left to deteriorate until it was purchased by the Brooke family in 1545 (ibid. 151). A new Tudor house was built over the outer courtyard on top of the old Abbot's lodgings, the undercroft of which was incorporated into the new buildings (fig. 6.16). At this stage the cloister of the priory was partly demolished and used as an area of dumping for both rubble and domestic waste.

The site was dug between 1971-83, and at the time was the largest modern open-area excavation of any monastic site in Europe (Greene 1989: ix). Although concentrating primarily upon the medieval priory, the excavation also revealed large post-medieval deposits associated with the Tudor house. From a midden located at the west end of the cloister (fig. 6.16) a small significant group of vessel glass dating to the late sixteenth and early seventeenth centuries was found in association with a number of early seventeenth century clay pipes (Davey 1985: 170-1). This can be directly related to the earliest phases of the Tudor house belonging to the Brookes' at this time.

The vessel glass, although relatively small in quantity, contained a number of varied forms (Appendix 1.10 contains the full catalogue, the majority are illustrated in figs. 6.18-6.19). A minimum number of twenty-three vessels were recovered, of which twenty were drinking vessels (fig. 6.17). The most predominant forms were beakers, of which six were cylindrical. Two of these were plain and a third example was blown with vertical ribs and horizontally trailed on top of these. Two large fragments, possibly from the same vessel, of thick cut spiral trail beakers were found as well as a single fragment of a thin trailed type of the same form. The five other beakers were potash pedestal varieties of a late sixteenth or early seventeenth century date. Three were plain, one was decorated with optic vertical ribs and another optic wrythen.

Eight goblets were recovered from the midden. Of the four knopped examples, two were fragments from bowls and bases of indeterminable stem forms. The two remaining knopped goblets were both elongated inverted balusters dating to the seventeenth century. A single mould-blown lion-mask stem was found. The mould type is of an unusual variety for England, having a heraldic side design, a feature more common in continental Europe. It is of a type that can not be matched with any other in England (see chapter 7.4.1). The remaining goblets were all pedestal types. The first was a fragment of bowl decorated with marvered opaque white trails. Two base fragments from single and applied pedestal goblets were also present, but neither appears to have been decorated. A single fragment of upper

handle from a potash pedestal jug was recovered, as were fragments from two potash pedestal bowls and a small flat dish.

Although it is the smallest of the elite groups to be included in this survey, the glass from Norton Priory is of considerable interest. Unlike the other sites included in this chapter the glass came from a single midden context and represents the domestic material culture that would have been used in a smaller household than at Acton Court or Nonsuch Palace for instance. Despite the more limited number of vessels at the site, most types were represented. There were most of the cylindrical and pedestal beakers forms, if only one or two examples of each. The same was largely true of the goblets. There were examples of the common elongated inverted baluster stem, a lion-mask stem and two pedestal goblet types. Even jugs, a pedestal bowl and dishes were present in the assemblage. According to the evidence from this deposit the use of glass was possibly quite limited at the household's table. Only a few vessels at a time seem to have been in use. This may be due to a bias caused by the deposition pattern within the midden. The deposit appears to have been the result of a single clearance. The emphasis of the excavation was to reveal the medieval priory, and as a result only those areas directly above the main church and cloister area were dug. Given that the later Tudor house was centred on the most western area of the cloister and beyond, it is not surprising that other associated deposits were not excavated. Nevertheless, the assemblage from Norton Priory is suggestive of a low level of glass use, and the few particularly elaborate or rare vessels suggest that glass was not held in particularly high esteem. However this may be due to the early seventeenth century date of the deposit, a factor discussed later in this chapter (6.9.1).

A further indication that glass was not regarded as particularly high status at Norton Priory is the lack of imported high quality vessels. The lion-mask stem was the only goblet form which was not English in origin, and probably came from France or the Low Countries where similar examples are more common (e.g. Goetz 1990, 191-193 and Kottman 1991, 156-157). The cylindrical thick cut spiral trailed beaker is also unlikely to be of English origin, the Southern Netherlands being its likely place of manufacture (Tait 1967). All other vessel types, both potash and soda, were domestic manufactured products.

Nevertheless this remains a significant group, serving to demonstrate some of the varieties of vessel glass found on a smaller elite site. Indeed, it suggests that by the seventeenth century vessel glass did not hold the same status values that it had in the proceeding century. The assemblage from Norton Priory demonstrates the shifting role of material culture within the rural context during this period.

6.7 *Eccleshall Castle*

The existing remains of Eccleshall Castle, Staffordshire, largely date to the early fourteenth century when it was rebuilt by Bishop Walter de Langton on the site of an earlier fortification (Sheale 1993: 8). Its fourteenth century plan was a simple rectangular shape with octagonal towers in each corner, whilst the domestic ranges were largely placed against the outer curtain walls. During the Civil War the Bishop of Lichfield held the castle for the King, until it was besieged by the Parliamentarian forces for eight weeks and captured in August 1643 (ibid. 12). Shortly after the war had ended the castle was cleared of household goods, which were sold off and in 1646 the castle was slighted.

Between 1973-5 small-scale excavations were undertaken at Eccleshall Castle. The area investigated lay outside the northern curtain wall in the area of the moat. The stratigraphy of this area consisted of the moat cut, silted fill with small amounts of medieval material and finally large quantities of rubble, within which lay glass and other seventeenth century material (Sheale 1993: 17). This sequence, and the historical record, suggests that the glass was discarded in the moat at the time that the household items were being sold off and the castle slighted, between the years 1645-6. This gives an accurate *terminus ante quem* for the material, although it had been accumulating for some time before its discard.

The assemblage was the largest to be considered from an elite site in this study, despite the fairly limited size of the original excavations (Appendix 1.11 contains the full catalogue, and some are illustrated in figs. 6.21-6.24). In total a minimum number of ninety-eight vessels were recovered, of which sixty-four were drinking vessels (fig. 6.20). The largest group of vessels recovered were beakers, totalling forty-two in number, of which twelve were cylindrical. Of three imported cylindrical beakers were recovered from the site one was decorated with spiral opaque white marvered trailing, the other two had thin cut and thick cut spiral trailing respectively. There were also six potash plain beakers and a single example of a beaker decorated in optic blown mesh and another with vertical ribs were also found. All of these were English products.

Pedestal beakers were the most numerous type of beaker. These were made of potash glass and were typical English products found on sixteenth century furnace sites. The majority of the pedestal beakers were plain, numbering sixteen in total, although there were also fragments of eight wrythen decorated beakers. A further two pedestal beakers were decorated with fine horizontal trailing, and there were single examples of beakers decorated with optic blown bosses and vertical ribs. Only two beakers of other forms were found, both of which were imports. One was an octagonal pedestal fluted beaker with fine thread trailing, the other an imported Low Country roemer with pulled prunts.

Of the twenty-two goblets found, eleven were knopped stem varieties. Three inverted baluster stems were recovered, one of which had a near complete thistle shaped bowl. Four elongated inverted baluster stems, three of which had nearly complete deep bowls were recovered. There was a single multiple ribbed knop, as well as two plain round knopped goblets, one of which was nearly complete and had a tall fluted bowl. The final knopped goblet fragment was a single wing applied to the bowl, although it was not possible to ascertain the stem form of the vessel.

The site produced fragments from three mould-blown stemmed goblets. Two were ladder varieties, one being a type one stem (see chapter 7.4.1) the other a small fragment of indeterminate form. It is not possible to mould match the single complete lion-mask stem to any of the other known examples (chapter 7.4.1). The remaining seven goblets were all pedestal varieties. The first example was a fragmentary bowl decorated with opaque white *a fili* trailing. There were also two examples of earlier sixteenth century enamelled pedestal goblets. The first was decorated with green, white, red and yellow enamelled dots and amorphous, possible floral, shapes. The second was the complete profile of a goblet, with two bands of horizontal opaque white with dots above and the remains of lettering below, although these are too fragmentary to reconstruct. The remaining pedestal goblets were all potash examples, three plain pedestal stems and one with a folded pedestal knop stem. The final goblet fragment comprised the folded edge from a plain soda lid.

A total of nineteen flasks were recovered. There was a single example of a rare potash kuttrolf, dating to the late sixteenth century. Only the vertical rim and three intertwined neck tubes survived, but the vessel would originally have had a globular body and pushed-in base. All the remaining flasks have been divided into two categories. The first consisted of ten plain potash pedestal flasks. The second was the square section case bottle, of which there were fragments of eight different vessels.

The large numbers of bowls found at the site is of greater interest. Three potash pedestal bowls with deep broad bodies were recovered, two of which survived largely intact. A further fragmented base from a pedestal bowl in *lattimo* glass survived, an imported vessel from the Low Countries (see Henkes 1994: 230-1). Two deep hemispherical bowls, both with flat handles, were also found as well as the remains of three small flat dishes. The chemical vessels comprised a near complete alembic with a short straight arm, as well as the remains of at least two cucurbits. Three convex bases from urinals also were recovered.

Although deposited in association with the rubble from the slighting of the castle in 1646 the production and period of use of the glass would probably have been some years earlier. Most of the vessels would have been quite old by the time of the Civil War, having been manufactured in the first third of the seventeenth century. Indeed some forms, such as

the enamelled pedestal goblets, probably belong to the preceding century and the assemblage appears to be the accumulated result of several decades of glass use at the castle.

6.8 *Wood Hall*

The manor at Wood Hall, North Yorkshire, was first occupied in the eleventh century, although the settlement was not enclosed by a moat until the early thirteenth century (WHMMP 1995: 4-6). During the sixteenth century the site was rebuilt, transforming it into a comfortable Tudor residence. The main features of the site at this period consisted of a large gatehouse in the south-eastern corner of the moat with the manor house lying to the north (fig. 6.25). The manor consisted of a north-south running hall with a kitchen block at its southern end and a formal garden behind to the east.

The excavation of the site was started in 1987, prior to it being covered by power station waste ash, and continued until 1998. All but two of the fragments of glass came from two distinct contexts (fig. 6.25). The first, no.20, was an area of the moat fill just in front of the gatehouse area, and contained vessels apparently thrown out of the window. The second, no. 27, came from the fill of a garderobe chute at the back of the manor house. Both these contexts represent the deliberate dumping of glass that, particularly in the case of context 20, contained originally intact vessels (WHMMP 1995: 14). Both deposits can be dated to the sixteenth century, with context 20 belonging in the middle and 27 towards the end of that century.

Despite being quite a small group, the vessel glass from Wood Hall represents the range of vessels in use during the sixteenth century (Appendix 1.12 contains the full catalogue, and most are illustrated in figs. 6.27-6.30). Of the minimum number of thirty-one vessels recovered twenty-one were drinking vessels (fig. 6.26). Beakers were the most common form from the site, numbering twelve in total. Only one cylindrical example was recovered, decorated with thin cut spiral trailing. Five examples of soda glass squat beakers were excavated, the largest number of this type from any of the study sites. Two of these were decorated with optic blown bosses and originally would have had three impressed prunt feet. The three others were plain, although one of these was made entirely in *lattimo* glass with a solid base trail and the remains of one applied impressed prunt on the body. Squat beakers are surprisingly rare in England although in the Low Countries, their centre of manufacture, they are common finds.

Of the six potash pedestal beakers the most unusual was decorated with optic blown mesh and vertical ribs, the only known example decorated in this way in England. Three further beakers were decorated with optic blown designs, one with vertical ribbing and two with wrythen. The remaining two were plain.

Bowl fragments from five different knopped goblets were recovered, although it is impossible to determine the form of their stems. Four fragments came from the very lower bowls, just above the stem join, three of which were deep bowls and one a fluted form. The

other fragment was the rim and upper side of a pedestal goblet bowl. A third of the way down the bowl was a thick applied horizontal trail and the panel above was engraved in diamond point with a running scrolled border and a foliage leaf design.

The final four goblets were of the pedestal variety and were found in close association in the moat, having been discarded together from the gatehouse window. All were of mid sixteenth century date. The first is a small fragment of a folded base-ring, and it is not possible to tell if the vessel was decorated in any way. The second was a pedestal goblet decorated with fine opaque white trailing in a band below the rim. The third example was of a similar form, but decorated with heavy optic blown diamond shaped bosses. All the goblets were probably imported from the Low Countries, where they were more common sixteenth century products. The final pedestal goblet had a folded stem knop and was recovered nearly complete. The bowl of this goblet was decorated with enamelling and patches of scratched gilding. Around the rim ran an enamelled border of opaque white dots and horizontal trails. Within this were interspersed enamelled scrolls and the scratched gilding that contained the inscription *IES VS MA RI A* (Jesus Maria). Below this band were three enamelled flowers in green, white and red, perhaps symbolic of the Passion Flower. This goblet is unique in England and may possibly be Venetian in origin, although no direct parallel is known. However other goblets similar to this form have been found in significant quantities at Olomouc in the Czech Republic, possibly indicating an origin in that area (Sedlácková 1998: nos. 02.3-1, 07.1-3 & 16.1-5).

The other ten vessels found included two small fragments from different jugs, both decorated with marvered opaque white trails, two flasks, one globular potash type and the other a soda pedestal example, two bowls, one hemispherical with an out-turned rim and the other a small flat dish and three potash albarello jars.

This assemblage from Wood Hall, despite being quite small, contains a number of high quality and imported vessels. Whilst the majority of the beakers were English pedestal varieties, the presence of five Low Country squat beakers is significant, given their general rarity in this country. However, the presence of the four high quality goblets from the same area of the moat is of greatest interest. The engraved bowl from a knopped goblet is extremely unusual and possibly the product of the sixteenth century English industry (discussed further in chapter 7.4.2). The other three pedestal beakers are all imported, and the enamelled example is particularly unusual. Its overtly Catholic inscription and designs in the second half of the sixteenth century are unexpected. It might represent a rather public statement of opposition to the newly formed Protestant church or may date to the brief period of renewed Catholicism during the reign of Mary I between 1553-8. Whatever the

case it is likely that the deposition of this vessel in the moat while intact, along with the three other goblets, was a very deliberate act.

6.9 *Glass from Elite Contexts; Summary*

The six assemblages of vessel glass examined in this survey from elite contexts vary both in their relative size and composition. However, by comparison of the similarities and differences of the material culture between these groups, more general conclusions can be drawn concerning the date of the material, the context of the individual deposits and the vessels used in elite society.

6.9.1 *Chronological Trends in the Material*

The six glass assemblages contained a broad range of vessels in use during the sixteenth and early seventeenth centuries. Every assemblage included a range of drinking, serving and storage vessels, although in differing proportions (fig. 6.31).

The majority of the vessels in the deposits from all the sites were datable to the sixteenth rather than the seventeenth century. Even though later vessels occurred at all the sites, they constituted a minority of the total. The dominance of sixteenth century glass is illustrated in the relative numbers of pedestal goblets (fig. 6.31). Unlike the urban groups, pedestal goblets were found at every site, usually in significant numbers. A similar pattern can be seen in the relative proportions of beakers, again a more dominant sixteenth century form. They were present on all the elite sites, and at Camber Castle, Norton Priory, Eccleshall Castle and Wood Hall outnumber goblets, as the predominant drinking vessel. This is the reverse of the situation in all the urban groups, with the exception of Abacus House and Poole (fig. 5.33), both of which were earlier deposits within the urban sample.

Nevertheless, later seventeenth century glass was found at some of the sites, particularly Eccleshall Castle and Wood Hall. At the former site this may be explained by its use throughout the sixteenth and seventeenth centuries as a prison and Episcopal administration centre (Sheale 1993: 9), as well as a private residence. The presence of significant quantities of seventeenth century material at Wood Hall is less easily explained. Most importantly were the five imported squat beakers, which with at least three of the knopped goblets can be dated to the first quarter of the seventeenth century. Perhaps the continued use of glass at this site was indicative of a gradual reduction in the wealth and status of its owners. Alternatively it might just represent an element of conservatism in taste, with the occupiers preferring materials less fashionable in other elite contexts.

Despite these two exceptions and the occasional finds of seventeenth century glass on the other sites, the general pattern of glass consumption on elite sites was reduced greatly at the end of the sixteenth century. It is probably no coincidence that this was the period when glass consumption was increasing in urban contexts (chapter 5.8.1).

6.9.2 *The Context of the Deposits*

In contrast to the urban situation, where glass was either deposited in pits or cellar fills, the material at elite sites was recovered from a greater diversity of contexts. This, in part, probably represents the diversity of the types of site examined. The pattern of rubbish disposal was inevitably different in elite contexts in the countryside when compared to the urban necessities of life. Despite this there was a surprising lack of uniformity in the patterns of discard on the elite study sites, although some similarities can be observed.

In contrast to urban disposal, only a few of the sites showed rubbish deposition in small compact groups. All the material from Eccleshall was found in the moat, apparently thrown there from the castle walls. However this was an exceptional case as it is clear from the associated material that this was a dump created by the clearance of the castle after the end of the Civil War. The assemblage from Eccleshall resulted from a unique single historically attested event.

A more typical example of domestic dumping occurred at Norton Priory, where the glass was found in a compact midden context, in the old cloister of the priory. Associated with it were other forms of material culture, such as clay pipes, and household waste. This group was very similar to an urban group in the manner of its disposal, although it was not within a dug pit feature. The assemblage from Wood Hall also was deposited in a more compact manner. With the exception of the four goblets dropped from the gatehouse window, the majority of vessels came from the bottom of a garderobe chute attached to the main hall. This appears to have functioned in an identical way to an urban cesspit for the collection of household waste of all types.

This pattern of organised dumping of material groups in compact contexts was not mirrored on the other three sites. At Acton Court some of the glass was deposited in the moat as part of its infilling (Vince & Bell 1992: 102). However the majority occurred as fragmented pieces in contexts beneath the west range of the manor. Likewise the glass from Camber Castle was scattered throughout the northern domestic range and at Nonsuch Palace vessel fragments occurred all over the west range and just outside its walls. At these three sites there were no specific contexts chosen for the dumping of rubbish and it would appear to have accumulated when broken as the result of gradual build up of rubbish. Certainly there was no deliberate discard of complete or useable vessels in these areas, this contrasting with the pattern of urban disposal.

This difference, seen particularly clearly on the larger elite sites, suggests an alternative pattern of rubbish disposal, only part of which is being detected archaeologically. At the large sites waste was not being dumped in large quantities within the vicinity of the main residence. Those vessels found appear to represent a general build up of rubbish, rather

than the removal of waste, which was probably carried some distance off site and therefore not available to be discovered archaeologically. Despite this there does seem to be a real difference in what was being discarded. The urban pattern suggests that vessels were discarded when still perfectly usable whilst on the elite site this only occurred on breakage; this dichotomy is a factor discussed further in chapter 7.6.

6.9.3 *The Use of Glass in the Elite Setting*

In chapter 5.8.4 it was observed that the majority of glasses found in urban contexts were drinking vessels. The only exception to this pattern was at Gracechurch Street, which contained an unusually large proportion of flasks and jars (fig. 5.2). The predominance of drinking vessels was also noted in elite contexts, with beakers and goblets constituting the majority of the vessels in all study sites in this thesis (fig. 6.31). As was the case with the urban assemblages, drinking vessels were the most conspicuous way of demonstrating the use of glass at the table. Indeed the presence of even more elaborate goblet types, such as the *Nef* at Acton Court and the cage stem glass at Nonsuch Palace, suggest that drinking vessels were used for ornate display as well as functional use.

However in contrast to the urban groups there was a higher proportion of vessels associated with the serving and display of foodstuffs. At all the elite sites, with the exception of Camber and Eccleshall Castles, there were fragments of jugs (fig. 6.31). This contrasts with the urban sites, where evidence for jugs was restricted to a single example from Bagshot (fig. 5.22). Likewise every elite site produced evidence for bowls in some cases, such as at Eccleshall Castle, these were found in large numbers. Bowls only occurred in half the urban contexts and in smaller numbers. These patterns indicate that glass held a more important role in the serving and presentation of food in the elite household, by comparison with the urban setting. There are a number of possible reasons for these differences. Firstly, the use of glass bowls and jugs at the elite level represent a further conspicuous expense in glass. It is likely that drinking vessels, being the most visible, would have been the first to have been acquired and other forms only bought if the owner had sufficient capital. Secondly, the presence of other tableware forms in glass on elite sites might be indicative of a more sophisticated dining process. It is hard to assess from the archaeological evidence the extent of material culture use during the dining process (a theme that is pursued further in chapter 7.2). However the presence of more luxury items at the elite table would not be an unexpected occurrence, explaining the larger numbers of jugs, bowls and even high quality decorated flasks. The final possible explanation for this difference between elite and urban groups could be a result of chronological differences in their use and deposition. As has already been discussed, the depositional dates of the elite

groups were generally earlier than the urban ones. The presence of glass bowls, jugs and flasks might represent the popularity for these forms in glass during the sixteenth century, which diminished in the subsequent century.

Although some of the elite study sites, such as Norton Priory and Wood Hall, had relatively small assemblages (fig. 6.31) there was not a large disparity in the size of the groups when compared to the urban groups (fig. 5.33). This is partly the result of the two largest urban assemblages deriving from inns, where there would have been greater glass use than in the ordinary domestic context. More surprisingly the elite groups were not considerable larger than their urban counterparts. It might be expected that larger quantities of glass were consumed at richer elite sites. This does not seem to have been the case or if it was the evidence does not survive. This seems to indicate that glass was only one of the elements used at the elite table, a pattern that would be further confirmed by a comprehensive analysis of all the tablewares from the sites. However the elite contexts did contain a far larger proportion of imported wares. This was partly due to the lack of a high quality English industry for most of the sixteenth century. If high quality glasses were required they had to be imported, as was observed by Harrison (1876: II 147) when he stated that the English "choose rather the Venice glasses, both for our wine and beere". However a number of the imported vessels found on the study sites were clearly not imported from Venice. Forms including the squat beakers from Wood Hall, pedestal goblets from Camber Castle and cut spiral trailed beakers from Eccleshall Castle were all types produced in the Low Countries at the end of the sixteenth century (Henkes 1994). Whilst the *vetro a fili* and *retorti* decorated vessels from Acton Court were typical Venetian products, the elite were also choosing to buy imported vessels from other sources. Perhaps the presence of imported glass itself was more important than its actual provenance from Venice.

6.9.4 *Conclusions*

The glass from elite sites has revealed a pattern of use and disposal that differs markedly from that in the urban context. Glass is used as a medium for tablewares at an earlier date, primarily during the sixteenth century. As a result there were higher numbers of imported vessels, due to a lack of high quality domestic production. However the types of vessels used varied. Whilst drinking vessels were still the most popular, including several examples of almost purely decorative vessels, other forms such as jugs and bowls were more common on the table. However by the seventeenth century there was diminishing amount of glass in use on elite sites, suggesting a preference for other materials at this time.

Although in some cases, such as at Wood Hall and Norton Priory, the disposal of glass was in compact contexts containing other rubbish, similar to disposal on the urban sites, this was not always the case. At Camber Castle, Acton Court and Nonsuch Palace glass accumulated as debris throughout the occupational ranges of those buildings. This is suggestive of off site dumping of waste and material culture, perhaps explaining the relatively low quantities of glass recovered from these sites compared with some of the urban contexts. It is not surprising that there were variations in the patterned use of glass between urban and elite groups. The ways that the vessels were used and the meanings that they held would have changed not only between, but also within, these different groups. It is only through the examination of the context of the vessel's use, and an understanding of its significance of meaning for different groups, that these differences can be explained; the theme explored in chapter 7.

Chapter 7 *Dining, Taste and the Consumption of Glass*

7.1 *Introduction*

This chapter concentrates on the use of glass as a medium not only for the consumption of comestibles, but also as a stylistically symbolic artefact. The form that glasses took, and the way that they were used and perceived, were all-important factors in their role during dining. Five themes are explored, all concentrating on the higher quality tablewares of the period. It is not that other vessel forms, such as flasks, jars and urinals were unimportant, but being less visible in everyday use they tended to be subject to more utilitarian requirements.

Firstly, the role of dining and the use of material culture within this process are considered. The general importance of functionality and symbolism among artefacts is explored. The second theme concentrates on the stylistic influences on glass forms and decorative designs, seeking to explain why glass became popular and what factors influenced this process. The third section examines the specific messages that were expressed through decorative design. For this purpose two types of decoration are selected for attention, mould-blown stems and diamond engraving, as examples of the expressive metaphors with which the vessels were imbued. The fourth question focuses on the repair of glass vessels once they were broken. The importance of repair, particularly when many of the vessels were left functionally useless, is explored. Finally, the nature of deposition and the occasional mass-disposal of glass, particularly when still whole and usable. Concepts of conspicuous consumption and competitive emulation are then discussed in the light of the archaeological evidence for the use and deposition of glass.

7.2 *Dining and the Consumption of Culture.*

Dining was one of the most important social acts in Tudor and Stuart cultural life. One contemporary sixteenth century Venetian observed that the English thought;

"no greater honour can be conferred, or received, than to invite others to eat with them or be invited themselves" (Sneyd 1847: 21-2)

Therefore, it is not surprising that dining was a formalised and complex affair and that it was within this arena that the majority of glasswares were used. Both dining and material culture were mutually engaged in an intricate process that went far beyond the needs of simple nutrition. It is this relationship that is investigated in this section of the chapter.

7.2.1 *The Complexities of Dining.*

The nature and progress of dining in the medieval and early modern periods has been extensively debated (e.g. Mead 1931; Brett 1968; Hammond 1993) and it is not the intention of this thesis to reiterate these discussions. A number of contemporary accounts of dining have already been discussed in chapter two, outlining some of the impressions, particularly of formalised state meals, gained by outside observers. However, as the meal was the active forum for the use of the majority of material culture discussed in this thesis, a brief overview is required. The dining process during the high medieval period was a continually developing ritual, in terms of both the numbers of vessels present and way that they were used.

Household accounts from the middle ages give a good impression of many of the foodstuffs consumed, particularly by elite groups. Those who could afford them ate stews, fish and roasted meats in relatively large quantities (Hammond 1993: 63-79). Food and drink was always prepared away from the table and then brought to the hall to be consumed by the assembled diners, who ate in a communal fashion (Brett 1968: 28). Less clear from inventories are the relative numbers of vessels used at the table and the way that they operated between the diners. Contemporary depictions provide one of the clearest views of the progress of the medieval meal. Those shown at the meal usually have a wooden or bread trencher in front of them, and help themselves to food from communal dishes (e.g. fig. 7.1). Drinking vessels were sparse on the table, a situation that was still the case in 1500 when a Venetian observed that the English did not consider it "any inconvenience for three or four individuals to drink out of the same cup" (Sneyd 1847: 21). Nonetheless many of the more complex aspects of material culture for use at the table were probably established by the medieval period. Müller (1997: 256) has demonstrated that as early as the twelfth century, ceramic or copper alloy gemellions and aquamaniles were in use throughout Europe for the ritual of handwashing. However it was not until the fifteenth and sixteenth centuries that a more distinctive and personalised 'table-set' appears in contemporary illustrative and descriptive accounts of dining in Northern Europe.

During the sixteenth and seventeenth centuries in England there was an increasing number of artefacts at the table. There was a general trend towards individual place settings and artefacts for each diner. One of the few depictions of English feasting from this period is that painted of Sir Henry Unton after his death in 1596 (fig. 7.2). This shows some evolution of the dining process from the medieval situation. At the table every guest had their own individual plate and there were larger numbers of dishes from which each person could help him or herself. However, as during the medieval period there were no drinking vessels placed on the table itself. Instead, five cups were waiting on the cupboard behind,

attended to by a servant who would bring one to each diner when required. Harrison (1876) explains this practice in 1587;

"but each one, as necessity urgeth, calleth for a cup of such drink as him listeth to have, so that when he hath tasted of it, he delivered the cup again to some one of the standersby, who making it clean by pouring out the drinke that remaineth, restoreth it to the cupboard" (Bk. II 147).

Despite many of the continuing medieval traditions in dining, new artefact forms were adopted in the sixteenth and seventeenth centuries. Whereas previously guests might bring their own knives and eat with their fingers, implements were now provided at the table and these increasingly included forks and spoons (Hammond 1993: 111). Certainly by the early seventeenth century once functional vessels, such as the Salt, had become elaborate decorative table centrepieces. The presence of decorative glass *Nefs* and trick glasses from this period demonstrates that not all the material culture at the table was functional. It is clear that with an increasingly complex and regulated dining process, outlined in the next section of this chapter, both the roles of dining and the material culture associated with it were changing.

7.2.2 *Manners and Meanings.*

The influential role, in Northern Europe, played by the publication of *De Civilitate Morum Puerilium* by Erasmus of Rotterdam in 1530 has long been realised, particularly by French scholars (e.g. Chartier 1987: 77; Revel 1989: 168-9; Jeanneret 1991: 40-1). All emphasise the importance of this work, through its popularity and subsequent publications in most European languages, by defining a code of *civilité* for children. *Civilité* as a concept suggested that all gestures and actions were recognisable indications of style and personal awareness. The way that people conducted themselves and interacted with objects, particularly during dining, gave out a series of social messages (Revel 1989: 167-8). The concept of good manners was by no means new, but Erasmus nevertheless had a new profound effect. Revel (1989: 170-1) has identified three reasons for this. Firstly, it was addressed to children, suggesting that these social messages should be taught as early in life as possible. Secondly, the text was addressed to all children, not just those of the nobility. Finally, Erasmus sought to create a common code of manners valid for everyone, not just an exclusive group.

During the sixteenth century there was growing awareness of manners and the importance of gestures; indeed the concept of *civilité* continued to develop into the nineteenth century (Chartier 1987: 106-9). Throughout the Tudor and Stuart period, the concept of manners and personal conduct was taught not only within the home but at schools too. The late sixteenth century schoolbooks written by Hollyband were the earliest

to survive in English and take the form of conversational manuals. In *School and Schoolboys,* instruction is given not just in reading and writing but also in how to lay the table and behave at the meal (Byrne 1930: 12-17).

Elias (1978) has explored the importance of dining as a forum for the expression of manners and *civilité.* The rules associated with eating and drinking appear at times to be very strict and the material culture is ordered to express these appropriate messages. There are numerous examples of the arrangement and use of artefacts during dining;

"Then he shall place his bread on the left and the knife on the right, like the glass, if he wishes to have it on the table, and if it can be conveniently left there without annoying anyone. For it might happen that the glass could not be left on the table or on his right without being in someone's way."
Civilité 1560 C. Calviac (cited in Elias 1978: 90-1)

It has long been recognised that food and its associated material culture is a medium through which social identities and relationships are created and affirmed (Douglas 1975; 1982). The act of dining signifies a collective cultural practice, where messages are passed between those who share the experience (Barthes 1979). As a consequence, the meanings of control and manners hidden within the use of material culture at the table would require a common understanding of the concept of *civilité.* Elias has suggested that objects were laden with symbolic roles, when he discusses the role of cutlery at the table. He saw the knife as evocative instrument, which functioned as the embodiment of many of the structured regulations of society. The knife was symbolic of a dangerous item that should be used under the strictest control. By contrast the fork was the embodiment of specific feelings against uncleanness. It demonstrated the growing awareness of concepts concerning hygiene, and was a very visible polite tool to avoid dirtiness of the fingers (Elias 1978 122-7). In both cases he demonstrated the growing utilisation of material culture to carry important expressions of taste.

7.2.3 *Material Culture and the Expression of Taste.*

During the early seventeenth century the *L'Art de bien traiter* describes the importance of presentation of food dishes, due to:

"the politeness and propriety of their service, their quantity in proportion to the number of people, and finally the general order of things which contribute essentially to the quality and beauty of a meal that charms both the palate and the eye." (Flandrin 1989: 278)

The expression of refinement and taste was felt not only to be within the food on the table, but also in the manner of its presentation. Certainly by the seventeenth century, when this passage was written, the way that the meal affected both the palate and, more importantly, the eye was a consideration. It has already been noted that during the sixteenth and seventeenth centuries there was an increasingly complex dining ritual, reflected in greater

numbers of material objects at use on the table. This may in part be due to increased affluence and availability of luxury goods. However, these factors aside, it is probable that there was a genuine demand for larger numbers of new goods, to enable the increased demonstration of ideas of taste and *civilité*.

It has been observed that during the sixteenth century there was a rapid increase in the use of certain ceramic forms, such as Maiolica, throughout much of Europe. An explanation can be found in the desire for new decorative goods; Majolica fitted this new niche in the market (Goldthwaite 1989). A similar argument for the increased importation of Germanic stonewares into England can be suggested, particularly in the light of the often exotic gilt mounts applied to them once they had arrived in England (Gaimster 1997: 126-38). It is within this social context that the rise in the use of glass should be viewed.

By the end of the fifteenth century, there was virtually no use of glass tablewares (Charleston 1984: 42). However during the sixteenth century glass, like Maiolica and Stonewares became increasingly popular, initially through imported and then domestically produced vessels. An insight into the renewed desire for glass can be seen in Harrison's statement;

"It is a world to see in these our daies, wherin gold and silver most aboundeth, how that our gentilitie as lothing those mettals (bicause of the plentie) do now generallie choose rather the Venice glasses, both for our wine and beere"

The suggests this was because it was;

"the nature of man generallie, that it most coveteth things difficult to be atteind" (Harrison 1876: Bk. II 147).

To what extent gold and silver 'aboundeth' is unclear in the late sixteenth century, however Harrison suggests that glass was popular due to its scarcity. The import of the new luxury item at great expense clearly demonstrated the awareness and longing for the latest fashions. During the sixteenth century glass fitted a stylish niche amongst the elite, a fact attested to by its presence on high status sites of this period (chapter 6.9.1). It would even seem that its status as a rare luxury item was supported by the state through the establishment and provision of monopolies governing the new industry established in England.

The first comprehensive licence was the monopoly granted to Jacob Verzelini in December 1574. It gave Verzelini the sole right to produce drinking glasses in the Venetian style for twenty-one years. The condition of this monopoly was that the glasses had to be sold "as good cheape or rather better cheape" than the imported counterparts (Godfrey 1975: 30). The importation of competing Venetian wares was also forbidden, although these could be brought in under special licence for personal use.

The reasons for the granting of a monopoly by the Crown were twofold. It encouraged the establishment of a new industry that had not previously been founded successfully. A protected market was required and this resulted in the glasses having to be produced at a cheaper rate than foreign ones. However, there are several inconsistencies to this interpretation of the monopoly. Firstly it only applied to drinking vessels, not all glass imports. Venetian flasks, jugs and other luxury wares were unaffected, hence reducing the economic value of the monopoly. Secondly it was possible to have a limited import licence, suggesting that certain individuals could freely obtain Venetian drinking vessels. Harrison writing thirteen years into the monopoly does not suggest that the nobility had any trouble obtaining Venetian glass. This would seem to indicate that the granting of the monopoly was for a more social than economic reason.

The establishment of a monopoly created three tiers of glass drinking vessels in the sixteenth century. Imported Venetian glass favoured by the wealthiest represented the highest level. The next category was the domestic glass produced to near Venetian standards that was only restrictive due to its cost. Finally was the much cheaper and poorer quality home-produced potash glass, which Harrison says even the poorest people had. Consequently access to glass types was severely regulated and stratified, but only with respect to vessels associated with the table.

With Verzelini's monopoly due to end in 1595 the Crown issued a patent in 1592 to Sir Jerome Bowes to become effective when Verzelini's expired. This patent was a revision of Verzelini's monopoly. There was also the addition that if he was unable produce sufficient quantities of glass he must "suffer the said Noblemen and others of her Majesties Privy Council to make thereof only to their owne private use" glass from foreign sources (Godfrey 1975: 40).

The granting of monopolies and patents in this period appears to be a direct attempt to restrict and stratify the glass available to individuals. Licences granted to import Venetian glass were presumably exclusive and available only to the nobility, whilst the higher quality domestic glass was still prohibitive due to its cost. The licensing of the glass industry had the effect of acting in a similar fashion to the late medieval sumptuary laws. These laws acted as a demarcation of who should use what products, particularly with concern to clothing (Scattergood 1987: 257). Whilst the sumptuary laws were partly enforced to protect native industries, especially the cloth trade, they were also a response to perceived social change. They demarcated what styles of clothing were appropriate for whom and were a direct attempt to limit the perceived dangers of individuals appearing above their station. These laws were a clear recognition that clothing could be used to express social aspiration and mobility, which threatened the established order (Scattergood 1987: 270).

Ultimately the sumptuary laws failed, it proving hard to legislate and prosecute people on the basis of their appearance. However, the granting of the monopoly to Verzelini proved a more effective social control. Venetian glass would simply not have been available to those thought unworthy to be granted a licence. It also provided domestically produced glass of a high quality for fashionable use, but this would have clearly carried different status meanings.

However during the early seventeenth century the quantity of glass being both produced in England and imported had increased to such an extent that its scarcity was no longer a reason for exclusive use. It is no coincidence that this was the period when extensive use of glass by elite groups diminished and glass became more popular amongst the middling urban populus. The ability of the glass styles of the period to adapt to new consumers and markets ensured that it remained a popular medium for tablewares for the next fifty years.

7.3 *Emulation and Innovation.*

There are always a variety of influences governing the form and decoration of a vessel in any medium. The appearance of glass tablewares in the sixteenth century from almost complete absence enabled the unhindered formation of new styles. However, no single class of object was used in isolation during dining or other processes, so the presence of external influences should be expected. Most glass tablewares exhibit aspects of their form and decoration that can be traced to other media. In this way the general styles of vessel glass were able to convey a complex mixture of messages.

7.3.1 *Echoes of the Traditional*

The stemmed goblet was a traditional form of drinking vessel throughout the medieval period in Northern Europe. Usually associated with the consumption of wine, they occurred quite frequently in glass during the late thirteenth and fourteenth centuries (Charleston 1984: 20-1). These vessels, which closely paralleled their silver counterparts, seem to have been used in a similar symbolic way to communal cups, every person drinking from a single vessel. However by the end of the fifteenth century few if any glass goblets were in use in England.

During the later sixteenth century the majority of high quality soda or mixed alkali goblets consisted of three parts, the bowl, foot and central stem. The shapes of the foot and the bowl were largely dictated by their function, to steady the vessel and hold liquid. Despite this some aspects of the goblet bowl form can be attributed to other media. The flat tazza shape, in particular, was originally a silver form that continued to be produced in both silver and glass until the seventeenth century. However, it is with the stem forms that the greatest influences not only from silver but also pewter can be observed.

Charleston (1984: 68) has observed the similarity between the glass cigar stem and the tall-elongated stem of some silver goblets dating to the first quarter of the seventeenth century. It is clear that the original influence for these glasses came from silver examples, indeed this type of stem occasionally occurred on pewter chalices (e.g. fig. 7.3). However the influence of design was not a one way process, glass cigar stems with applied decorative wings were also copied in silver (fig. 7.4). In addition to the obvious stylistic similarities of the cigar stem with metalwares, other common glass stem forms can be seen in the traditional media. The round knop and ordinary inverted baluster stems were all current in metalwares. The round knop occurred in silver throughout the sixteenth and seventeenth centuries (e.g. fig. 7.5) and the inverted baluster in pewter on a number of vessels dating to the early seventeenth century (Hornsby et al 1989: 109).

Likewise, some of the forms of soda and mixed alkali beakers had strong parallels in metalwares and pottery. Beakers were the one form of glass tableware to continue in use from the fifteenth to the sixteenth centuries. Occasional finds of imported Venetian glass beakers dating to the early sixteenth century are known from England, including twelve at Upper Bugle Street, Southampton (Charleston 1984: 43). These early beakers were usually a small plain squat cylindrical type known as a *miolo*, and it is hard to find types in other media. Nevertheless the majority of drinking vessels in the first half of the sixteenth century were not made of glass. As late as 1558 the Frenchman Stephen Perlin noted that the English;

"consume great quantities of beer, double and single, and do not drink it out of glasses, but from earthen pots" (cited in Archer 1997: 5)

However, as the sixteenth century progressed, tall cylindrical glass beakers with everted rims and base rings became more popular. These mirror forms produced in silver (Schroder 1987: 71) and pewter (Michaelis 1955: plate XXXVI) throughout most of the sixteenth and seventeenth centuries. Again the influence of one beaker media upon another was not a one way process. Gaimster (1997: 136) cites the example of a Siegburg stoneware beaker form that directly copies a late sixteenth century roemer type (fig. 7.6). Likewise it is possible that a number of English pedestal and waisted pottery beaker forms (MPRG 1998: 6.1.1 & 6.1.3) were influenced by their glass counterparts, which were more numerous.

Other more obvious influences on glass design during the sixteenth and seventeenth centuries can be identified. Glass bellied tankards were relatively uncommon in England, although there are occasional examples elaborated with gilt mounts, including two in the British Museum (Tait 1991: 169) are known. It has been observed that these forms probably derive from the more common Germanic stoneware forms (Glanville 1971; Gaimster 1997: 135). A similar influence of pottery on its glass counterpart can be seen in the cylindrical tankard, far more common in English pottery (MPRG 1998 6.3.3) than glass. The final glass vessel type to imitate ceramic counterparts was the tall cylindrical jar, or *Albarello*. Usually associated with the storage of drugs, this was a form produced in domestic Border Wares (Pearce 1992: 73), Raeren Stoneware (Gaimster 1997: 388), Italian Maiolica (Rackham 1977: 34) and later in Delftware (Archer 1997: 381).

Not only many of the forms of glass vessels but also their decoration imitated or were inspired by other media. The practice of the diamond engraving of glass during the sixteenth century had close parallels with the decorative traditions used on metalwares. Many of the motifs used on glass, such as scrollwork, foliage designs, cartouches and figural patterns appear in contemporary English silver (e.g. Glanville 1990: 152, fig. 70). This was also the case on pewter, where engraving was first mentioned in the Pewterers' Company

records in 1588 (Michaelis 1955: 87). It is therefore no surprise that Anthony de Lysle, the only recorded glass engraver from sixteenth century England, was described as a "graver in puter and glasse" (cited in Charleston 1984: 58). If the same artisans were responsible for the decoration of different materials, it is not surprising that they employed the same decorative styles.

There are many characteristic features shared between enamelled glass vessels and ceramics with coloured slip or glazed decoration, especially contemporary and earlier Maiolica, although the processes of enamelling differed to the decoration of ceramics. Many of these elements can been seen in contemporary or earlier Maiolica. The stylised flowers on the enamelled goblet from Wood Hall (fig. 6.30) are remarkably similar to those found on some Maiolica Deruta Lustred Wares (e.g. Rackham 1977: 250, no. 757). Likewise the enamelled and gilt scale decoration found on the flask neck from Acton Court (fig. 6.10) can be found on the same type of Maiolica dishes. In contrast to engraving it is unlikely that enamelling on glass directly copied ceramic styles. However existing artistic traditions certainly seem to have influenced aspects of design and composition.

Nevertheless in a few specific cases enamelled glasses can be demonstrated to be directly imitating ceramics. Clarke (1974: 52) has identified two examples of double handled globular bottles in opaque white glass decorated with enamelled portraits and heraldry. The vessel form is identical to contemporary Dutch Maiolica (Hurst 1971: 362). Similar, although less closely defined, were the opaque white bowls produced in the Low Countries (Henkes 1994: 230-1). It is possible that the use of *lattimo* glass was intended to be a copy of imported Chinese porcelain (e.g. Butler 1990: 97 no. 52). However, the enamelled designs that appear on Dutch examples show a closer parallel to the geometric designs of early Delftware, although none yet are known from England (fig. 7.7).

7.3.2 *New Perspectives in Style*

Whilst many features of glassware in sixteenth and seventeenth century England were dictated by function and by traditional forms of decoration, nevertheless distinct and unique styles emerged. It is with the three-part goblet that a glassmaker was able to demonstrate the greatest virtuosity and variety. Not only were some forms entirely new, but also other types of unique surface decoration evolved.

One of the advantages that glass had over other media was that it could be mould-blown, producing quick and finely detailed designs. The manufacture of the ladder and lion-mask stem in a two-piece fixed mould enabled the production of a design unique to glass. Although silver and pewter vessels had elements that were cast, they little resembled the mould-blown stem (fig. 7.8 shows the detail of a cast pewter stem, dated 1610, the nearest

approximation to a glass mould-blown stem). The mould-blown stem could still be further elaborated upon by the application of gilding. It is therefore not surprising that the stem type remained popular in England from the middle of the sixteenth century until the Civil War.

Two-piece mould-blowing was not the only unique form of blown decoration achievable in glass. Optic blowing allowed the vessel, or parts of it, to be covered with fine ribbing, diamond or roundel patterns in a way not possible on ceramics or metal vessels. Although Gaimster (1997: 136) has noted the presence of diaper carved ornament on a number of stonewares (e.g. fig. 7.6.1), it is unlikely that this was the inspiration for glasswares.

However, the compound stem was the most elaborate of all goblet styles developed during the seventeenth century (e.g. fig. 4.8). Such stems were clearly considered different by their contemporary audience as they were referred to as 'extraordinary fashions' in the price list issued by Mansell. Charleston cites a glass in the Marston Hall inventory of 1605, which was described as '*one great knotted glasse with a couer*' (Charleston 1984: 70), almost certainly a twisted compound stem. This unique style of vessel remained popular until the middle of the seventeenth century, although in other parts of Europe, such as the Low Countries, compound stem goblets continued to be produced until the eighteenth century (e.g. Vreeken 1998: 139-45)

A further variation of the compound stem was the trick-glass (e.g. fig. 4.10). Although very rare, this represented a further new form in glass. The use of a siphon to drain the liquid from the goblet bowl was a unique design in the seventeenth century and there are no direct parallels in other vessel media. Late medieval puzzle cups were similar, and possessed holes which made conventional drinking impossible (Medieval Pottery Research Group1998: 6.29), whilst elaborate silver rose water fountains were occasional luxury table objects (Glanville 1990: 213). However neither of these variants can be considered the inspiration for the trick-glass, which remained in use into the second half of the seventeenth century and was one of the glass varieties imported from Venice by John Greene in the 1660s (Charleston 1984: 104-5).

Other forms, too appear, to have been virtually unique to glass. Whilst cylindrical beakers followed contemporary silver or pewter designs, the potash and soda pedestal variety was unique to glass. The presence of a folded foot made it a difficult shape for other media to follow, but there were few similar vessels. Likewise other beaker styles, particularly the Low Country fluted beakers and roemers (fig. 4.6), with the exception of the one aforementioned example of a stoneware roemer, were unique to glass. Moreover, most of the pedestal and globular flask styles (figs. 4.13-4.17) could not be achieved in ceramics or metalwares, whilst case bottles were only ever made in glass.

Despite the originality of many vessel forms, there were few decorative techniques employed which were either not used on other media, or had distinct stylistic similarities. Perhaps the most common was the application of trailing to the vessel, although this was not dissimilar to horizontal incised or raised lines produced on a potter's wheel. The most unique forms of trailing, *vetro a fili* and *retorti* were visually different. However this technique was relatively rare and mainly restricted to the sixteenth century. Possibly the only unique decorative form available in glass was the production of ice glass. The technique, where the parison was dipped in water to cause surface crizzling before being inflated further, produced an unusual textured surface. However ice glass was extremely rare in England in comparison to the continent (e.g. The Low Countries, Henkes 1994: 167-9).

Perhaps the most obvious innovative decoration that could be achieved in glassmaking was the transparency of the vessel itself. From the middle of the fifteenth century clear or *Cristallo* glass was the predominant type produced, initially in Venice and then across the rest of Europe (Charleston 1984: 43). Glass was the only medium that allowed the container or vessel to display its contents visibly. This is discussed further in chapter 7.4.3.

7.3.3 *Conservatism and Novelty of Taste*

Whilst glass was a relatively new commodity during the sixteenth and seventeenth centuries, many of its forms and decorative techniques either drew on traditional imagery or the decorative fashions of other media. Many of the basic forms of glass, such as some of the knopped stems, the cylindrical beakers and the bellied tankards were already being produced in ceramics and metalwares. Likewise, various forms of decoration, such as engraving and enamelling were emulating the designs that appeared on other types of vessels.

The adoption by glass of traditional and other contemporary forms can be partly attributed to functional reasons. Many of the ceramic and metalware shapes were defined by their utilitarian use, and glassware used similar designs for the same reasons. Beakers, by virtue of their requirement to hold larger quantities of liquids, had to be more capacious, whilst goblets did not require such large bowls. However, this can account for only the most basic similarities between vessels. The close mirroring of styles by glass of other media, and occasionally *vice versa*, suggest that there was an intentional adoption of pre-existing fashions. This is confirmed by the use of similar surface decorative techniques, which gave the vessel a more familiar form.

The reasons for this apparent conservatism were probably twofold. Firstly, the adoption by glass of traditional forms and decorative techniques enabled established

concepts of style and imagery to be displayed. Although the vessel was made from a different material, many familiar aspects of design were present, allowing its functional and symbolic purpose to be known. In this way, despite being a new luxury item, it was imbued with similar messages that ceramics and metalwares already possessed. Secondly, by adopting many of the decorative techniques of traditionally valuable vessels, particularly engraving on silver, an element of emulation was achieved. A glass vessel by imitating a more expensive silver one could draw on some of the connotations of wealth and prestige that it possessed.

However, glasswares of this period did not only depend on other media forms and decorations. A number of completely new forms and innovative decorative designs can be observed. The presence of forms, such as the mould blown or compound stem, which could never be achieved in ceramics or metalwares, demonstrated the desire for new patterns. Likewise new decorative techniques were able to produce vessels with a distinct look. With the evolution of new forms it was possible to express new evolving tastes and fashions, demonstrable by the presence of a new kind of material culture at the table. However it was primarily the use of colourless glass that differentiated these vessels from other forms of tablewares. More than any other, its transparency made glass unique in the repertoire of dining material culture.

7.4 *The Exclusivity of Design.*

While discussing lion-mask and cigar stems, Brain (1999) has made the following observation;

"The two groups seem to embody the developing split in British society, these stems (*lion-masks*) being the ornate 'Cavalier' design compared with the plain-functional 'Roundhead' design of the cigar stems."

Despite this being a misconceived statement, it serves to underline two points. Firstly, that the way that vessels were decorated could change not only the way that they looked, but also a person's conceptions of them. Secondly, decoration was one of the keyways in which the social messages of objects were portrayed. To understand how these processes might have operated, two decorative techniques applied to vessels of this period will be examined. The first of these was the use of two-piece mould blowing to produce elaborate goblet stems. The second was the embellishment of the vessel with diamond engraving. Both transformed the appearance of the glass and influenced perceptions of it.

7.4.1 *Mould-blown Stems*

Mould-blown stem designs were a popular form of decoration on vessels in the late sixteenth and the first half of the seventeenth centuries. Figure 7.9 shows their widespread distribution throughout England. This stem was one of the most elaborate and complicated to make and was formed by blowing a small parison of glass into a two-piece fixed mould. Once it had cooled enough the mould was removed from around the stem and a separate free blown foot and bowl were added on to it. Mould-blown stems are a particularly characteristic form of decoration, as although they do vary in size, they tend to follow a very fixed formulaic pattern. Two general types can be identified, although they both have several variants.

Ladder Stems

It has long been suggested on the basis of its distribution that the ladder stem was a unique English product (Thorpe 1961: 128-9; Charleston 1984: 69). Although rare on the continent, they do occur as occasional finds. There is a single example from the Gnalic Wreck off the Dalmatian coast, a Venetian merchant ship carrying a wide range of European goods to the East (Petricioli 1973: 86). However the recent find, in the glassmaking waste at Broad Street London, of a half finished example of a ladder stem confirms the hypothesis that they were produced in England, figure 7.10 (Shepherd U/P no.138).

Unlike the lion-mask stems, discussed below, the ladder stem can only be matched to four individual mould types (full descriptions are in appendix 2). The first, type one, is

completely different from the other three and appears to date to the late sixteenth century (fig. 7.11.1). This is the simplest form, consisting only of vertical enclosed panels of raised bosses alternating with vertical ridges. Once removed from the mould, this stem was gently marvered, either into an inverted baluster or stretched into a more elongated shape. It is this form that occurs on the Winifred Geares goblet dated to 1590 (Charleston 1984: plate 14a).

The remaining types followed a different formulaic pattern (fig. 7.11.2). They all had a differentiated upper zone with encircled gadrooning and four vertical rows of raised bosses. However the decoration between these bosses varied. In type two it consisted of only four columns decorated with vertically running raised circles, with a ridge across their diameter, inter-spaced between the bosses. Types three and four represent further variations on this theme. Type three had two columns of circles and two opposed five lobed rosette designs (fig. 7.11.3). Type four was nearly identical, but with two clearly defined *fleur de lis* in place of the rosettes (fig. 7.11.4).

Despite Charleston's (1984: 58) assertion that the ladder stem was a type frequently found on English excavations, it was comparatively rare. Only twenty-four have been recovered from excavations (fig. 7.12) with a distribution restricted to urban sites in the south-east and two elite sites in the north-west (fig. 7.9). In the late sixteenth century type one was the most common, with eleven examples, and these came from both urban and elite contexts. The later more complex ladder stems were proportionally fewer in number, with five of type two, three of type three and four of type four. All of these later ladder stems occurred on urban sites and, with one exception, all within London. This is perhaps not surprising given that this was where they were manufactured. The apparent difference between the distribution and number of the ladder stem types is discussed later in this chapter.

Lion-Mask Stems

Unlike the ladder stem, lion-masks were traditionally thought to have been produced in Italy in the first half of the sixteenth century (Thorpe 1961: 128). Certainly by the second half of the sixteenth century they appeared on vessels found and probably produced in England, France, The Netherlands, Italy and Dalmatia (Charleston 1971: 63). Several examples are even known from the Americas, including one from Ontario, Canada (Kid 1953: 369). Despite this spread, their appearance was still remarkably uniform.

Lion-mask stems were much more common than ladder stems and appeared in a large number of varieties. They occurred on most forms of stemmed vessel made in three or more parts, although they were most commonly associated with goblets. The forms of decoration on these vessels varied. However the lion-mask stem itself was always blown in a

clear glass and the only ornamentation that it received was the occasional application of gilding. In England the vast majority of vessels with lion-mask stems were plain goblets of clear glass, the bowls being decorated only with trailing or simple optic blowing. Lion-mask stems, although not very common finds, have a wide geographical distribution, from the south coast as far north as County Durham (fig. 7.9). Despite their frequency the forms have been little researched, although over twenty-five years ago Charleston (1971: 63) noted the importance of such a study:

"Urgent work is required on defining mould types together with their variations in detail...it may be possible to localise sources of manufacture, distribution and general date ranges."

Through the systematic study of the mould types found in England it has been possible to realise some of the aims outlined by Charleston and to gain a more contextualised understanding study of the types.

There have been other attempts to classify mould categories from glass fragments. For example eleven optic moulds, used to produce a variety of vessels, have been identified from the eleventh century cullet ship recovered from Serçe Limani (Lledó 1997). However there has been no attempt to apply this principle to the lion-mask form from Europe. The same characteristic features always occur on these stems (fig. 7.13). There are prominent opposing lion-masks on both sides, with circular ears, snouts and manes above and below the faces. The upper and lower portions of the stem are decorated with raised gadroons, which vary in number. The seam joins are also decorated, with the exception of four examples, with a central side boss and a lower festoon of five raised roundels.

Due to the relatively small number of lion-mask stems from the sample sites in this survey, a broader survey of lion-mask stems was required. The largest collection is housed in the Museum of London, deriving primarily from post-war clearances and salvage excavations in the City. Of the sixty-seven stems examined, fifty-seven, or just over eighty-five percent, could be shown to fit into only seven different mould varieties (fig. 7.14). These were given individual codes of A to G. The six groups, H to Q, were all single stem examples that could not be matched with any others.

The mould groups A to G are clearly defined groups with three or more exact matching examples. However, category A was far less crisp or uniform in its execution than the others, perhaps indicating a poorer level of workmanship. These stems seem to have undergone significant distortion and manipulation after they were removed from the mould and whilst they were still hot. In some cases, this was clearly due to the subsequent application of the feet and bowls, which could lead to either the compression or stretching of parts of the stem. Further distortions to the faces of the stems were probably caused by

careless removal from the mould. However careful examination of the upper gadrooning and the spatial relationship of the facial features make it possible to group those belonging to A with some degree of certainty.

The implications of these results are important, particularly when those lion-masks from the survey sites in this thesis are compared with them. Firstly the matching of eighty-five percent of the total stems to just seven mould categories suggests that there were relatively few moulds in use to produce a large quantity of vessels. Even if all of these vessels could be viewed as English products, which is certainly not the case, this would still be a low number. The origin of the mould types is at this stage uncertain, but some broad distinctions can be made. The largest category, A, constitutes thirty-one percent of the total number. Given the poor workmanship of the moulds and the subsequent heavy-handed distortion of the stems it might be possible to attribute them to an English origin. This is further backed up by the quality of the metal of these stems. They tend to vary in colour from quite clear to a quite strong green tint, a feature less likely to occur in Venetian or Continental *façon de Venise* glass (Tait 1991: 157). This variation in colour also characterises mould group B and the very low relief of this mould type could again suggest English manufacture. If this is indeed the case these two categories alone make up fifty-one percent of the total. Such a figure as this is not that surprising given that they were found in London, the principal English centre of production for quality domestic wares (Godfrey 1975: 22-4).

By comparison, the categories E and C are very uniform crisp moulds always blown in a fine quality clear glass to produce a thin-walled stem. These stems were probably imported, which may account for their lower numbers. Similarly the four stems classed as H to K are entirely distinct from the rest, by the use of heraldic features at the seam, instead of side roundels. This is a feature that sometimes occurs on stems found in France and the Netherlands (e.g. Goetz 1991: 191-3; Kottman 1991: 156-7), but very rarely in England, suggesting that these were imported vessels.

The second important consideration when dealing with the numbers of identified mould groups is not only the relative proportion of home produced or imported types but also the general chronology of the lion-mask stem. This form was popular in Europe for about one hundred years and was probably used, if not produced, in England for much of this period. However, when the lion-masks from the survey sites are compared with those from London, a more precise chronology and contextualised definition of mould types can be achieved.

Two broad patterns emerge (fig. 7.15). Firstly, no matches can be made from lion-masks found on elite sites with the classification based on the London material. This stands

in opposition to the vessels from urban contexts, of which nearly all match the London typology. This apparent bias towards matches from the urban sample sites might initially be explained by the fact that London itself was a town. However, the second pattern confirms a real difference between the elite and urban sample assemblages. The majority of the urban stems, which from their archaeological context date to the seventeenth century, can be matched with the mould groups A and B, suggesting English manufacture. Conversely the lion-mask stems from the elite sites, which date contextually to the sixteenth century, either did not match the London classification, or were of types presumed to be foreign imports.

The association that develops from this mould classification is clear. Lion-mask stems are more common on elite sites during the sixteenth century, when they all appear to derive from imported vessels. However during the first half of the seventeenth century lion-masks become increasingly common on middling urban sites, and at this point are primarily home produced vessels. This change is of particular interest, and its context is discussed later in the chapter.

Moulds and Stems, Materials and Quantification

A surprising aspect in the identification of English moulds was the limited numbers of each type used to produce a large number of vessels. Only two lion-mask and four ladder types can be hypothesised to be of domestic manufacture. This suggests a very long period of mould use. It seems likely that each glasshouse was only in possession of one or two such moulds that were valuable enough to be retained. The fact that no two piece moulds have ever been found on a furnace site excavation attests to their value. It is possible that this matter might be further complicated by the possible existence of 'generations' of the same mould, as suggested by Stern for small Roman mould-blown bottles (Stern 1995: 48). As the mould wore out a new one could have been made based on either a secondary 'archetype' or on a stem that came from it. Each successive generation of mould produced a smaller bottle that might gradually change in design. This leads to the possibility that the same pattern could have been produced in different moulds for a considerable period of time. Although this may be the case with some Roman forms it is more unlikely with lion-mask and ladder stems. The total period of their production appears to be only around one hundred years and there is not the expected variation in size and design that would be present if several generations of moulds spanned this period. An additional complicating factor is the subsequent distortion of stems by the application of the foot and bowl. This makes any exact measurement of size impossible, a problem which is not faced with the classification of Roman bottles. The argument for generations is also dependent on the material that the mould is made from.

Due to the lack of any physical remains, discussion of mould material must be entirely speculative, but there are some possible indications. Certain organic materials, such as wood, can be discounted due to their flammable nature. Fired clay, although a suitably fine material, would suffer heat degradation and probably would not have lasted long. The evidence from crucibles from furnace sites suggests that the molten glass was quite corrosive (Godfrey 1975: 196-8). Price suggests that clay inclusions and the slightly pot-marked appearance found on some Roman mould-blown vessels is an indication that a clay mould was used, yet this is a feature absent from English two-piece stems (Price 1991: 58). This leaves only two alternatives, stone and a soft metal such as copper alloy. The experiments of Gudenrath have shown that stone or plaster moulds could have been used successfully to produce a stem (shown in Tait 1991: 234). However there is some tentative evidence that this was not the case. One of the stems from London was rather hastily made, the mould left partially open on one side, which allowed a small part of the molten glass to seep through the side seam of the mould. This section of flash is finely flattened for about one millimetre as it moves away from the stem before broadening out slightly. This suggests that the walls of the mould were very thin, certainly at that point. A thickness of one millimetre is far less than would be expected or even possible if the mould was made of stone or clay. Consequently it would seem reasonable that the mould was made of some form of metal alloy which could be both thin and also very resistant to the heat of the glass. The use of copper alloy in other periods, such as the sixth- to seventh-century hexagonal mould from Samaria and the Islamic mould in the David Collection, suggests that this was a suitable material (Kenyon 1957: 451; Folsach & Whitehouse 1993: 150).

The Social Significance of Mould-Blown Stems

The identification of mould types has made it possible to make a number of important observations. In the case of the lion-mask stems a distinct chronological pattern develops. The earliest stems, dating to the second half of the sixteenth century, were those with the fewest mould matches. They all also appear to have been from imported vessels, explaining the relatively low number of matching stems and their relative rarity in this period. However, during the first quarter of the seventeenth century this pattern is reversed. Although imported stems with few or no matches still occur, the majority of lion-masks found in England come from the two distinct identified types, A and B. The evidence suggests that these two types were both manufactured in large numbers domestically.

This trend can be interpreted not only in terms of increased domestic production but also in the perceived value of mould-blown lion-mask stems. Initially they were only available as expensive foreign imports. As a consequence, the lion-mask stem would have

been a symbol of a rare and expensive item during the later sixteenth century. However, the increase in production in quality English glassmaking during the seventeenth century included at least two lion-mask stem forms made in London. The numbers of these surviving archaeologically, as well as their often careless production, suggests their production in large numbers. Where mould types can be identified from the individual study sites (fig. 7.15) later mass produced English stems were almost exclusively found in urban contexts. Through their increased availability and lower retailing cost lion-mask stems lost much of their appeal to elite groups and were more readily accessible to more middling urban groups.

This is a trend that is partially confirmed by the chronology and distribution of the ladder stems. The most common and earliest form type one, dating to the late sixteenth century, is found in both urban and elite contexts (fig. 7.12). However of the three later seventeenth century ladder stem forms only one example appeared on an elite site and this example, along with one from Oxford, are the only known examples outside of London. The changing proportions of the lion-mask and ladder stem during the seventeenth century show that the ladder stem was not produced on the same scale as the lion-mask stem. The reasons for this are unclear and may partly be due to the decorative motif itself rather than the desire for mould-blown stems.

So far the social significance of these stems has only discussed in terms of their relative expense and scarcity. However, this form of stem manufacture enabled an unusually complicated decoration to be achieved and there are important aspects of this element of design that need further exploration. It is curious that only two types of two-piece mould-blown stem forms ever occurred in England. This trend continued on a continental scale. Lion-masks predominate although other forms also occur occasionally; the presence of mould-blown 'raspberry' style stems has been noted in some countries, such as at Olomouc in the Czech Republic (Sedlácková 1998: nos. 12.1-4). However, neither the raspberry nor any other mould-blown stem variation has been found in England.

The decorative motif of the lion-mask seems to have been distributed across all Europe. The precise reason is unclear, but it was a popular decorative element in Renaissance art and design. However, what is more surprising is the uniformity in design of these stems. All were very regular in their composition, with upper and lower gadrooning and in the majority of cases the decoration around the seam was nearly always identical, being a side boss and a festoon of five raised roundels (fig. 7.13). The lion-mask stem seems to have been a powerful decorative element. They appear to have been occasionally gilded to enhance their appearance, although this does not always survive archaeologically. However the uniformity of design and the utilisation of the lion, often a symbol of power and strength, suggests that these stems were intended as strong decorative statements. This,

combined with the use of intricate and expensive moulds would have made them costly items. However once a mould was made it could be used almost indefinitely, and in the case of the seventeenth century English examples this probably diminished their monetary and social value.

It is harder to define these social messages and values in the case of the ladder stems. The earlier type is a simple, yet finely executed design. However it is hard to see any symbolic aspects to its raised boss and vertical rib design. The later variants contain more elements of contemporary design, the gadrooning and panels of inter-linked circles being fashionable Renaissance compositions. The more complex of these later ladder stems. types three and four, also contained a rosette and *fleur de lis* design respectively. The symbolism of the rosette might make reference to the Tudor rose, which it resembles. Likewise, the *fleur de lis* was by this stage an established symbol of not only the French royal family but also the English claim to the French throne. In these two cases it would seem that the decoration of the stems was drawing on Royal imagery. Why these stems were not as popular as their contemporary lion-mask counterparts is uncertain despite being loaded with decorative messages.

7.4.2 *Engraved Vessels*

The technique of diamond engraving first emerged in the middle of the sixteenth century. It probably originated in Italy, where in 1549 the Venetian Vincenzo di Angelo dal Gallo applied for a patent for the technique (Charleston 1984: 55). This style of decoration consisted of scoring the outlines figural or floral motifs, which were subsequently hatched-in with small diagonal strokes. Other typical embellishments were bands of scrollwork and enclosed cartouches or heraldic devices. By the latter sixteenth and seventeenth centuries diamond engraving was practised at most European glassmaking centres.

The 'Verzelini Glasses'

The study of diamond engraved glass in England has concentrated exclusively on the attribution of museum pieces to the sixteenth century workshop of Jacob Verzelini (Buckley 1929; Thorpe 1961: 105-13; Charleston 1984: 55-60). The engraver Anthony de Lysle was recorded as working for Verzelini at this time, suggesting that the diamond engraving could be ascribed to him. Charleston has published the most recent collection of these vessels, attributing ten engraved vessels to the workshop of Verzelini and one to his successor Sir Jerome Bowes (Charleston 1984: 55-60). However, in this thesis the goblets can be grouped into four types based on their form as well as their style of decoration.

The first group, type 1, had a tall almost cylindrical bowl, a large thick ribbed globular knop stem and a flaring slightly raised base (figs. 7.16-18). The bowls were decorated with an upper band of stags, hounds or unicorns resting above a fine band of inter-linked running *S* scrolls. The lower portion of the bowl contained a zone formed with framed cartouches and foliage design above a further band of scrollwork and ovoids. Charleston identified three largely intact glasses (figs. 7.16-18). The engraved dates on these glasses ranged between 1577 and 1581. Whether these are English products is far from certain. The vessel shape in plain form is extremely rare in archaeological contexts. Only a single engraved example has any connexion with England, bearing the Royal Arms of Elizabeth I (on the reverse side of the glass in fig. 7.18). However it is entirely possible that such vessels were made and decorated abroad or were imported with blank cartouches to be infilled subsequently. None of these vessels have engraved mottoes in English, which might imply some decoration, if not manufacture, in England.

Type 2, are also unlikely to be of English provenance (figs. 7.19-20). They had broad low bowls, fine flattened ribbed knops and flaring pedestal bases. The engraved decoration consisted of a hunting scene on one example and a pattern of cartouches and foliage design on the other. These date to 1578 and 1580 respectively. This form of the pedestal goblet with a ribbed flattened knop is rare on archaeological sites and suggestive of an import. Charleston acknowledges that the example with the hunting scene (fig. 7.19), which also includes the three royal *fleur de lis* of France, is of doubtful English origin, and there is no reason why the other example should be viewed differently.

Type 3 can be more strongly argued to be English (figs. 7.21-23). The three vessels, with engraved dates tightly clustered between 1584 and 1586, all had very similar features. They had deep broad bowls on small rounded, finely ribbed knops and smaller flaring bases. They were decorated with a variety of cartouches and horizontal bands of mottoes in English. The vessel shape in plain form is one widely known from archaeological sites in England dating from the late sixteenth to the early seventeenth centuries. The small round ribbed knop can be viewed as an English product based on its distribution and quantification alone. The presence of English mottoes on all the glasses in this category further confirms a domestic origin for these vessels. Indeed, if this is the case it is most likely that they would have been produced in the workshop of Verzelini.

The final group, type 4, comprising two vessels, is less easy to classify (fig. 7.24-25). Both vessels have two piece mould-blown lion-mask stems, and are dated to 1583 and 1602 respectively. The provenance of both stem forms has already been discussed in this chapter, but the ladder stem in particular can be viewed as an English product. Both had deep bowls, as found on many English goblets, although these were decorated differently.

The first, with the lion-mask stem, was engraved with cartouches and a foliage design with the motto *In God Is Al My Trust* running above. The second, also with a lion-mask stem, was engraved with the English name *Barbara Potters*. It is thus probable that both vessels can be provenanced to England.

The attribution of vessels to Verzelini's workshop by engraving alone has proved to be erroneous. As has already been discussed, a number of the so-called Verzelini glasses have forms which are rarely found in England and would normally be classed as imports if they were plain. However there is a further group of engraved vessels to be considered, those from archaeological excavations.

Other Engraved Vessels

Eleven diamond engraved vessels have been recovered from such contexts (fig. 7.28-7.31). These came from nine different sites, and with the exception of a single vessel from Wood Hall, were all located in central and south-eastern England (fig. 7.27). This is a surprisingly low number of glasses, especially compared with those with mould-blown stems. Although this probably reflects a true scarcity, it may be further influenced by other taphonomic factors. Those parts of the vessel most commonly engraved included the bowl and foot, usually the thinnest and most vulnerable part of the vessel. If fragmented, they are less likely to be identified as having been engraved, especially when weathered. Despite these complications, engraved glass still appears to have been rare and scarcely found in archaeological contexts.

The most complete archaeological example of an engraved vessel so far recovered came from a pit at Minster House in St. Lawrence Pountney Lane, London (fig. 7.28). It consisted of a complete base, gilt ribbed inverted baluster stem and a tazza bowl, of which half still survives. The bowl was decorated with a hunt scene containing of two or three hounds and a stag, all in a wooded setting. This was bordered above and below with bands of running scrollwork and had a teardrop design radiating out close to the stem. The decoration of the tazza has a very close parallel with the Verzelini type 2 glass now in the Musée de Cluny, Paris (fig. 7.19). The stem form of the London vessel was more oval than most English inverted balusters and it is probable that this, like the Verzelini type 2 vessel, was a foreign product.

A number of engraved fragments, from at least two vessels, were found in a pit from Southampton (fig. 7.29). Both vessels had similar decorative designs and may have been a matched pair. The decoration consisted of an upper band of stag and hounds joined in one of the two vessels by a unicorn, identifiable by its horn and pointed beard. Below this panel was a narrow band of scrolling above two cartouches interspersed with panels of floral

designs. Both these vessels were of the same design as the Verzelini type 1 group identified above. Indeed the example with a unicorn was nearly identical in all stylistic aspects to the complete glass in the Fitzwilliam Museum, Cambridge (fig. 7.17). A further three smaller fragments also were found with these two goblet bowls and probably belonged to them. The first had the remains of the edge of a cartouche and the letter 'I' or number '1'. The second had the remains of a date '85', presumably 1585 and the last a band and unidentifiable decoration.

A further fragmentary goblet bowl was also recovered from Bloomfield Street, London (fig. 7.30.1). This example differs from those already mentioned, as the decoration only consisted of floral and geometric patterns. The engraving can be divided into three zones. The upper contained alternating teardrops and vertical scrolls, above a horizontal band of running scroll design. The middle zone seems to be comprised only of a foliage pattern, again separated from the lower zone by a band horizontal running scrolls. This lower zone was the mirror image of the upper, with reversed teardrops and vertical scrolls. There is no direct parallel for this glass although some of the elements of the teardrop and leaf design, resemble a goblet of Verzelini type 4, in the Corning Museum of Glass (fig. 7.24).

A further goblet with foliage design comes from Wood Hall (fig. 7.30.2). The engraving was restricted to around its rim and consists of a floral and leaf design, with a running scroll border above. This panel was bounded below with a thick horizontal trail, and the rest of the vessel appears to have been left plain. The partial decoration of vessels with engraving is less common, but the Verzelini type 3 glass in the Victoria and Albert Museum (fig. 7.22) has a similar band of engraving around the rim, the rest of the rest being decorated with fine horizontal trails.

Small fragments of similar glasses with scroll and foliage design also come from Camber Castle and Nonsuch Palace (fig. 7.30.3-4). Although too small to provide further identification of their scenes; they are clearly of the same decorative genre as those vessel previously discussed. In a similar way, a complete goblet base from St. Ebbes, Oxford bears this style of decoration (fig. 7.31.1). Although its bowl and therefore most of its decoration is missing, the foot was decorated with a circle of engraved ovals. The stem form and this decoration is nearly identical to the complete Verzelini type 2 vessel in the Musée de Cluny, Paris (fig. 7.19). The missing bowl of the Oxford glass may have been decorated in a similar way.

The remaining three fragments of engraved glass from archaeological contexts differ in the form of their decoration from both the 'Verzelini' glasses and the previously discussed examples. The first formed part of a lower tazza shaped bowl, found at Canterbury

(fig. 7.31.2). The design consisted of an unusual foliage pattern. The size of the leaves was larger than in other examples and the scratched infilling, which was lighter than usual, did not fill the borders. Due to the size of the fragment it is not possible to tell if other stylised engraved features were associated. The other two fragments, from Acton Court and Chelmsford, were completely different in their composition (figs. 7.31.3-4). The former was a basal fragment from a goblet. It was engraved with interweaving curls that did not form defined zones that were subsequently hatched in. The latter fragment was similar, the decoration consisting of a swag of engraved lines, but with none of the other usual stylised features.

The Social Significance of Engraved Vessels.

The attribution of all the intact engraved vessels to the workshop of Verzelini and more particularly to the engraver Anthony de Lysle can now be viewed with scepticism. It is also impossible to attribute engraved vessels found archaeologically to these sources. Examination of the vessels' form, has demonstrated that they originated from a number of sources, of both domestic and continental manufacture. However what unites these glasses as a group is the nature of their decoration, and both the implicit and explicit messages that they bore. Irrespective of origin, these vessels demonstrate the desire for a certain style or taste in England during the last quarter of the sixteenth century.

Engraved vessels were clearly high status objects for a number of reasons, the most apparent being that engraving was only carried out on the highest quality vessels. Although this might appear to be an obvious association, it is not necessarily the case. The technology required to score the surface of the glass was extremely simple. Although it is supposed that a diamond tipped instrument was used for the high quality vessels, there was no practical reason why other hard substances, such as quartz, could not have been used. Despite this, no engraving ever occurred on poorer quality vessels. This is not to say that the highly complex motifs and design should be expected on potash or poor quality mixed alkali glass, but it would not have been a complex process to apply simple geometric designs or horizontal bands to these vessels. The complete absence of engraved or incised decoration on any but the top grade of glass suggests that it was only considered appropriate to them.

The exclusivity of this decoration can be further indicated by consideration of the process of its execution. It is not certain how long it would have taken the craftsman to engrave a complete goblet bowl. However, in proportion to the time required to create the vessel, it was considerably greater. The process of blowing a three-part goblet would only have taken a few minutes, even if it were decorated with other features, such as trailing or

optic blowing. The investment of time to engrave a glass completely would have incurred considerable extra expense.

By the nature of their decoration, engraved glasses were capable of carrying the most evocative imagery. Such engraved vessels demonstrate the only form of decoration used on glass, with the possible exception of enamelling, where the customer directly influenced the imagery. This can be seen most obviously by the presence of cartouches of initials that occasionally occurred on vessels, an element that had to be applied upon special request. Diamond engraving allowed the purchaser, and user, to specifically 'tailor make' the vessel decoration to their own requirements. As with personalised cartouches the purchaser could apparently specify the inclusion of specific mottoes and probably was able to choose the stylised scenes that appeared on the vessel. This control over the decoration allowed the customer to imbue the vessel with messages far more personalised than any other glass decoration.

The examination of the different styles reveals a variety of social messages. The most obvious engraved decoration, were of hunting scenes. This was not an innovative pattern; a number of Roman glass bowls dating to the fourth century portray similar scenes (Harden 1960). The sixteenth century examples fall into two broad categories. The first consists of a panel of several hounds chasing a stag, against a backdrop of trees and foliage. Example of this decoration can be seen on both complete vessels, as in the Musée de Cluny (fig. 7.19), and archaeological glasses, for instance the tazza from Minster House, London (fig. 7.28). The second variation on this theme occurred on three of the complete 'Verzelini' glasses (figs. 7.16-7.18) and the fragments from Southampton (fig. 7.29). As well as the hunt scene with stag and hounds, these other examples all include a unicorn within the decorative running panel.

The imagery on these glasses was symbolic of a high status elite pursuit. An allusion to hunting on these vessels suggests that the users wished to associate themselves with 'the chase', even if they did not actually participate. Only the wealthy could afford to hunt and by displaying such obvious images on a glass the owner was making an expressive statement. The inclusion of unicorns within this decorative motif further enhanced the theme. According to myth, no hunter however skilful could capture the unicorn. Thus the inclusion of the animal as an elusive quarry fitted in with the general genre. Additionally, the unicorn was the symbol of purity and virtue (Ferguson 1961: 26). Its conspicuous presence on a glass would help deliver these encoded messages to the person who saw or used the vessel.

Personalised cartouches and mottoes were a further dimension of symbolism. Nine of the intact 'Verzelini' glasses (fig. 7.16-7.25) bore either groups of owners' initials or

mottoes in English and often combinations of the two. The fragments from Southampton also contained these elements (fig. 7.29). The use of initials or even full names was clearly intended to enhance the prestige of the vessel and its owner. In a similar fashion the inclusion of the Royal Arms of Queen Elizabeth I on one example (on the reverse of fig. 7.18) was intended for a similar purpose. The use of mottoes appears to have been intended to further strengthen particular relationships. Some can be seen as familial, 'TO.HIS.BROTHER. RICHARD.GRENAL', on one glass (fig. 7.21), whilst others were obvious displays of loyalty to the Crown, 'GOD.SAVE.QUYNE.ELIZABETH' for example (fig. 7.22). Finally overt religious sentiments could be expressed in this way, with two of the 'Verzelini' glasses carrying the identical motto 'IN.GOD.IS.AL.MI.TRVST' (figs. 7.23-7.24).

Whilst all of the intact vessels fall into these categories, it would appear that many excavated fragments do not bear any surviving hunt scenes, cartouches or mottoes (figs. 7.30-31). In these cases, the decoration seems to consist entirely of foliage designs and scrollwork. This might be due to the non-survival of these particular parts of the vessel, but it is likely that they were lacking them originally when complete. In these vessels it is harder to identify the overt messages. However the presence of engraved decoration alone may have been sufficient to convey their meanings to the user.

One of the most striking features of complete vessels was that their manufacture and use was seemingly restricted to the last quarter of the sixteenth century. This would also seem to be the case with the fragmented archaeological examples, where the contextual dating is sufficiently refined to allow such conclusions to be drawn (as at Camber Castle, for example). Only one of the dated glasses falls into the seventeenth century, having been engraved in 1602 (fig. 7.25). This contrasts with the situation in the rest of Europe, where diamond engraved glass continued to be produced and used with increasing frequency throughout the seventeenth century. For example of the one hundred and eight-two Dutch diamond engraved glasses recently published from the collections in the Rijksmuseum, Amsterdam, only nine date to the sixteenth century, as opposed to one hundred and four from the seventeenth century (van Eck 1995: 17-171). Further, engraving in The Netherlands during the seventeenth century increasingly occurred on potash and mixed alkali vessels, predominately roemers, suggesting that it was extending further down the social scale.

However, this was never the case in England and the production and consumption of engraved glass seems to have ceased during the seventeenth century. Charleston (1984: 102-3) cites four complete examples of diamond engraved glasses dating to the 1660s, possibly of English origin, but these must be considered an exception rather than the rule. The

reasons may be similar to those already discussed in conjunction with the mould-blown stems. The apparent shift in the use of glass from the elite to the urban middling classes in the seventeenth century was the probable cause for the abandonment of engraved decoration. Unlike mould-blown stems, which could be cheaply mass-produced in England to satisfy a growing demand amongst urban groups, diamond engraving was probably too costly and laborious a form of decoration to suit the new market.

7.4.3 *Decorative Metaphors and the Puritan Ethic.*

The emphasis in this section of the chapter has been on the use of decoration to encode a vessel with explicit meanings. The examination of the complex mould-formed stems and the decoration of the vessel surface with fine engraved decoration have helped to identify many of the metaphors imbued by design. However, these elaborate processes did not decorate the vast majority of vessels. Indeed the absence of ornamentation on a vessel could have been equally symbolic. This is the verdict suggested by Brain's (1999) description the cigar stem as a 'plain functional Roundhead design'.

It is probably no coincidence that the majority of more highly decorated vessels occurred in the sixteenth, rather than the seventeenth centuries. In the former century enamelling, engraving and the use of *vetro a retorti* and *fili* trailing were more prevalent. During the seventeenth century, the majority of vessels remained undecorated, or only had simple trailed or optic blown features. However it would erroneous to associate such changing patterns of design and taste with a growing puritan ethic. This can be demonstrated by a comparison of Civil War deposits. For example the glass recovered from the Royalist site at Basing House (Charleston 1971) hardly differs from that at Beeston Castle (Charleston 1993), held by the Parliamentarians. Both sites contain high quality mould-blown goblets and beakers, and no differentiation based upon the affiliation of the site's occupants.

The apparent cessation in production and use of glass tablewares at the Civil War has previously been assumed to be due to the Puritan dislike of glass. Thorpe (1961: 135) stated that "many people regarded fine crystal as a relic of royalty" whilst Charleston (1984: 97) comments that during the interregnum "the demand for luxury glass was presumably not so great". However there is no evidence for this, nor for the assumption that people "confused wine glasses with drunkenness" (Thorpe 1961: 135). The real reason for the lack of production during the interregnum was due to the economic collapse of the industry. With the Civil War, Mansell's patents were cancelled and the industry damaged through the disruption of both raw material supplies and the traditional markets (Godfrey 1975: 135). Insofar as it is possible to tell, the puritan ethic and the Commonwealth government did not

affect the access to, and demand for, glass. The presumption that drinking was against the puritan ethic has been disputed by modern historians. Hill (1970: 198) quotes Cromwell saying that he thought it utterly absurd "to keep wine out of the country lest men should be drunk". Indeed it was during this period that the wine bottle saw its genesis and first mass-production (Charleston 1984: 93-5), whilst it is clear that glass was still being imported in sufficient quantities to merit taxation (Buckley 1914: 18).

The reason for the general movement towards plainer glasses during the seventeenth century was the result of a longer ongoing process. By the middle of the fifteenth century the production of *Cristallo*, a colourless glass in imitation of rock-crystal, had been perfected in Venice (Charleston 1984: 43). Clear colourless glass was manufactured in all the major production areas of Europe by the end of the sixteenth century, and was the basis for Verzelini's and Mansell's industry in England. Throughout the Tudor and Stuart period in England, with the exception of occasional examples, all soda or mixed alkali vessels were made in a colourless metal. It is clear that these were not intended to deceive the viewer into thinking the vessel was rock-crystal. Glass vessels were in shapes and designs that could not be achieved through the carving of rock-crystal although it is possible that through being colourless allusions were made to rock-crystal. It is unlikely that most people, who would never have seen such rare vessels, would have understood these.

The true reason for the popularity of colourless vessels probably lay in their role as receptacles for liquids, particularly wine and beer. Montaigne (1991: 1231) explained his preference for glass when he said, "I dislike all metals compared with clear transparent materials. Let my eyes too taste it to the full". He favoured glass over metalwares because it displayed the contents more effectively. The glass acted as a vehicle for the display and presentation of the wine, being made colourless for this reason. Through its visual display, the food and drink gained increased importance and status, leading to a gradual change in vessel style from the sixteenth to the seventeenth century. As dining habits became increasingly regulated and refined, so too did the importance in the presentation of food and drink. Although vessels themselves were made to impress, they became increasingly more important as a means to exhibit their contents. It is no surprise that not only did tablewares become plainer, but also ordinary utilitarian vessels such as flasks and bottles, which were never designed for display, also continued to be made in naturally coloured potash glass. Consequently, the attribution of plainer styles of tablewares, during the seventeenth century, to puritan ethics and sentiments could not be further from the truth. The clarity of the goblet only helped to emphasise the wine that it contained.

7.5 *To Shards at the Last? An Archaeology of Repair.*

In 1587 Harrison complained that the problem with drinking glasses was "in time, all go one waie, that is, to shards at the last" (Harrison 1876: II 147). He saw that any investment in glass was a waste due to its inevitable and probably relatively rapid breakage. However, just seven years later Sir Hugh Platt was advising his readers of "an excellent cement for broken glasses" in which he outlined two recipes for the making of glues to mend glass. The first involved the mixing of wax and Aqua Vitae which was to be applied to the line of the break and the two fragments bound tightly together with wire until it hardened. He claimed that this method was used to repair two of the Queen's own cups (Platt 1979: I 51-2). A second formula was probably designed as a caulking material to fill in the gaps between lost fragments, and consisted of an amalgam of lime, flour and egg white. It is unclear whether these recipes would ever have worked and neither would be likely to have survived archaeologically. However, they do show the real demand for the repair of broken glasses.

In chapter 5.6 five goblets stems from Bagshot were noted with contemporary repairs to their stems. These examples form part of a wider known group of twenty-two repaired vessels, all goblets (fig. 7.32). Other than this group from Bagshot the majority of these repaired stems have been found in London with a single example coming from Oxford. All the repaired vessels had knopped or mould-blown stems. In total twelve repairs were from elongated inverted balusters, four from mould-blown stems, three from ordinary inverted balusters, two from ribbed round knops and one from a multiple round knopped stem.

These repairs can be classified into two distinct groups. The first consisted of applied lead strips (figs. 7.33 & 7.34.1-5). In most cases, three vertical strips were placed over the break and then fused with three horizontal ones, forming a protective cage around the damaged area. The majority of these were on vessels that had broken between the stem and the bowl, although in four cases this occurred between the lower stem and upper basal merese. In the case of one lion-mask stem from Bloomfield Street London, the whole lower portion of the stem was encased in a folded sheet of lead and held in place with a plaster-like paste. The second, and less common, form of repair was effected with twisted gilt wire bound in vertical twists and wound horizontally on either side of the break (fig. 7.34.6-7). Only two examples of this kind of repair have been identified, one from Bagshot and the other from London.

All of these repairs, particularly those from the sealed context at Bagshot, suggest that these vessels were mended sometime in the first third of the seventeenth century. The only exception is a single repaired lead crystal stem (fig. 7.34.5), in the Ravenscroft style, found on the Thames foreshore, which can be no earlier than the last quarter of seventeenth

century. Clearly the peak of repairing occurred mainly in the earlier period, only occasionally being undertaken later. These were the only repairs thus far identified for any glass vessel during either the sixteenth or seventeenth century, save for the occasional instance of a chipped rim that had been smoothed down.

This small group, restricted in space and time, raises several difficult questions concerning their repair. Who was responsible for their repair? The uniformity of the fixings, particularly the lead examples, suggests that either a single person or a specialised group of craftsmen undertook them. This seems to be confirmed by their relative scarcity. That they were contained, to within forty miles of the capital, suggests an origin at London where they were most common, although an itinerant workman can not be ruled out. That twenty out of the twenty-two were reconstructed using thin lead strips could be suggestive of the work of a glazier, used to working with lead cames. As previously stated, the dating of all but one stem to the earlier part of the seventeenth century suggests that the practice was not long lived, perhaps only lasting the lifetime of a single craftsman. However at this stage it is not possible to draw any firmer conclusions concerning either the origin or the repairer of these stems.

As these vessels are unique it is important to consider wider occurrences and implications of vessel repair. The occurrence of riveted pottery has been observed in a number of periods, most notably with samian wares of the Roman period. The Museum of London contains one hundred and thirty seven decorated samian vessels that have been repaired with rivets, approximately one percent of the total (Marsh 1981: 227). Two forms of repair have been noted. The first were those where the sherds had holes drilled through adjoining pieces and were then held together with lead or copper alloy rivets, a method primarily employed during first century (Marsh 1981: 227). The second, a slightly later method, involved the dove tailing of X-shaped wedges of lead into the pottery to hold the pieces together. On some Romano-British sites significant numbers of repaired Samian vessels have been found, for instance seventy-four were excavated at Piercebridge alone (Ward 1993: 19).

Examples of repaired pots are also known from the later medieval period. A number of sites have produced ordinary coarsewares that have been repaired using lead strips. An unusually large proportion of coarse sandy wares from Durham were found to have evidence for contemporary repair (Cumberpatch 1998: 56-7). These vessels, dating from the thirteenth to the late sixteenth century, were all repaired using long lead wire bindings joining the broken fragments through drilled holes (ibid. fig. 22 nos. 49-53). Both the samian and the medieval coarseware repairs are striking examples of a phenomenon that can be identified in

pottery of most periods. (A large number of repaired Iron Age vessels have been found at Aulnat and Gerzat in central France for instance, Cumberpatch pers. comm.).

However, one aspect shared by both the pottery examples outlined here and the glass stems from this study is the impractical nature of the repair. The repairs on Samian form 33, which were drinking cups, from Piercebridge would have made these vessels incapable of holding liquid, whilst the repairs of mortaria from the same site would have been too weak to have allowed their continued use (Ward 1993: 19). In a similar way the repairs observed on the Durham coarsewares showed no trace of caulking material and it was concluded that they would have made the vessels unsuitable for holding liquid (Cumberpatch 1998: 56). Although Marsh (1981: 227) cites an example of a ewer deliberately broken by a master riveter into over two hundred pieces in 1889, which was subsequently repaired well enough to hold water, this is unlikely to have been the case with these vessels. The repairs carried out on the glass goblets from this study would likewise have been largely ineffective. Although the bowls did not receive any restoration and would still have been capable of holding liquid, the stem repairs were quite insubstantial and weak. In many cases, the two pieces of glass were not held together very tightly and the goblet bowl would have been prone to move to and fro on the lifting of the vessel. Even in examples, which have more secure repairs, any sustained use of the vessel would have easily resulted in the weakening and eventual fracture of the soft lead bindings.

Given the weakness of these repaired vessels, it is unlikely that they would have been for general use at the table. It is therefore surprising that such vessels were not simply discarded. The argument that such vessels were repaired and retained due to either their rarity or cost can not be sustained. The five examples from Bagshot were found amongst nearly fifty other discarded goblets and were in a context interpreted as a coaching inn. By the seventeenth century, such establishments were quite respectable institutions, often attracting rich customers (Clark 1983: 7-10). As landlords could make healthy profits, it would seem unlikely that the repair of glasses would be preferred to buying new stock. In addition, all the repaired vessels in this study were of ordinary goblet types. There were no examples of highly decorated imported vessels that were repaired, a situation to be expected if the repair of glass was reserved for rare or expensive items alone. It is perhaps not surprising that a similar pattern occurs in late medieval ceramics. The aforementioned repaired pots from Durham were all from fabrics that were the most common and utilitarian in the assemblage (Cumberpatch 1998: 57). In addition to these factors is the appearance of the repairs. Those vessels reconstructed using the strips of lead, and more particularly the example of the lion-mask stem which was encased in a lead (fig. 7.33.1) would have been very conspicuous. Even the two examples fixed with twisted gilt wire were not subtle

repairs. Any vessel that was repaired would not have appeared as refined as a complete example.

Therefore the purpose of repairing vessels is unclear from a functional perspective. The vessels could not have been extensively used and would have appeared very unconventional. Repairs must have served a different purpose, suggesting that vessel glass, even when broken, could fulfil other roles. Deetz (1972: 29) has suggested that highly decorated post-medieval ceramics were used as much for display as for occasional use at the table. Likewise, the role of highly polished pewter was equally complicated. Its presence in the post-medieval household has been shown to be as much for decorative means and an indication of social rank than as a utilitarian item (Martin 1991: 179). In both cases, the mere presence of certain artefacts in the household or at the table were used to express social messages. Whether or not the decorated pottery or polished pewter was ever used, it was still fulfilling a purpose through its display. The use of artefacts in this way has occasionally produced some surprising archaeological results. The survey of the pottery found at three eighteenth century Georgia plantations revealed that several of the vessel forms used by the slaves were more expensive than those of their masters (Adams & Boling 1991: 84). This suggested that the slaves viewed ceramics as status indicators and purchased the pottery for use and display for this purpose.

It is most likely that the glass vessels in this study were repaired for non-functional reasons similar to the case studies mentioned above. Although broken and relatively unusable, these vessels were retained for further purposes. Defining these roles is more difficult. However, there are a number of possible reasons why such repairs were undertaken. Firstly the repaired goblets could still have been openly displayed on the cupboard by the table in the domestic context for example or in any other visual setting. The presence of glass, whether or not in use, would have been important in the expression of taste and refinement discussed earlier in this chapter. The glasses, even when broken, were conveying important social messages. Contemporary riveted repairs to eighteenth and nineteenth century decorative ceramics, particularly plates to be hung on the wall or dresser, are a common occurrence. In these cases, it is the presence of the vessel that is more important than its actual condition.

The second possible reason for the retention and repair of broken glasses may have been the desire for the retention of the 'antique'. McCracken suggests that the concept of patina played an important role in the objects used in the household at this period (McCracken 1990: 38). The accumulation of goods that appeared to be old to have belonged to the family for a number of years could suggest established old wealth. Old, often worn or damaged items were an indication that those who owned them had not recently acquired

their money and status. McCracken's view largely conflicts with the Tudor and Stuart reality. Fashionable goods were actively sought and the popularity of original products, such as Maiolica, in this period by many sections of society was immense (Goldthwaite 1989). This would suggest that in many aspects, the concept of patina did not apply to tablewares. However this is not completely the case, as many of the new forms of pottery, metalware and even glass drew on the established iconography from preceding centuries. The most obvious expression of this can be seen in use of medieval style heraldic devices on certain ceramics, such as Maiolica (Rackham 1977: 138 no. 398), glass (e.g. Tait 1991: 162-3) and silver (Glanville 1990: 170-2). In many cases very new objects were encoded with old messages of familial stability and position. It is equally probable that to some extent the retention and repair of some of these glasses was intended to convey similar messages. Two of the 'Verzelini' glasses, one which bore diamond engraved hunt scene, received contemporary base metal repairs to their damaged feet (figs. 7.35). As well as these examples an engraved glass, now in the Corning Museum of Glass, has a lead strip repair identical to the twenty archaeological examples already mentioned (only just visible in fig. 7.24). Although these are different in nature to the archaeological examples, they demonstrate the same desire for the retention of broken vessels.

The final explanation for the repair of glass may have been for more sentimental, but less definable reasons. It has been observed in a number of archaeological contexts, particularly burials, that objects were present which were already old when deposited. For example, White views the presence of Roman material in Anglo-Saxon burials as a symbolic use of material culture to emphasise an old way of life (White 1990:146). The so-called 'heirloom factor', where objects were retained and then deposited for specific social purposes is often implicit within Anglo-Saxon burial reports such as at Buckland, Dover (Evison 1987), and similar factors could relate to the repair and retention of broken glasses. It has already been suggested that the presence of a vessel could convey social messages, irrespective of whether it was still functional. Likewise, the repair and maintenance of broken glasses could relate to a sense of personal belonging. Chapman (1996) has explored the deliberate deposition of broken material culture in Copper Age Bulgaria. He suggests that these deliberately fragmented objects were subject to structured roles, and the retention of these objects was linked to the continuity of social life and relationships of enchainment (ibid. 210-4). While this is unlikely to relate to the deliberate fragmentation of glass vessels, it is likely that they were repaired and retained for reasons of social attachment. This may relate to a personal affinity to the individual who originally possessed the vessel, or suggest another form of attachment to the person responsible for the repair to the object. However,

given the nature of the archaeological record, it is unlikely that these sentiments could ever be positively identified.

In conclusion, this evidence for repair of glass vessels can be viewed in broader than simply functionally terms. Non-functional repairs occurred in many media throughout most periods. The reasons for this were probably numerous and varied, depending on the individual circumstances of that repair. However, it has been demonstrated that artefacts could convey complicated social messages, even when broken, through their presence and display alone. Whether this was to emphasise the antique nature of the vessel or to reinforce social and familial relationships probably differs in each case. What is certain with all these examples were that the act of repair effected not only the use of the glass but also influenced other meanings carried by the vessel.

7.6 *Conspicuous Consumption and the Discard of Material Culture*

The patterned discard of glass on sites is as significant as its initial use and is more easily investigated archaeologically. By the examination of context further patterns of glass use and discard can be defined. The examination of the way that an artefact is deposited can indeed lead to a more detailed understanding of its use.

7.6.1 *The Patterned Discard of Glass*

The disposal of glass on both urban and elite sites has been discussed in chapters five and six. Varied patterns emerged from these two categories of site. Most of the glass from urban contexts was deposited in either pits or filled cellars. Glass in these contexts would seem have been disposed of in relatively large quantities over a short period of time, if not in a single action. The cellar deposits from inns at Gracechurch Street, London and Bagshot demonstrate the mass dumping of glass in one or two episodes. Likewise, the pit deposits from Chester, Abacus House, London and Poole all demonstrate similar episodic dumping, often of complete vessels.

By contrast glass at elite sites showed a different pattern of disposal. At Norton Priory the disposal pattern was closest to the urban model. Here the glass was thrown out onto a compact midden in much the same way that glass was buried in pits in the town. However at Acton Court, Nonsuch Palace, Camber Castle, and to a lesser extent Wood Hall, the glass came in a more fragmented state from less specific contexts. It seemed to have been disposed of after breakage and subsequently deposited with other general waste. Fragments were found in a variety of contexts and there was a far lower occurrence of vessels discarded while complete. The obvious exceptions to these elite disposal patterns can be seen at Eccleshall Castle and in one context from Wood Hall. At the former site the large-scale dumping of glass outside the walls into the moat was the result of post Civil War clearance of the castle, rather than through normal domestic processes. At Wood Hall, a number of complete vessels were deliberately discarded in the moat outside the window of the gatehouse. This was an isolated instance and contrasts with the rest of the site, where the glass was very fragmented and discarded with other waste at the bottom of a garderobe chute.

Insofar as it is possible to tell from the examination of these twelve study sites further differences can be noted between the patterns of discard of urban populations and the elite. Firstly, it has been observed that the periods of greatest glass use between the two groups varied, the sixteenth century best represented on elite sites and the seventeenth century in urban contexts. Secondly, glass in towns was generally discarded in larger quantities and often whilst in good condition. In contrast most glass from elite sites was

thrown away in association with ordinary household rubbish, usually in a highly fragmented state. The contrast between these two groups may be partly explained by their chronological differences. Glass in a sixteenth century elite context would usually have been imported and more expensive than the later, often domestically manufactured glass from urban deposits. However, the observable variation in the patterns of discard between these two groups is also likely to be the result of differences in use and manner of consumption.

7.6.2 *Consuming Theories*

In chapter 1.5, theoretical positions on the consumption of material culture through its acquisition, use and final deposition were briefly discussed. Most of these studies were concerned with material culture as an economic and social commodity. Links between artefacts and their users have been identified (Glassie 1975; Deetz 1977), whilst analyses of household expenditure have been reviewed (Thirsk 1974; Wetherill 1988). Studies more directly related to archaeological material culture have concentrated on the demand for goods (Mukerji 1983) and commodification (Johnson 1996). The changing roles of tablewares and dining patterns have also been explored (Goldthwaite 1989; Yentsch 1991). However, despite occasional mention in more synthetic literature (e.g. McCracken 1990: 6), there has been little examination of the role of conspicuous consumption in the deposition of material culture.

The notion of conspicuous consumption was first conceived in 1899 with the publication of Veblen's *The Theory of the Leisure Class*. He defined conspicuous consumption as the use of material culture to display wealth overtly and the failure to do so marking social inferiority. He further argued that material goods were not only functional objects but also displays conspicuous waste (Veblen 1925: 69-101). Consequently, the visible expense of an object and the loss of wealth following its purchase were used to convey messages of rank and superiority. Although largely concerned with late nineteenth century society, Veblen's concept of the visible disposal of wealth through conspicuous waste has also influenced sociologists, anthropologists and archaeologists to the present day.

Bourdieu, in his assessment of taste in modern France, has drawn heavily on these concepts. He suggested that economic power "asserts itself by the destruction of riches, conspicuous consumption, squandering and every form of gratuitous luxury" (Bourdieu 1984: 55). In this, he saw conspicuous consumption as a stage in the process of communication of the ideas of wealth and status. Despite the similarities of this argument to that of Veblen, Bourdieu puts less emphasis on material goods, emphasising the use of symbolic capital to display taste (Campbell 1995: 104). Other observers have linked the use

of modern material culture with conspicuous consumption, for example Brunsdon's (1991) study of the purchase of satellite television.

More historical adaptations of Veblen's theory of consumption are less numerous. A notable exception is McKendrick's contribution to *The Birth of a Consumer Society: the commercialisation of eighteenth century England.* In this he seeks to explain the apparent consumer boom that occurred during the eighteenth century, primarily through the study of clothing (McKendrick 1982: 34-99). He argues that the expenses incurred in external display were lavish exhibitions of conspicuous consumption. In a similar fashion to Veblen, he interprets clothing as a combination of practical use and noticeable waste. Despite the criticisms that have been levelled against McKendrick's work noting that fashion did not govern clothing before the eighteenth century (McCracken 1990: 6), it still remains a valuable demonstration of the potential of the concept of conspicuous consumption within material culture studies.

7.6.3 *The Use of Glass as an Expression of Conspicuous Consumption*

At first sight the use of glass as the medium for conspicuous consumption seems unlikely. Glass was considerably cheaper than silver plate and would have been less visible than precious metals as a conspicuous display of wealth. A fine example is provided by the Armada service, the largest surviving set of late Tudor parcel gilt dishes, consisting of twenty-six vessels. This set was built up over a period of twenty years (Thornton & Cowell 1996). Such a display of silver, weighing over thirty pounds in total, would have demonstrated considerable wealth and status.

The value of the silver differentiates the Armada service from a similar sized collection of glass. The accumulation of a large collection of silver plate represented not just a display of wealth but also an economic investment. Accumulated family plate could always be sold or melted down in times of financial need (Thornton & Cowell 1996: 175). This was not possible with glass, as Harrison observed in 1587;

"that our great expenses in glasses...are worst of all bestowed in mine opinion, bicause their peeces doo turne unto no profit" (Harrison 1876: Bk. II 147).

Unlike silver and pewter, glass had no scrap value when broken. The acquisition of glass represented the conspicuous waste of wealth for two reasons. Firstly, the fragility of the material meant that the vessel was unlikely to have a long life span. Despite the examples of repairs, these represent only a tiny proportion of the total numbers of vessels discarded. Once broken, the glass could only be thrown away and this clearly caused some concern with those responsible for their care, as Harrison recognised; "that they (*glasses*) breed much strife towards such as have charge of them" (Harrison 1876: Bk. II 147). The second

aspect of conspicuous waste can be seen in the relatively rapidly changing fashions of glass. Even if a glass survived undamaged it was still a wasted expense when it became unfashionable. The large scale dumping, particularly from inns, seen at Gracechurch Street and Bagshot was the probable result of changing tablewares, tastes resulting from evolving fashions. Any investment in glass, due both to its fragility and changing stylistic reasons, would be a clear statement of disposable wealth.

Earlier in this chapter it was noted that there were differences in the patterns of disposal between elite and urban levels of society. Whilst the former group tended to favour glass earlier, its pattern of discard was suggestive of disposal due to breakage. The vessels were usually highly fragmented and disposed with widely along with other household rubbish. For the sixteenth century elite, glass represented a restricted luxury item, through which wealth was visibly lost once it was broken. This contrasts with the pattern displayed among the urban groups from the first half of the sixteenth century. Clearly, glass was broken by accident, a factor attested to by the repair of vessels that have thus far only been found in towns. However, the presence of large dumped groups, sometimes in a single action, suggests that glass vessels were often discarded as the result of changing fashions in design. To the urban population a conspicuous investment in glass was stimulated more by competitive emulation within their own social group than with the elite, who by the seventeenth century tended to use other materials for vessels.

The themes of competitive emulation and the 'trickle down' of fashion through the social classes are expanded upon by McKendrick in his study of eighteenth century clothing (McKendrick 1982: 22). This simplistic view of style transfer, with social classes copying their superiors, has been criticised, particularly in the claim that it was an eighteenth century phenomenon (e.g. Campbell 1987: 20-1). Certainly there was no apparent emulation of the elite by the urban population in terms of glass use and the manner of glass disposal suggests that they had different meanings. However, there was an apparent element of emulation within the urban social group that resulted in the discard of complete or useable vessels and the repair of others once broken. The full extent of change in fashion and social emulation within urban populations of the early seventeenth century remains unclear. There appears to have been an ever-developing market for new styles and media. It is probably no coincidence that this period saw the first appearance of new pottery forms such as early geometric Delftwares in urban contexts (e.g. Archer 1997: 43 no. A.42).

7.7 *Summary*

This chapter has discussed five aspects of the patterned use of glass. A more contextualised consideration has been given to the material and its relationship with its users. Five broad topics have been discussed, covering aspects of the forum of use of the material culture at the table. The increasingly complicated dining ritual and the control exerted through manners have been examined in an effort to give grounding to the importance of material culture use in dining. The expression of taste and *civilité* through the patterned use of artefacts has been demonstrated as a background to the complicated social meanings implicit within glass. The inspirations for glass designs during this period have been explored in both traditional and innovative terms, whilst two specific case studies, on engraving and mould-blown stems, have examined the specific messages that artefacts could carry through their designs. The uniqueness of glass' transparency was also considered as a reason for its popularity. Finally aspects of the breakage and disposal of glass were considered. The existence of a group of repaired vessels throws light on some of the symbolic aspects of these glasses. Likewise the differential patterns of disposal between elite and urban groups suggests a difference in the social values that both these groups perceived within the material culture. This chapter has not attempted to cover every aspect of glass use; other areas for further study are outlined in the next chapter. Nevertheless it has achieved a greater understanding of the significance of the material culture through setting it in its context.

Chapter 8 *Conclusions*

This thesis had two aims. The first to establish a typology for vessel glass found in England between 1500 and 1640. As there was no previous morphological classification for this material, one has been compiled from published sources, museum collections and the direct examination of excavated material. The second aim was to explore the ways in which the glass was used in the society of the period. The increased occurrence of glass tablewares during the sixteenth and seventeenth centuries has been examined in the context of the vessels' use and of the meanings that they carried. Twelve unpublished group deposits from urban and elite sites were chosen for particular attention in order to define the differences in the context of glass use and deposition.

This chapter does not seek to repeat all the detailed arguments of the thesis, which have been summarised in each chapter. Instead the main points will be presented along with possible directions for further research. It is inevitable that there are areas which merit subsequent investigation. However this study has been successful in establishing a classification for glass of the period and has presented a new methodological approach to the contextualised study of material culture.

8.1 *A Typology for Vessel Glass in England*

Despite previous research on the glass of the Tudor and Stuart period (most notably Charleston 1984), no comprehensive archaeological classification of the material has been attempted. This situation has now been addressed in many continental north west European countries such as The Low Countries (Henkes 1994), Germany (Baumgartner & Kreuger 1988) and France (Sennequier & Foy 1989), although similar work has yet to be undertaken on Italian or Iberian glass. The classification presented in this thesis is thus the first comprehensive examination of the vessel forms used in England during the sixteenth and early seventeenth centuries.

This typology is apparently Anglo-centric in its composition, as material from other parts of the British Isles has not been included. However, this was a reflection of the contemporary patterns of use. Hitherto glass has not been found in either Wales or Scotland in the same quantities as England. Only two assemblages in Wales and the Marches, from Montgomery Castle (Knight 1994) and Usk (Courtney 1994) have produced more than a few fragments and in Scotland the only group of any size came from Castle Loch, Mochrum (Thorpe 1950); this material is now lost. This thesis has not attempted to assess the material found in Ireland, although vessel glass dating from the sixteenth and seventeenth centuries has been found in Dublin (L. Joy, National Museum of Ireland pers. comm.).

The classification in chapter four was based upon the published reports from seventy-four excavations (Appendix 3) at forty-four towns and sites (fig. 1.1.), in addition to the glass from the twelve study groups. The material was divided into three levels of categorisation. The first of these were broad types, categories that were differentiated by their functionally determined form. The types were further divided into groups on the more detailed features of their form or manufacture, and the final level of categorisation was based upon the surface decoration of the vessels. The theoretical and methodological base for this categorisation has been discussed in chapter 3. Emphasis has been put on the importance of the building of specific research questions into any classification.

Consequently this typology is a modern construct, created to answer specific archaeological questions. Although at the initial type level it may represent a similar reality to that perceived during the sixteenth and seventeenth centuries, the subsequent division into group and sub-group are modern categories. In chapter 2, the contemporary references to glass showed no consistency in their terminology, often just giving vague descriptions of form. Therefore, a typology has been created to enable modern comparisons of the material culture and allow a contextualised archaeology of the material. However, it is important to emphasise that that this classification is only a first step in the ordering of the material culture. It is not intended to be a fixed categorisation and has been organised to allow the addition of further forms in the future. Further excavation and research will inevitably reveal new forms not yet represented in the current typology. Likewise the continued refinement of chronologies will allow for the more accurate attribution of vessels and may reveal mistakes in the typology, particularly in the less common forms. However this classification provides a valuable framework on which further study can be based. Not only will it act as a work of reference for future research, but it has also brought together material and published reports that until now been scattered throughout archaeological literature.

8.2 *Glass from the Study Sites*

For the purpose of this thesis, twelve study sites, which contained compact well contexted groups of glass, were chosen. Half came from urban contexts (chapter 5), half came from a variety of high status elite sites (chapter 6). Despite Harrison's assertion in 1587 that even the poorest used glass, this is not borne out archaeologically (Harrison 1876 Bk. II: 147). Glass only occurs in any quantity in some more prosperous urban contexts, whilst excavations of rural villages have revealed that glass was present on the richer manor house sites alone. At Wharram Percy, for example, the only glass of the Tudor and Stuart periods came from the area of the manor house and the church.

Distinct differences in the patterns of glass use and disposal have been identified in the elite and urban contexts. The glass from high status sites tends to date primarily from the

sixteenth century, a period in which glass seems to have been at the height of its fashion amongst the elite. Conversely glass was only used in quantity on urban sites in the following century. This diversity in the use of glass between social groups derives from both social and economic factors. The elite favoured glass as a medium whilst it was still relatively rare and exclusive, the majority of tablewares having to be imported. However, the urban populations using glass during the seventeenth century were being supplied by an expanding domestic industry producing more accessible vessels.

A further difference in glass use between both groups can be seen in the types of vessels present in the assemblages. Whilst drinking forms predominate at all sites, the elite sites demonstrate a significantly higher proportion of other serving wares. Jugs, bowls and decorative flasks were much more common, suggestive of not only greater wealth to spend on glass, but also a more complex pattern of material culture use at the table. The urban expenditure primarily on drinking vessels can be explained in terms of the visibility of these vessels. Goblets, in particular, were evocative and conspicuous vessels and the use of glass to display alcoholic liquids such as wine would have made it a powerful medium. If a limited expenditure was to be made on glass, it seems likely that drinking vessels would have been the first to have been bought and only if the purchaser had sufficient capital could bowls and jugs also be acquired.

The final main contrast between the urban and elite groups that has been highlighted is the differing manner of waste disposal in operation on the sites. All the urban assemblages were disposed of in pits or cellar fills. Often the vessels discarded were clearly complete when thrown away and dumping occurred in single action. By contrast the discard of material on the elite site was less consistent. At Wood Hall and Norton Priory glass was disposed with in a similar manner to an urban site. However the material from Camber Castle, Acton Court and Nonsuch Palace was all very fragmented and appears to have accumulated over some period of time from a number of domestic contexts. In these cases the glass was present as a result of use, breakage and the general build up of rubbish rather than organised disposal, which probably occurred off site.

8.3 *The Style and Use of Glass*

Whilst this thesis has examined the differences in the patterns of glass use between urban and elite groups, it has considered the general roles that glass, particularly tablewares, played in contemporary society. The vessels used were more than inanimate functional items; they were active tools of a wider cultural practice. By the examination of their context of use and the way that they were formed and decorated, this thesis has attempted to define many of the societal values that they held.

The primary forum of glass use was dining, where tablewares were most actively employed. The developing dining practices of Tudor and early Stuart England have been explored in this study. It has been clearly demonstrated that during the sixteenth century a more elaborate and complicated pattern of dining was emerging. The increased emphasis on manners and social control at the table had a direct result on not only the material culture but also the way that it was used. Together with a more regulated and refined feasting ritual the numbers and diversity of vessels used at the table were increasing. This can partly be explained by increased wealth and access to goods, although the developing role of artefacts had further social influences. Artefacts were used to convey messages of *civilité* and personal awareness of taste. In an increasingly complex and controlled dining process through the use of artefacts and their associated meanings, common codes of conduct and savoir faire could be communicated.

This thesis has sought to connect the developing dining ritual with the renewed use of glass during the sixteenth century. It has been demonstrated that certain glass forms, particularly drinking vessels, drew inspiration for both their form and decorative technique from other more traditional media. The echoing of contemporary silver designs by some goblet types has been noted, as has the emulation of stoneware and other pottery forms by glass tankards. However, it has been recognised that this is not a one way process, since elements of glass design can also be traced in silver and ceramic wares. Likewise the use of decorative techniques and motifs more commonly associated with other materials, such as engraving, enabled glass to draw on powerful metaphors associated with both metalwares and ceramics. Glass also afforded the opportunity of developing new decorative forms and techniques, unachievable by any other means. The use of the compound stem produced the unique 'extraordinary' fashions commented upon by contemporary observers. Likewise the use of mould-blowing and new decorative surface techniques allowed a new style of material culture to emerge.

To interpret some of the social messages inherent within glass tablewares, this thesis has examined two particular decorative design elements of glass; mould-blown stems and of diamond engraving. By the examination of the general mould types of lion mask stems from England, particularly in comparison with those from the study sites, the use of this decorative form becomes clearer. The use of imported mould-blown stems was an important element in the visible display of unusual and new material culture by the elite during the sixteenth century. However by the seventeenth century, with the large-scale domestic production of these stems, the image of exclusivity was diminished and mould-blown vessels start appearing in relatively large numbers in urban rather than elite contexts.

The use of diamond engraving during the sixteenth century enabled more explicit social messages to be displayed. This form of decoration allowed an element of

personalisation; different scenes could be chosen and specific mottoes and cartouches applied. The use of this form of decoration represented conspicuous expense in the time its execution would have taken. However this form of decoration did not survive long into the seventeenth century, probably proving too expensive for the urban middling groups.

Although the decoration on vessels was sometimes used to express social messages, the majority of vessels remained plain, particularly during the seventeenth century. The assertion that this was due to a growing puritanical dislike of elaboration has been explored and dismissed. It has been argued in this study that the plainness and translucent nature of glass itself was the complete opposite of any Puritan ethic. It would seem that glass was popular as a medium because it was transparent, serving to flaunt and raise the profile of its contents, which in the case of most drinking vessels was wine.

This thesis has also identified a small group of glasses that received contemporary repairs. All of these were goblets, dating to the seventeenth century, and were repaired with nearly identical bindings of either lead strips or more occasionally gilt wire. In many cases, even once restored these vessels would have been functionally useless. The retention and repair of these glasses helped demonstrate the importance of glass as a symbolic as well as functional item. This study has suggested several reasons for their repair. They could still be displayed on the cupboard or elsewhere in the household, indicating that the presence as much as the use of the vessels was important. Their repair demonstrates the desire to retain old material culture, possibly as an indication of antique values. Finally, it has been suggested that the restoration of these vessels represents emotional attachment to the material culture. Clearly the owner felt the extra expense of their repair was worthwhile.

Theories concerning the conspicuous consumption and destruction of wealth have been discussed in this thesis. To some extent the use glass is a material which fits a model of conspicuous consumption particularly well. Amongst elite groups glass represented an exclusive alternative to more traditional and expensive metalwares. Although not as costly to buy, glass represented a considerable loss of investment once broken. Silver and pewter plate could be melted down to regain the majority of their value, whereas any such investment in glass was unrecoverable. During the seventeenth century, when glass prices had dropped, the urban groups used glass in a different conspicuous way. The patterns of disposal on these sites suggests that glass was dumped in large groups often when unbroken. This was the likely result in the changing tastes in fashion, with glass adopting increasing varied styles. In this case the presence of glass demonstrated not only the awareness of the latest fashions but a conspicuous expense in a vessel that may not have remained fashionable for long.

8.4 *Limitations of the Thesis*

Although the successful categorisation of Tudor and early Stuart vessel glass and the interpretation of its use and status, it is inevitable that there are certain limitations to this thesis. In Chapter Four the vessel glass has been categorised into eight broad types, which are further divided into thirty-one groups and numerous sub-groups. It is inevitable that future research and excavation will identify vessels that do not fit within these established categories. In recognition of this, the classification was designed to be flexible enough for the insertion of future types or groups of glass. A further possible inconsistency may potentially occur with the particular attribution of archaeological examples to groups. The typology has been compiled using the material examined from the twelve study sites as well as from seventy-four published excavation reports. It was not possible to re-examine the published groups, although they were carefully studied and the vessels poorly catalogued and illustrated were not included. Nevertheless it is inevitable that occasional examples of misidentified vessels will have been included within this typology.

A further necessary limitation within the scope of a three-year research project has been the concentration on vessel glass alone when patterns of dining have been considered. In any comprehensive consideration of changes and developments of dining patterns the whole range of vessels used should be considered. In the course of this study an attempt has been made to balance the role of glass with references to ceramics and metalwares, although the principle emphasis has always been on the glass vessels. To achieve a truly balanced picture all tablewares from the twelve study sites should have been examined with reference to published material, a task beyond the scope of the thesis.

8.5 *Directions for Further Research*

The need for a more integrated approach to artefact studies has been suggested in the previous section. No aspect of material culture operated in a vacuum, and if patterns of use and deposition are to be explored in greater depth in future, this can only be achieved with a fully synthetic investigation. This thesis is not intended to be the final word on Tudor and early Stuart glass. If a more contextualised understanding is to be achieved of the material culture of the period, it will only come from the study of all classes of material together. Artefact studies have taken a long time to reach a stage of maturity where questions beyond form, production and distribution can be addressed. Particularly in England, material culture studies have tended to stagnate at the level of object identification and attribution, which has resulted in a situation where artefact studies seem to be considered subsidiary to mainstream archaeological theory and practice.

The research for this thesis has been a conscious attempt to redress this imbalance. However future research can only build on what has been a small a small contribution to

material culture studies generally. Further work must expand in three directions. Firstly, as outlined above, all types of contemporary material should be considered together. This should happen at two levels. In the context of use and deposition a combined artefact approach is clearly sensible, but rethinking should also be undertaken at a more basic level. Typologies have been proliferated, and continue to do so but with no interaction between them. A possible future methodological development could be to construct integrated joint-classification systems. It is the contention of this thesis that the form and decoration of the vessel was more important than the material it was made from. Consequently it seems illogical that vessels in different materials should be classified separately.

The second development that should be considered is the temporal scope of future research. The 'pigeon holing' of material culture into time periods has received justified criticism, and this thesis is also guilty of this failing. If discussions concerning the role of material culture during dining are to continue, a wider scope must be taken than has been possible in the study presented here. Dining patterns and the use of material culture were continually subject to change and evolution, and it is an erroneous approach to try and examine and capture these in one particular period. Just as an integrated survey of all material culture is required for a comprehensive survey of the changing patterns of consumption, so the same is true for a broader examination of the periods of use.

The third, and final future development concerns the geographical boundaries of future research. This study has focused on material found in England; similar European studies have also concentrated on their own material (e.g. Henkes 1994; Baumgartner & Kreuger 1988). Although reference has frequently been made in this thesis to continental material and influences, the research needs to be taken several steps further. For example, if the provenance of various *façon de Venise* styles are to be achieved a broader based European study is required. Likewise for a further in-depth study of dining patterns in England to be undertaken, these same patterns need to be examined throughout similar countries. No element of material culture or social action ever operated in national isolation, nor should their study.

Although the three-year duration of the research presented in this thesis has imposed certain limits on what could be undertaken it is to be hoped that it has succeeded in its primary aims. This study has provided a structured classification for vessel glass of the period and an exploration of the social context of glass use. Through the available evidence discussed within it, this thesis has demonstrated the value of a more contextualised material culture based archaeology and will hopefully act as a potential model for future artefact research.

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Glossary

Annealing. The process whereby the finished glass vessel is cooled in a slow controlled way to prevent the build-up of internal stress which could lead to the shattering of the vessel.

Base Ring. A ring of glass, usually solid, applied to the base of the vessel, often more for decorative rather than stability purposes.

Blowing. The principle technique of fashioning a vessel by inflating a gather of glass on the end of a blowpipe.

Blowpipe. A tubular metal pipe with a wooden holding end, for the inflation of glass.

Cane. A collection of thin glass rods which are fused together to produce a multicoloured rod.

Combing. A decorative technique where by either decorative bands of glass or two applied sections of a vessel are dragged across each other with a sharp tool.

Cristallo. A type of soda glass, first created in Venice in the fourteenth century, but by the sixteenth was the standard soda metal.

Cullet. Scrap glass from old vessels collected by the glass maker for recycling.

Diamond Engraving. The technique of shallow cutting the surface of the vessel with fine incised lines to produce a pictorial representation. This engraving is assumed to be carried out by a diamond point, but flint could also have been used.

Enamelling. A technique by which the vessel is decorated by the application of 'painted' decorated which is then fused in the furnace.

Façon de Venise. The traditional term used to describe the high quality soda or mixed alkali glass made in Northern Europe, originally thought to be the deliberate copying of Venetian styles.

Filigree. A decorative technique by which numerous very fine, usually opaque white, threads are marvered into a vessel.

Forest Glass. A type of glass, traditionally made in wooded areas, which uses a potash base from burnt wood as its alkali. Usually green in colour, it weathers easily in archaeological contexts.

Gather. The portion of molten glass on the end of the blow pipe which is . subsequently inflated.

Kick. The convex point of the base which is pushed in by the pontil iron.

Knop. A decorative bulge on the stem of a glass, either hollow or solid and of varying shape and sizes.

Ladder Stem. A form of a fixed two piece mould blown stem. Decoration consists of usually four sets of vertical rows of protruding quadrilateral pyramids, the gaps between these resembling a ladder. Between these vertical ladder rows are usually panels of scrolled decoration.

Lattimo. A decorative technique originally developed in Italy. Derived from the word for milk it describes any applied or cane decoration which involves opaque white strips

Lion-Mask. A form of a fixed two piece mould blown stem. Decoration consists of two frontal lion faces, one from each half of the mould, with tear drop decoration above and below.

Marver. A flat surface or block used to roll the still fluid glass on the end of the blow pipe to smooth the vessel or press in any applied decoration.

Merese. A disk of glass applied between the bowl or the foot and the stem of a goblets to secure the elemnts together.

Metal. An ambiguous term, but used here to refer to the make up of the glass, much in the same way as the term 'fabric' is used in pottery description. Usually used to differentiate between forest and soda glass.

Mould Blowing in a two piece mould. The further inflation of a parison of glass into a fixed two piece mould. The glass is pressed against the side of the mould assuming its shape and is only removed when it is cool enough to hold its new form.

Optic blowing. The further inflation of a parison of glass into a one piece optic mould so that the incised decoration of the mould is pressed into the glass. The parison is removed and the further inflated and worked, so that the final vessel is decorated with an expanded and altered variation of the original decoration.

Parison. The gather on the end of the blow pipe which is already slightly inflated.

Pontil Iron. A metal rod which is applied to the base of a vessel with a lump of glass during manufacture, usually so it can be held to form the rim. When removed it leaves the slight remains of a pontil mark.

Prunt. Decoration consisting of an applied blob of glass. These can be further manipulated by pulling or in the case of wine bottles, stamping.

Raspberry Prunt. A distinctice prunt, characteristic of the Low Countries. Usually impressed with a tool to form a 'raspberry' design and sometimes enhansed with an applied central blue bead.

Rigaree. The milled design either on bosy trailing or base rings, applied with a wheeled tool.

Siege. The bench inside the furnace on which the crucibles sit.

Soda Glass. A type of glass traditionally associated with the more skilled glass works which uses soda as its alkali. Usually colourless unless a colourant is added.

Trail. A thin strand of glass, circular in section, which is applied to the face of a vessel as decoration.

Vetro a Fili. The Venetian term use to decribe the application of solid coloured trails to the vessel, which are either marvered flat or left slightly pround of the surface.

Vetro a Reticello. The Venetian term used to describe the inflation of one ribbed parison into another, to creating a network pattern which captures the air bubbles in between.

Vetro a Retorti. The Venetian term used to describe the application of twisted coloured cane of glass to the vessel surface. They are either marvered fflat or left slightly pround of the surface.

Wafel. A decorative technique by which the parison of glass is decorated with a spiral trail and then blown into a vertical fluted optic mould. When the parison is removed it is inflated and formed into a vessel, usually a beaker. The resultant decoration takes the form of a cut or chequered trail. Usually associated with the Low Countries.

Wrythen. An optic blown decorative technique, commonly used on English forest glass. The Parison is blown into a vertical fluted optic mould and removed. As the parison is inflated to form the vessel it is twisted to produce the characteristic wrythen spiral affect.

Illustrations

Study Site Catalogues

Mould-Blown Stem Types

Gazetteer of Published Groups

A Note on the Illustrations

All of the illustrations are the product of the author unless stated here.

The site plans were redrawn from those supplied as follows; 5.1 (Museum of London archive neg. no. 238/9-30), 5.28 (Horsey 1992), 6.1 (Oxford Archaeological Unit, plan compiled 1983), 6.11 (Dent 1962), 6.16 (Greene 1989), 6.25 (Wood Hall Moated Manor Project 1996 Interim Report).

The majority of the glass was drawn from the vessel fragments themselves, although some were redrawn, 6.21-6.24 (Sheale 1993), 6.7-6.10 (Courtney forthcoming) and 5.30-5.33 (Horsey 1992). I am indebted to Linda Bosveld for drawing figures 7.10, 7.13 and 7.14.

The figurative plates were taken from; 7.1 (Hammond 1993), 7.2 (Girouard 1978), 7.3 (Michaelis 1955), 7.4 (Chong & Kloek 1999; van Eck 1993), 7.5 (Schroder 1987), 7.6 (Gaimster 1997), 7.7 (Archer 1997; Henkes 1994), 7.8 (Michaelis 1955), 7.16-7.25 & 7.35 (Charleston 1984).

All the vessels are illustrated at half scale, unless indicated on the figure.

Figure 1.1 *Location of Sites Mentioned in the Text*

1- Alcester
2- Baconsthorpe Castle
3- Basing House
4- Battle Abbey
5- Bawtry
6- Bedford
7- Beeston Castle
8-Berry Pomeroy Castle
9- Boston
10- Bristol
11- Cannons Ashby
12- Canterbury
13- Castle Rising
14- Chelmsford
15- Chester
16- Chichester
17- Christchurch
18- Denney Abbey
19- Durham
20- Exeter
21- Farleigh Hungerford
22- Hereford
23- Hull
24- Kings Langley
25- Lincoln
26- London
27- Micheldever
28- Montgomery
29- Newcastle
30- Northampton
31- Norwich
32- Nottingham
33- Oxford
34- Penhallam
35- Plymouth
36- Poole
37- Porchester Castle
38- Sandal Castle
39- Southampton
40- Taunton
41- Temple Balsall
42- Usk
43- West Bromwich
44- Winchester
45-Acton Court
46- Bagshot
47- Barnard Castle
48- Camber Castle
49- Eccleshall Castle
50- Nonsuch Palace
51- Norton Priory
52- Woodhall

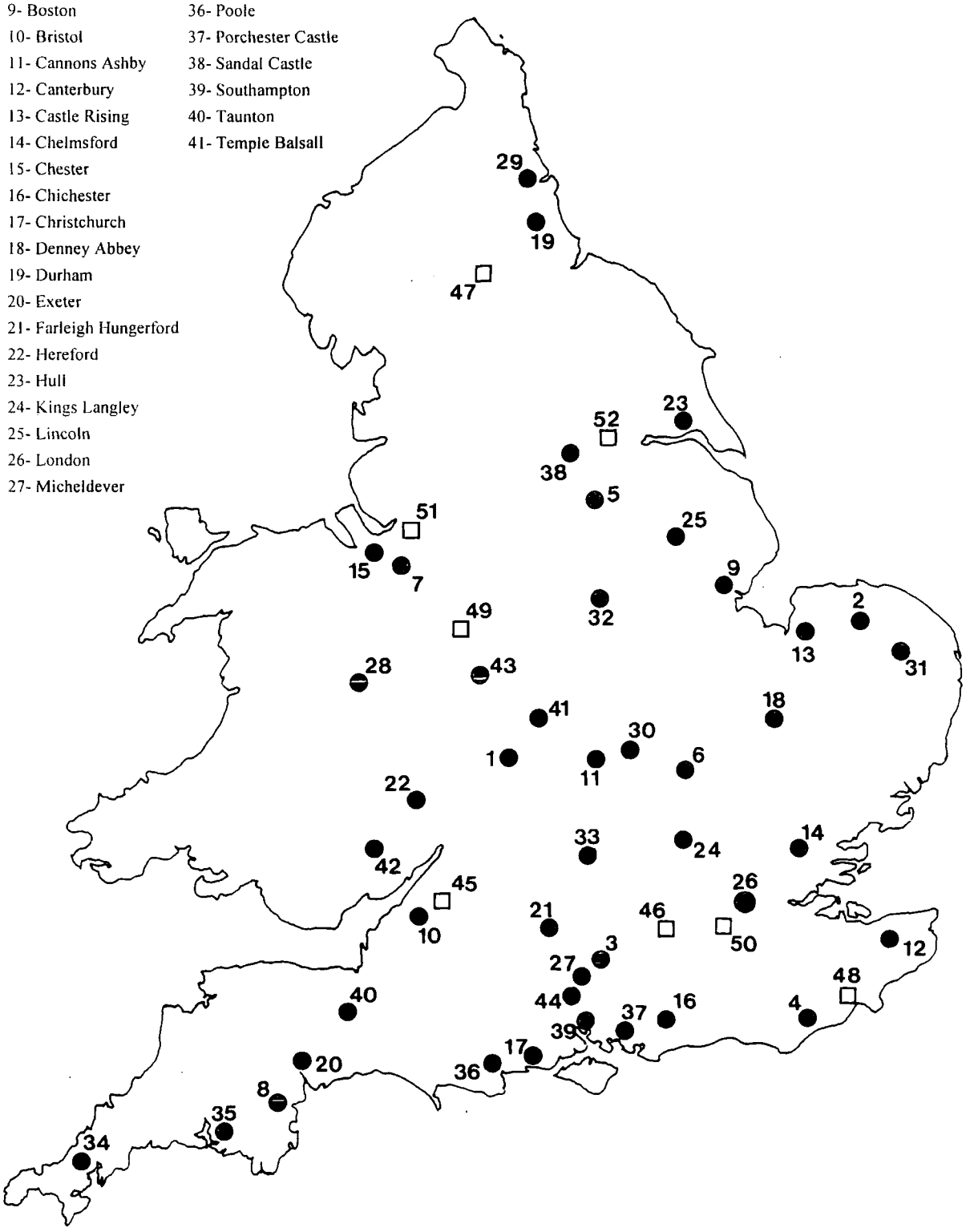


Figure 1.2 *Number of Published Glass Reports*

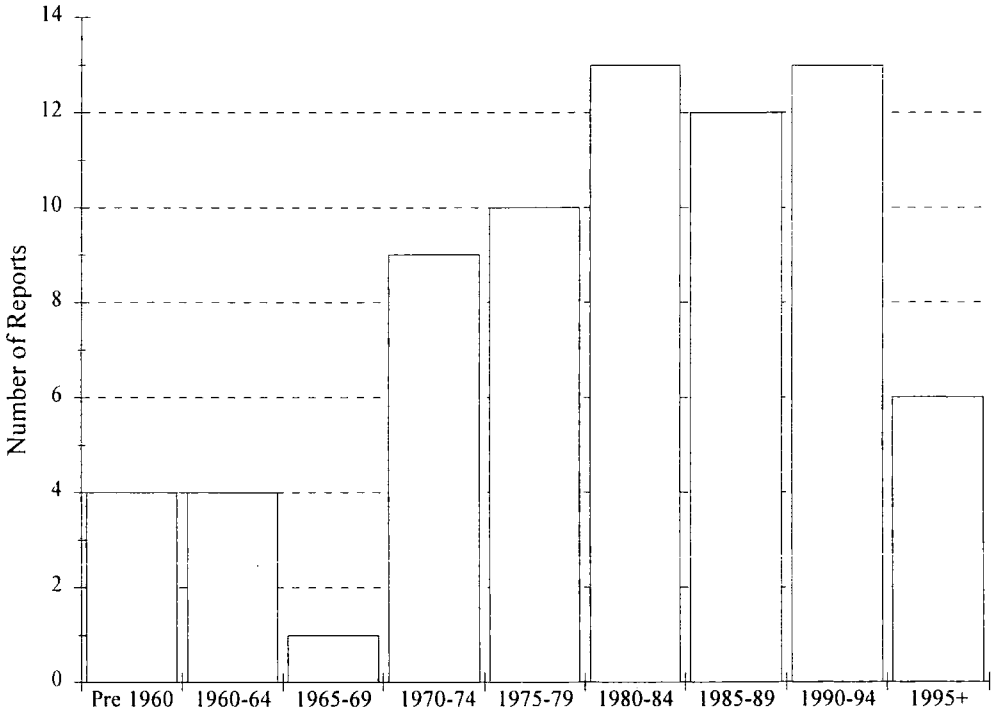


Figure 2.1 *Henry VIII Inventory*

Containers				
Uncovered Bottles	With Feet	2		
	Without Feet	1		
	?	34		**37**
Bottle/Flagons	15			**15**
Cruses	White Enamelled	Covered	12	
	Green	Covered	13	
	Blue	Covered	1	
	Multi Coloured	Uncovered	1	**27**
Conserve Pots	Blue with gilt	Covered	2	**2**
				81
Serving Vessels				
Four Eared Jugs	Covered	1		**1**
Layers & Ewers	Blue with Gilt	1		
	Diaper Patterned	2		
	With Gilt Mounts	1		
	Spouted & Gilt Mounts	1		
	Coloured Sundry	8		
	Plain Sundry	13		**26**
Layer/Ewer Basins	Blue	1		
	Diaper Patterned	1		
	Sundry	12		**14**
				41
Drinking Vessels				
Standing Cups	Blue	Covered	1	
	Blue & Enamelled	Gilt Cover	4	
	White Enamelled	Uncovered?	1	
	Multi Coloured	Uncovered?	1	
	Two Eared	Gilt Cover	1	
	Plain?	Gilt Cover and Foot	1	
	Plain?	Gilt Foot	1	
	Sundry	With Gilt	24	
	Sundry	Diaper Patterned	14	
	Sundry		30	**78**
Goblets	Uncovered	16		**16**
One Handled Pots	Jasper	3		
	Blue	1		
	Multi Coloured	1		
	Plain	6		
	Gilt Cover	1		
	Hooped with Cover	1		**13**
Two Handled Pots	Covered	3		**3**
				110
Flatware				
Trenchers	60			**60**
Platters/dishes	66			**66**
Two Eared Basket	1			**1**
Spice Plates	Green & Blue	Plain	6	
	Green & Blue	Gilt	3	
	Jasper	Plain	1	**10**
Footed Bowls	Blue & White	2		**2**
				139
Other				
Candle Sticks	Great Bell	1		
	Small Bell	4		
	Jasper	1		
	Sundry	3		**9**
Thin Neck Bellied Glass	Plain	4		
	White Striped	1		**5**
Glass Handles	Knife	4		
	Fork	2		**6**
Casting Bottle	Blue	1		**1**
Holy Water Stoup	With Sprinkler	1		**1**
				22
			Total	**393**

Figure 2.2 *Sir William More's Inventory*

Containers			
Bottles	Great	1	
	Wickered	1	
	Coloured	1	
	Plain	1	**4**
Conserve Glasses	2		**2**
Sweetmeat Barrels	2		**2**
'Pots'	White Enamelled	2	**2**
			10
Serving Vessels			
Ewers	Broad	1	
	Gilt	1	
	Plain	1	
	For Oil	1	**4**
Drinking Vessels			
Standing Cups	Plain?	3	**3**
Beer Glasses	Covered	2	
	Blue	1	
	White & Green	1	
	Plain?	3	
	Two Handled	1	**8**
Glass for Aqua Composita	1		**1**
Glasses for Waters	28		**28**
'Little Glasses'	2		**2**
			42
Flat-ware			
Bowls	Plain		**2**
		Total	**56**

Figure 2.3 *Kenilworth Castle Inventory*

Serving Vessels				
Ewers	Plain?	1		1
Drinking Vessels				
Goblets	Bole Glass	Plain	5	
		Indented	5	
		Engraved	2	
	Tapered Glass	Plain	2	
		Ribbed	2	
	Embossed		1	**17**
Beer Glasses	Several Fashions	Covered	3	
		Uncovered	9	**11**
				28
Flat-ware				
Dishes	'Cinq Foil' Rims, Gilt	10		
	Engraved Brims	8		
	Sundry one Sort	12		
	Sundry other Sort	24		**54**
Bowls	Standing	Covered	1	
		Indented (for cream)	12	
	Broad Brim	Narrow Base	15	
	Deep bowls	Plain	8	
		Decorated	7	**44**
				99
			Total	**128**

Figure 3.1 *Goblet Bowl Forms*

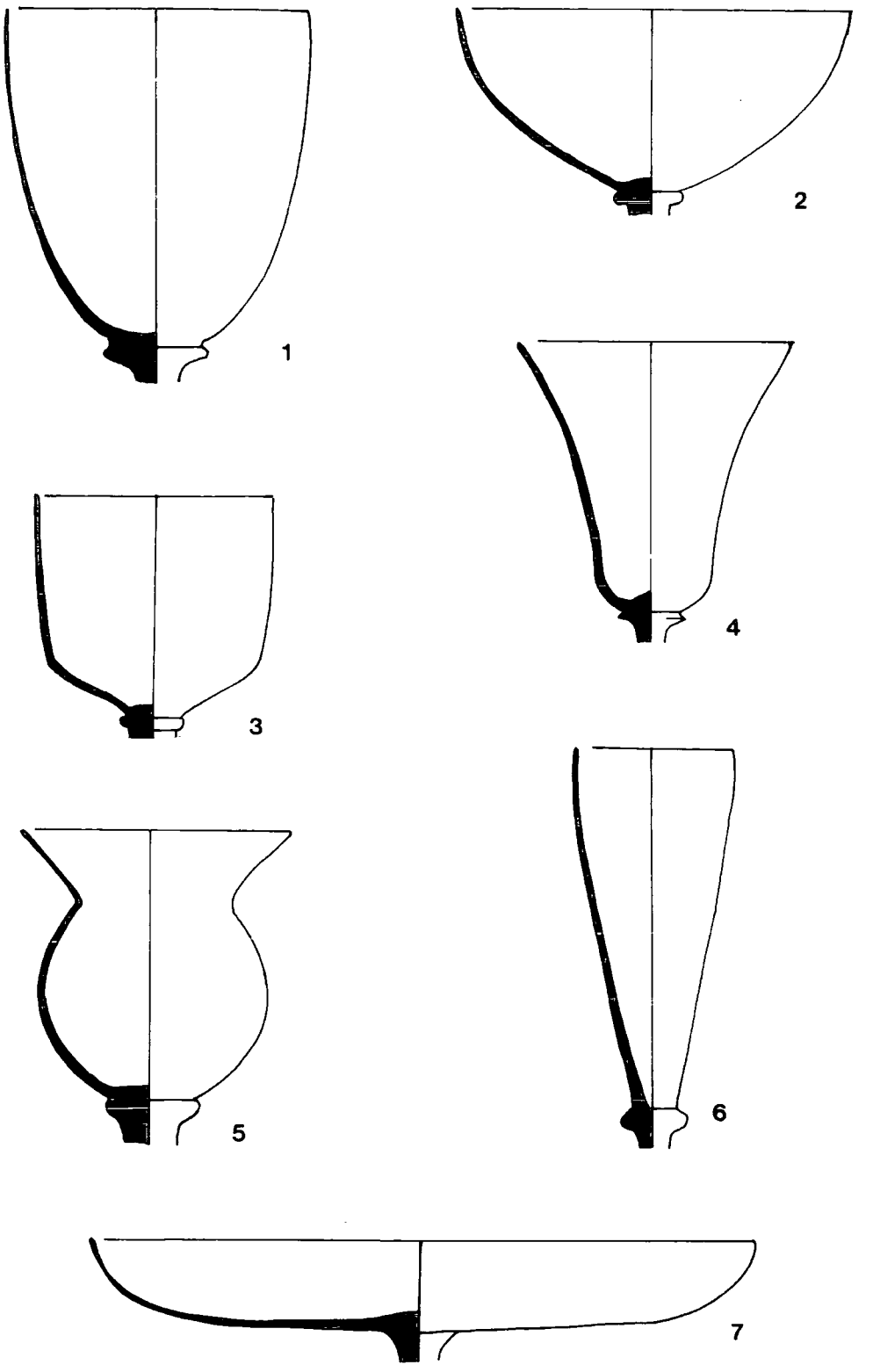


Figure 4.1 *Cylindrical Beakers (4.1.1)*

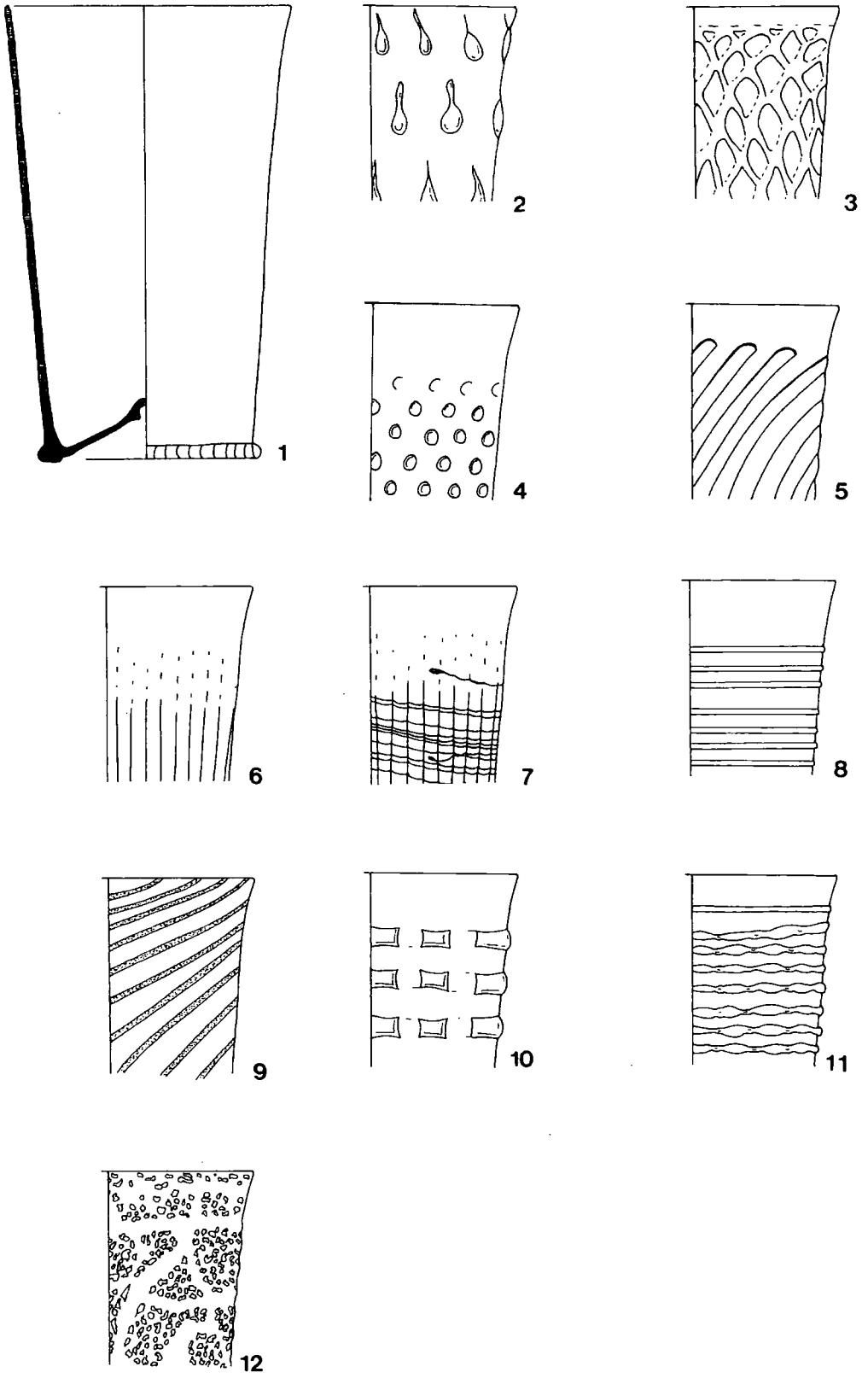
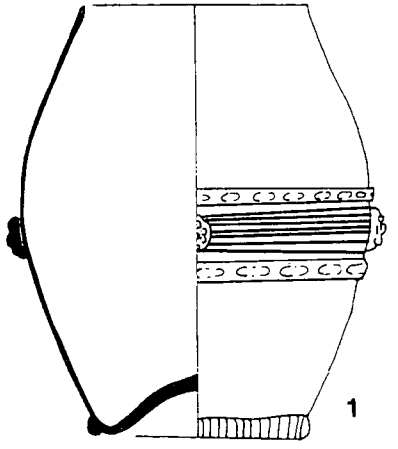


Figure 4.2 *Barrel Beakers (4.1.2)*



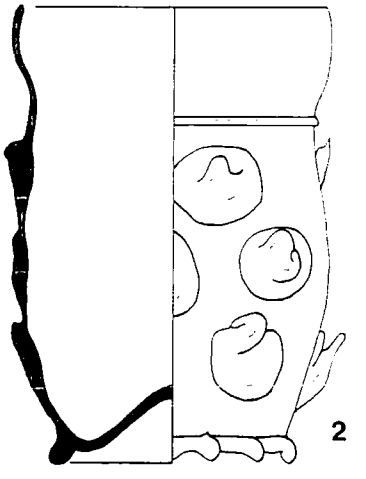


Figure 4.3 *Squat Beakers (4.1.3)*

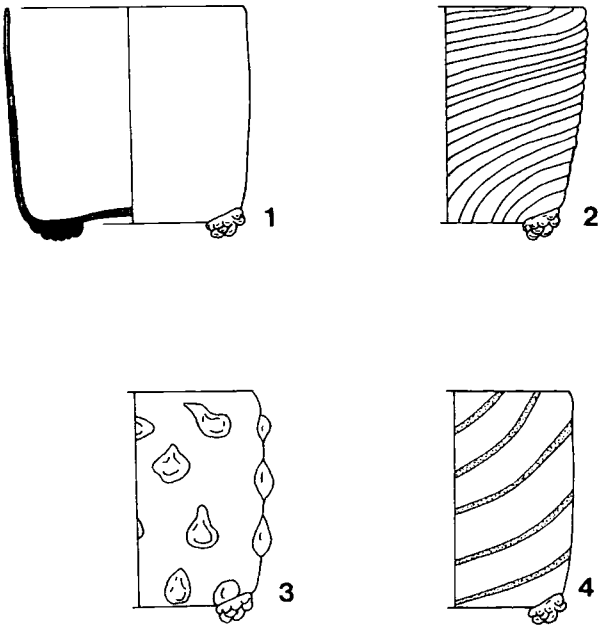


Figure 4.4 *Pedestal Beakers (4.1.4)*

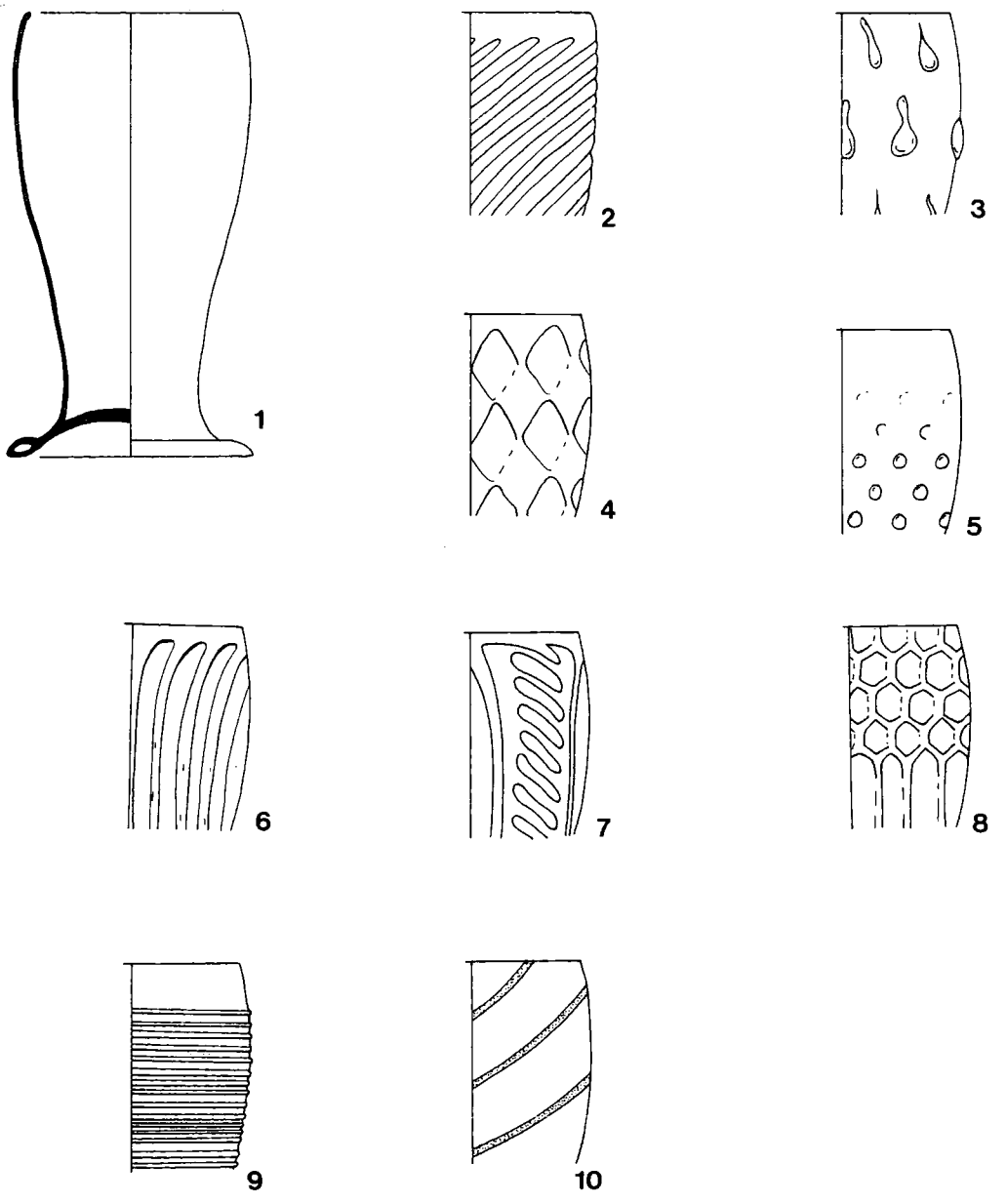


Figure 4.5 *Pedestal Fluted Beakers (4.1.5)*

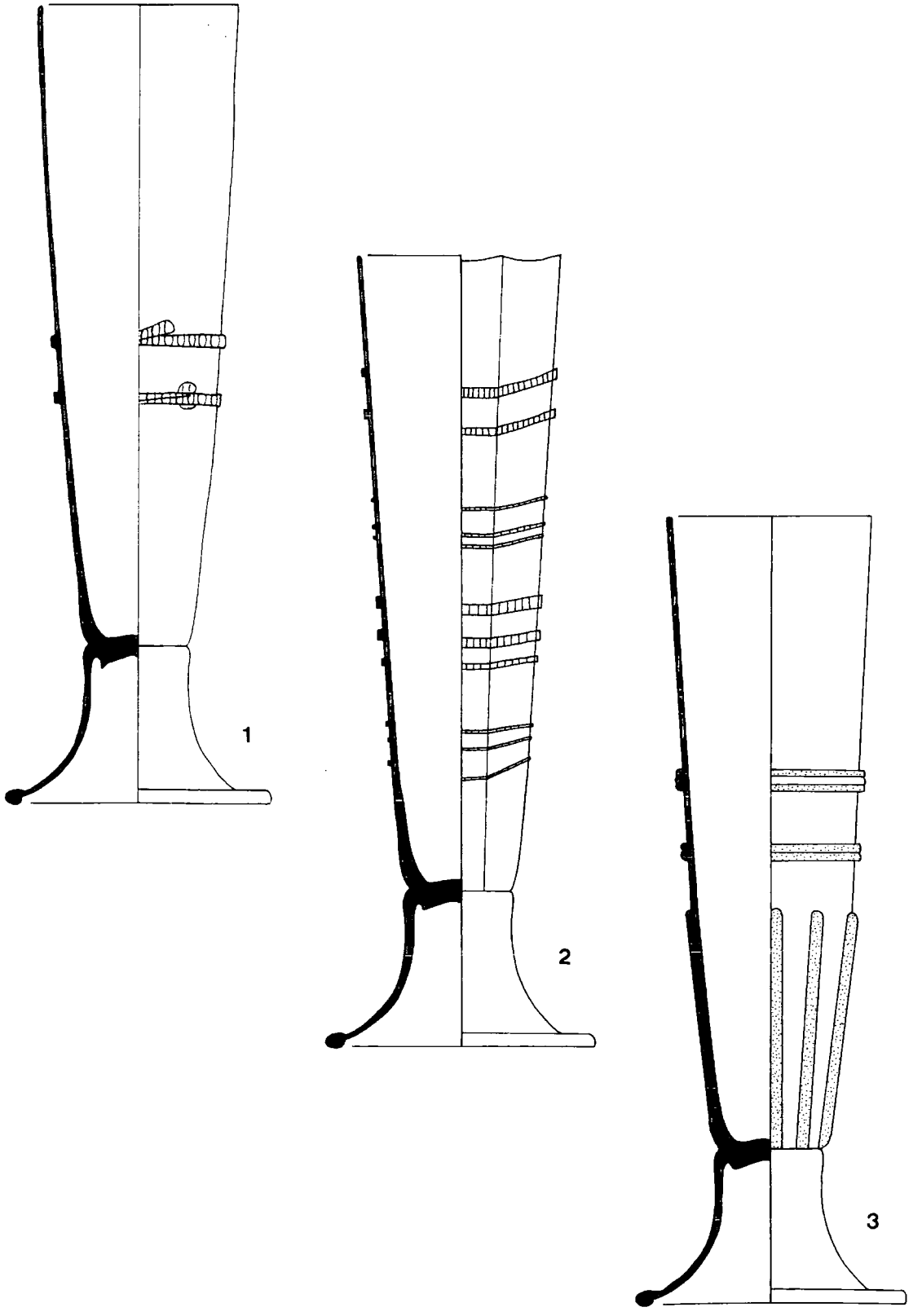


Figure 4.6 *Roemers (4.1.6)*

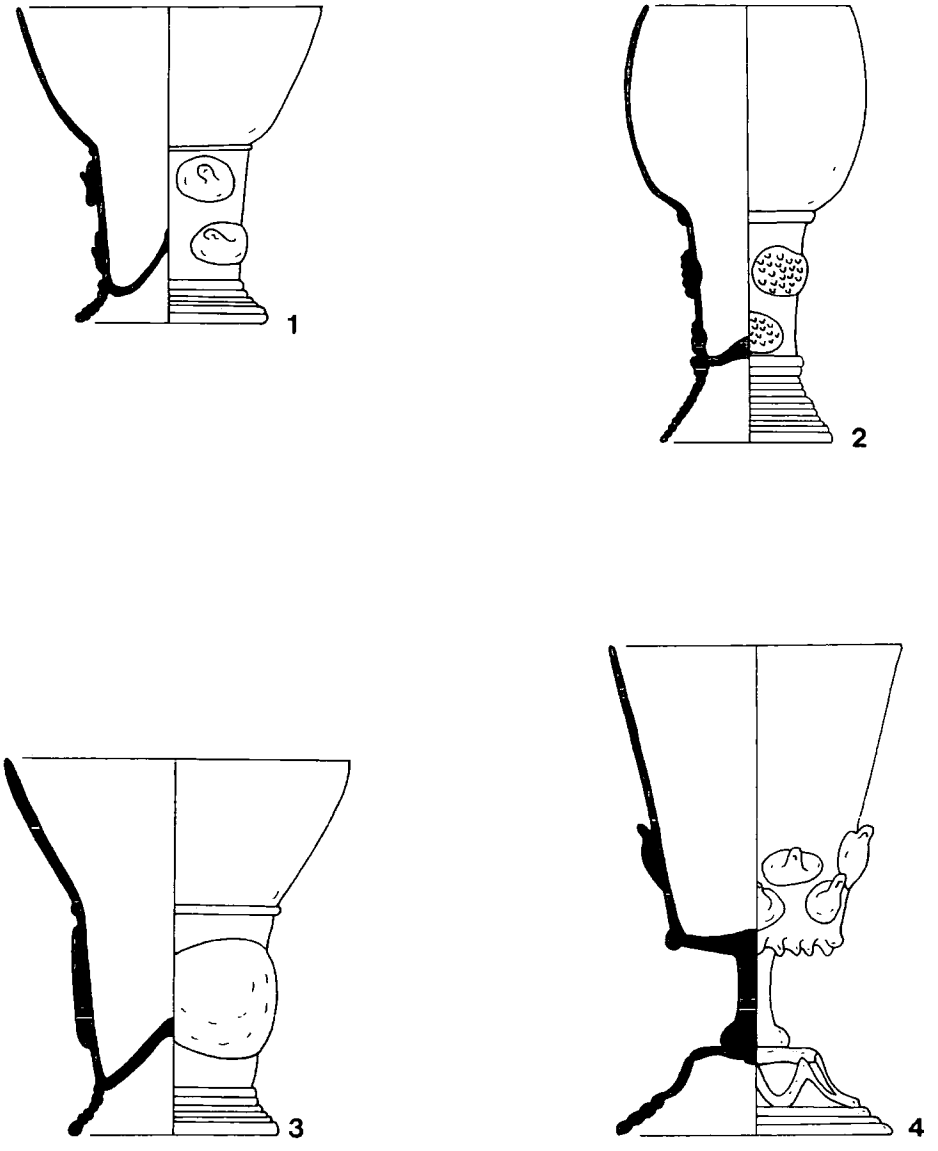


Figure 4.7 *Tankards (4.2)*

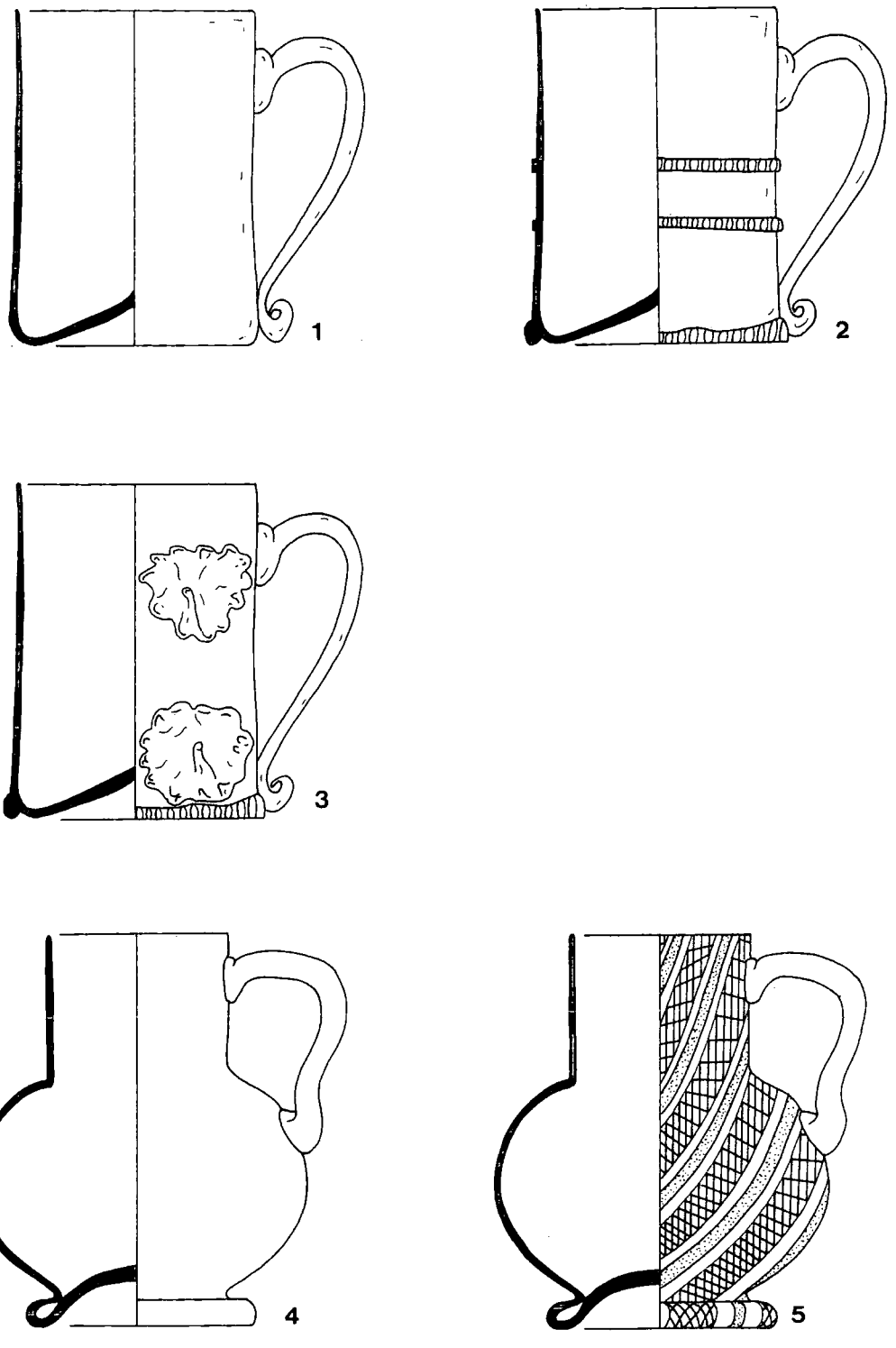


Figure 4.8 *Knopped (4.3.1), Mould Blown (4.3.2) Compound Stem Goblets (4.3.3)*

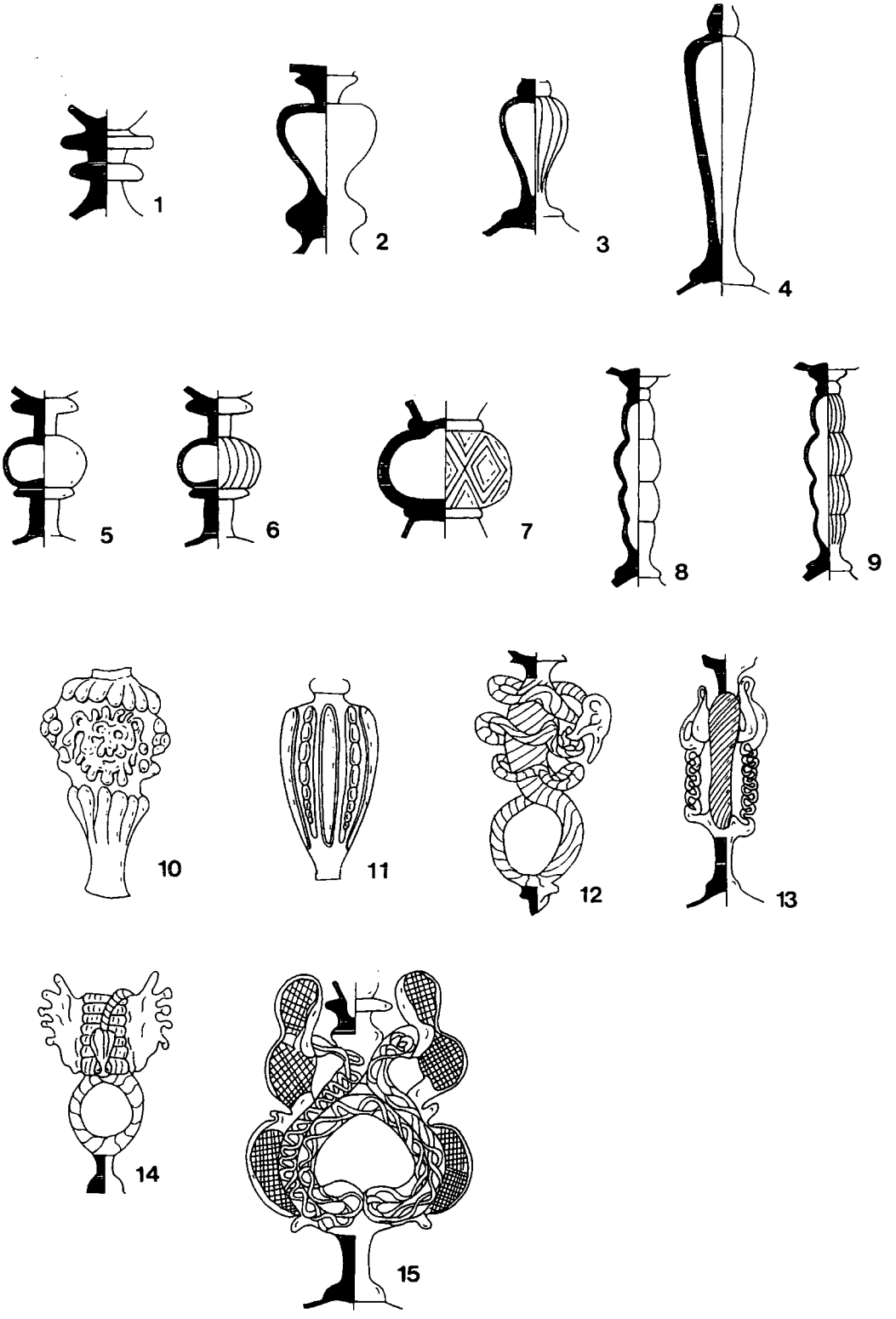


Figure 4.9 *Pedestal (4.3.4) and Applied Pedestal (4.3.5) Goblets*

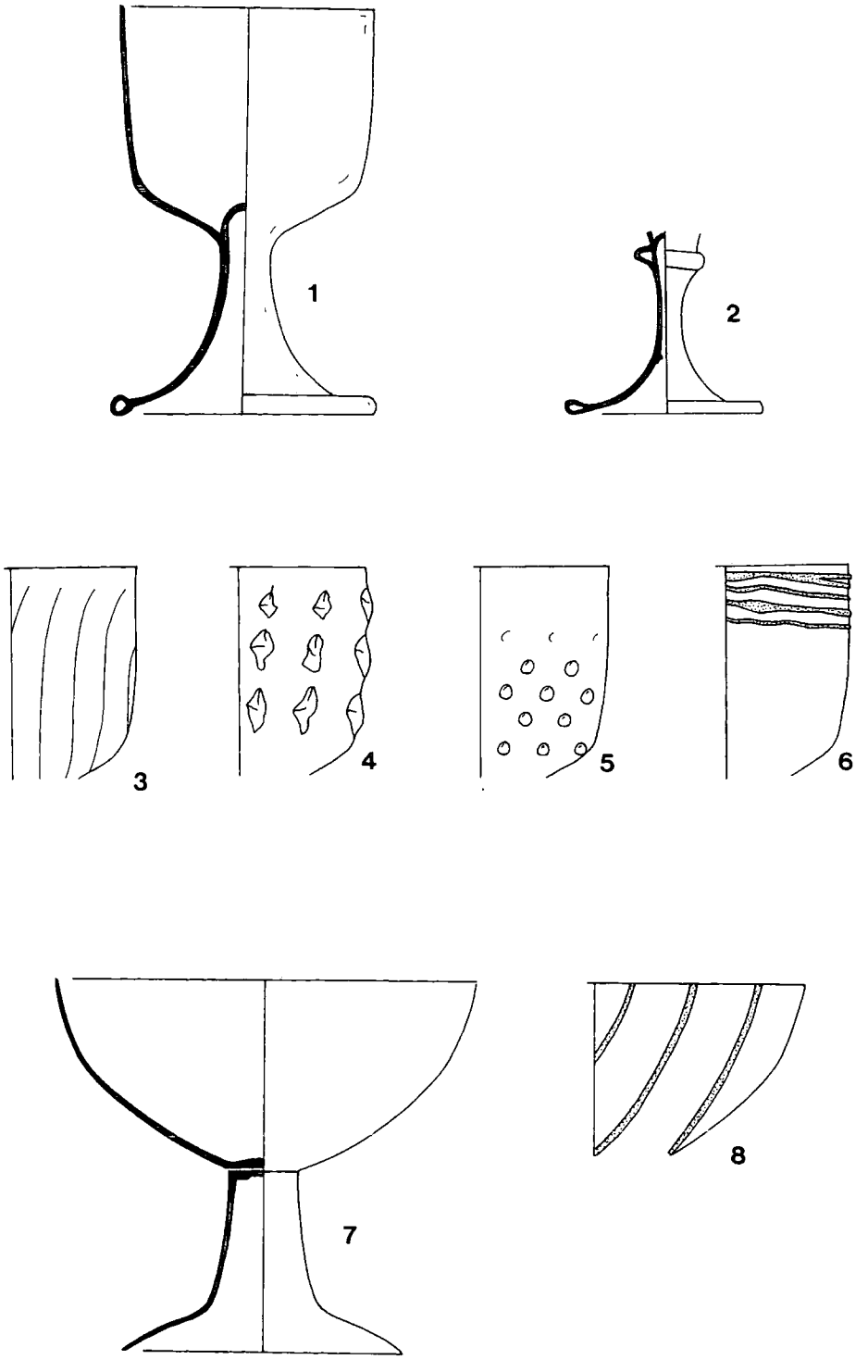


Figure 4.10 *Rod (4.3.6) and Cage Stem (4.3.7) Goblets; Lids (4.3.8)*

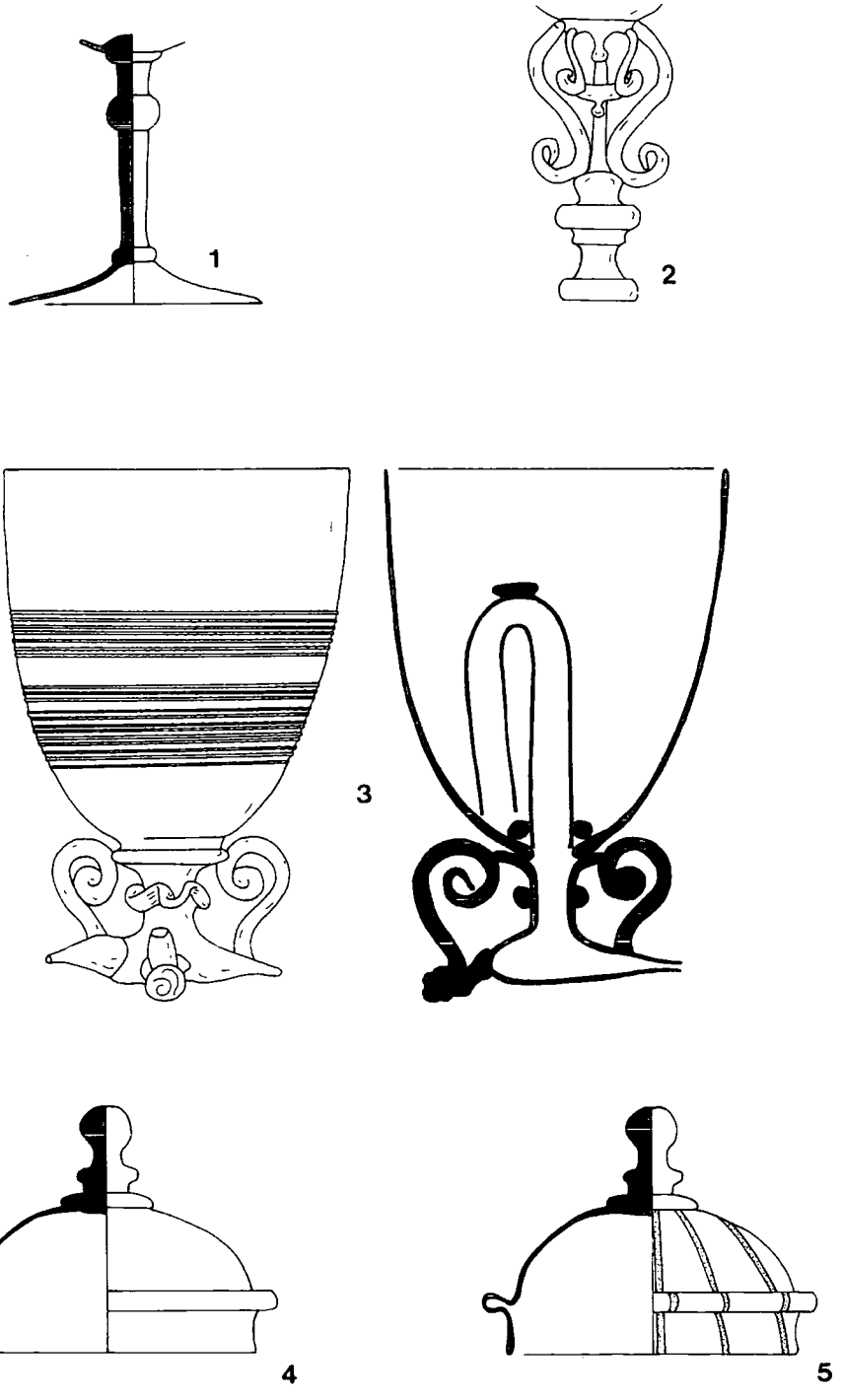
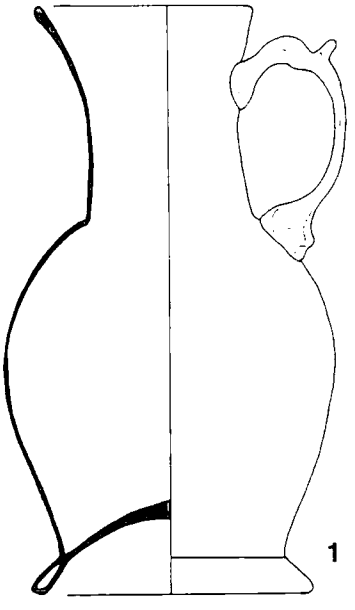
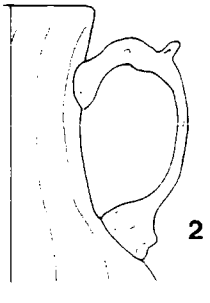


Figure 4.11 *Pedestal Jugs (4.4.1)*





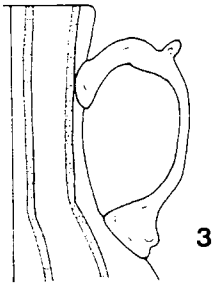


Figure 4.12 *Globular Jugs (4.4.2)*

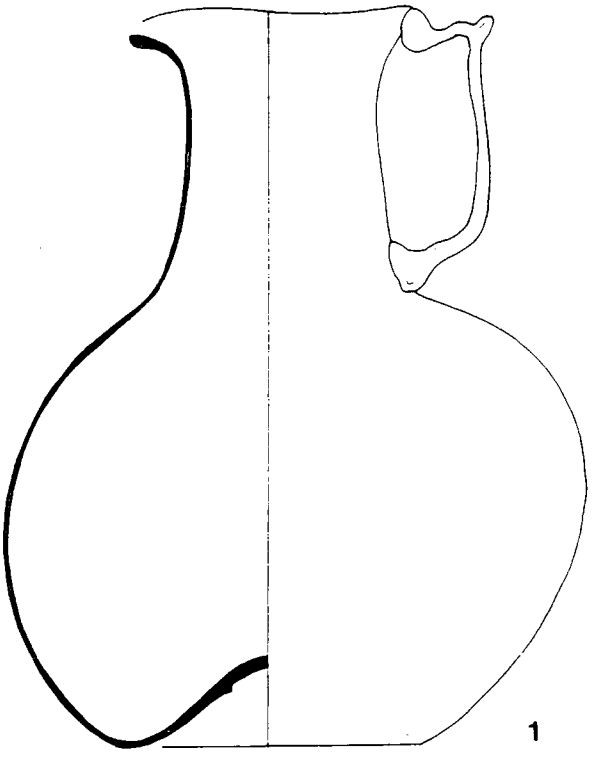
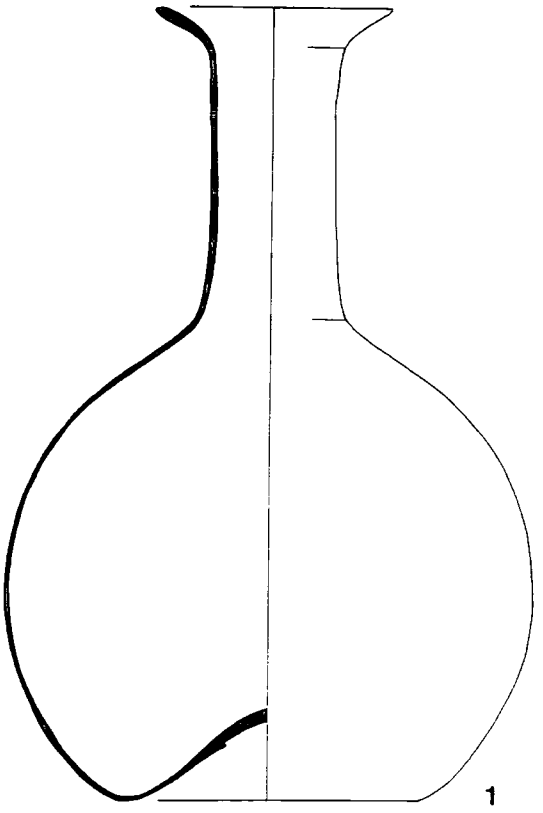
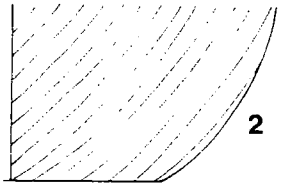
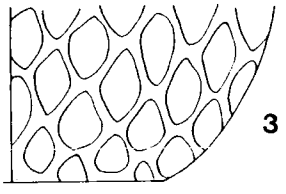


Figure 4.13 *Globular Flasks (4.5.1)*







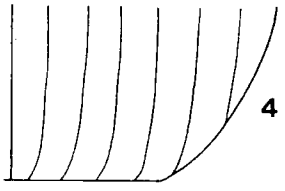


Figure 4.14 *Globular Flasks (4.5.1)*

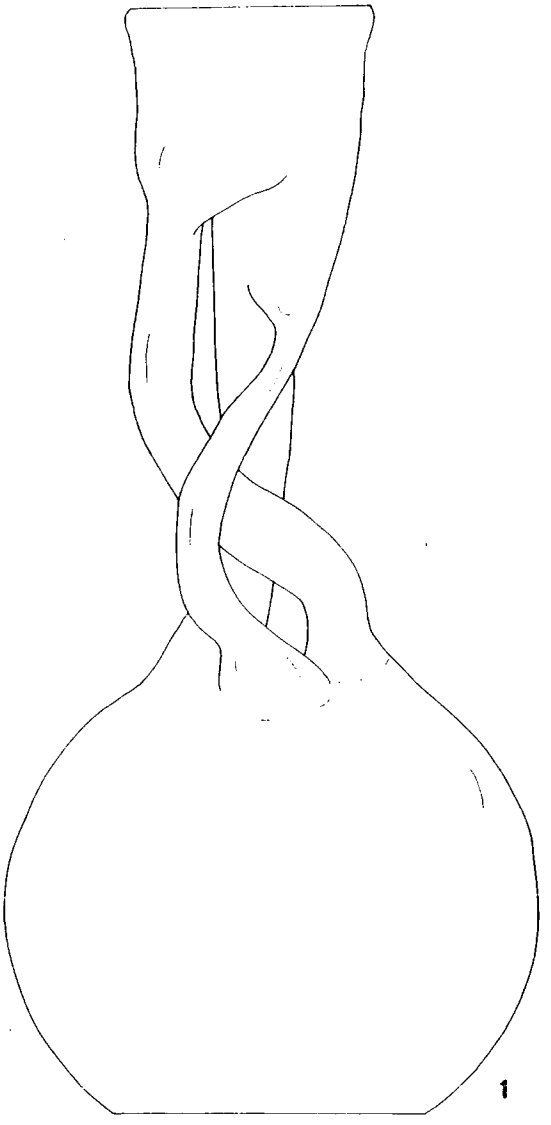
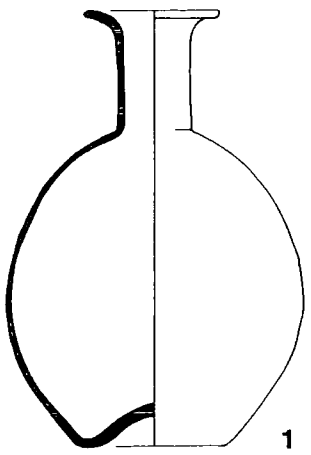


Figure 4.15 *Oval Flasks (4.5.2)*



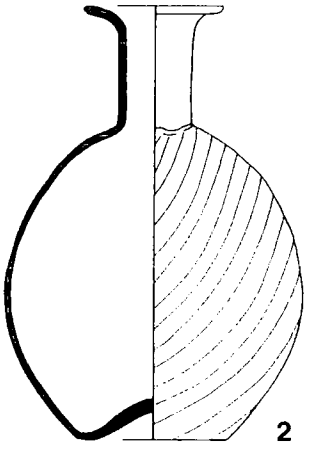
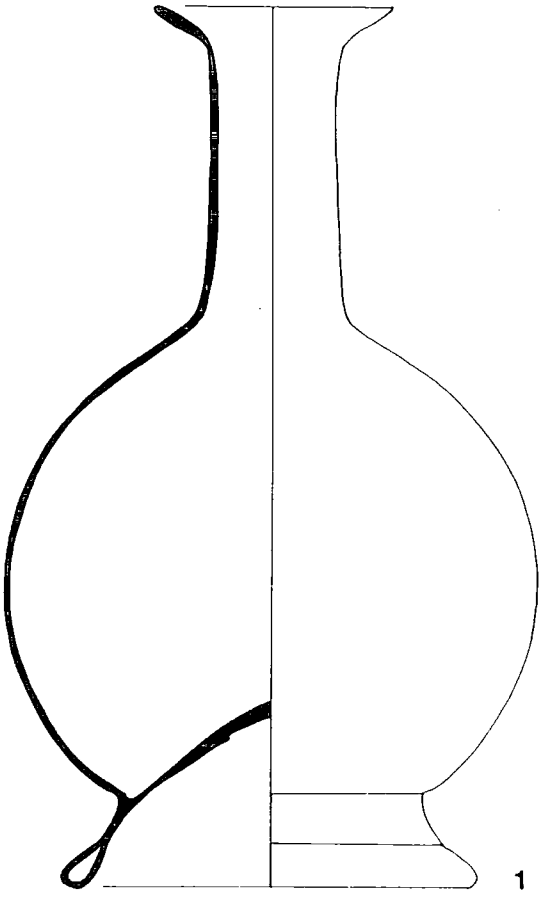


Figure 4.16 *Pedestal Flasks (4.5.3)*



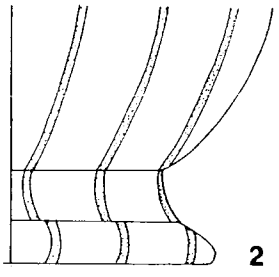


Figure 4.17 *Pedestal Flasks (4.5.3)*

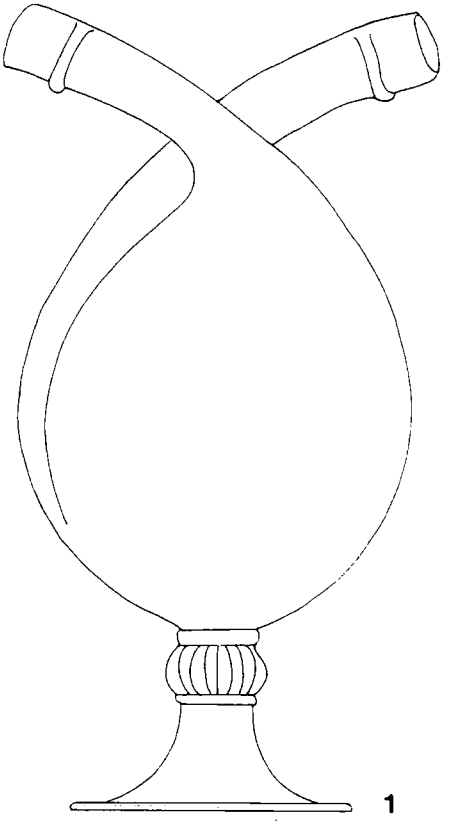
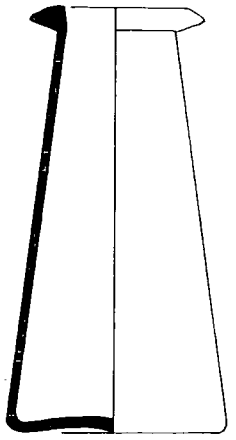


Figure 4.18 *Conical Flasks (4.5.4)*



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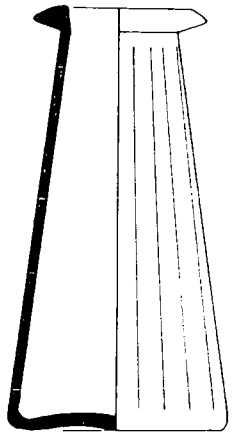

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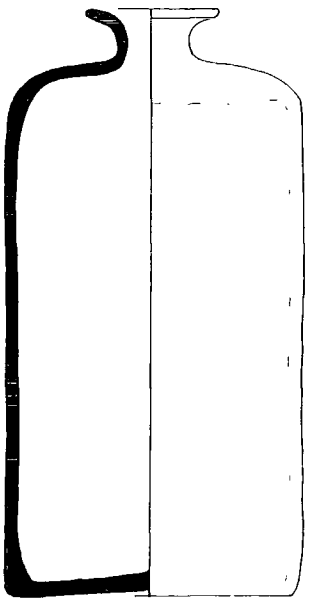
Figure 4.19 *Case Bottles (4.5.5)*



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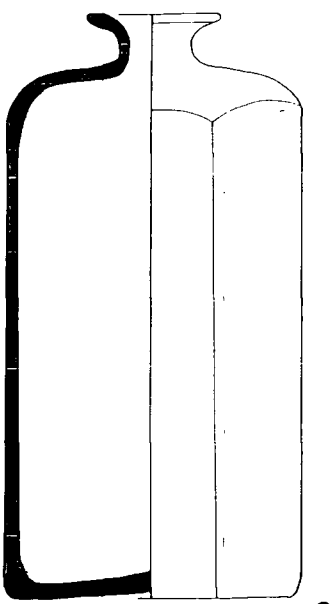

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Figure 4.20 *Pedestal (4.6.1) and Hemispherical (4.6.2) Bowls*

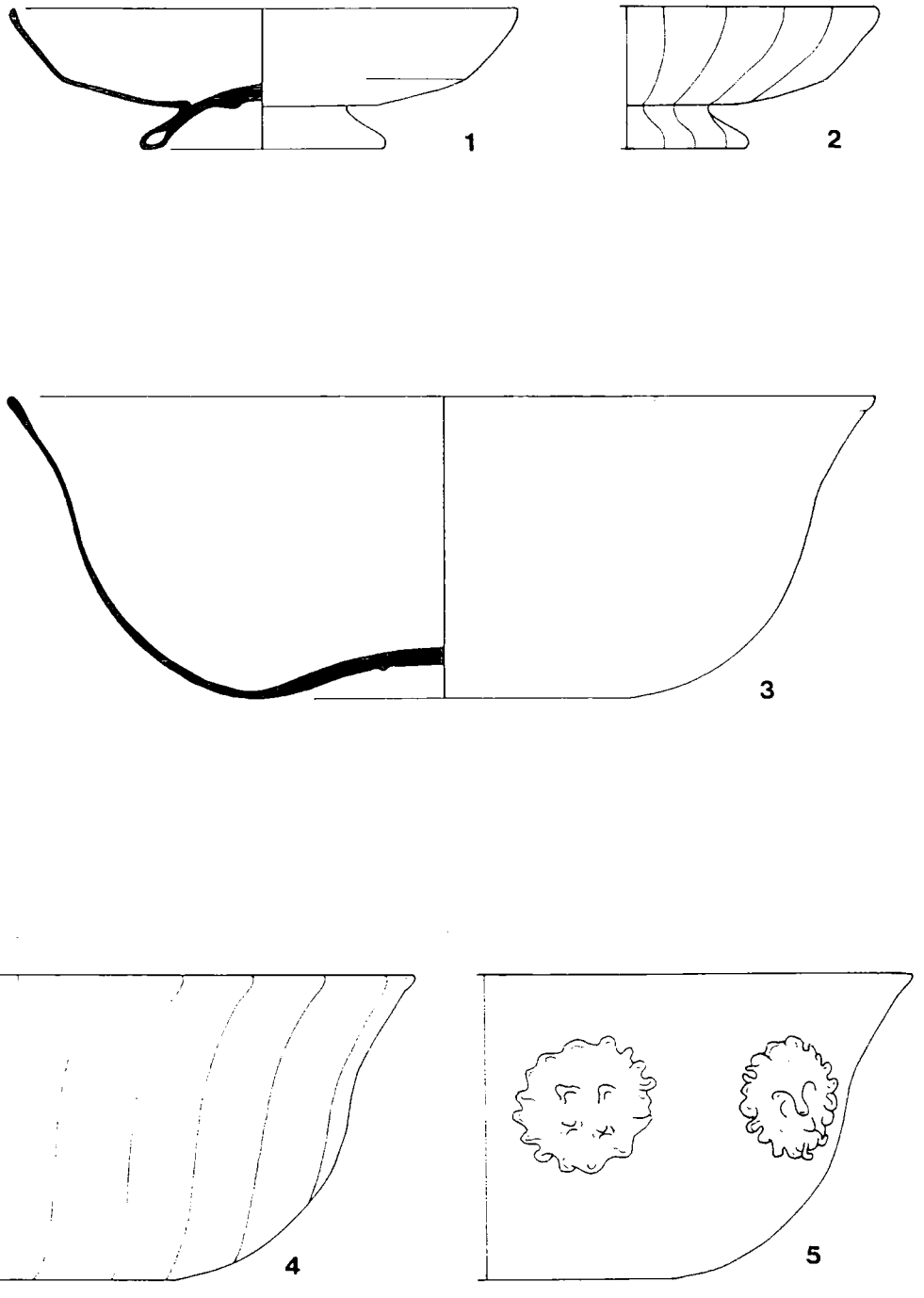


Figure 4.21 *Hemispherical Bowls (4.6.2) and Dishes (4.6.3)*

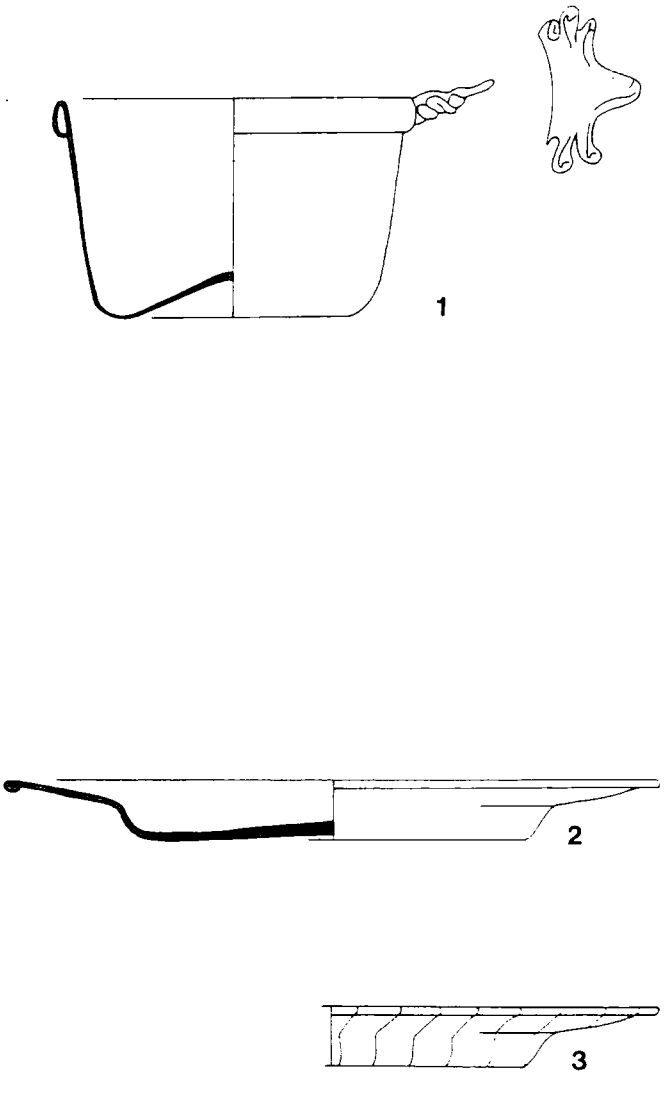


Figure 4.22 *Albarello Jars (4.7.1)*

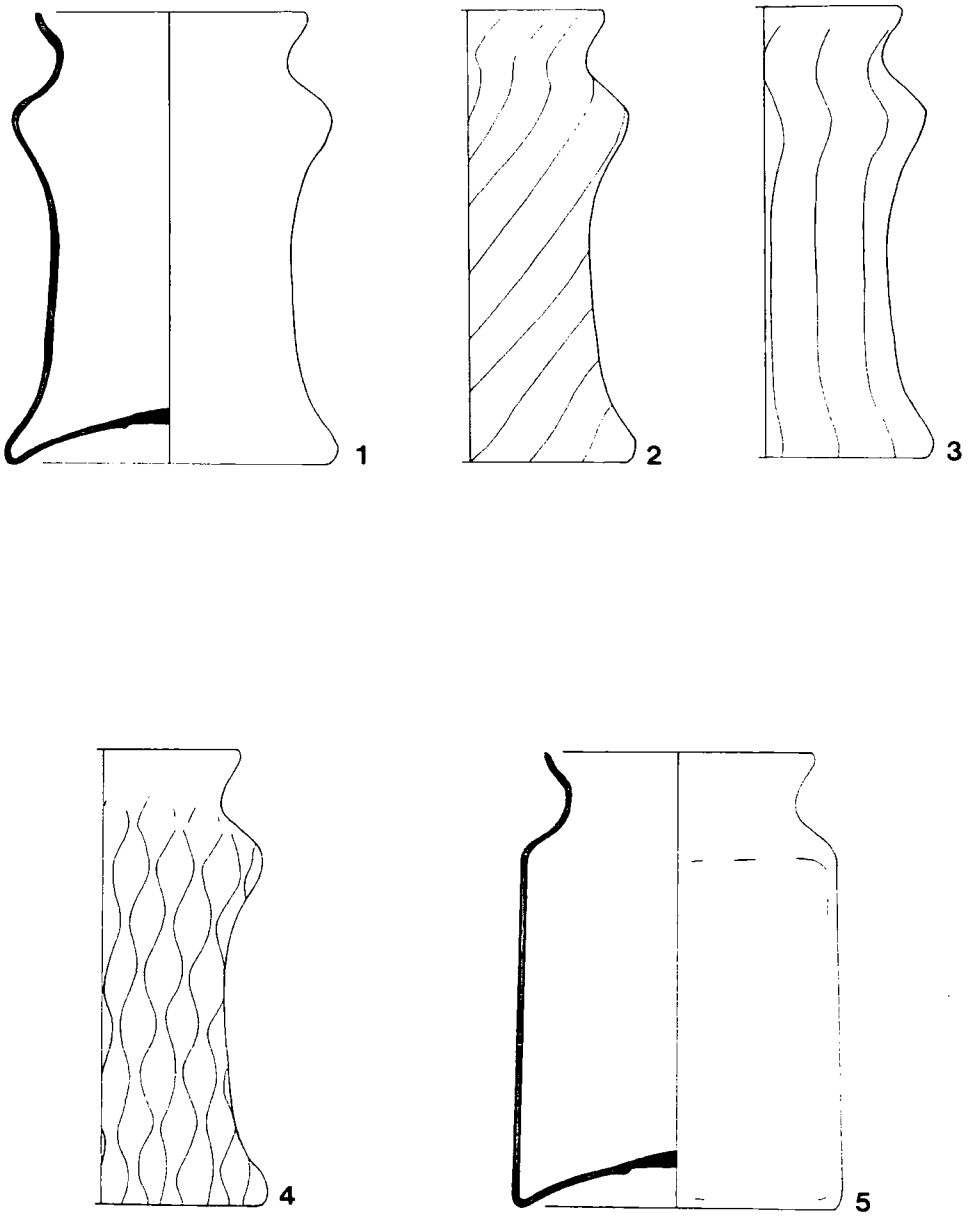


Figure 4.23 *Globular Jars (4.7.2)*

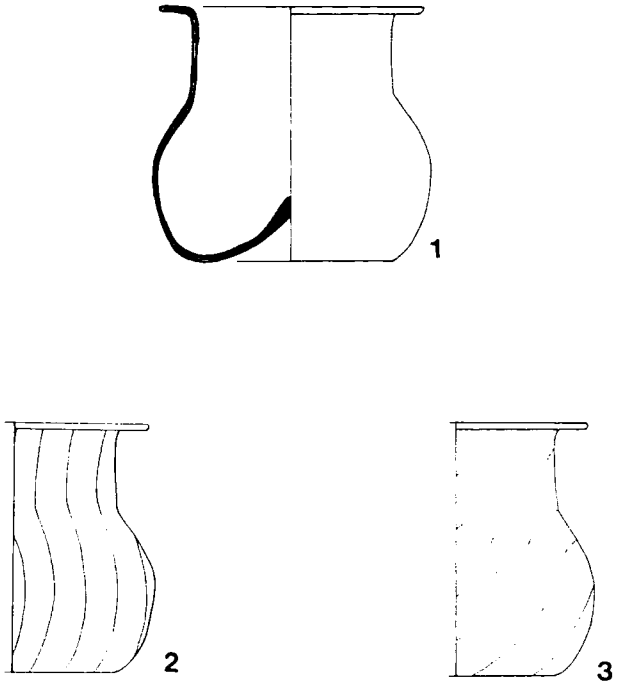


Figure 4.24 *Distilling Equipment (4.8.1)*

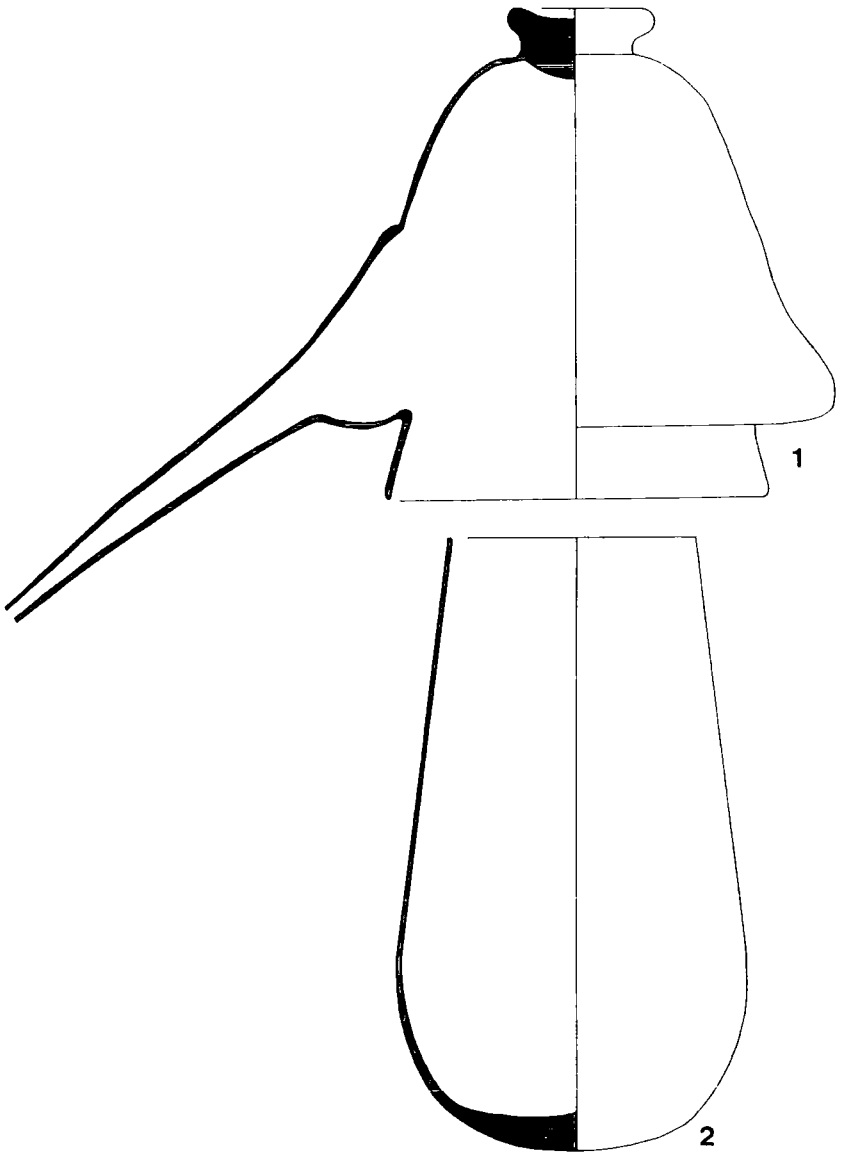
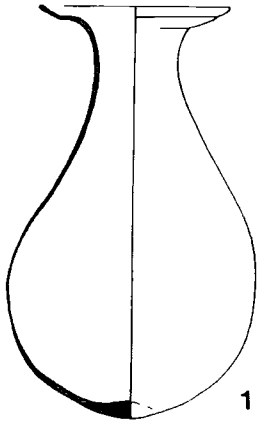


Figure 4.25 *Urinals (4.8.2) and Lamps (4.8.3)*



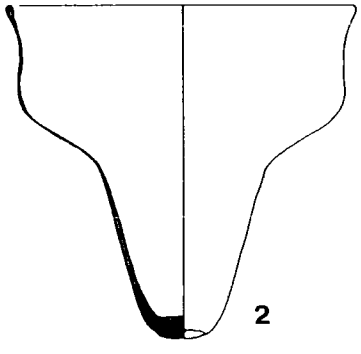
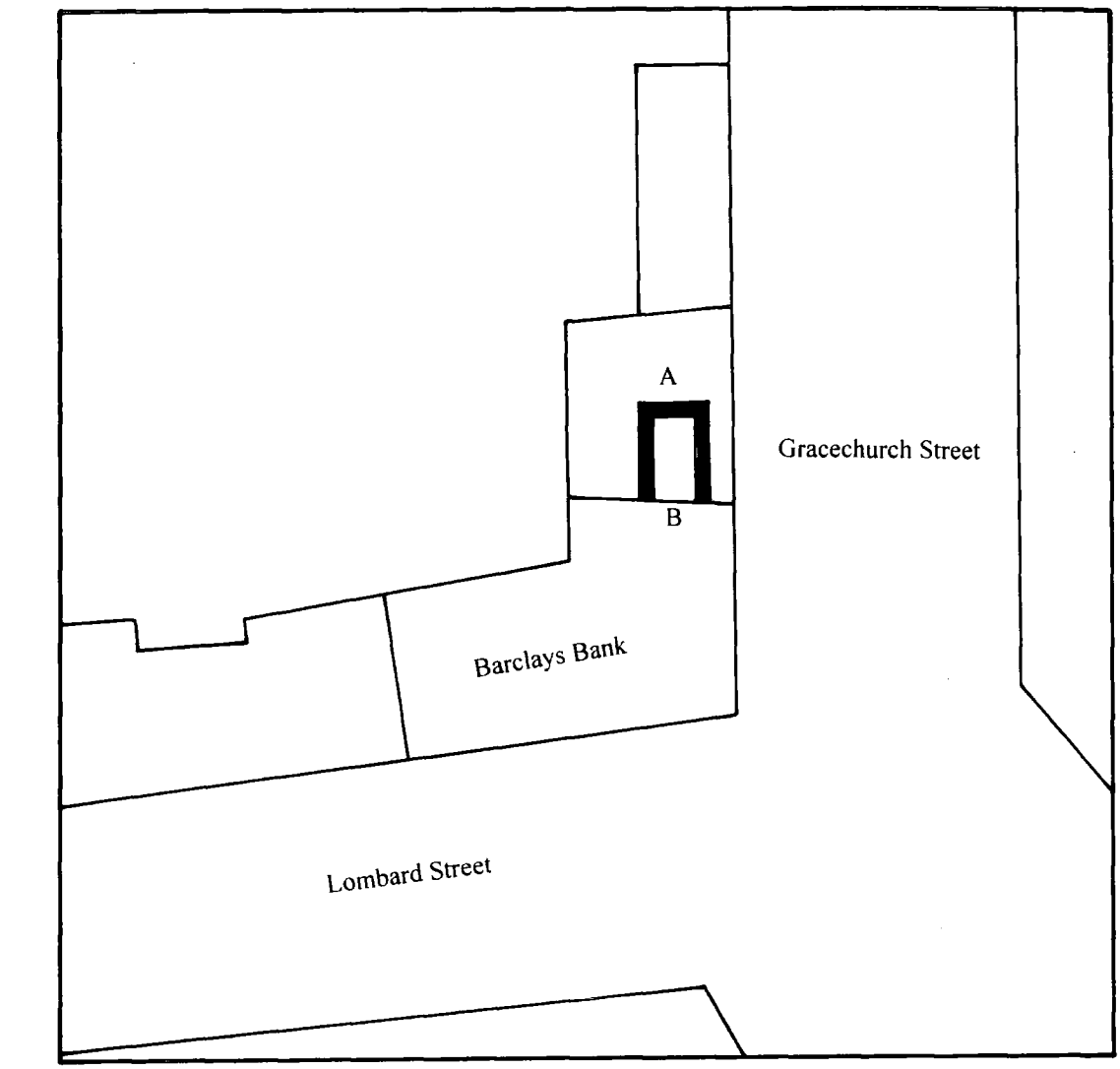


Figure 5.1 *Gracechurch Street Plan and Section*



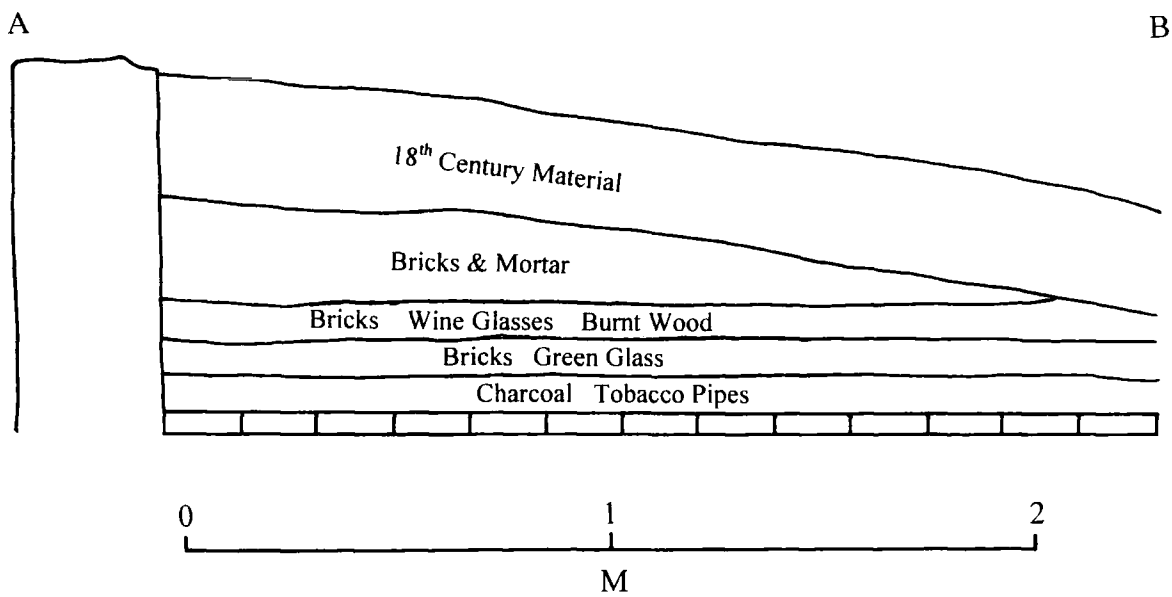


Figure 5.2 *Gracechurch Street Vessel Numbers*

Beakers		*Goblets*		*Bowls*		*Flasks*		*Other*	
Cylindrical	39	Knopped	71	Pedestal	3	Globular	21	Jars	8
Pedestal	21	Mould Blown	17			Oval	9	Alchemical	5
Pedestal Flute	2	Compound	16			Pedestal	3		
Roemer	1	Pedestal	10			Conical	1		
		Rod Stem	2			Case Bottle	12		
	63		116		3		46		13

TOTAL **241**

Figure 5.3 *Gracechurch Street, Beakers*

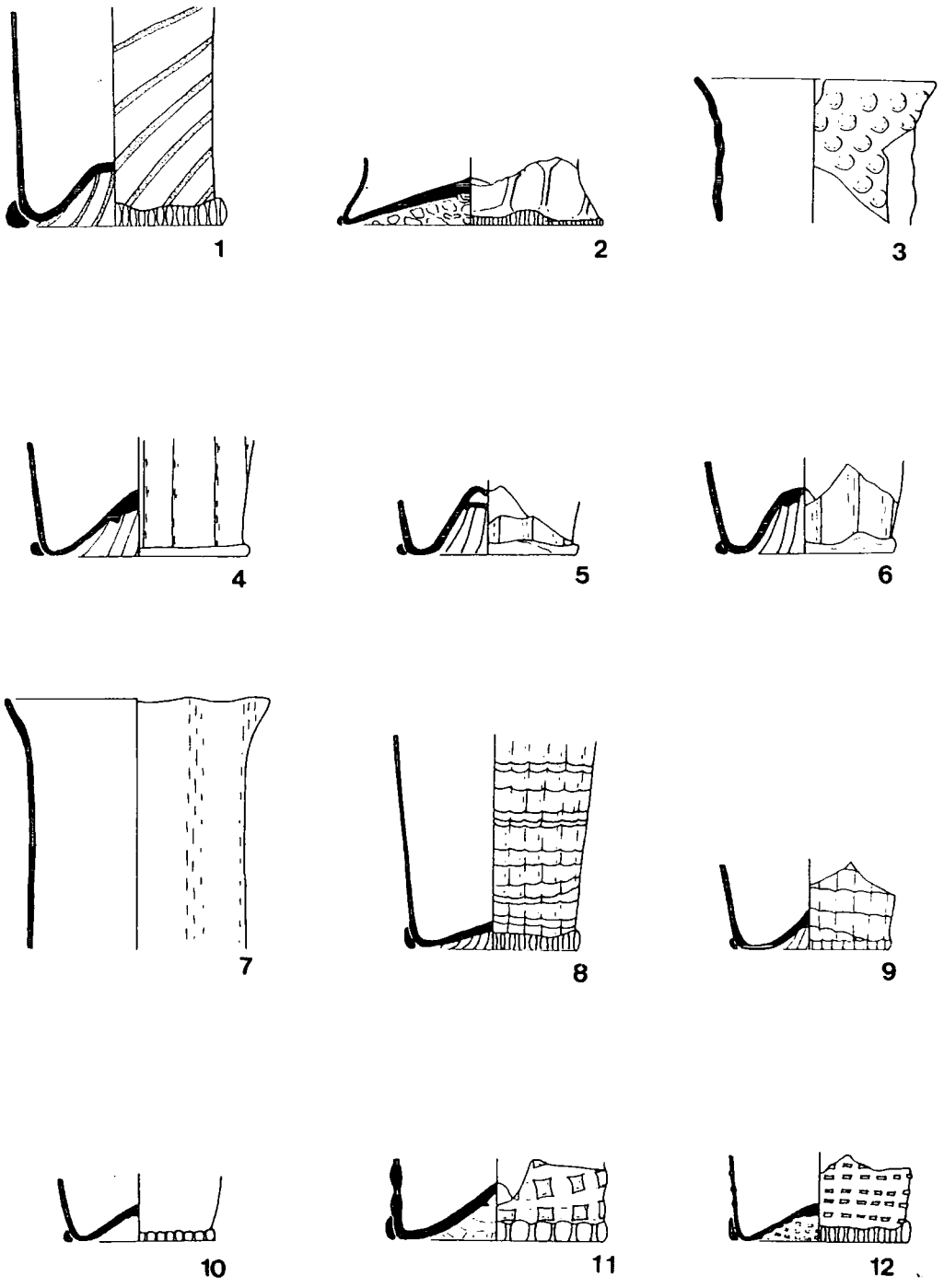


Figure 5.4 *Gracechurch Street, Beakers*

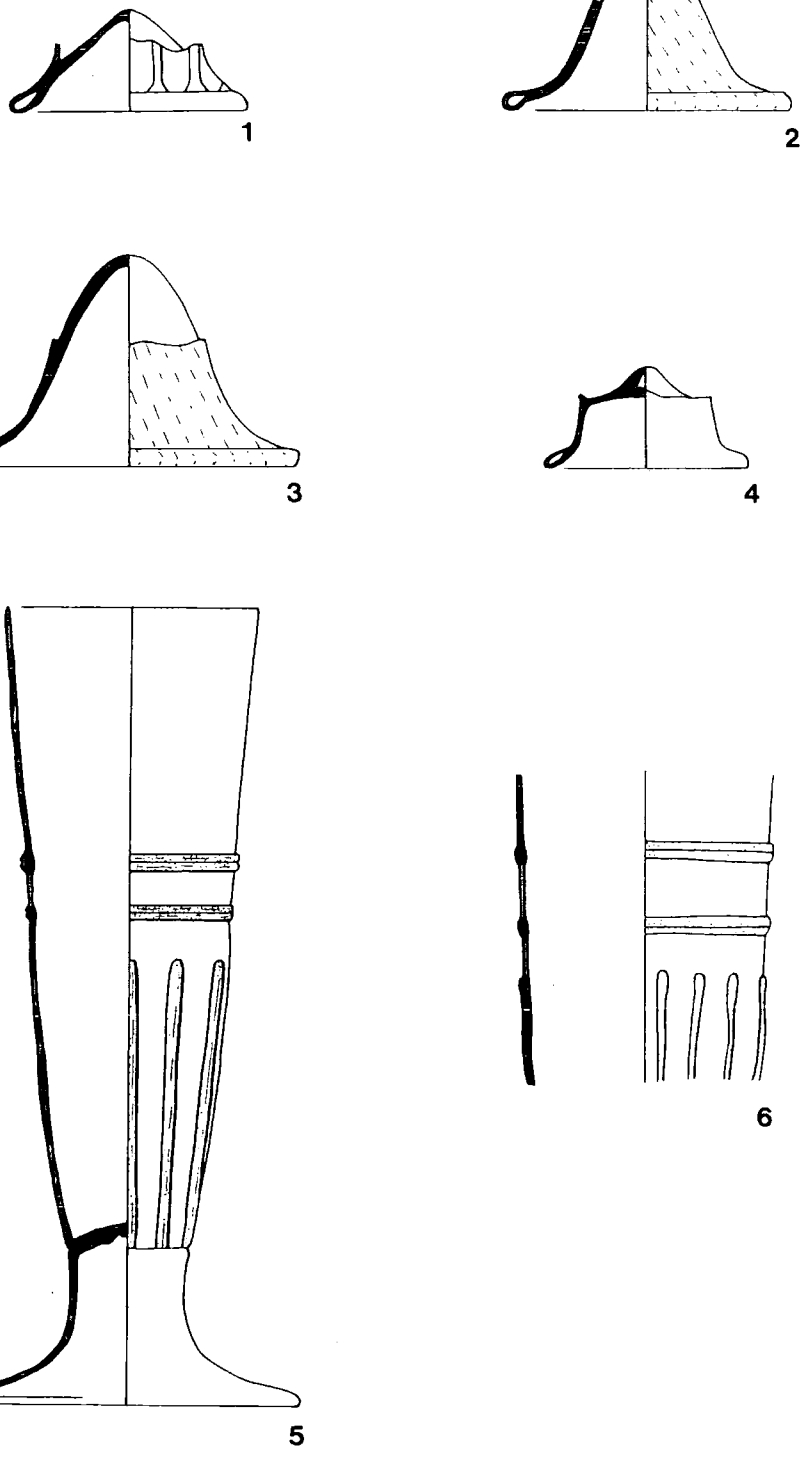


Figure 5.5 *Gracechurch Street, Goblets*

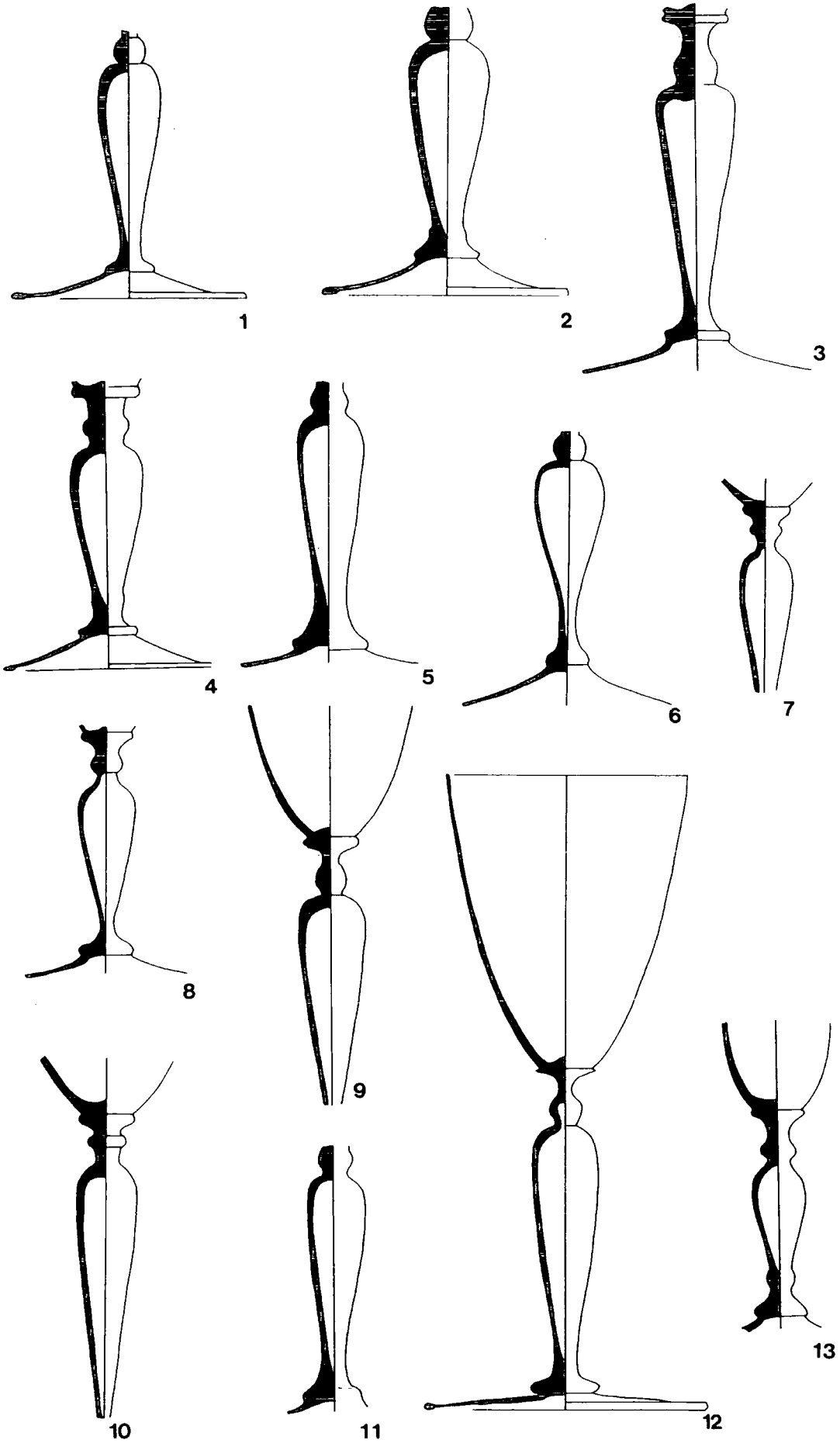


Figure 5.6 *Gracechurch Street, Goblets*

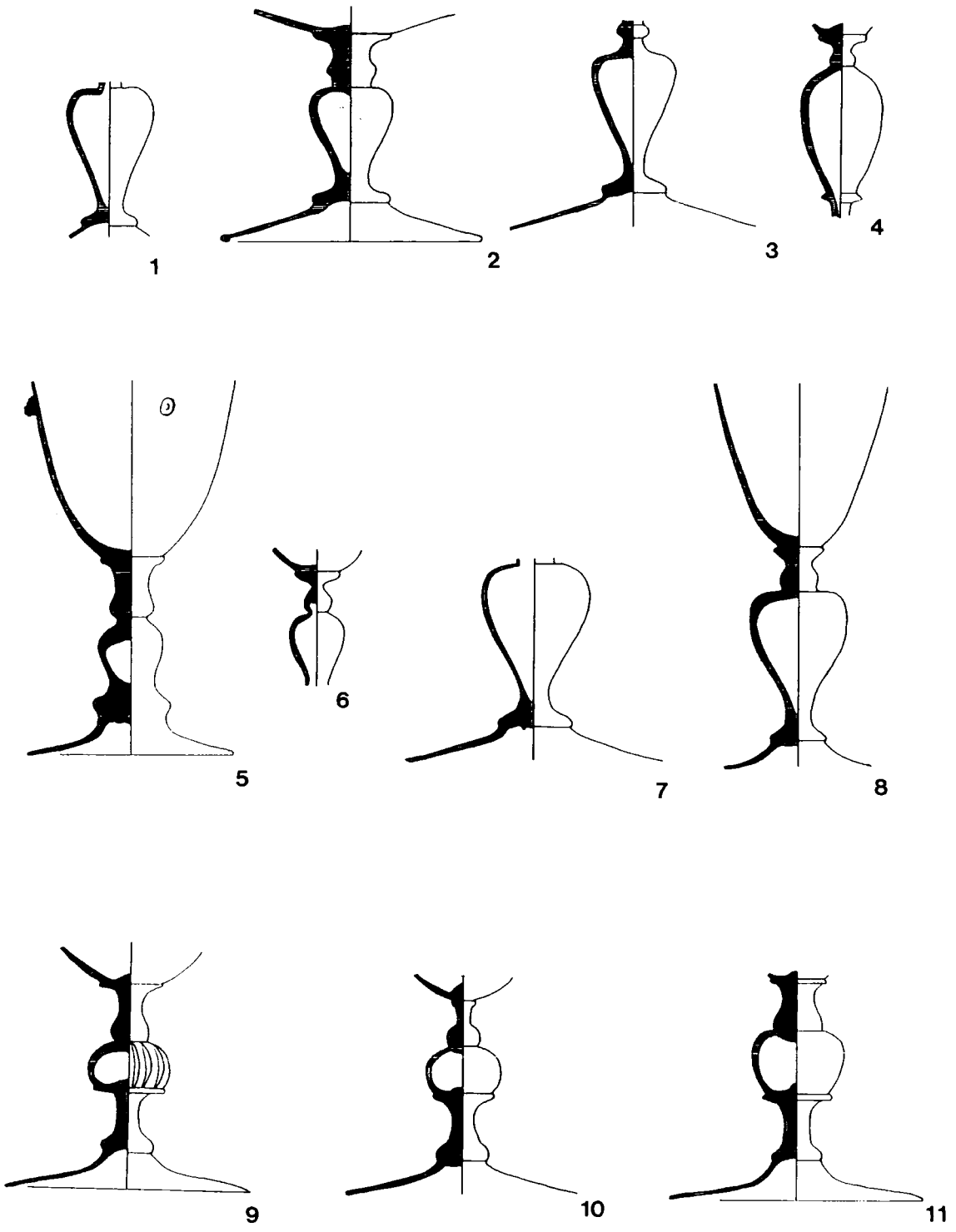


Figure 5.7 *Gracechurch Street, Goblets*

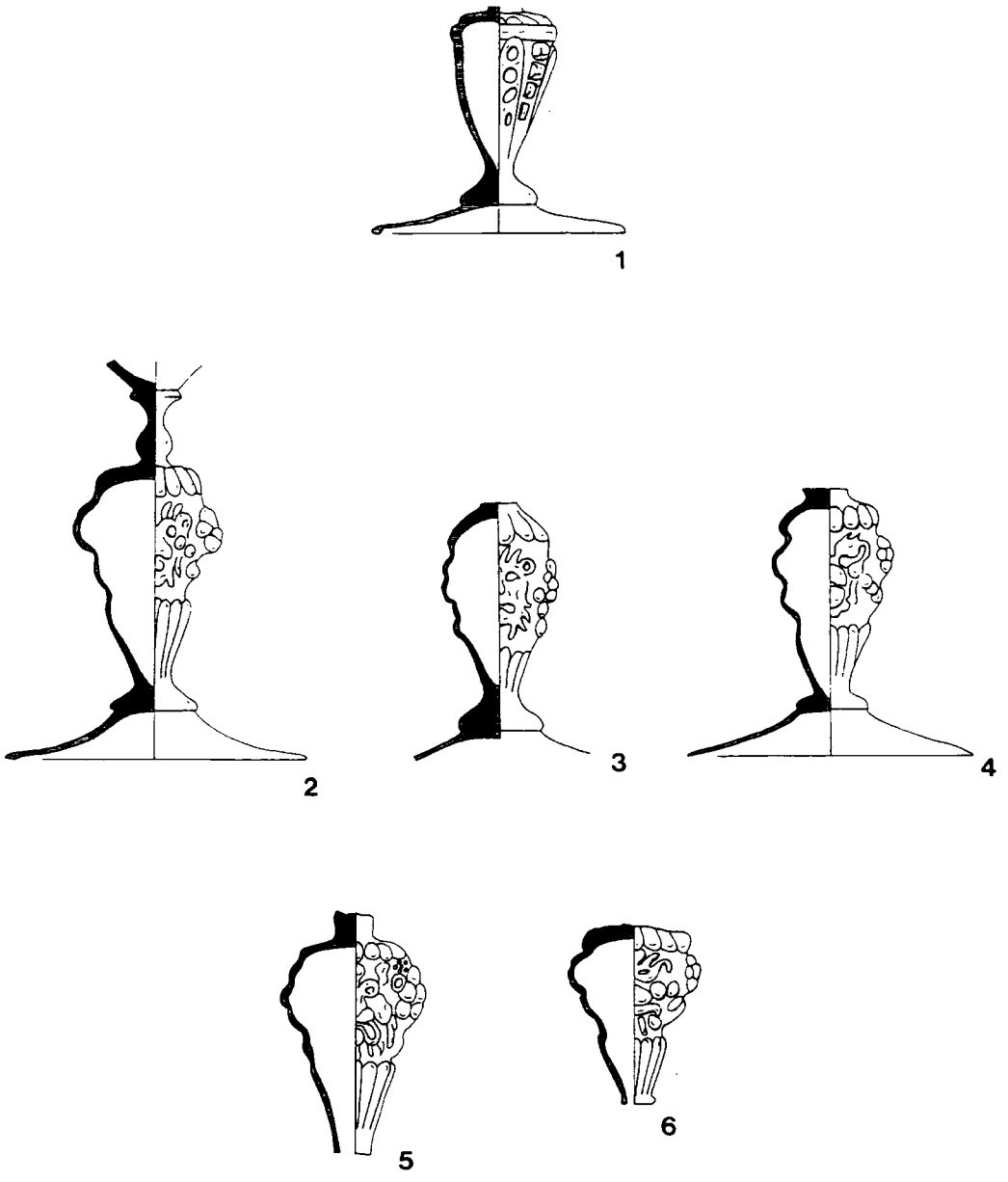


Figure 5.8 *Gracechurch Street, Goblets*

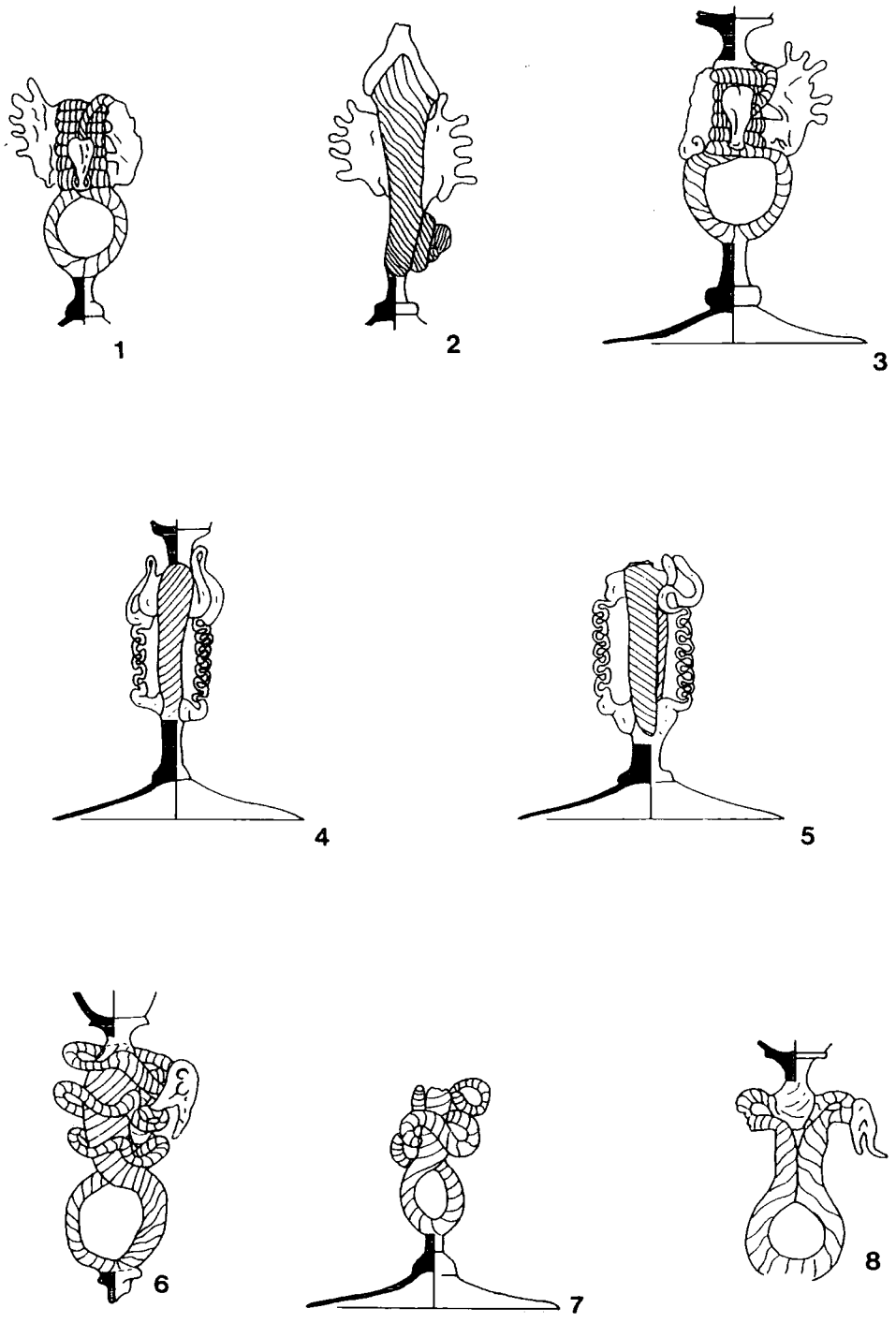


Figure 5.9 *Gracechurch Street, Goblets*

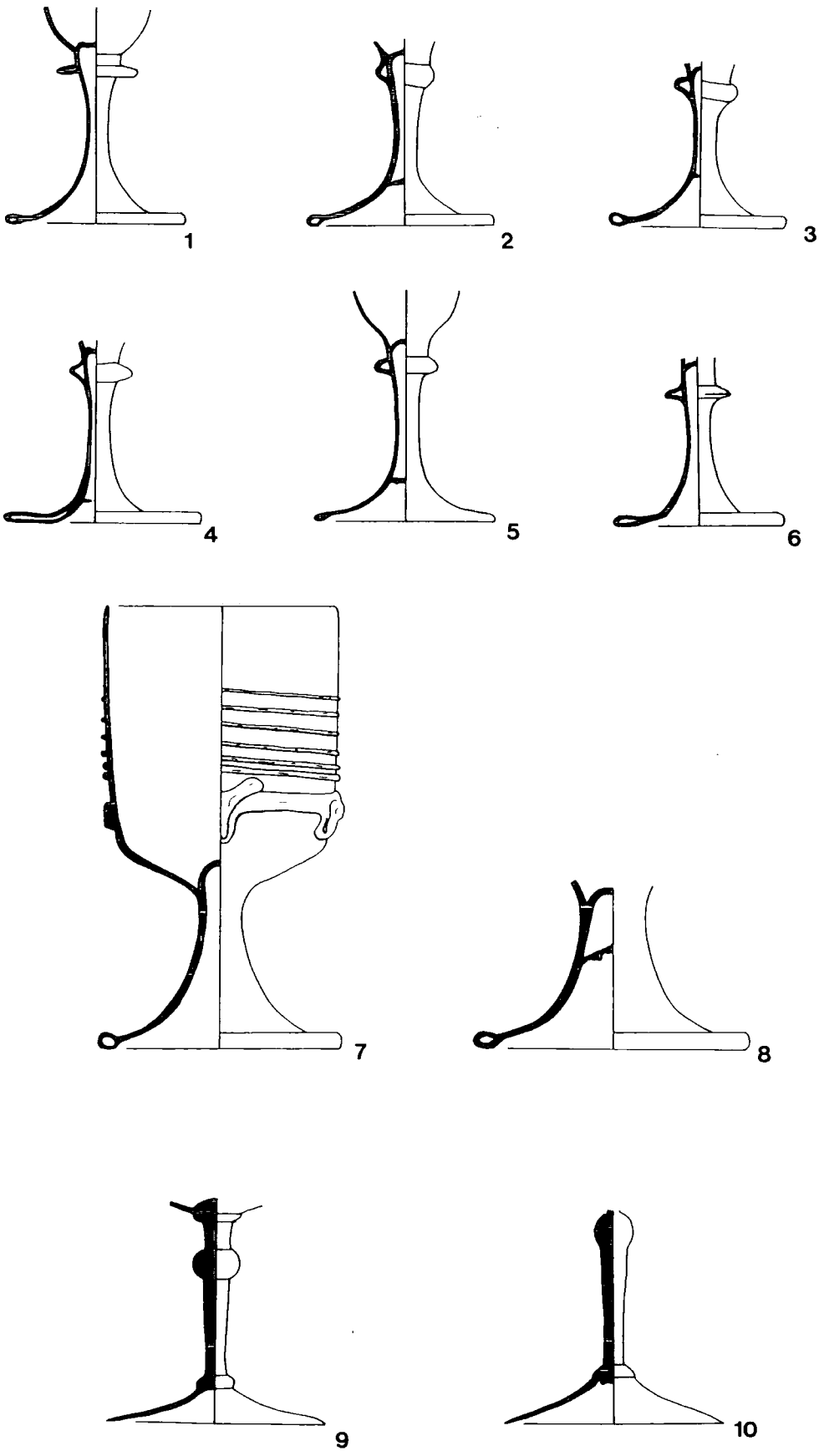


Figure 5.10 *Gracechurch Street, Flasks; Bowls; Jars*

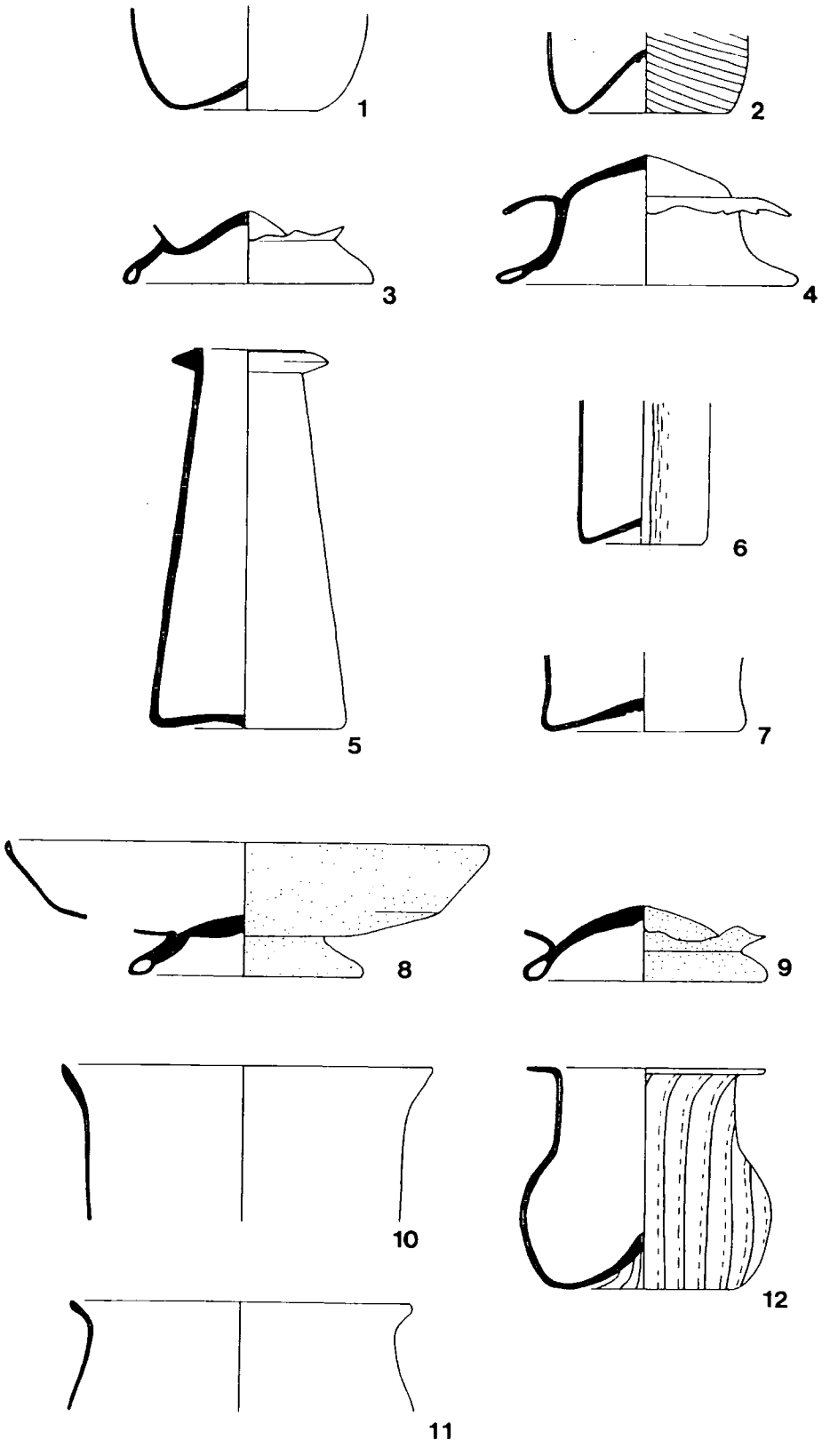


Figure 5.11 *Gracechurch Street, Chemical*

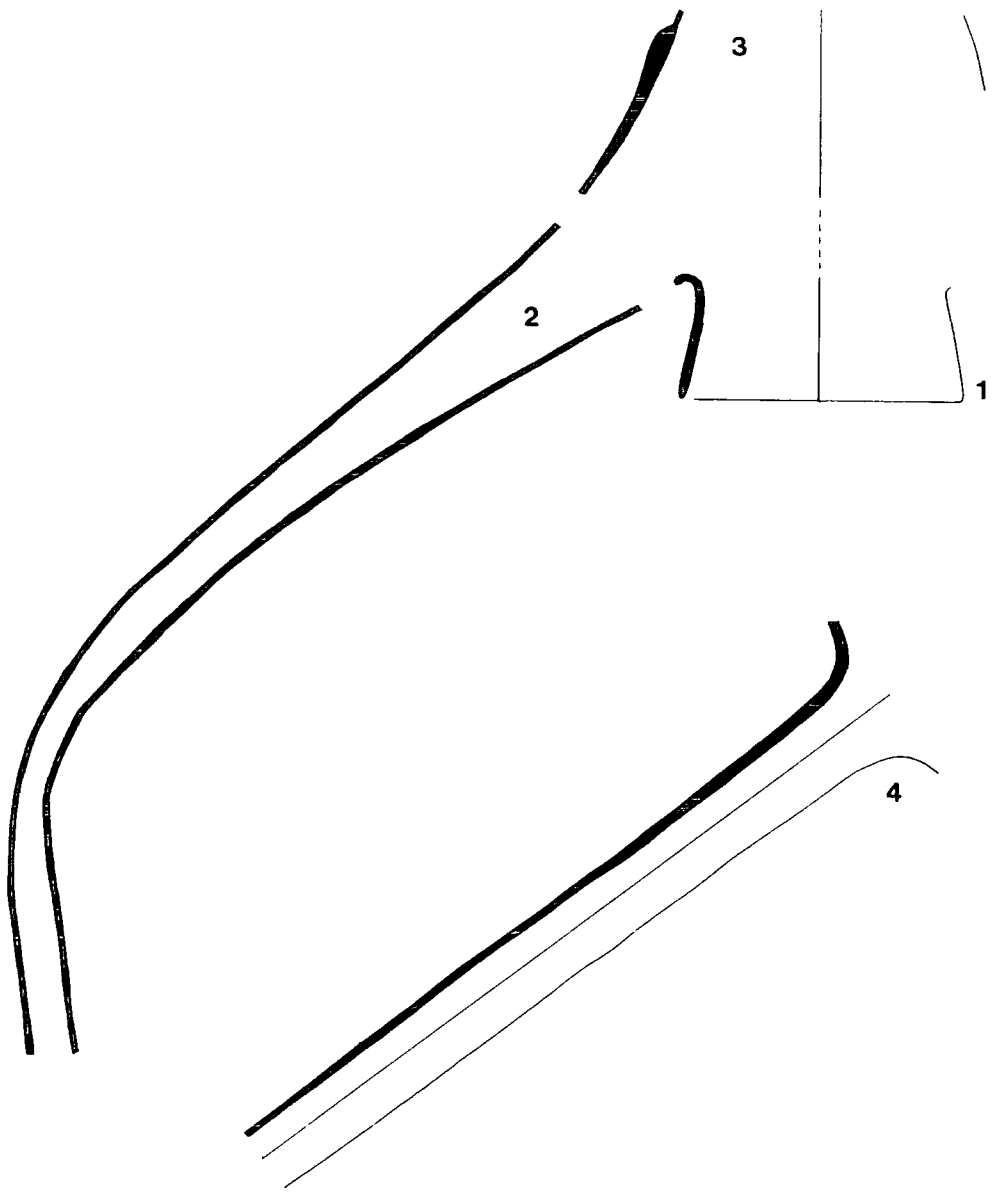


Figure 5.12 *Abacus House, Vessel Numbers*

Beakers		*Goblets*		*Flasks*		*Other*	
Cylindrical	5	Knopped	2	Pedestal	1	Chemical	5
Pedestal	11	Pedestal	9				
Roemer	1						
	17		11		1		5

TOTAL 34

Figure 5.13 *Abacus House, Beakers*

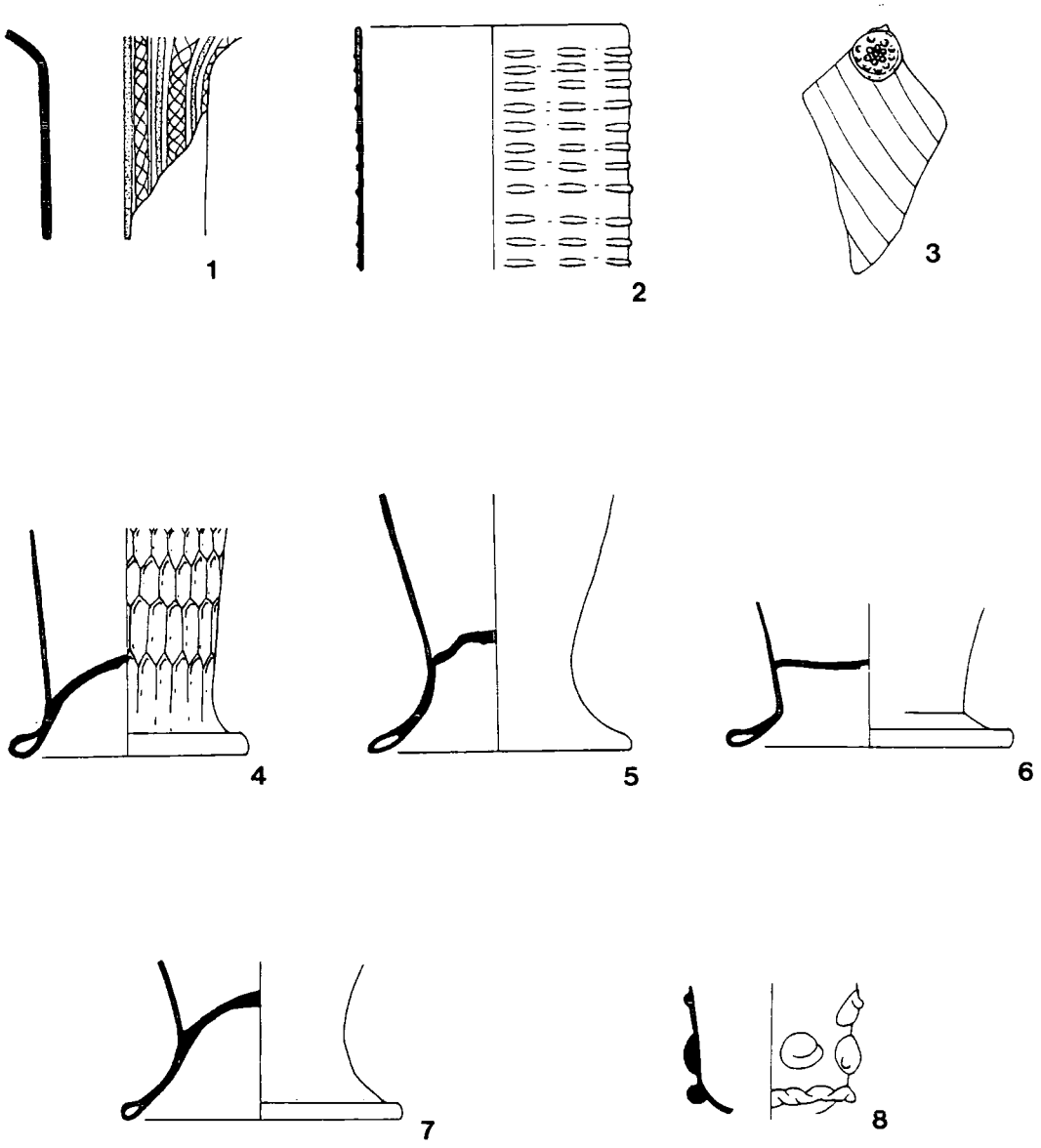


Figure 5.14 *Abacus House, Goblets*

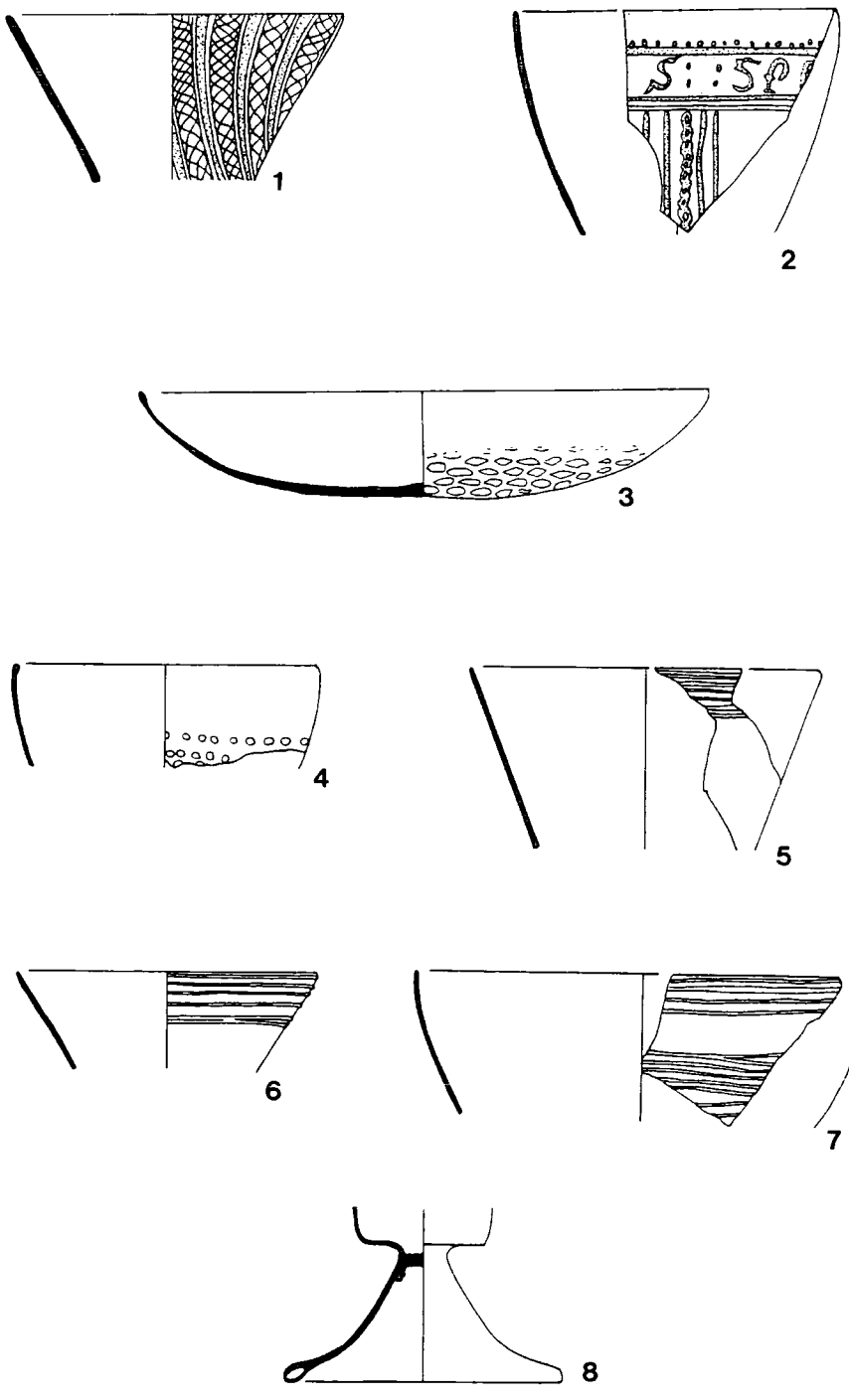


Figure 5.15 *Crook Street Chester, Vessel Numbers*

Beakers		*Goblets*		*Tankards*		*Flasks*		*Other*	
Cylindrical	1	Knopped	1	Cylindrical	1	Globular	1	Chemical	1
Pedestal	3	Mould Blown	2			Case Bottle	2		
		Pedestal	1						
		Applied Pedestal	2						
	4		6		1		3		1

TOTAL **15**

Figure 5.16 *Crook Street Chester, Beakers; Tankards; Goblets*

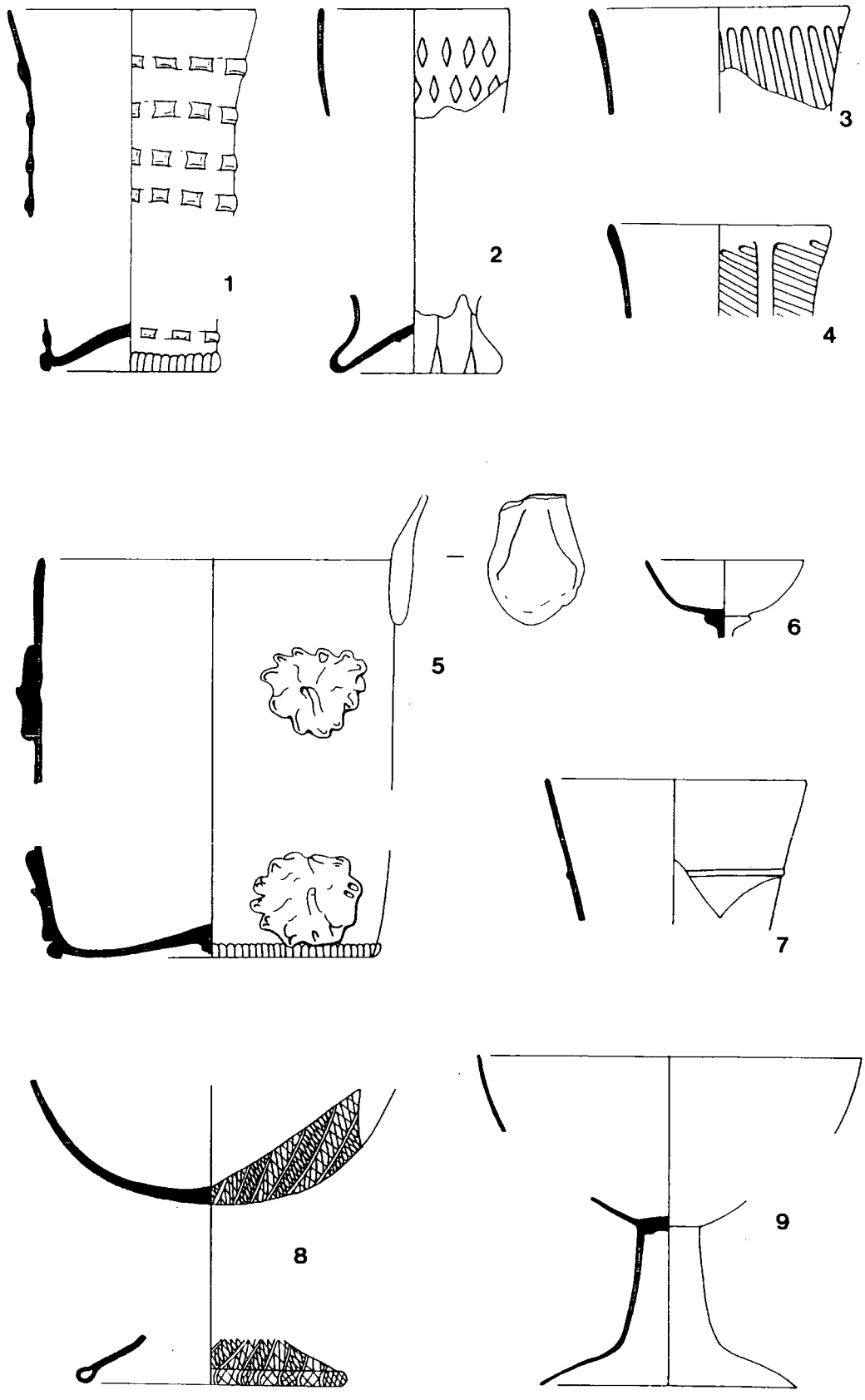
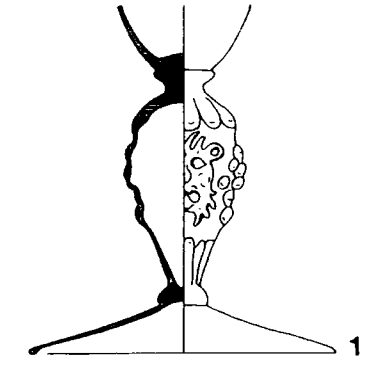


Figure 5.17 *Crook Street Chester, Goblets*



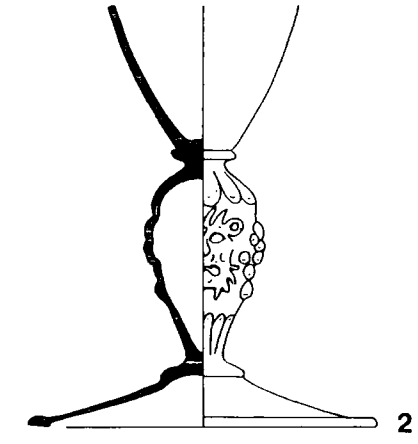


Figure 5.18 *Hunter Street, Chester Vessel Numbers*

Beakers		*Goblets*		*Tankards*		*Flasks*		*Bowls*		*Other*	
Cylindrical	1	Knopped	2	Cylindrical	2	Globular	1	Hemispherical	2	Chemical	2
Pedestal	1	Mould Blown	1			Pedestal	1	Dish	3		
Roemer	1	Compound	1			Case Bottle	6				
	3		4		2		8		5		2

TOTAL 24

Figure 5.19 *Hunter Street Chester, Beakers; Tankards; Goblets; Flasks*

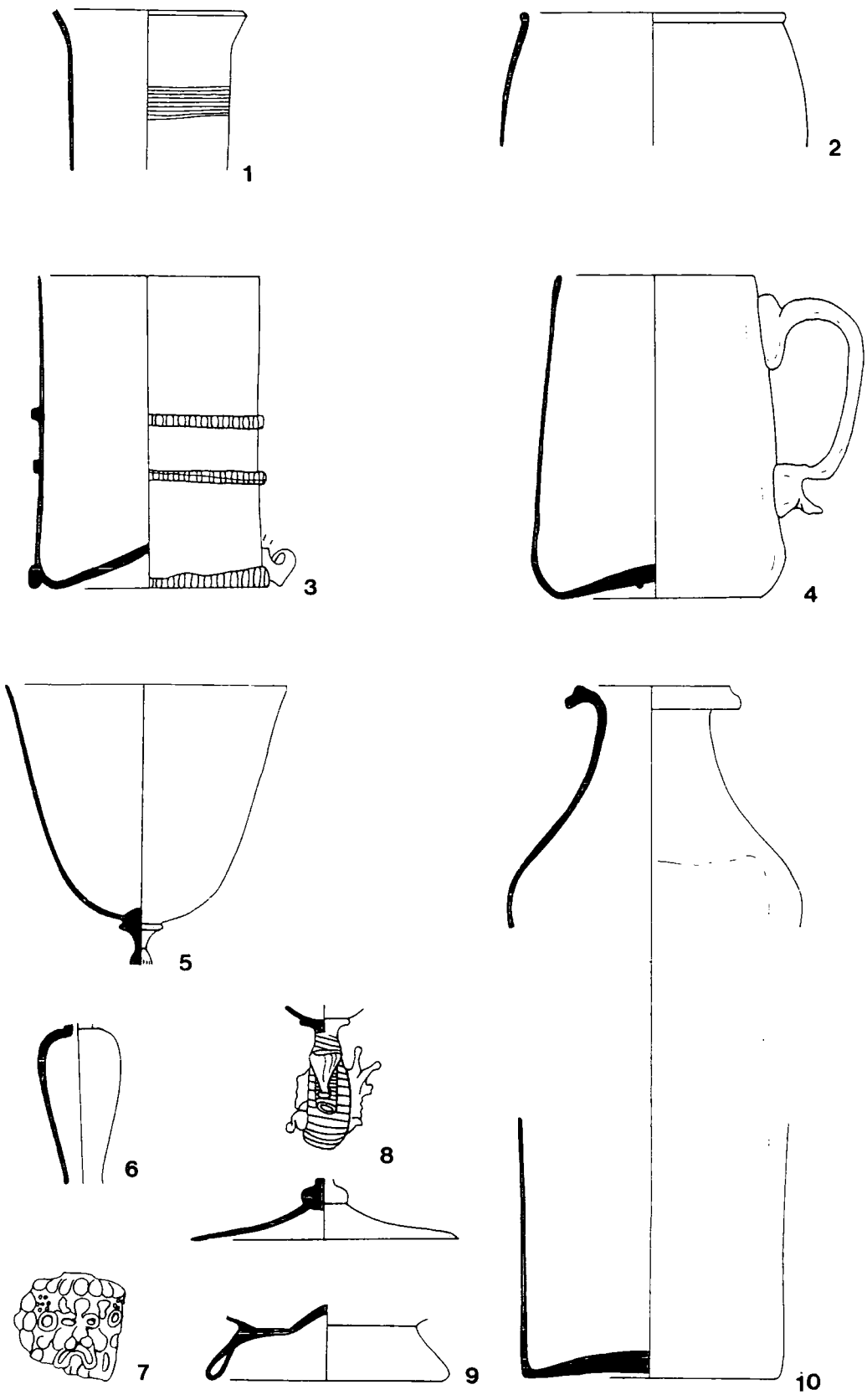


Figure 5.20 *Hunter Street Chester, Bowls*

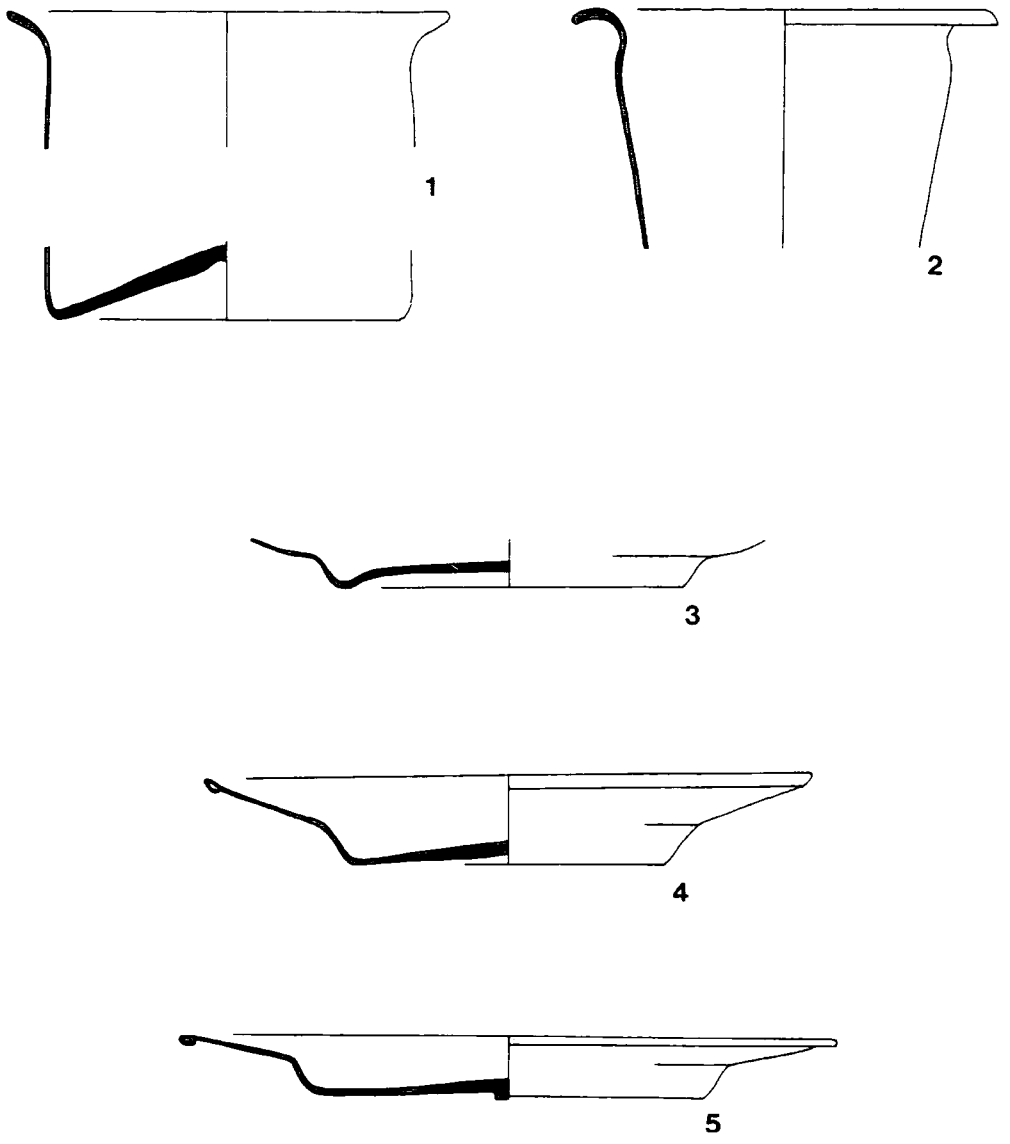


Figure 5.21 *Bagshot Plan*

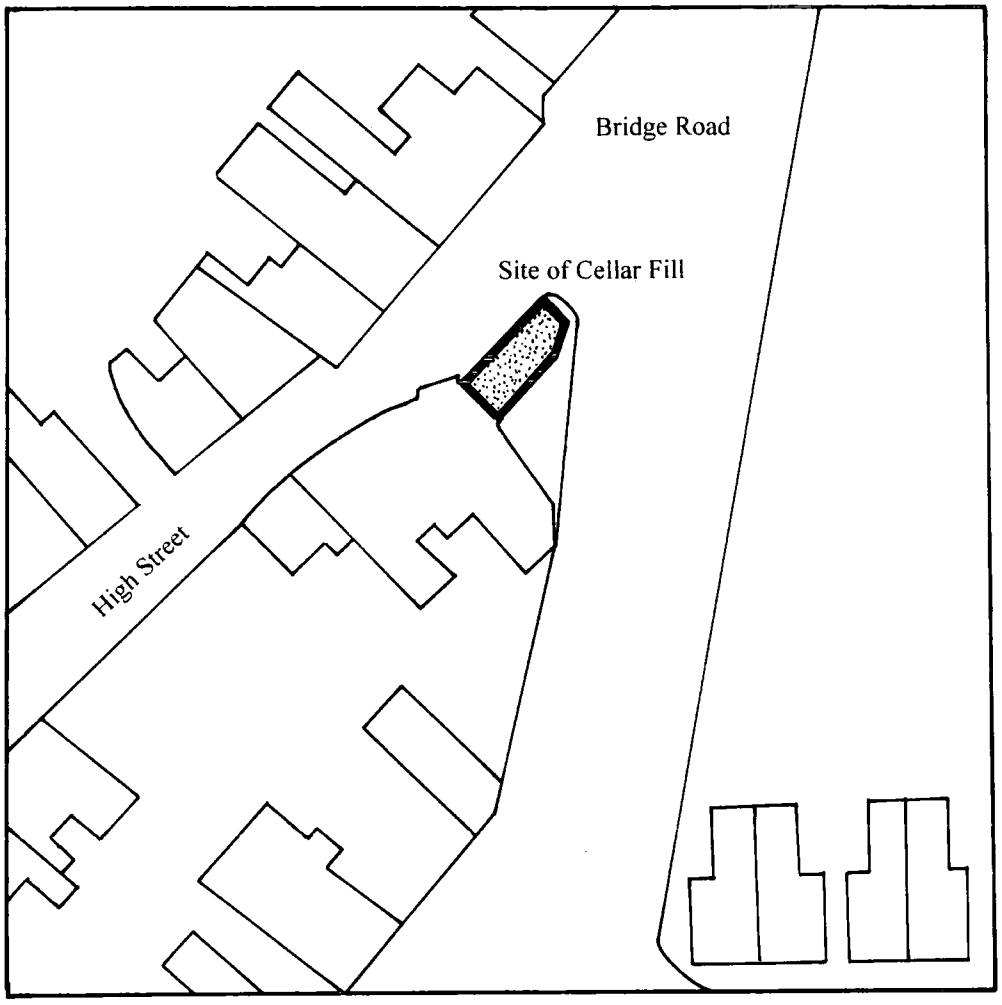


Figure 5.22 *Bagshot, Vessel Numbers*

Beakers		*Goblets*		*Flasks*		*Jugs*	
Cylindrical	2	Knopped	35	Globular	1	Pedestal	1
Pedestal	4	Mould Blown	8				
	6		43		1		1

TOTAL **51**

Figure 5.23 *Bagshot, Beakers*

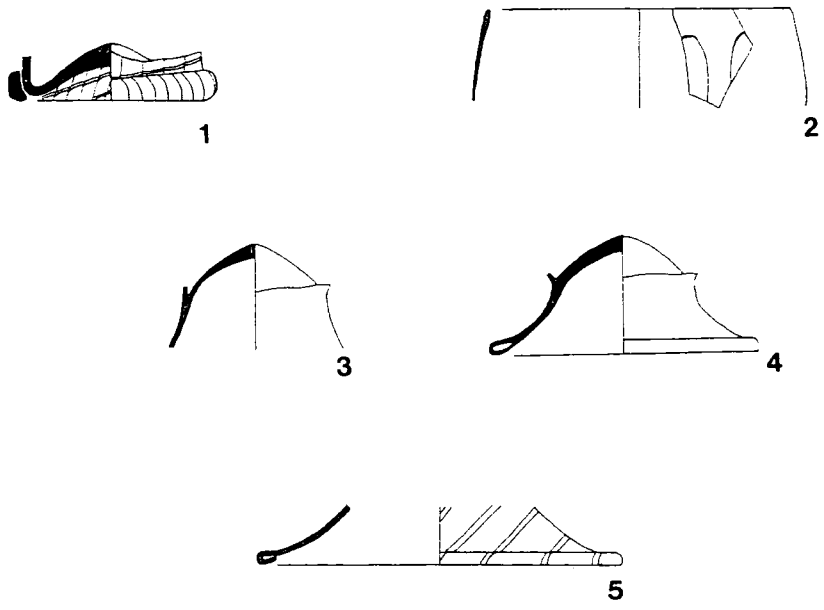


Figure 5.24 *Bagshot, Goblets*

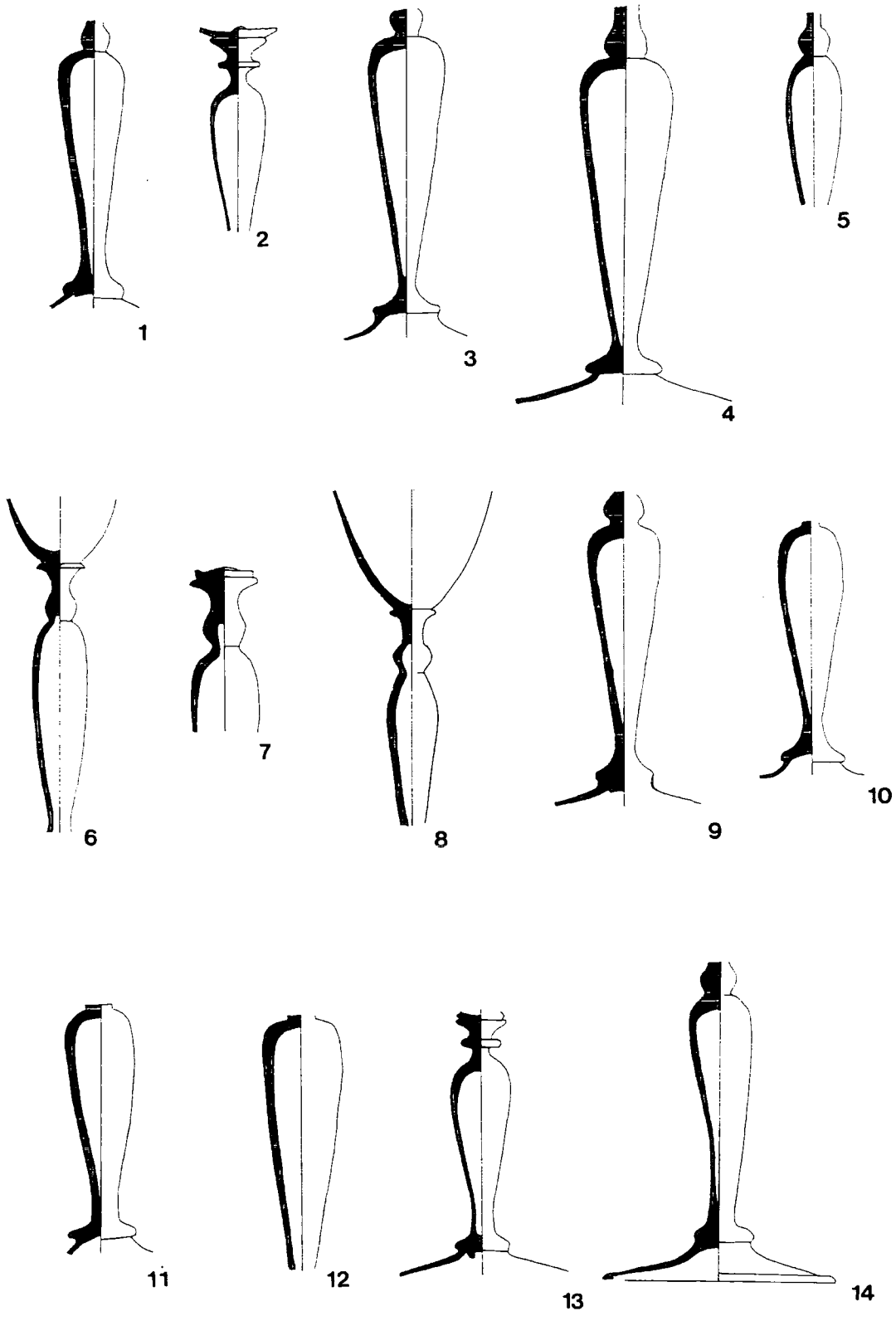


Figure 5.25 *Bagshot, Goblets*

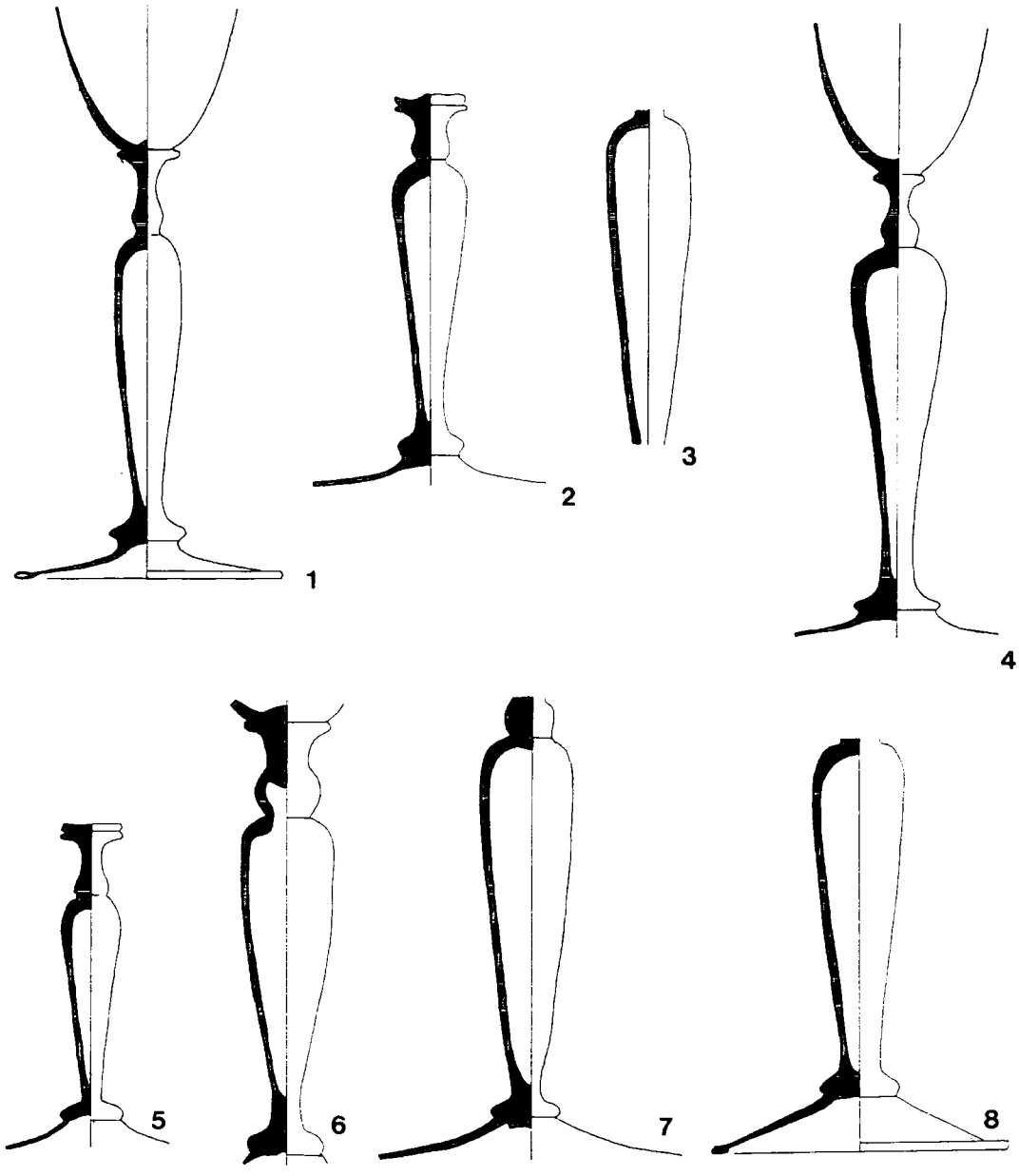


Figure 5.26 *Bagshot, Repaired Goblets*

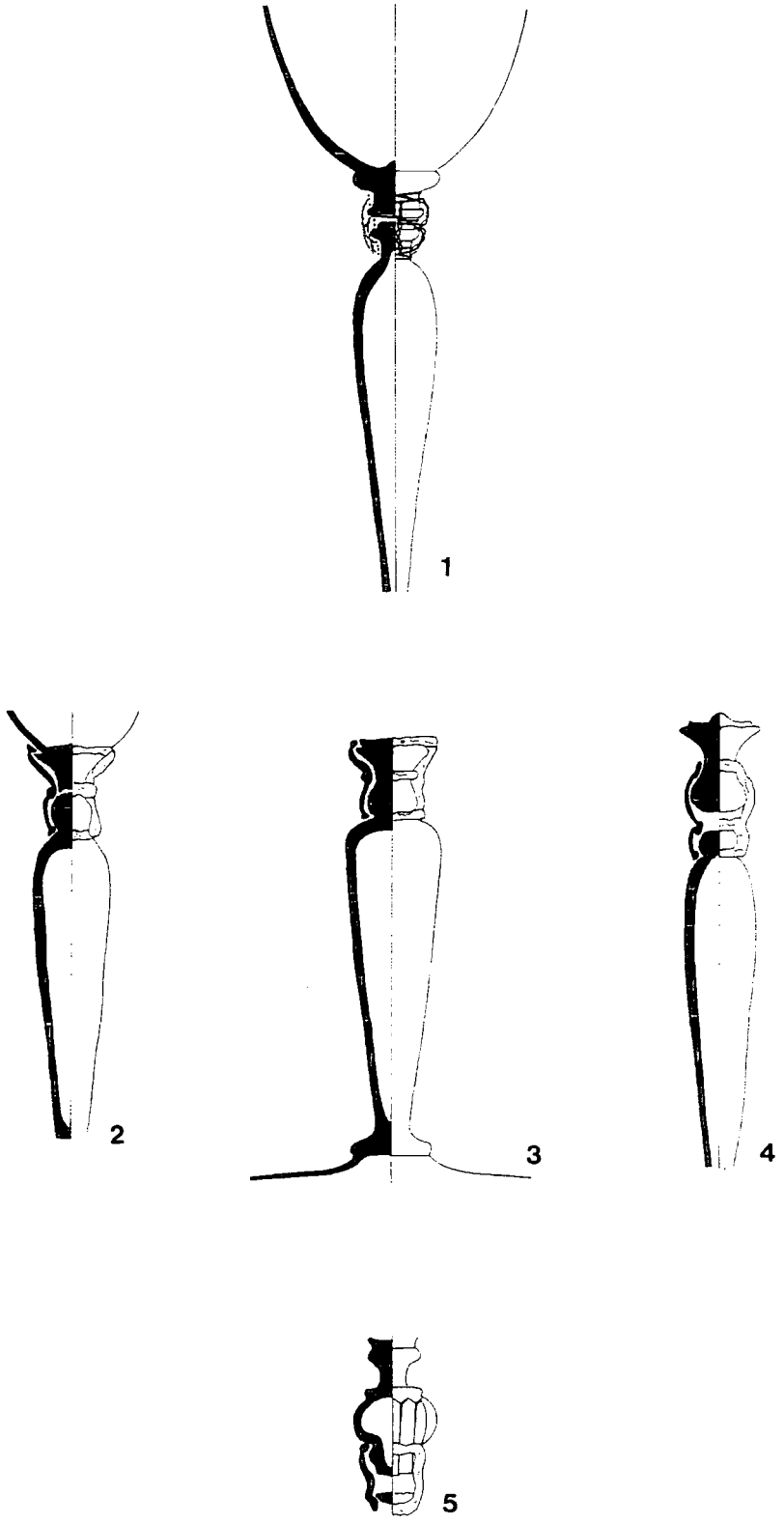


Figure 5.27 *Bagshot, Goblets*

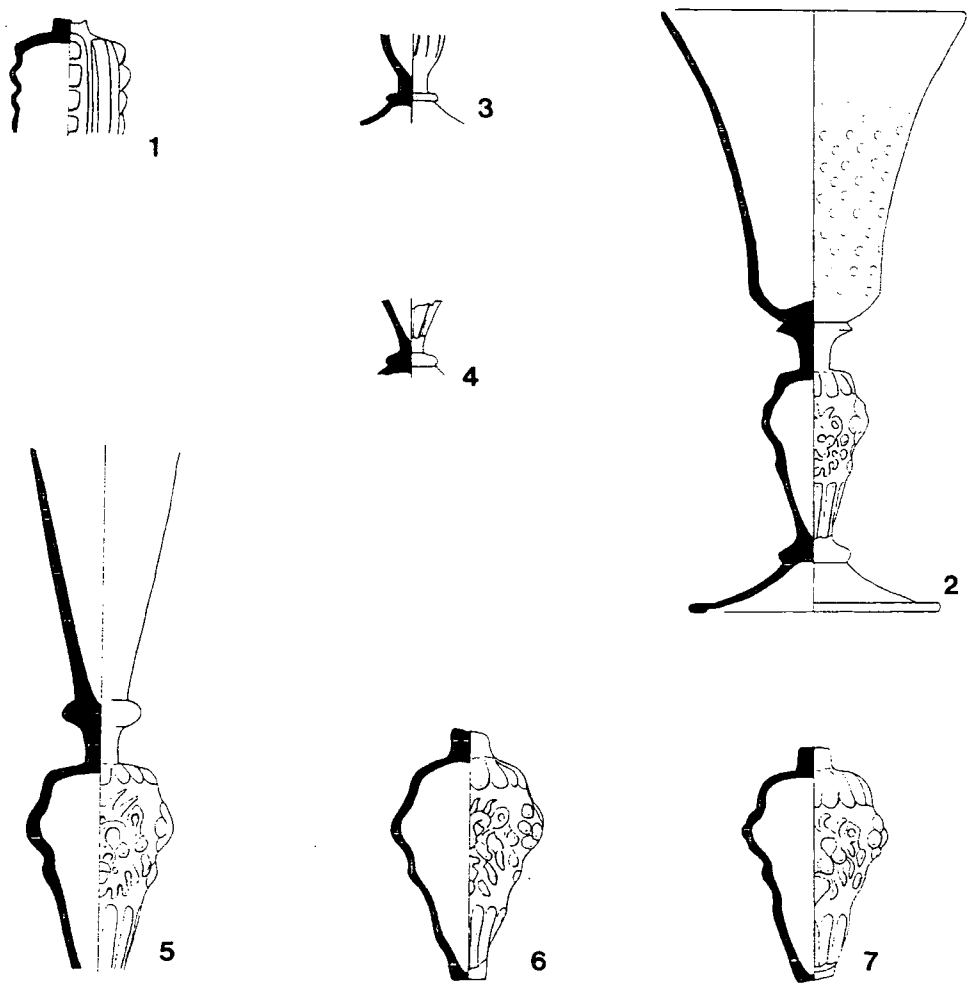


Figure 5.28 *Poole Plan*

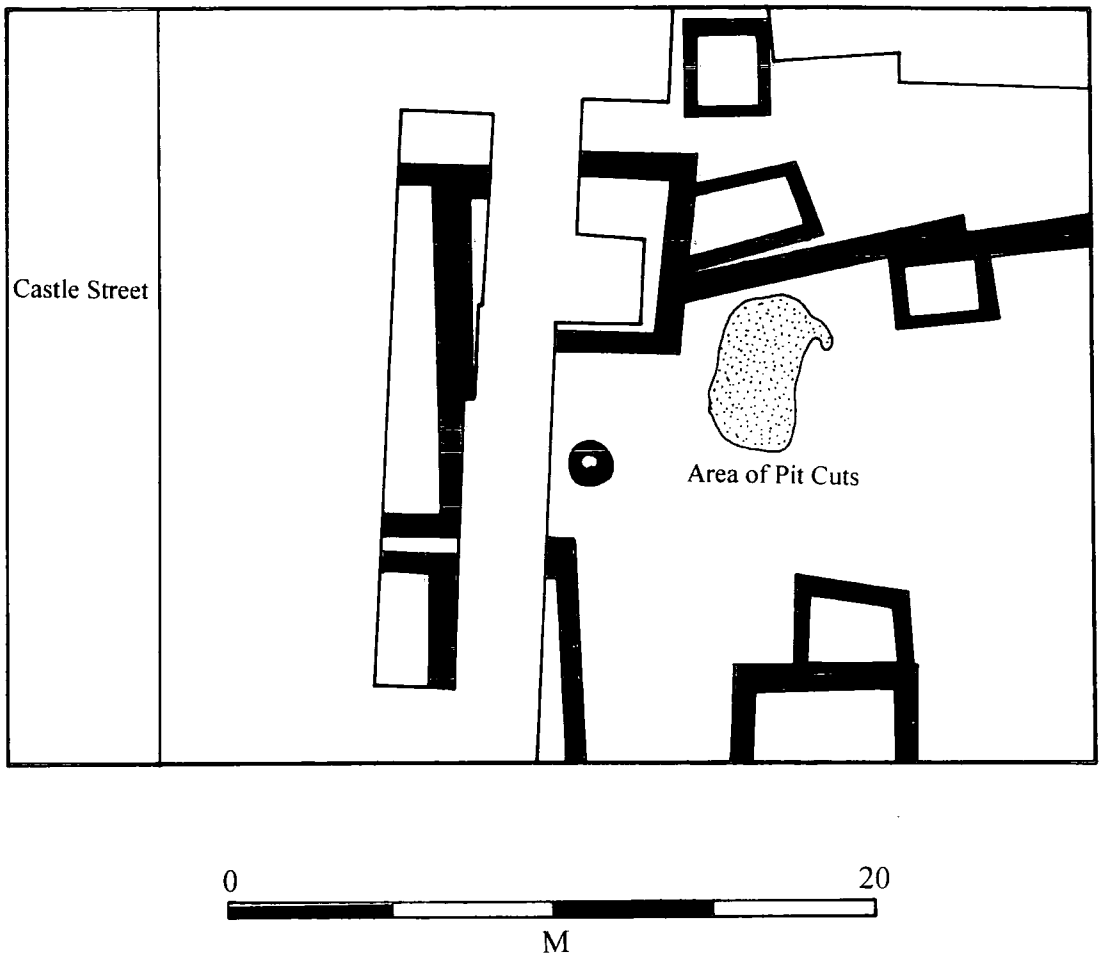


Figure 5.29 *Poole, Vessel Numbers*

Beakers		*Goblets*		*Bowls*		*Flasks*		*Other*	
Cylindrical	5	Knopped	5	Pedestal	1	Globular	2	Jars	2
Pedestal	14	Compound	1						
Barrel	1	Pedestal	7						
Squat	1								
	21		13		1		2		2

TOTAL 39

Figure 5.30 *Poole, Beakers*

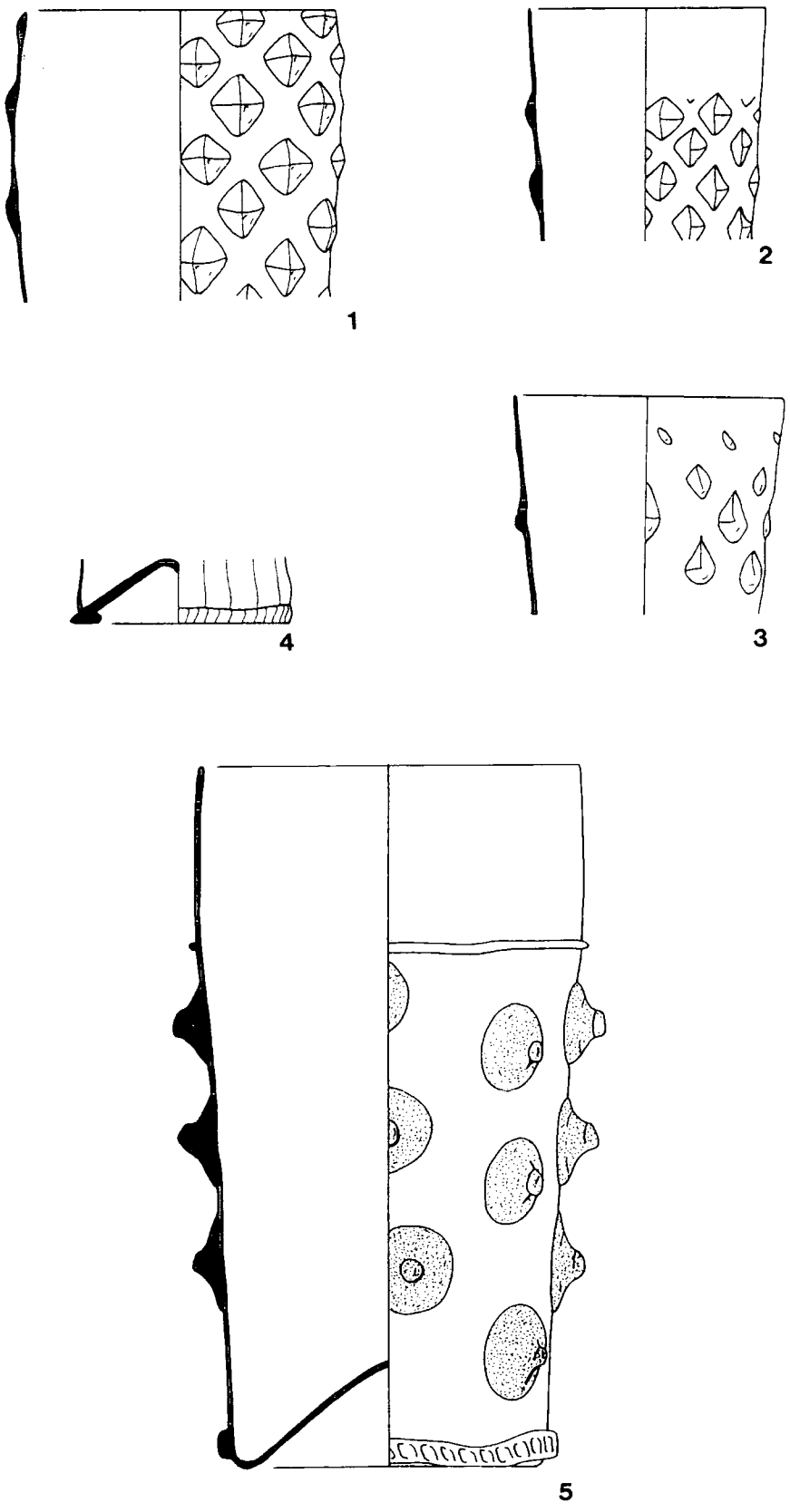


Figure 5.31 *Poole, Beakers*

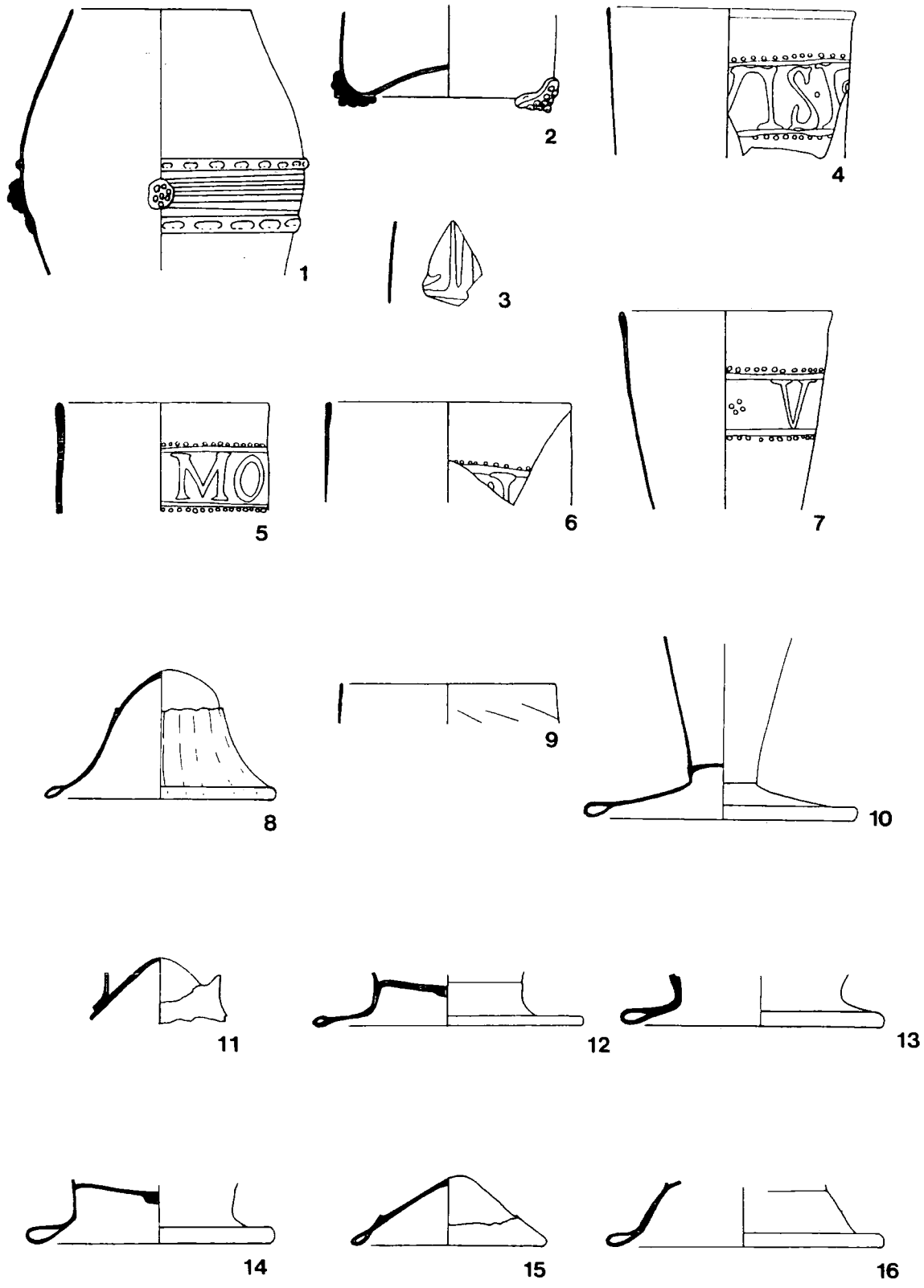


Figure 5.32 *Poole, Goblets; Jars*

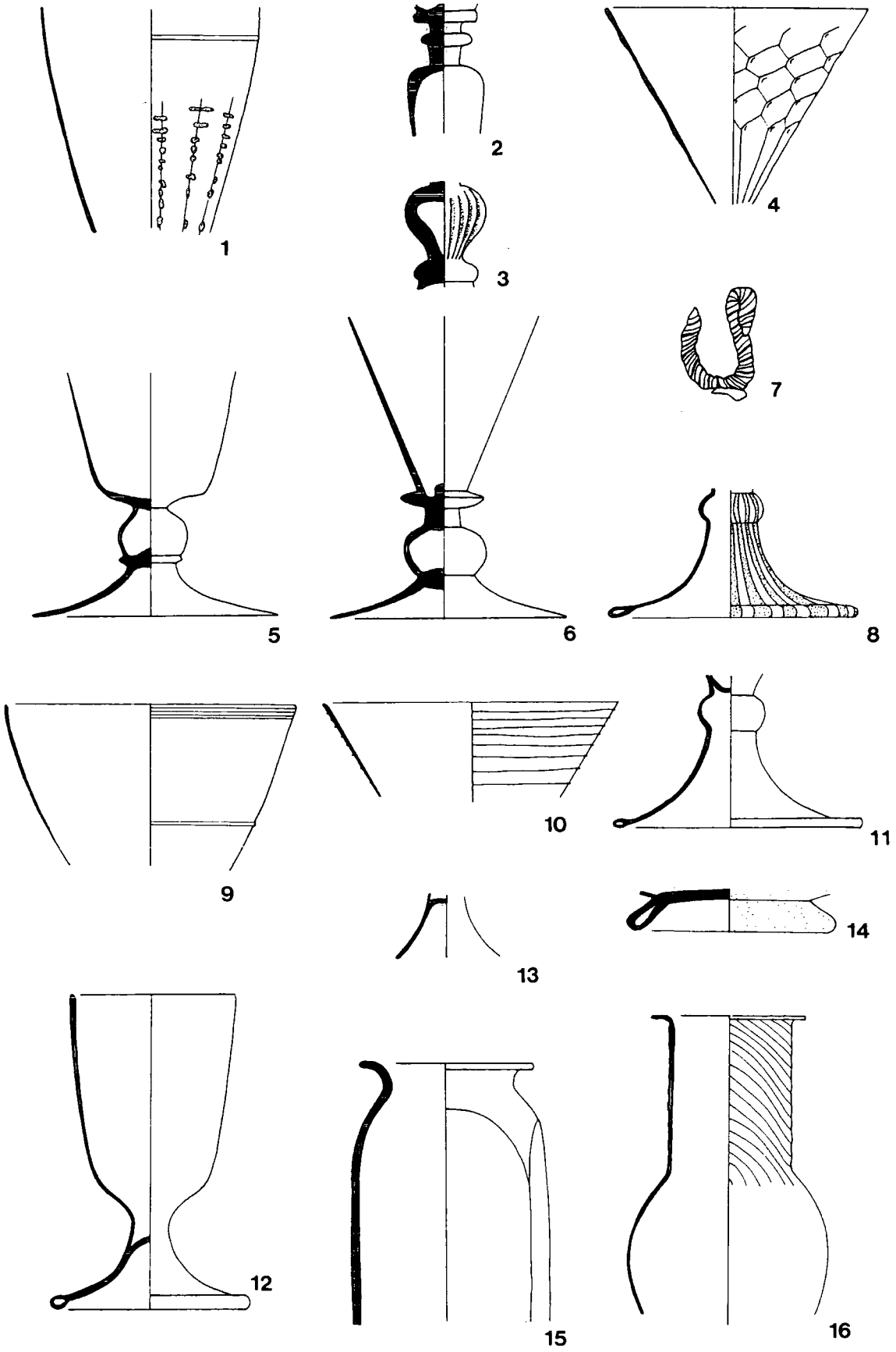


Figure 5.33 *Urban Vessel Number Totals*

	Gracechurch St	Abacus Ho.	Chester, Crook St	Chester, Hunter St	Bagshot	Poole
Cylindrical beakers	39	5	1	1	2	5
Pedestal beaker	21	11	3	1	4	14
Other beakers	3	1	-	1	-	2
Tankards	-	-	1	2	-	-
Knopped goblets	71	2	1	2	35	5
Mould blown goblets	17	-	2	1	8	-
Pedestal goblets	10	9	3	-	-	7
Other goblets	18	-	-	1	-	1
Jugs	-	-	-	-	1	-
Flasks	46	1	3	8	1	2
Bowls	3	-	-	5	-	1
Jars	8	-	-	-	-	2
Chemical	5	5	1	1		-
TOTAL	**241**	**34**	**15**	**24**	**51**	**39**

Figure 5.34 *Mansell Price List*

Type of Vessel	pre 1615	1621	1624	1635
Ordinary Beer Glasses	-	6*s* - 7*s* 4*d*	4*s* 6*d*	4*s*
Ordinary Wine Glasses	-	4s	2*s* 6*d*	2*s* 6*d*
Crystal Beer Glasses	-	18*s*	15*s*	9*s*
Crystal Wine Glasses	-	16*s*	12*s*	5*s* 6*d* - 7*s*
Venetian Crystal Beer Glasses	20*s* - 24*s*	-	-	10*s*-11*s*
Venetian Crystal Wine Glasses	18*s*	-	-	7*s*-8*s*

Prices per Dozen Glasses (Adapted from Godfrey 1975: 216)

Figure 6.1 *Camber Castle Plan*

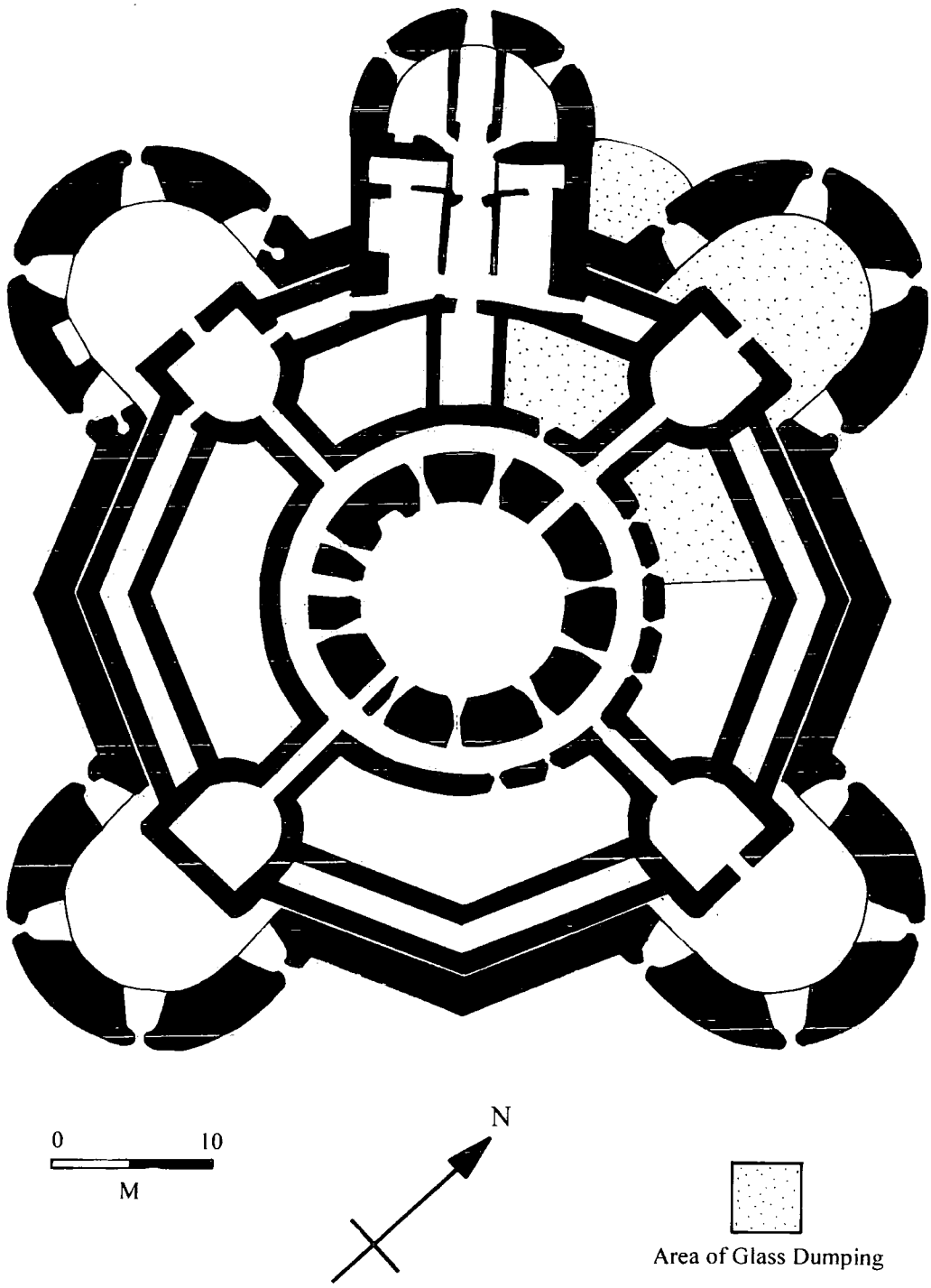


Figure 6.2 *Camber Castle, Vessel Numbers*

Beakers		*Goblets*		*Bowls*		*Flasks*		*Other*	
Cylindrical	3	Knopped	3	Dish	1	Globular	4	Jars	1
Pedestal	16	Pedestal	18			Oval	2	Chemical	4
Pedestal Flute	1					Case Bottle	3		
	20		21		1		9		5

TOTAL **56**

Figure 6.3 *Camber Castle, Beakers*

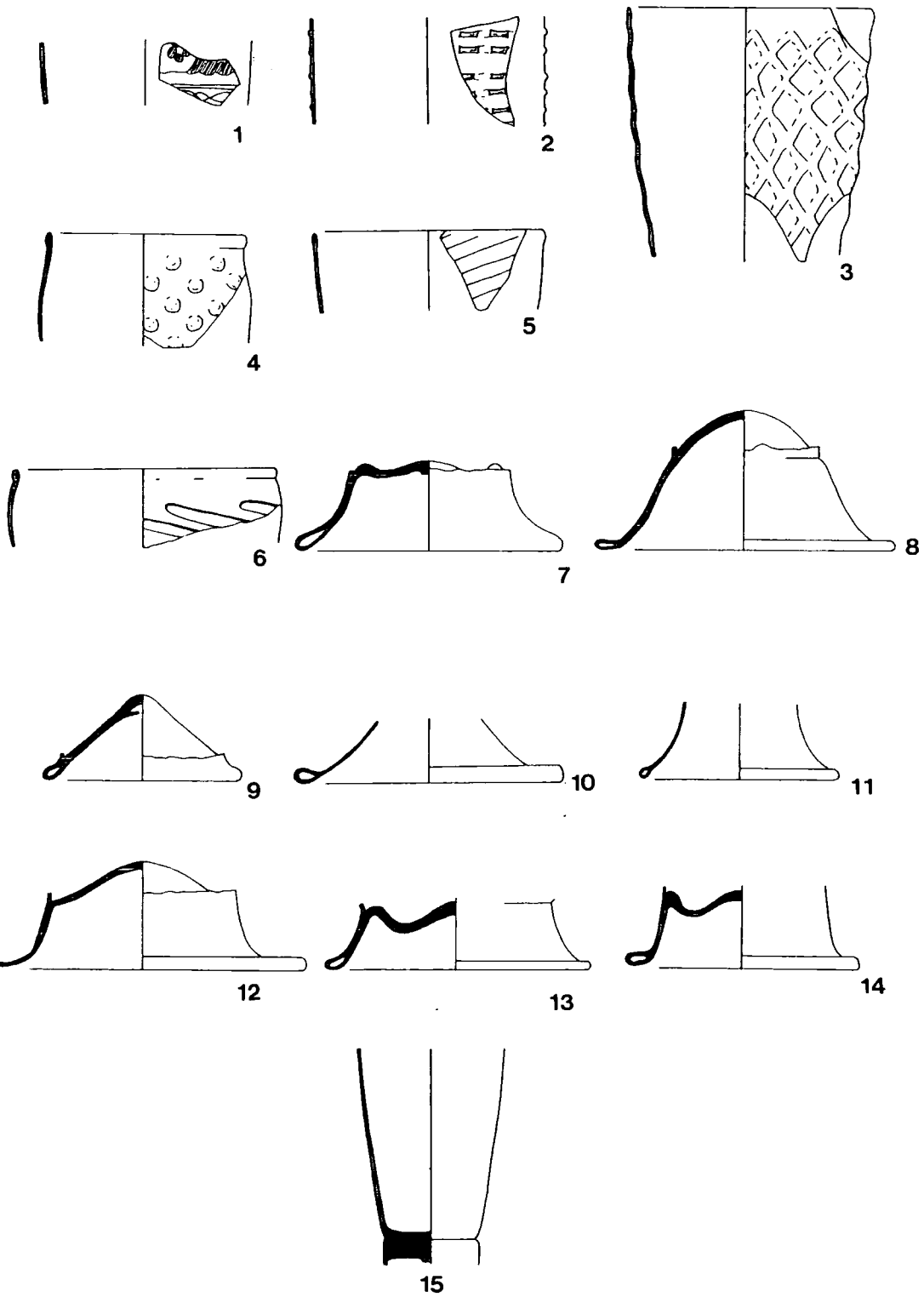


Figure 6.4 *Camber Castle, Goblets*

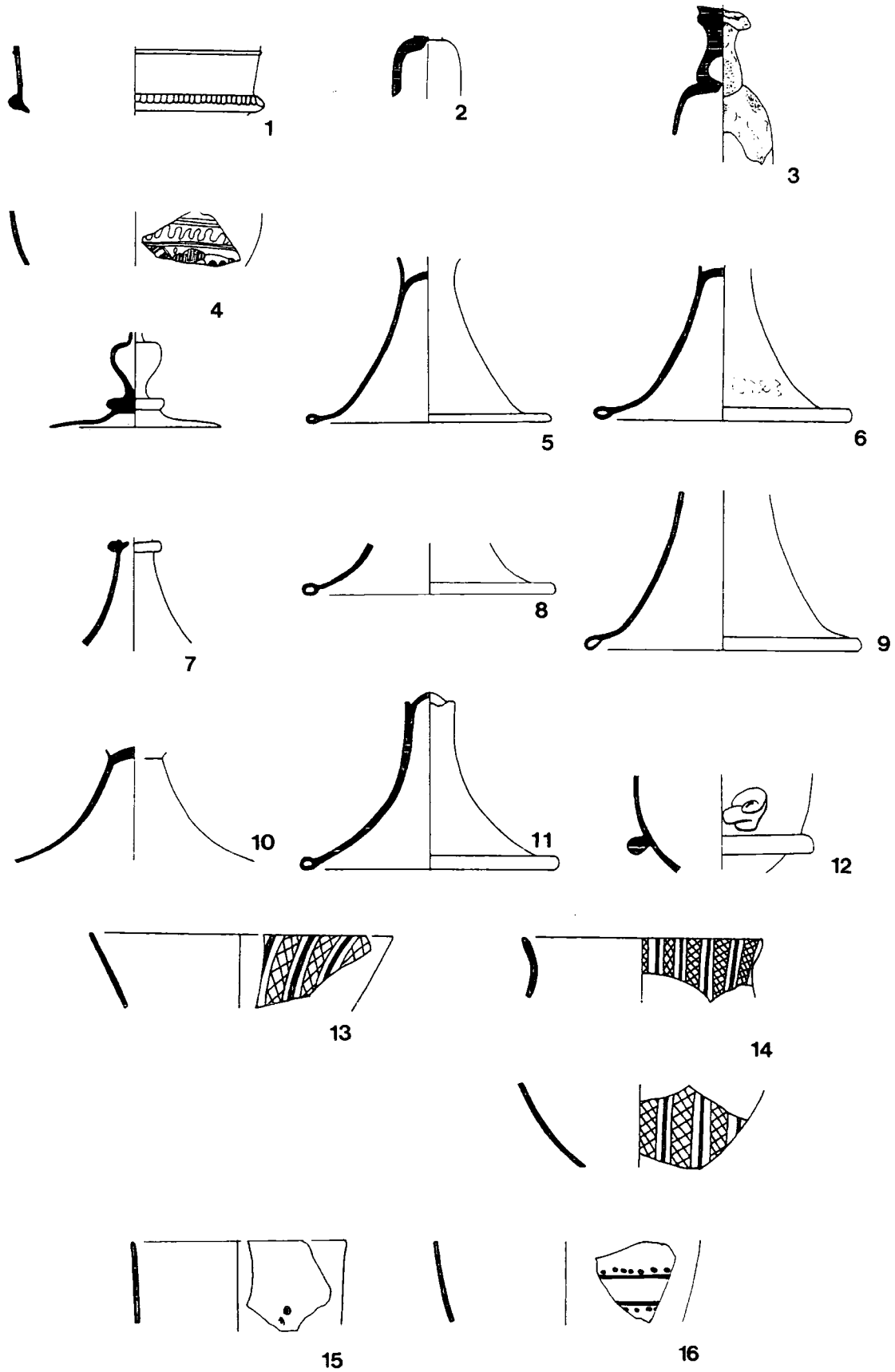


Figure 6.5 *Camber Castle, Goblets; Flasks; Bowls*

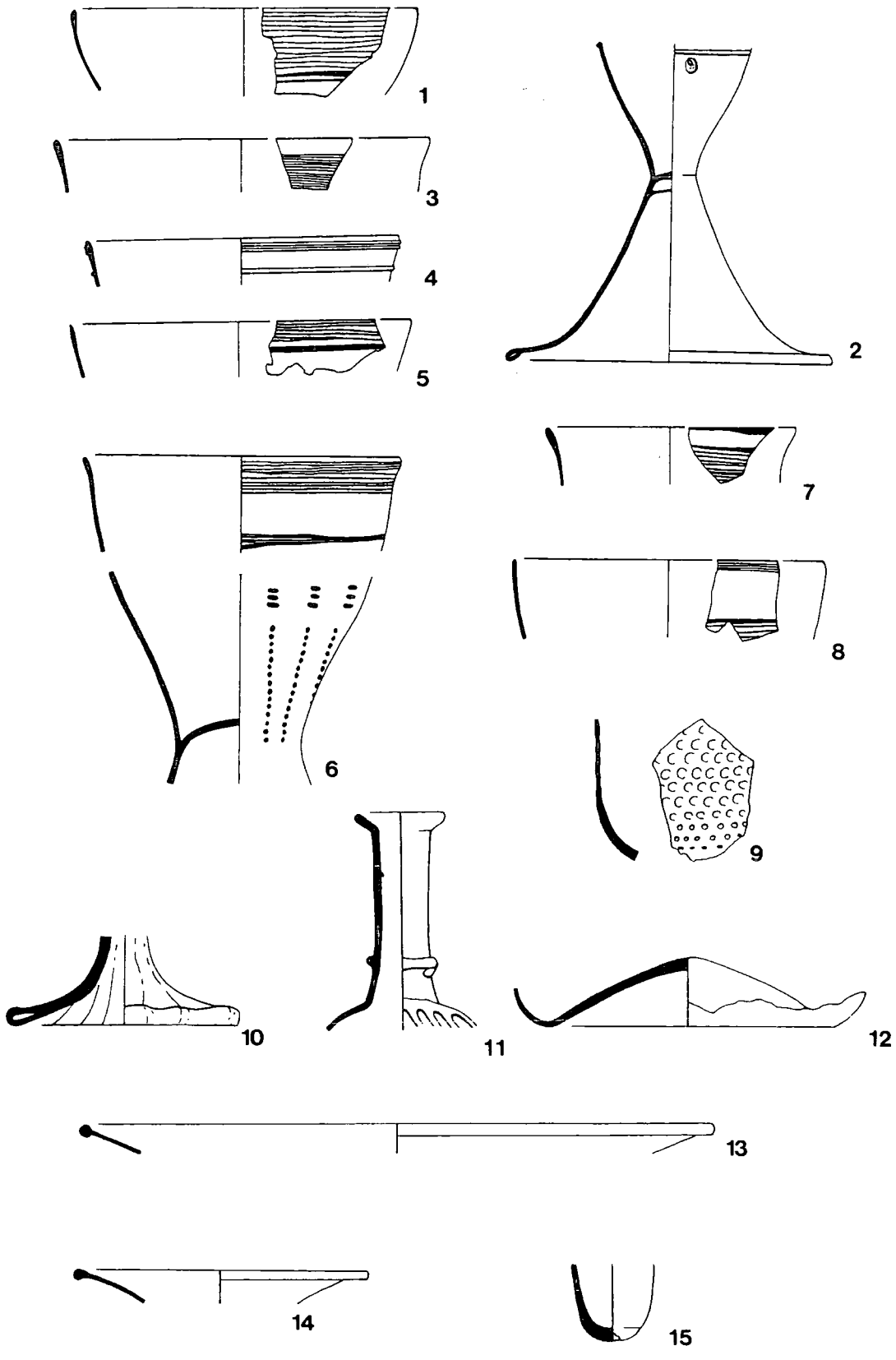


Figure 6.6 *Acton Court, Vessel Numbers*

Beakers		*Goblets*		*Bowls*		*Flasks*		*Other*	
Cylindrical	7	Knopped	24	Pedestal	5	Globular	3	Jars	2
Pedestal	5	Pedestal	6	Hemispherical	1	Pedestal	4	Chemical	4
		Lids	7			Conical	3		
						Case Bottle	3		
	12		37		6		13		6

TOTAL 74

Figure 6.7 *Acton Court, Beakers; Goblets*

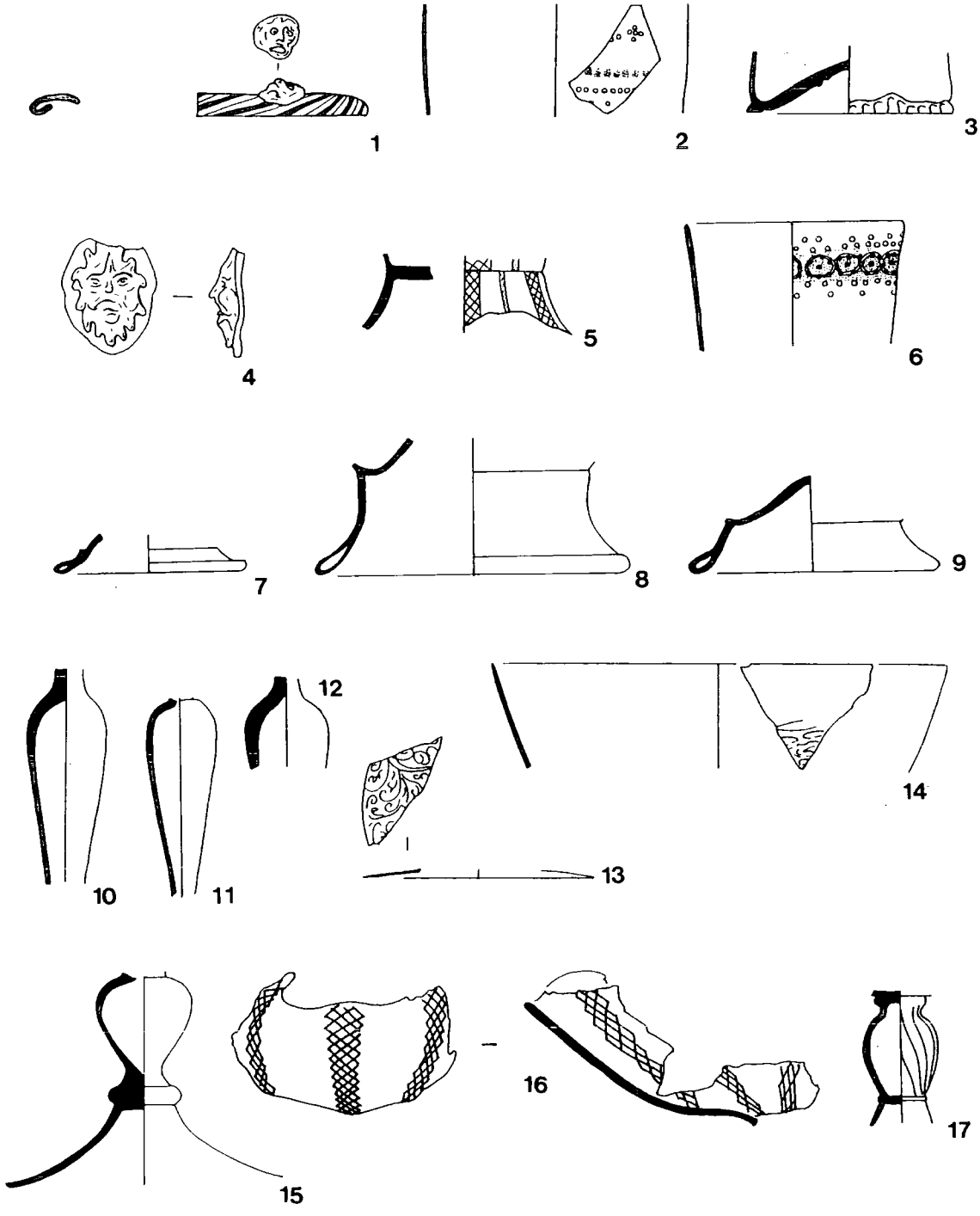


Figure 6.8 *Acton Court, Goblets*

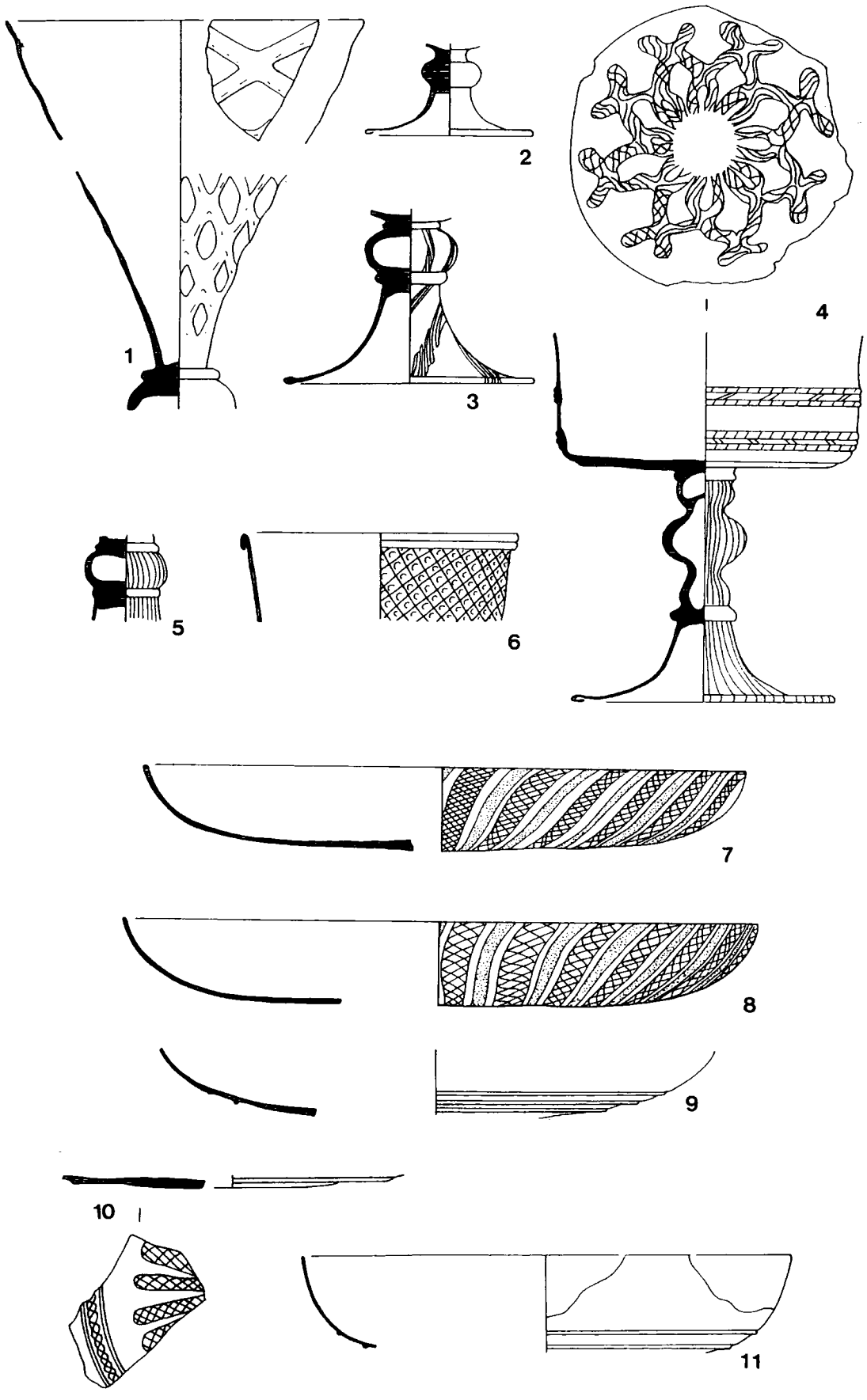


Figure 6.9 *Acton Court, Goblets*

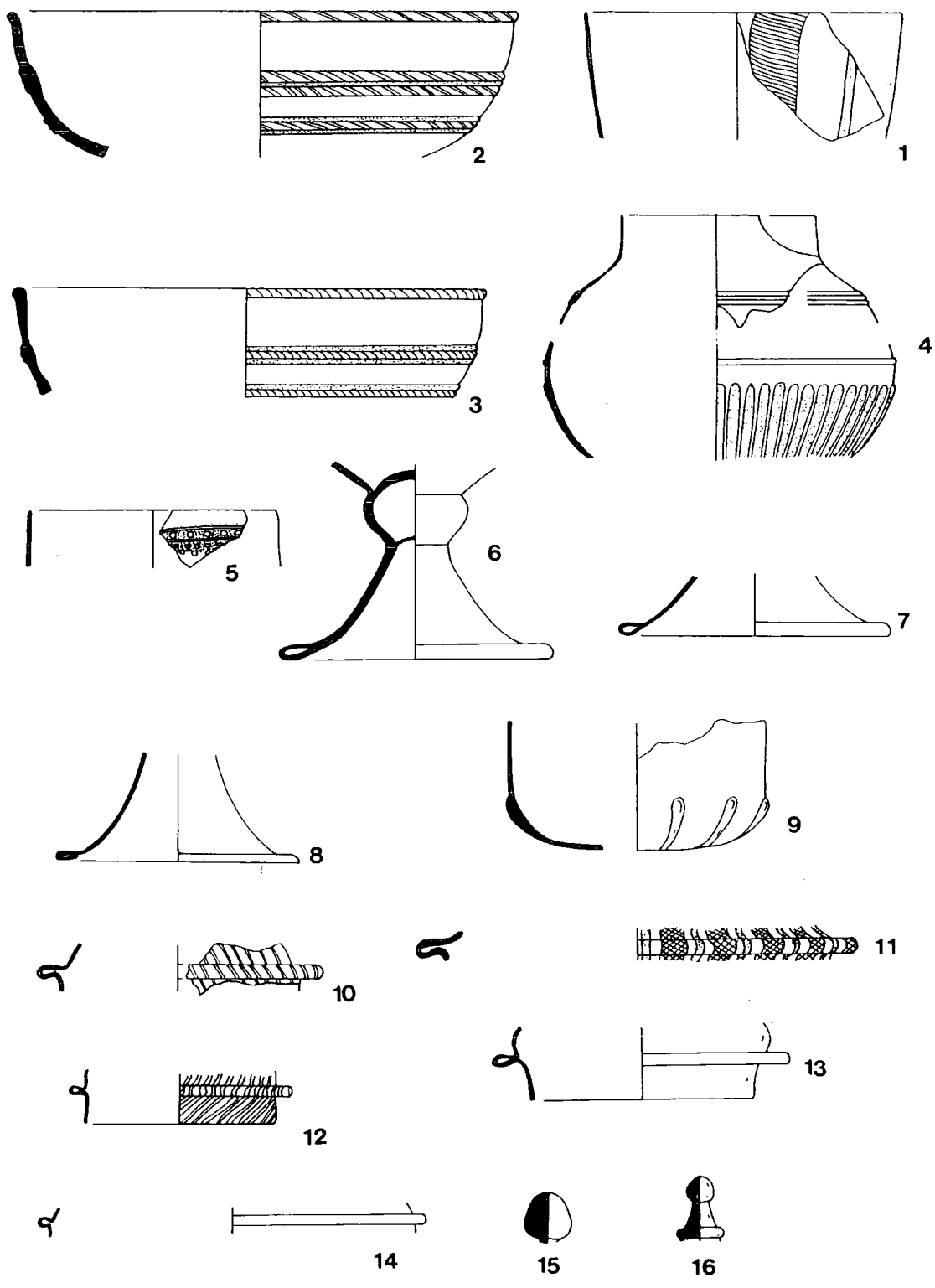


Figure 6.10 *Acton Court, Flasks; Bowls*

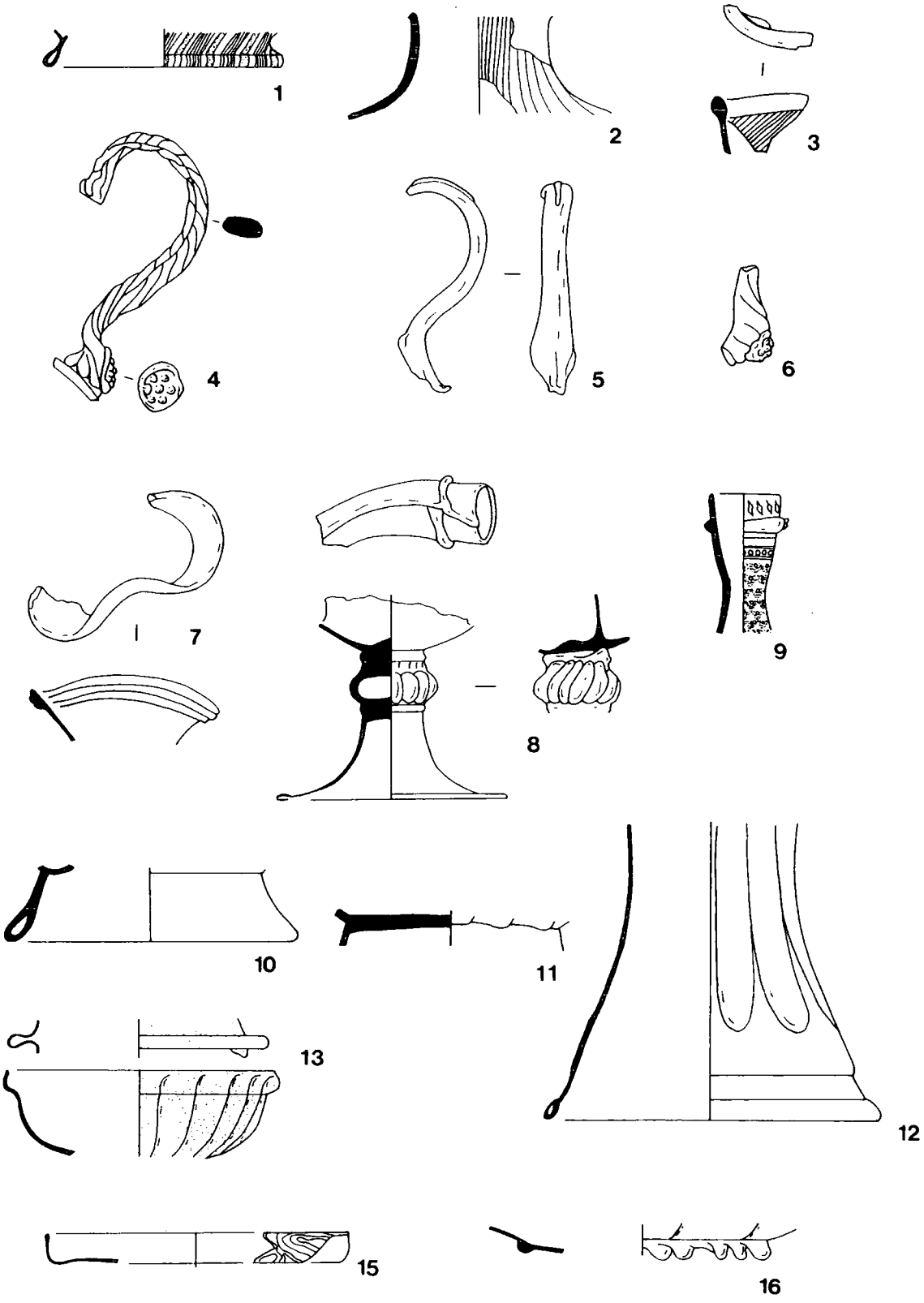


Figure 6.11 *Nonsuch Palace Plan*

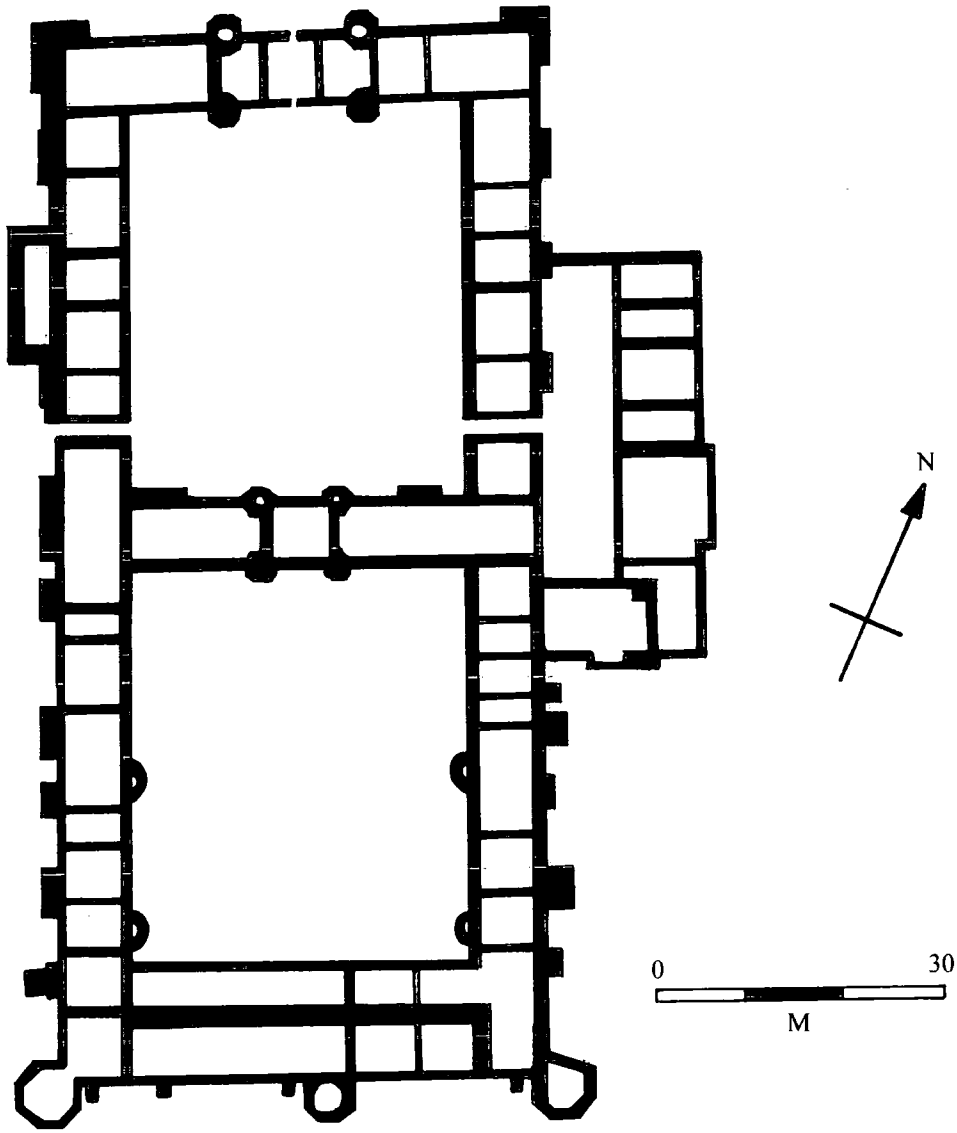


Figure 6.12 *Nonsuch Palace, Vessel Numbers*

Beakers		*Tankards*		*Goblets*		*Bowls*		*Flasks*		*Other*	
Cylindrical	4	Bellied	1	Knopped	24	Pedestal	3	Globular	7	Jar	5
Pedestal	4			Mould Blown	6	Dish	1	Oval	2	Chemical	8
Pedestal Flute	1			Pedestal	1						
				Applied Pedestal	1						
				Rod Stem	1						
				Cage Stem	1						
				Lid	2						
	9		1		36		4		9		13
										TOTAL	72

Figure 6.13 *Nonsuch Palace, Beaker; Goblets*

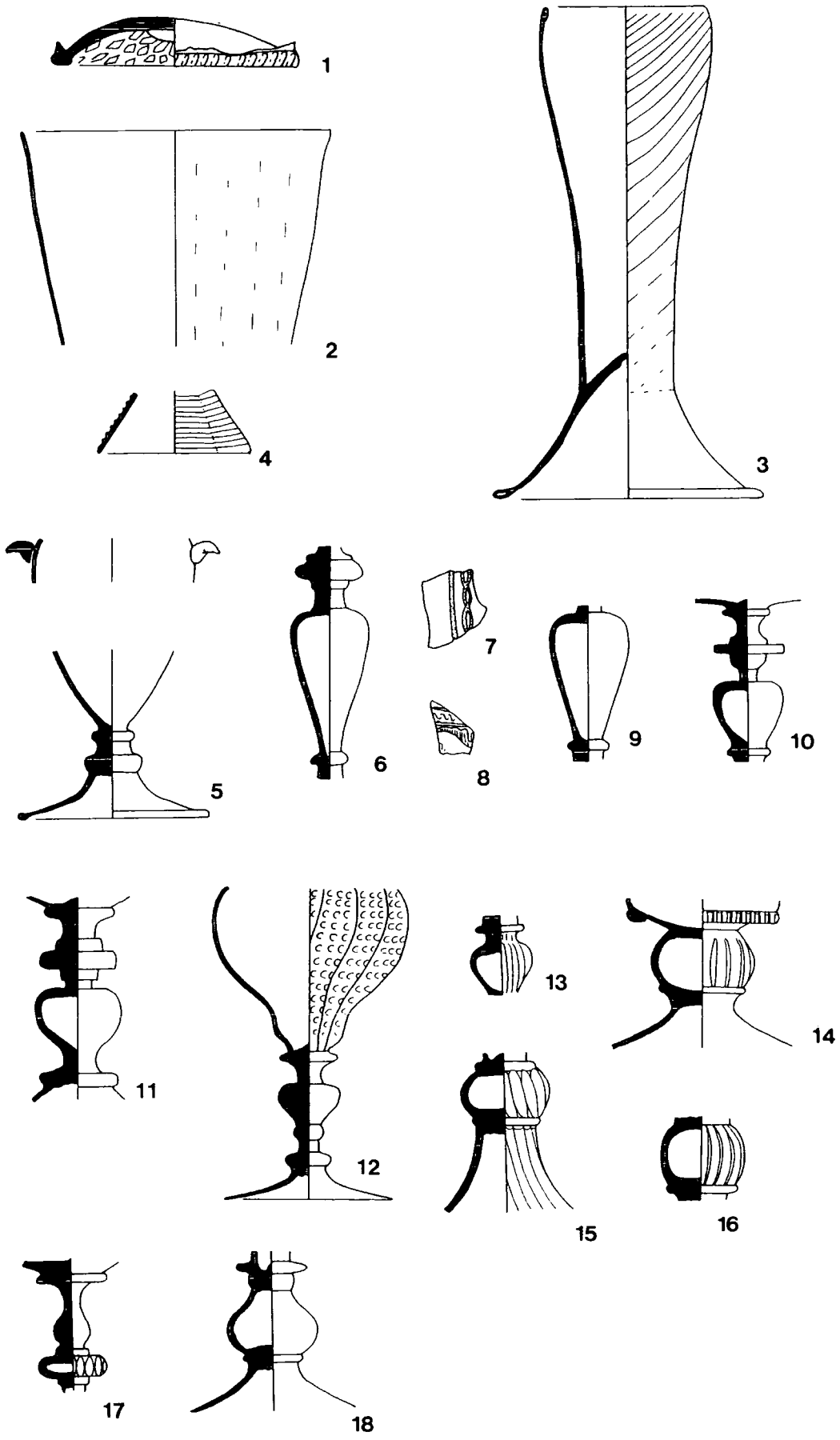


Figure 6.14 *Nonsuch Palace, Goblets*

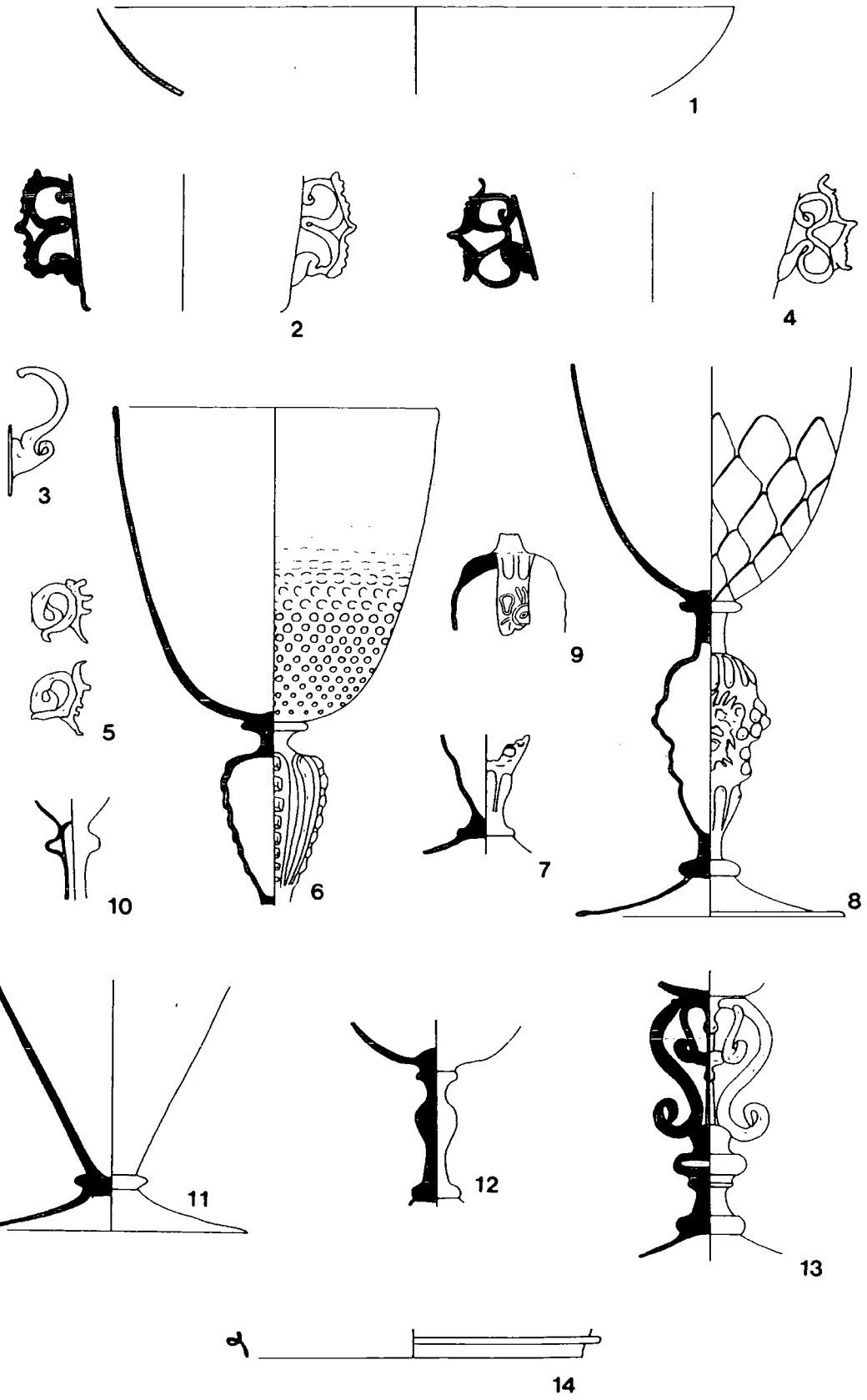


Figure 6.15 *Nonsuch Palace, Bowls; Jars*

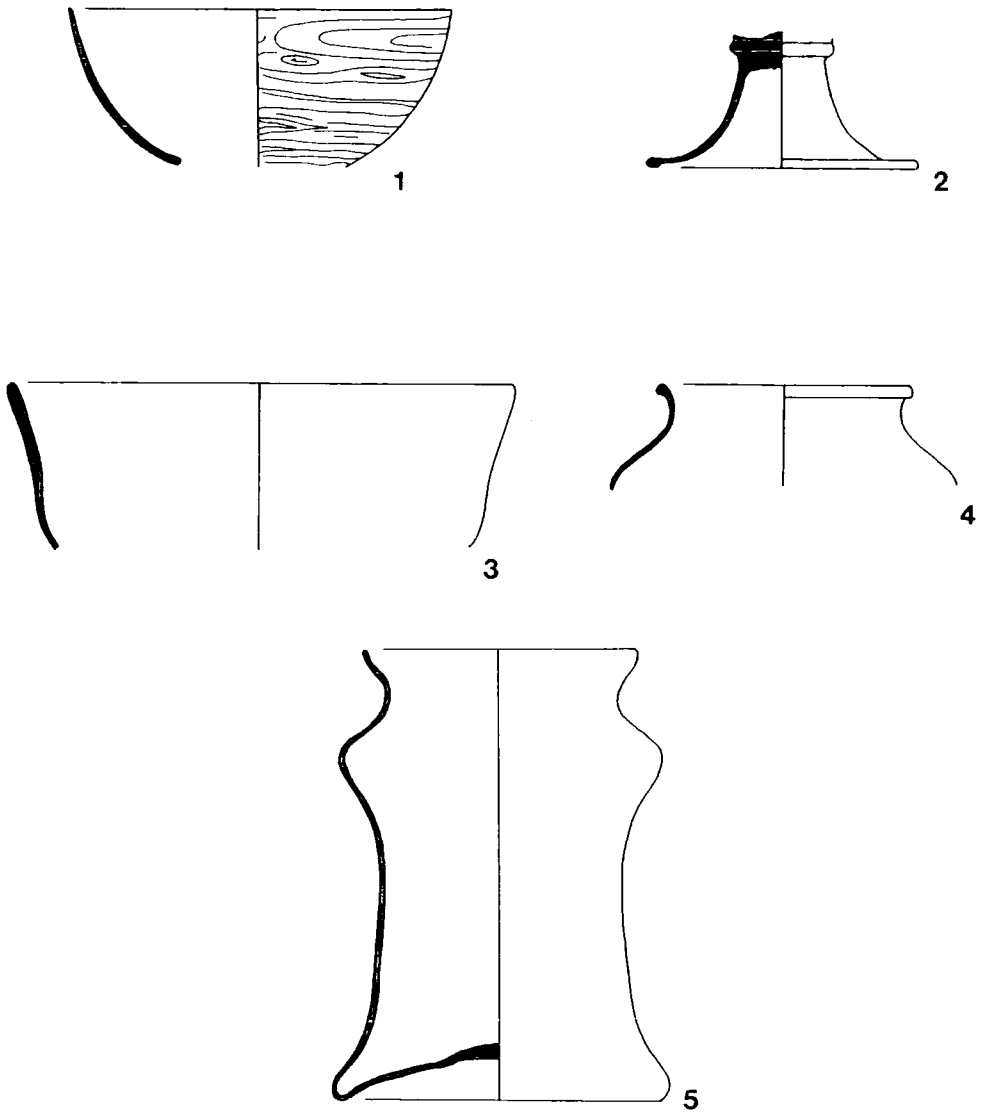


Figure 6.16 *Norton Priory Plan*

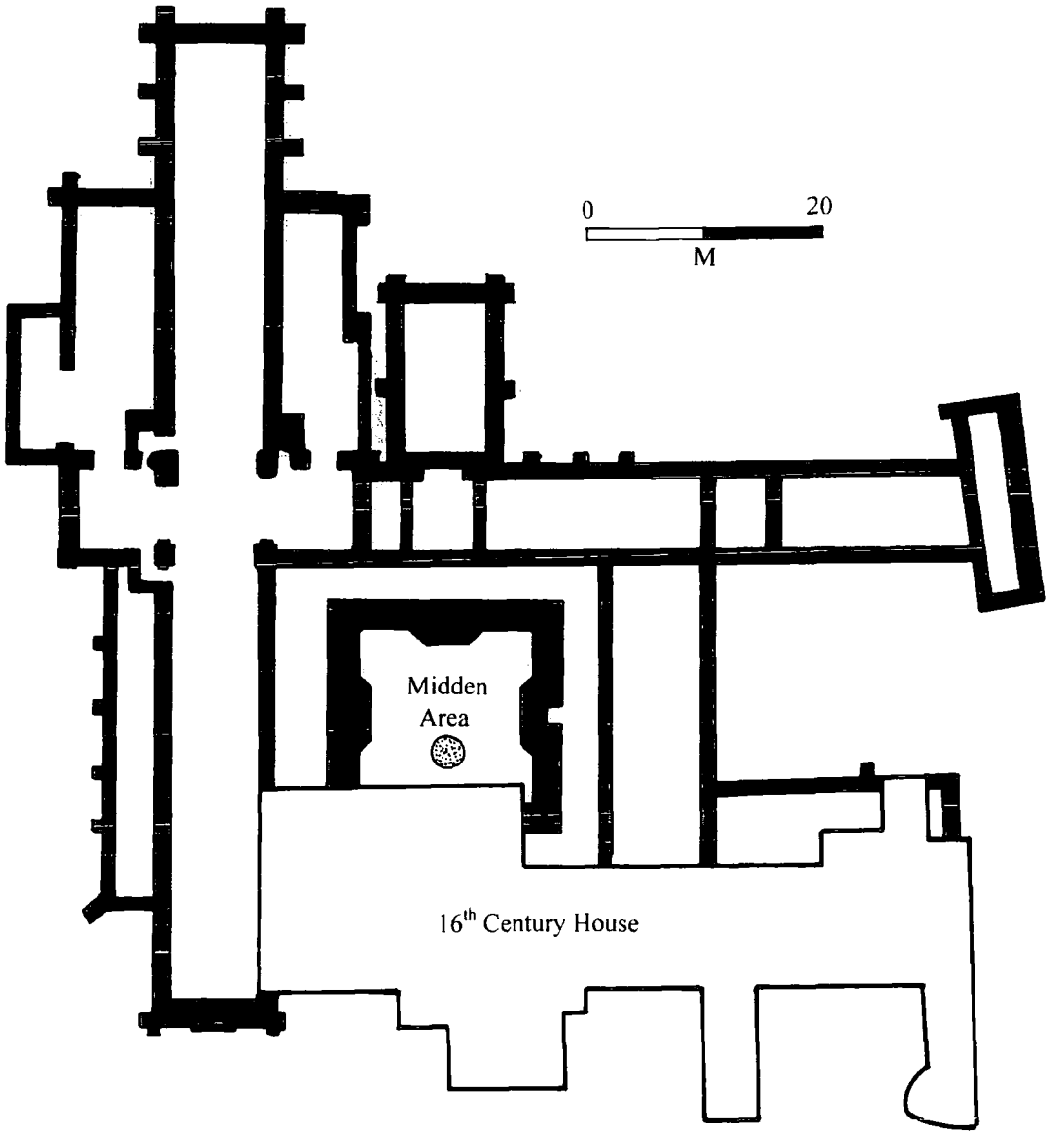


Figure 6.17 *Norton Priory, Vessel Numbers*

Beakers		*Goblets*		*Jugs*		*Bowls*	
Cylindrical	6	Knopped	4	Pedestal	1	Pedestal	2
Pedestal	5	Mould Blown	1			Dish	1
		Pedestal	2				
		Applied Pedestal	1				
	11		8		1		3

TOTAL **23**

Figure 6.18 *Norton Priory, Beakers*

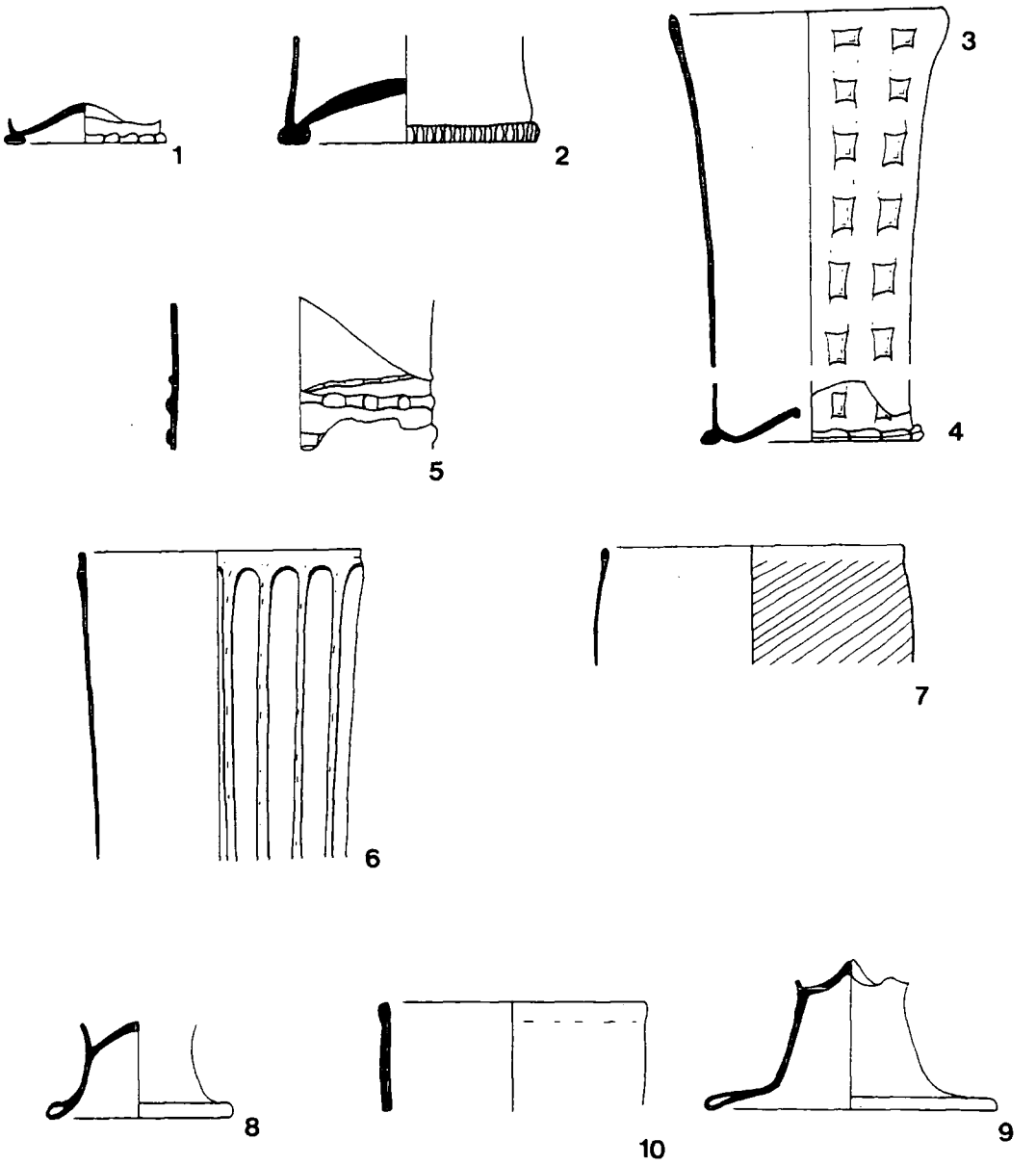


Figure 6.19 *Norton Priory, Goblets; Bowls*

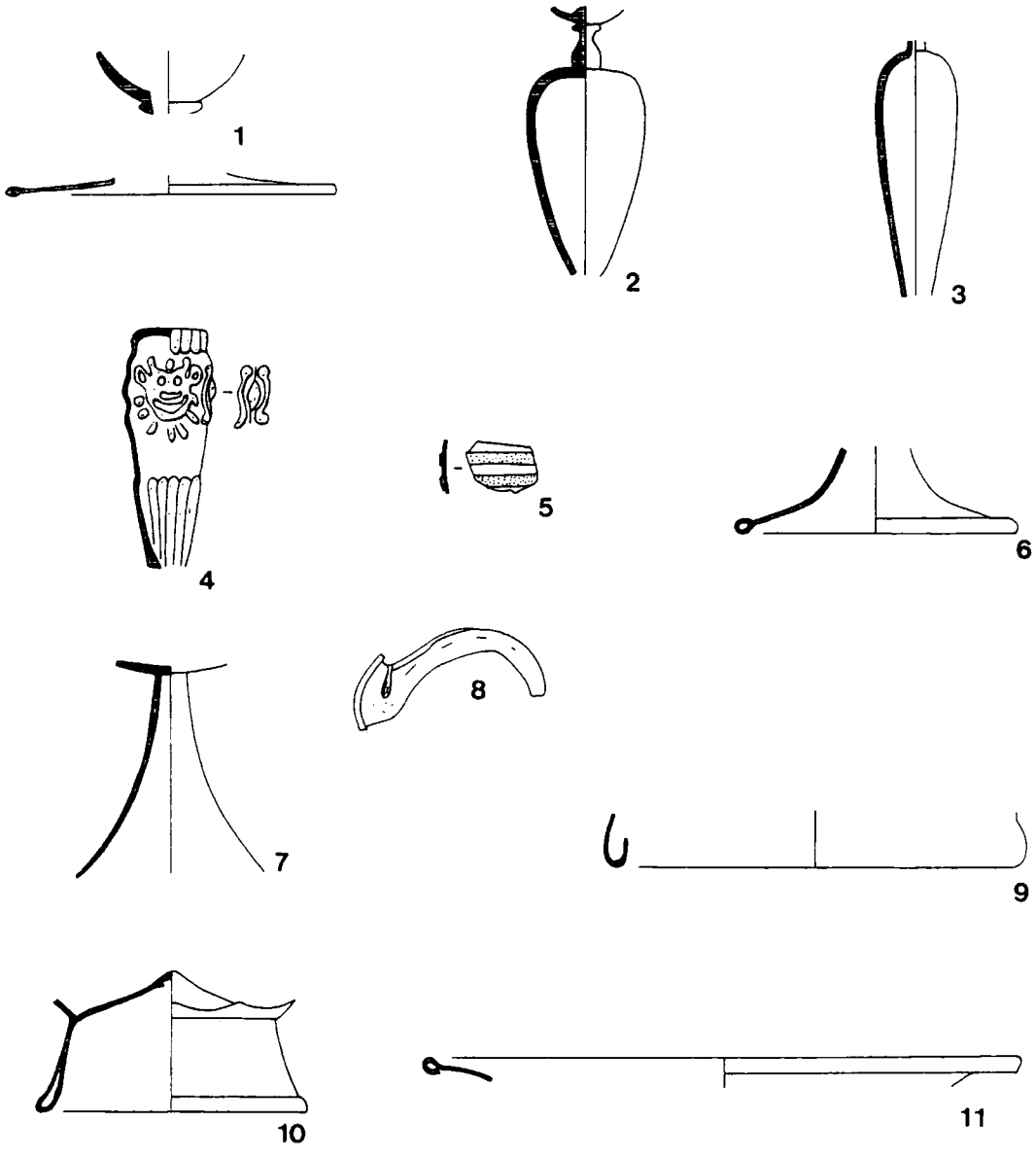


Figure 6.20 *Eccleshall Castle, Vessel Numbers*

Beakers		*Goblets*		*Bowls*		*Flasks*		*Other*	
Cylindrical	12	Knopped	11	Pedestal	4	Globular	1	Chemical	6
Pedestal	28	Mould Blown	3	Hemispherical	2	Pedestal	10		
Pedestal Flute	1	Pedestal	7	Dish	3	Case Bottle	8		
Roemer	1	Lids	1						
	42		22		9		19		6
								TOTAL	**98**

Figure 6.21 *Eccleshall Castle, Beakers*

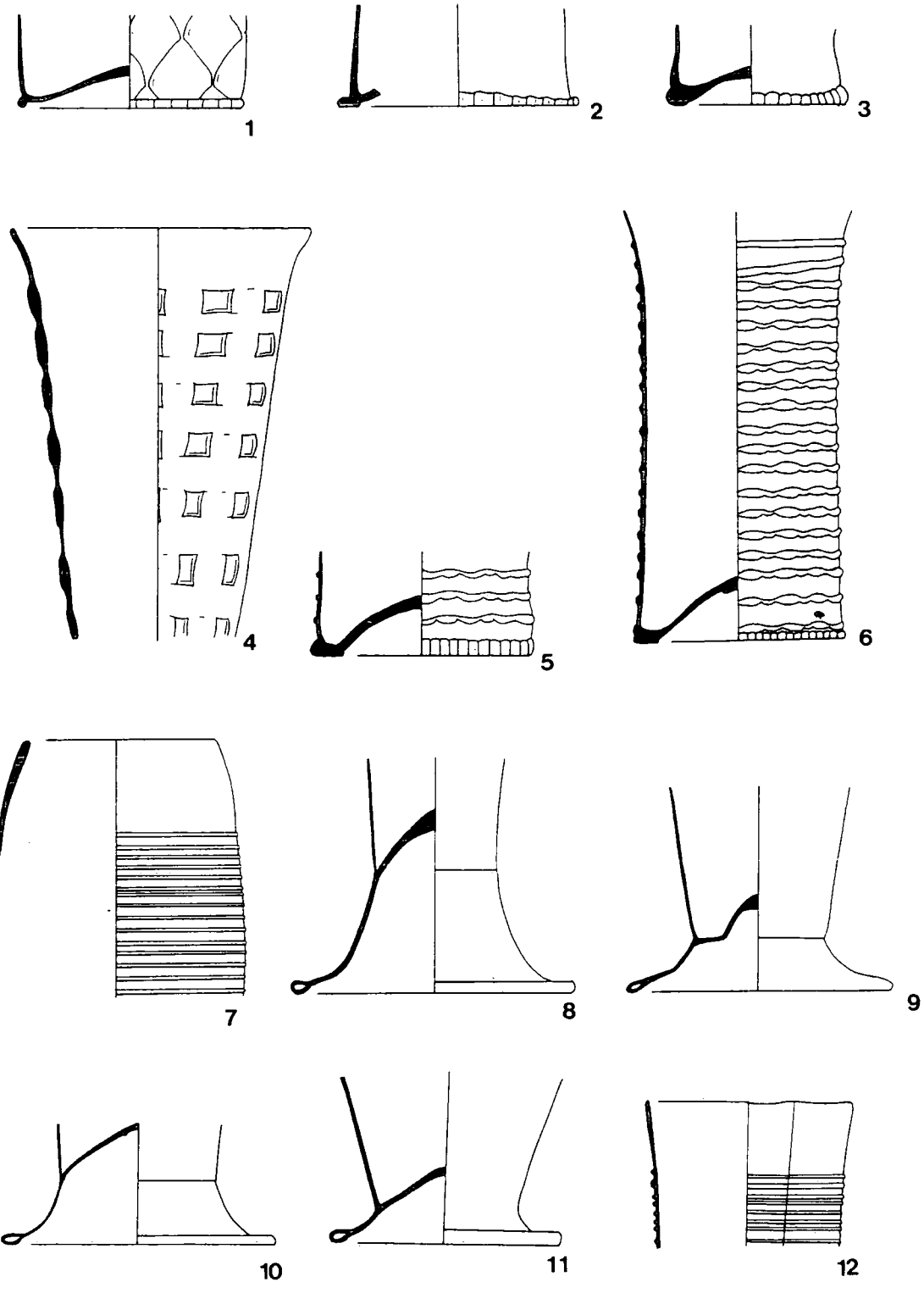


Figure 6.22 *Eccleshall Castle, Goblets*

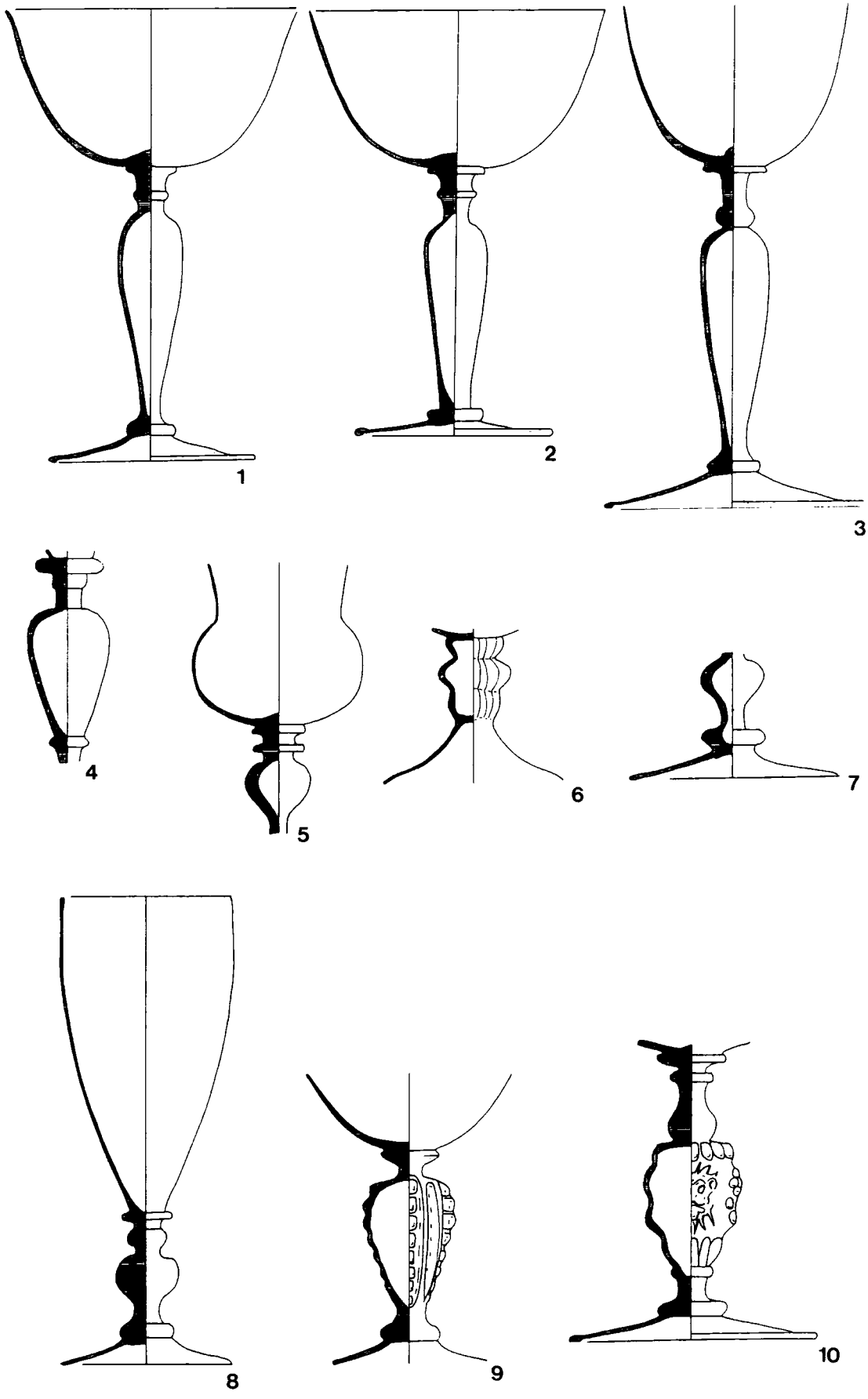


Figure 6.23 *Eccleshall Castle, Goblets; Flasks; Bowls*

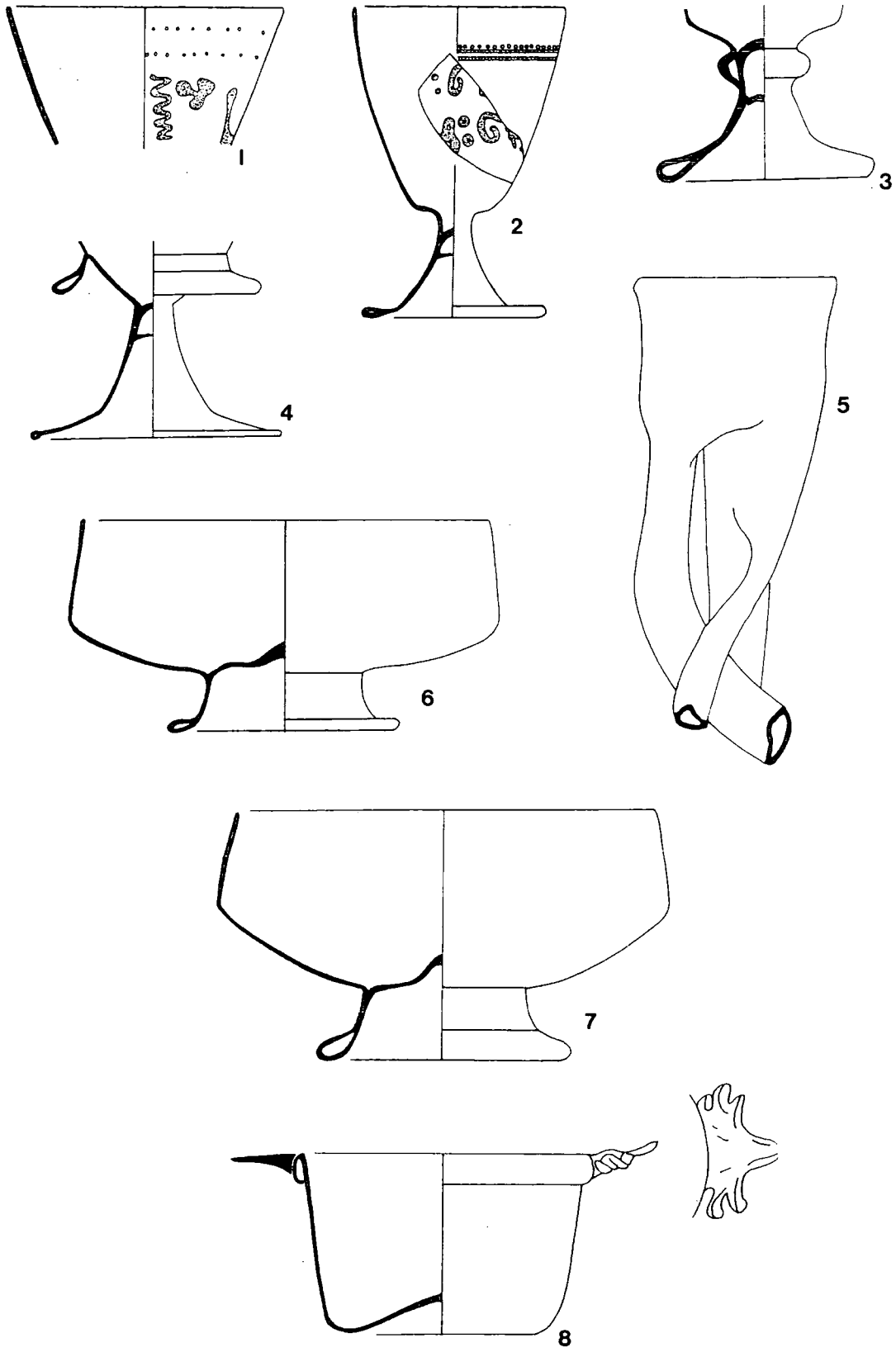


Figure 6.24 *Eccleshall Castle, Chemical*

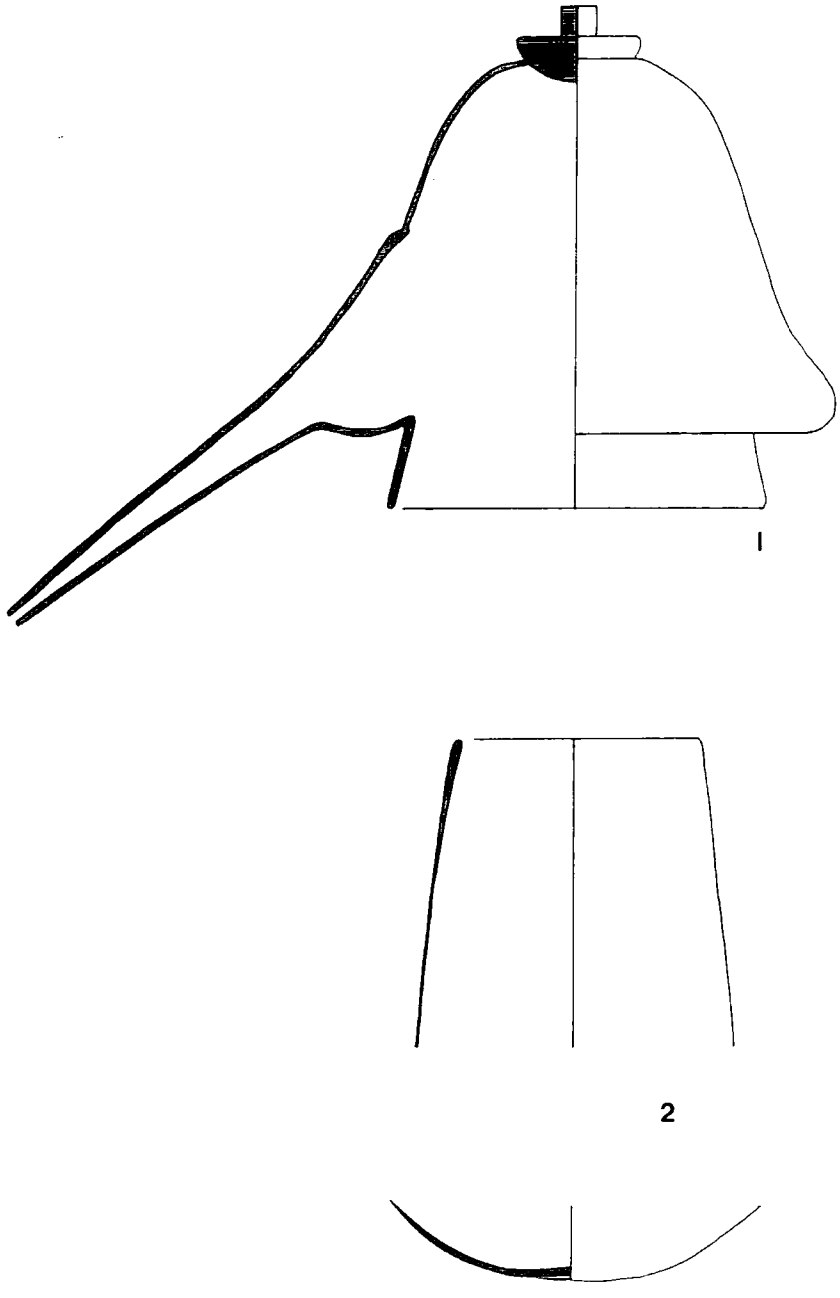


Figure 6.25 *Wood Hall Plan*

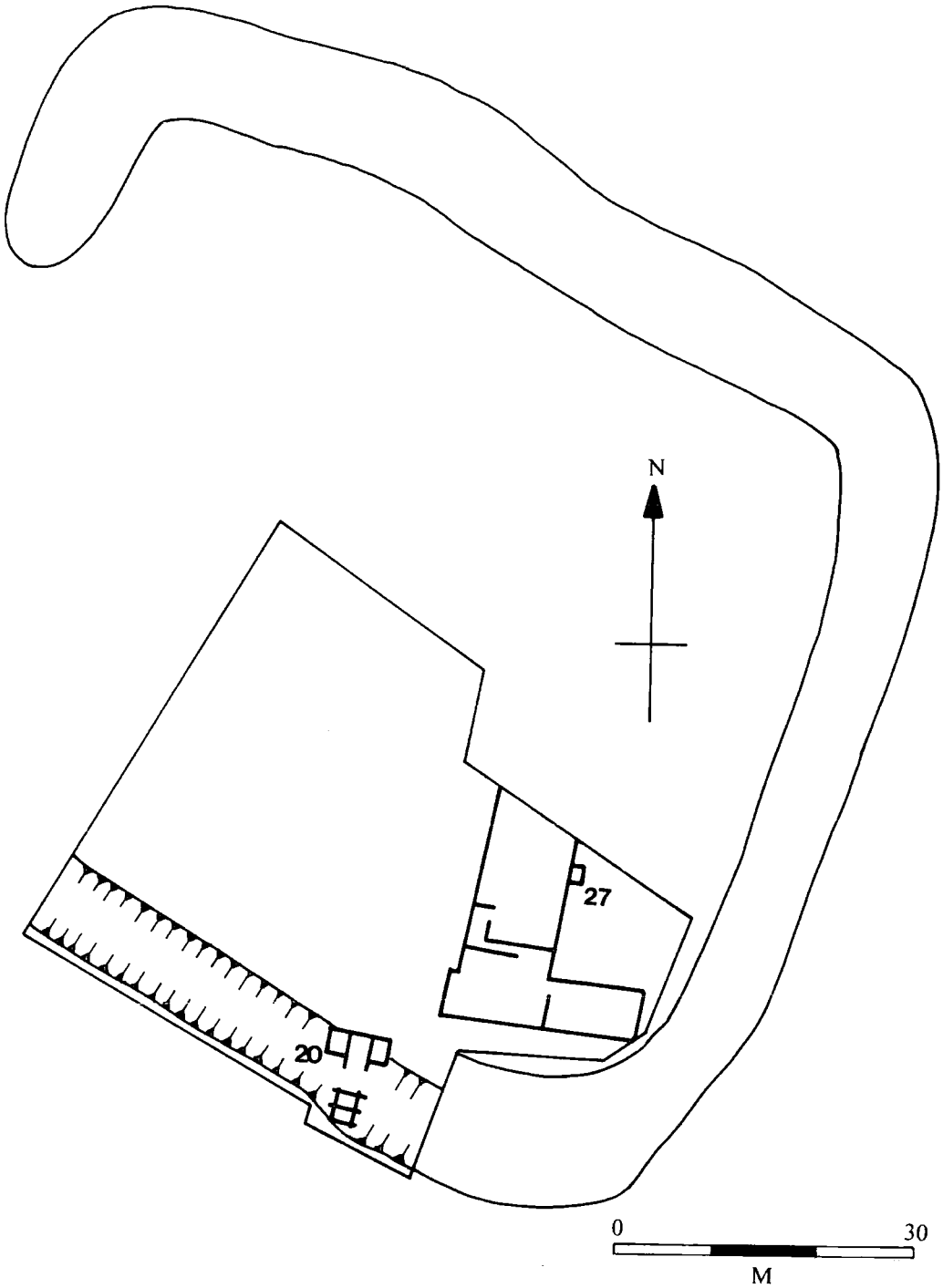


Figure 6.26 *Wood Hall, Vessel Numbers*

Beakers		*Goblets*		*Jugs*		*Flasks*		*Bowls*		*Other*	
Cylindrical	1	Knopped	5	Pedestal	2	Globular	1	Pedestal	1	Jar	3
Squat	5	Pedestal	4			Pedestal	1	Hemispherical	1		
Pedestal	6							Dish	1		
	12		9		2		2		3		3

TOTAL 31

Figure 6.27 *Wood Hall, Beakers*

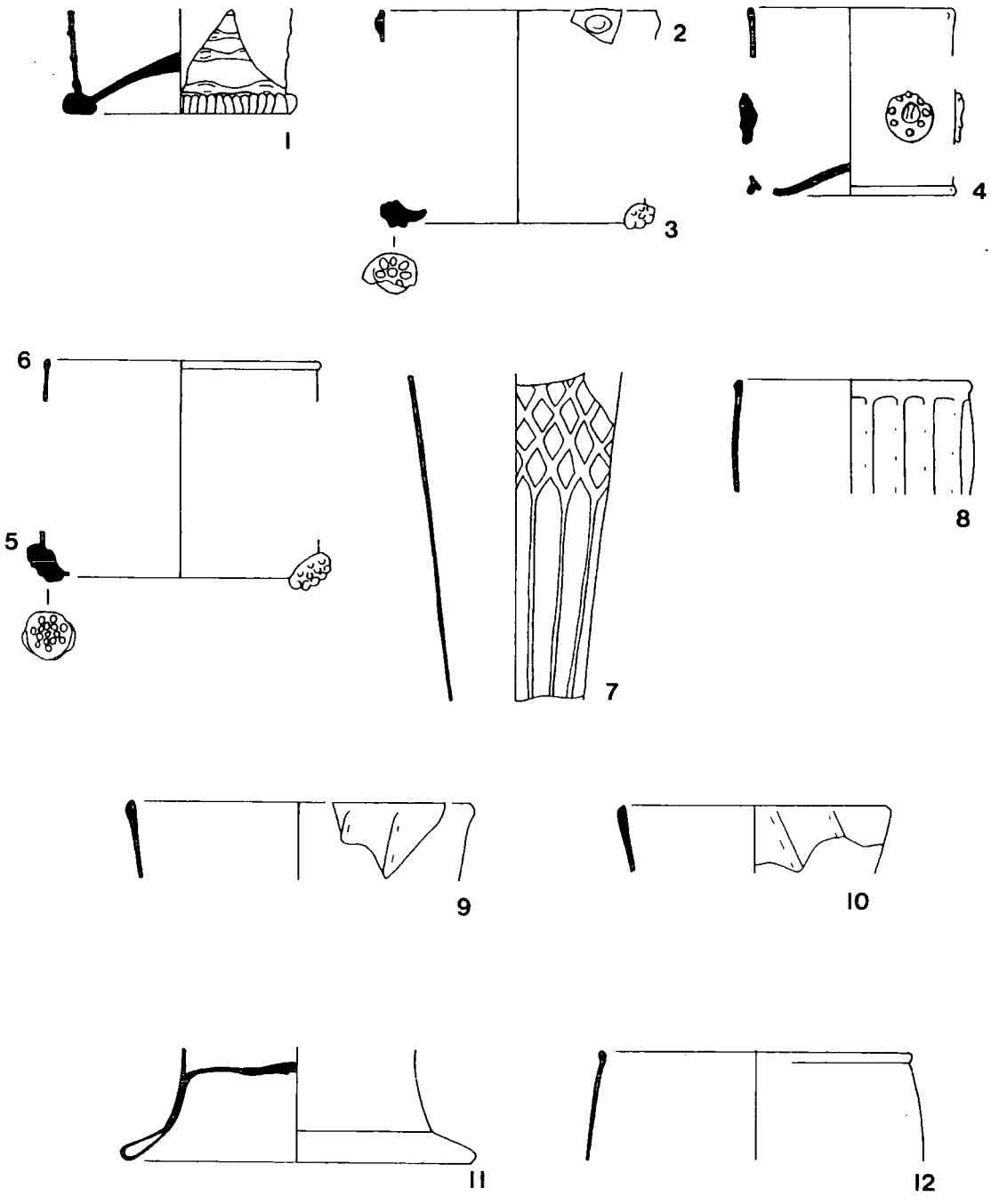


Figure 6.28 *Wood Hall, Goblets; Bowls; Jars*

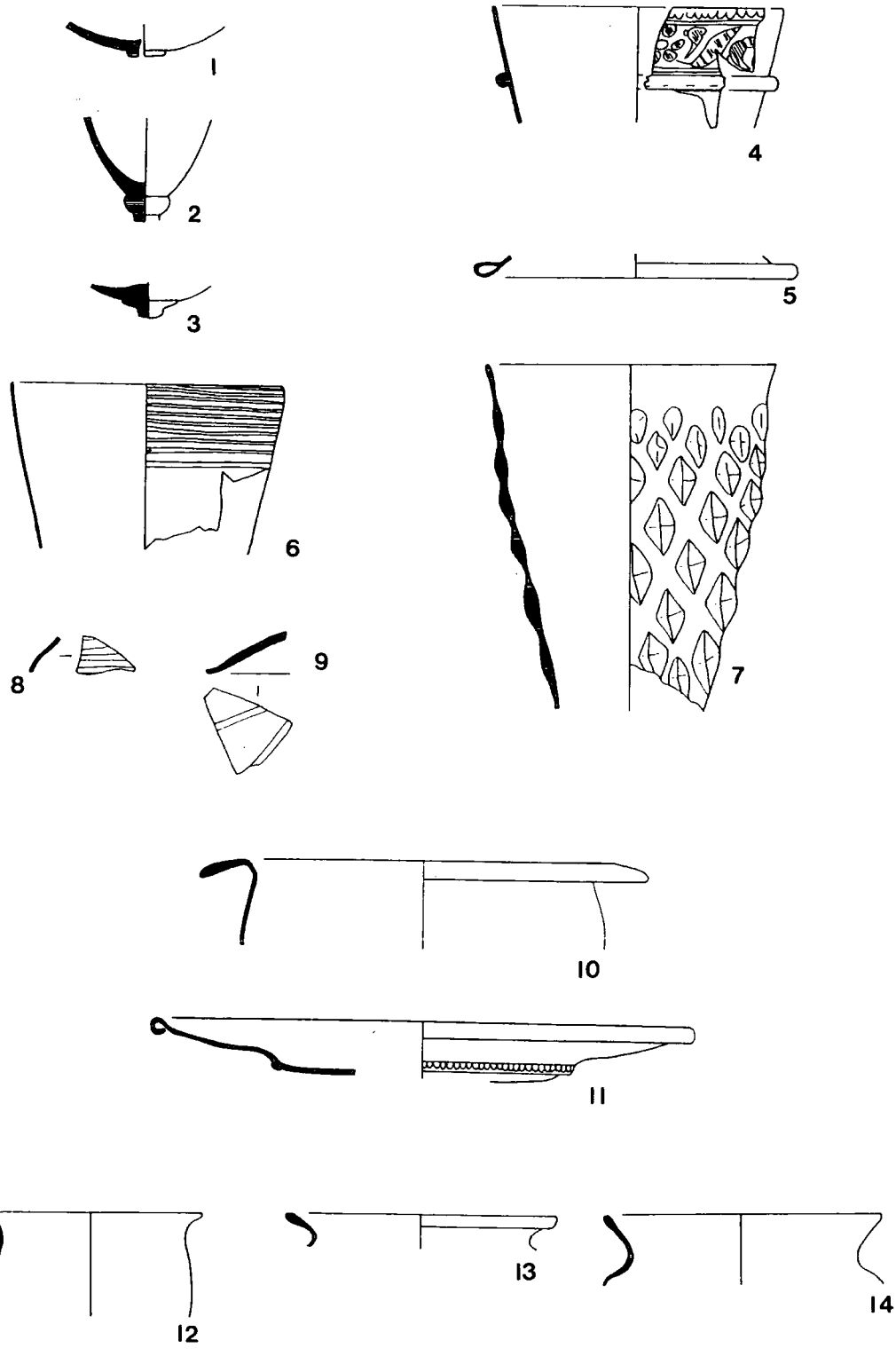


Figure 6.29 *Wood Hall, Goblet*

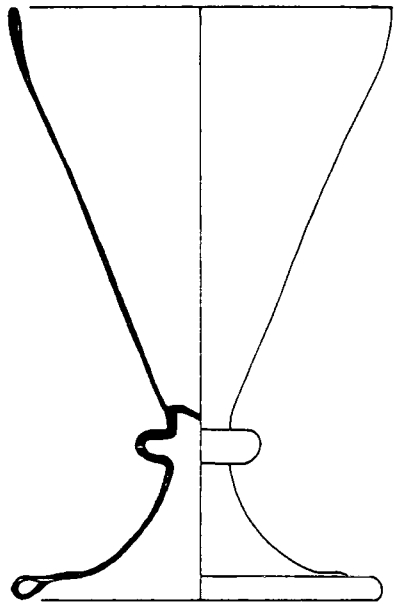


Figure 6.30 *Wood Hall, Goblet* 1:1

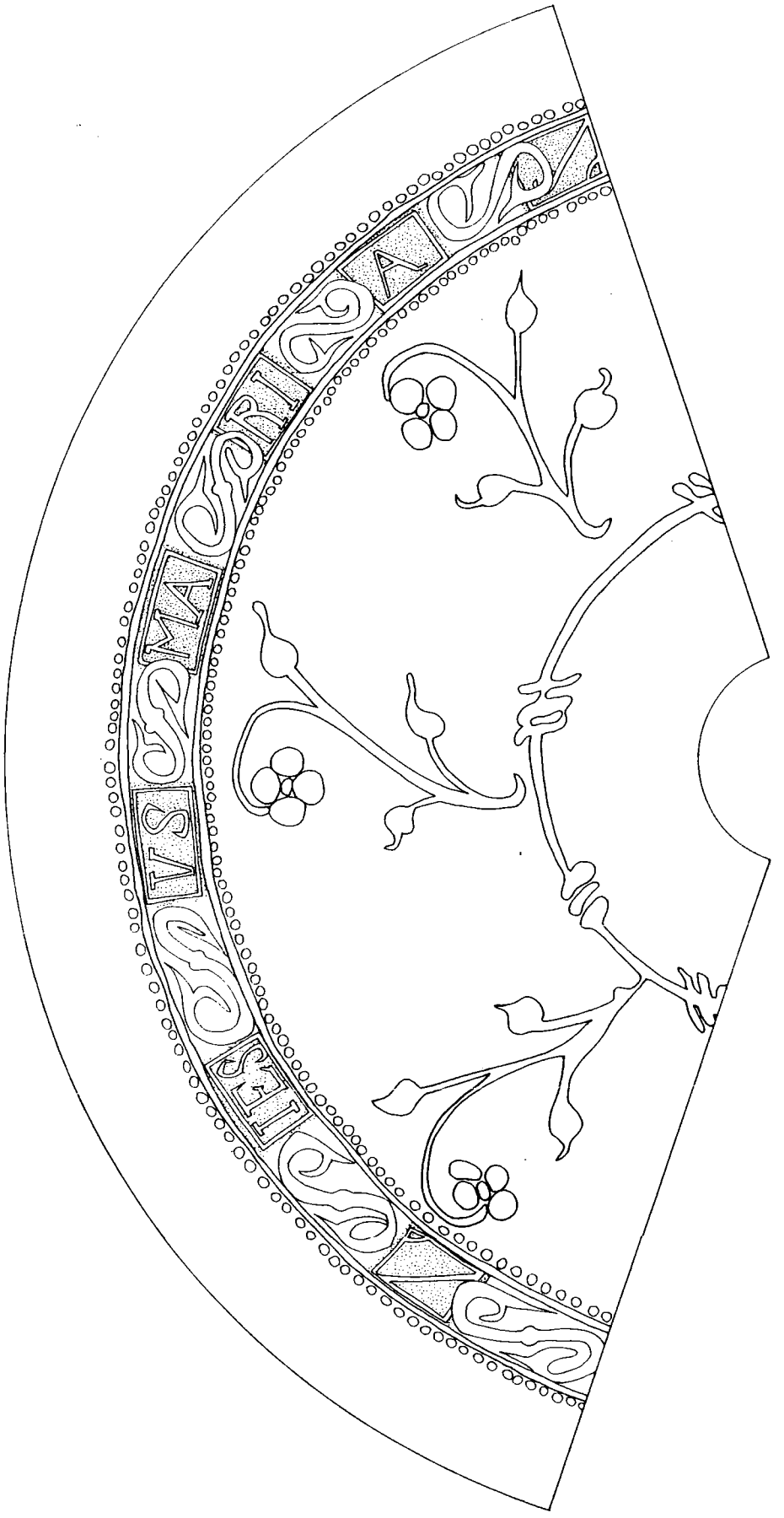


Figure 6.31 *Elite Site Vessel Number Totals*

	Camber Castle	Acton Court	Nonsuch Palace	Norton Priory	Eccleshall Castle	Wood Hall
Cylindrical beakers	3	7	4	6	12	1
Pedestal beaker	16	5	4	5	28	6
Other beakers	1	-	1	-	2	5
Tankards	-	-	1	-	-	-
Knopped goblets	3	24	24	4	11	5
Mould blown goblets	-	-	6	1	3	-
Pedestal goblets	18	6	2	3	7	4
Other goblets	-	7	4	-	1	-
Jugs	-	5	1	1	-	2
Flasks	9	13	9	-	19	2
Bowls	1	6	4	3	9	3
Jars	1	2	5	-	-	3
Chemical	4	4	8	-	6	-
TOTAL	**56**	**74**	**72**	**23**	**98**	**31**

Figure 7.1 *Two Fourteenth Century Dining Scenes*

Banquet circa 1340 (Bodliean Ms. 264, f 12v)

John of Gaunt feasting 1386 (British Library Ms. Royal EIV, f.244v)

Figure 7.2 *Sir Henry Unton Dining, 1596*

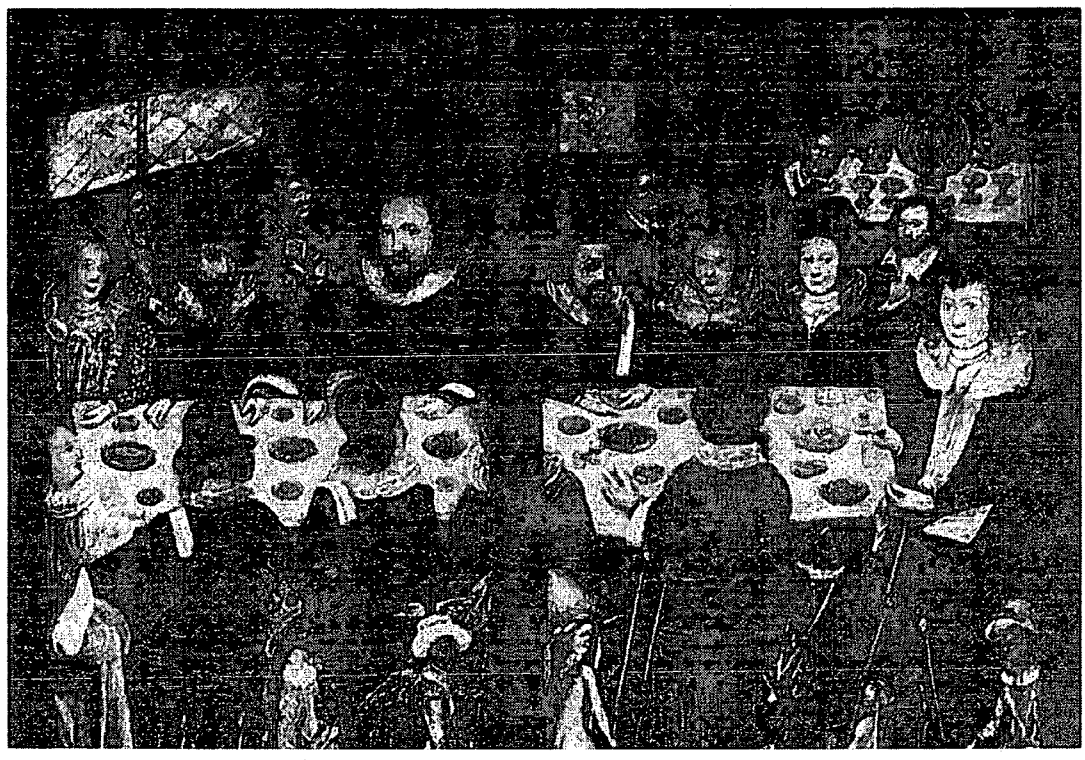


Figure 7.3 *Pewter Elongated Baluster or Cigar Stem*

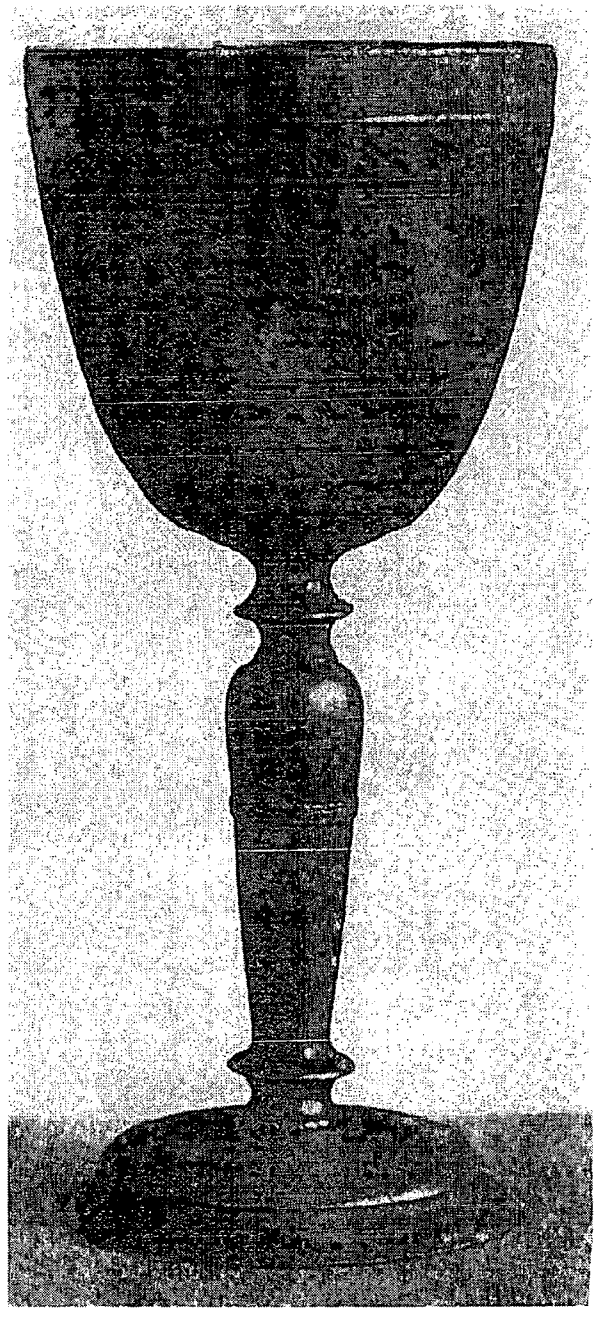
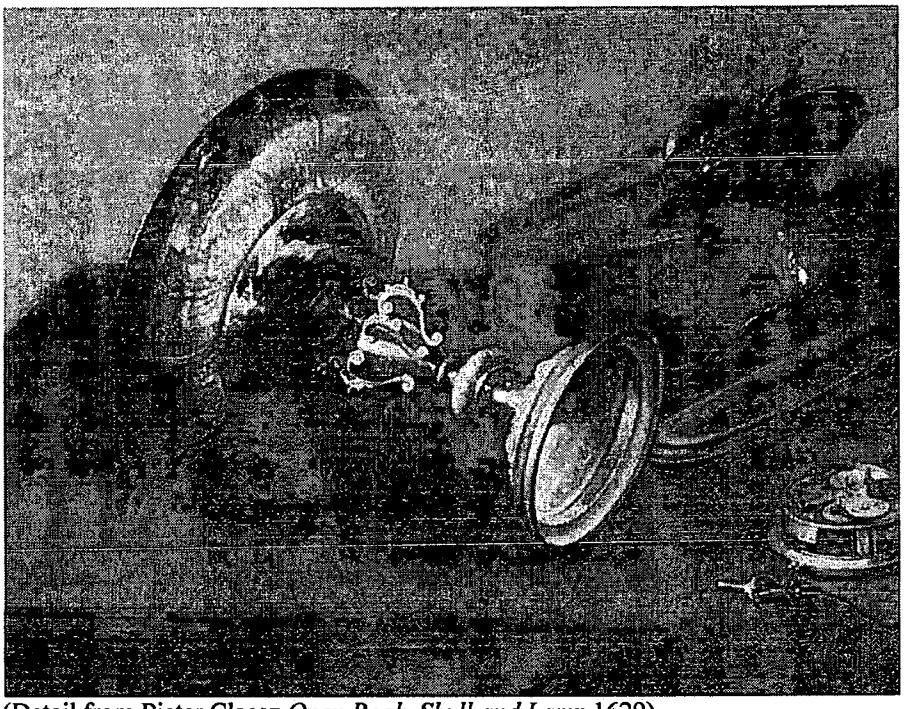


Figure 7.4 *Silver and Glass Stems with Decorative Wings*



(Detail from Pieter Claesz *Open Book, Skull and Lamp* 1629)

Figure 7.5 *Silver Round Knopped Goblet*

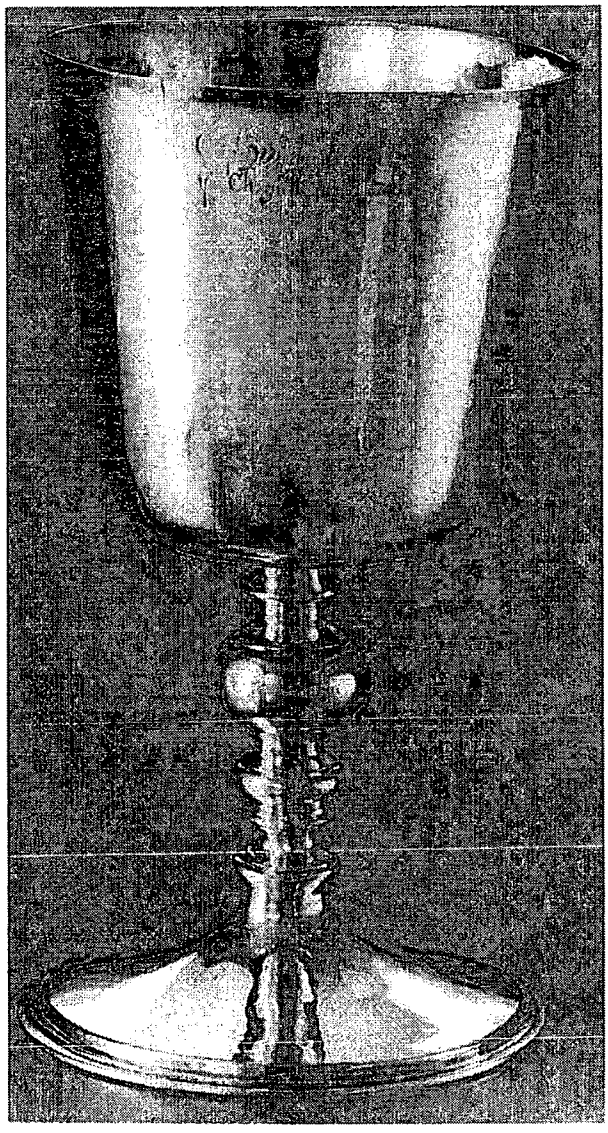
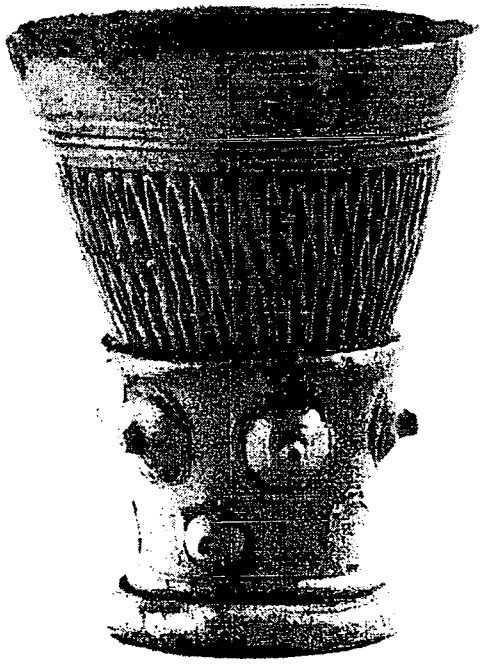


Figure 7.6 *Siegburg Stoneware and Glass Roemers*



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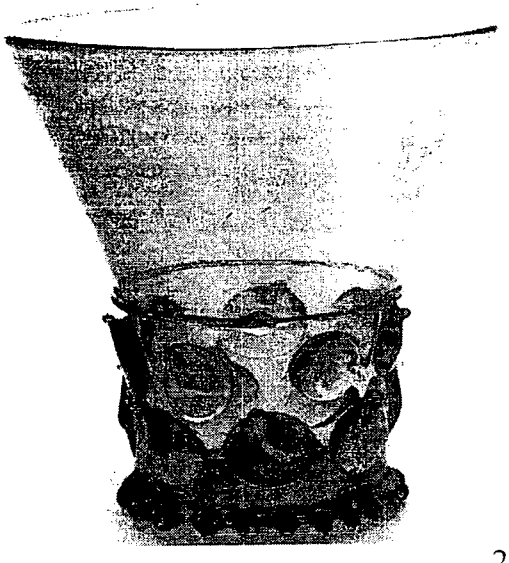
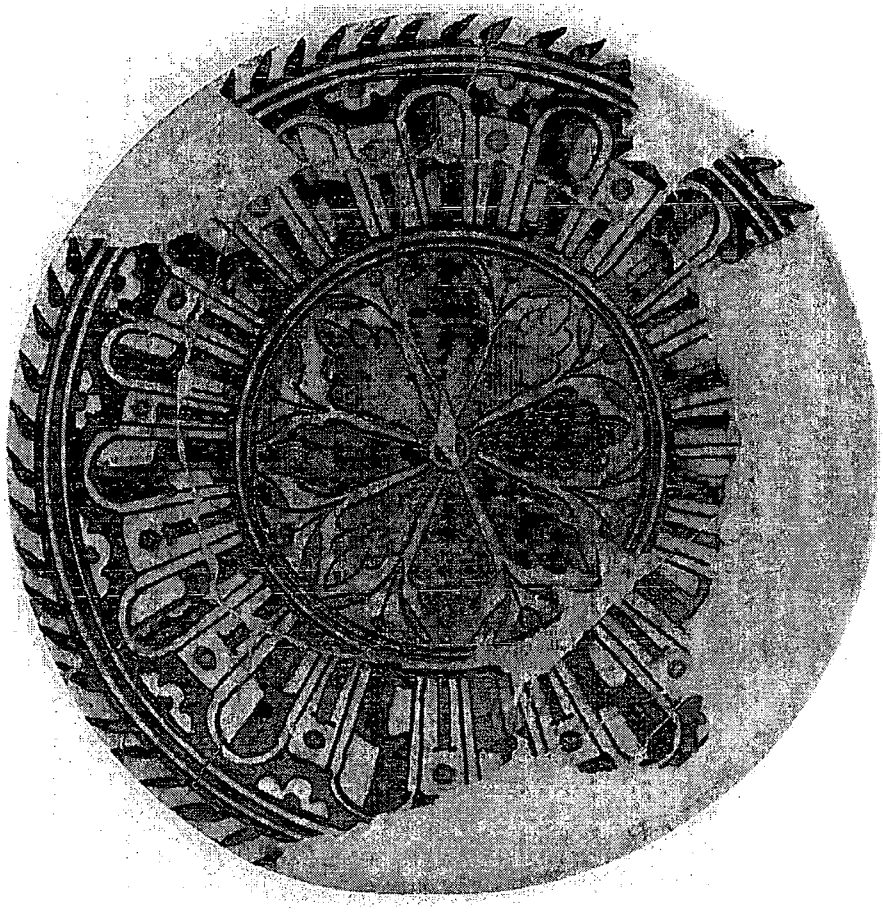
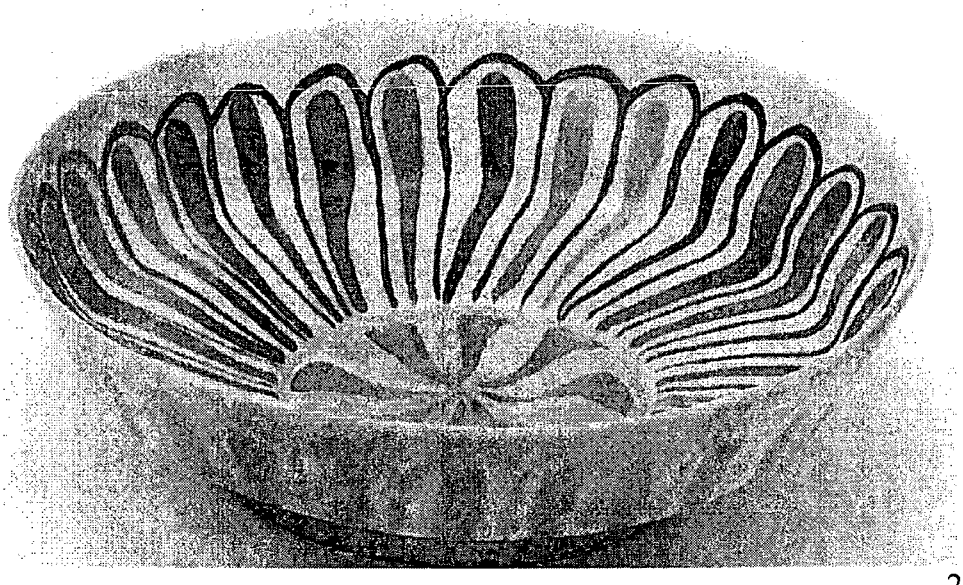


2

Figure 7.7 *Geometric Delftware and Lattimo Glass Bowls*



1



2

Figure 7.8 *English Cast Pewter Stem, 1610*

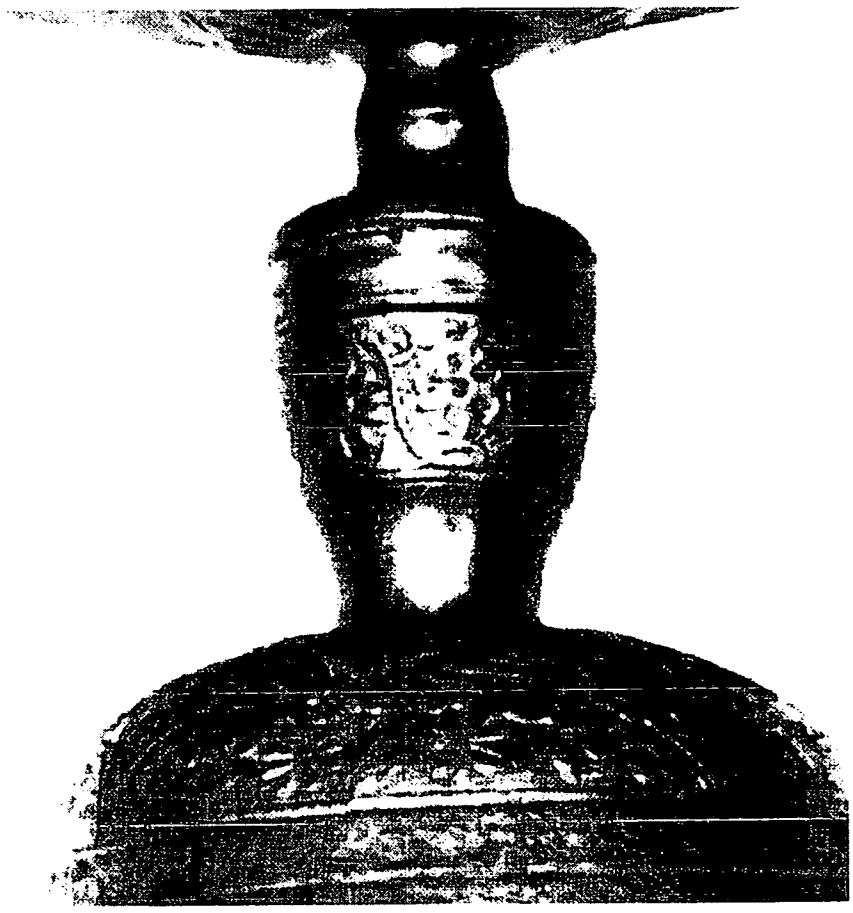


Figure 7.9 *Mould-Blown Stem Distributions*

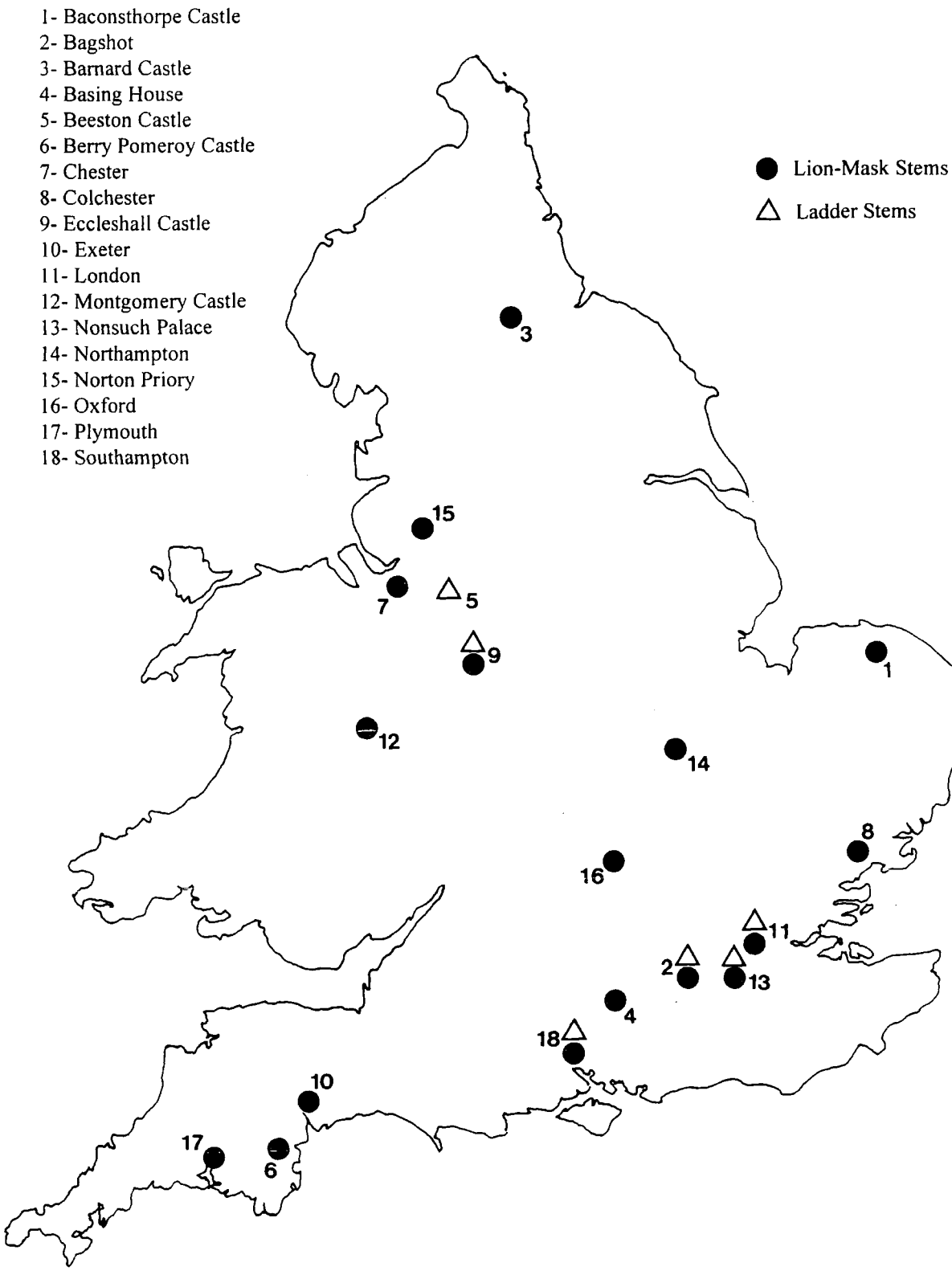


Figure 7.10 *Ladder Stem Waster* 1:1

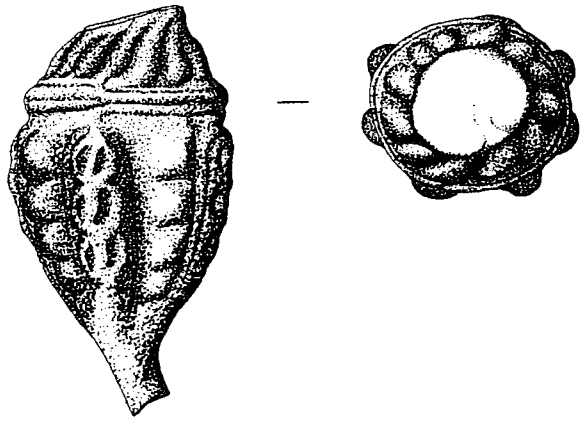


Figure 7.11 *Ladder Stem Forms* 1:1

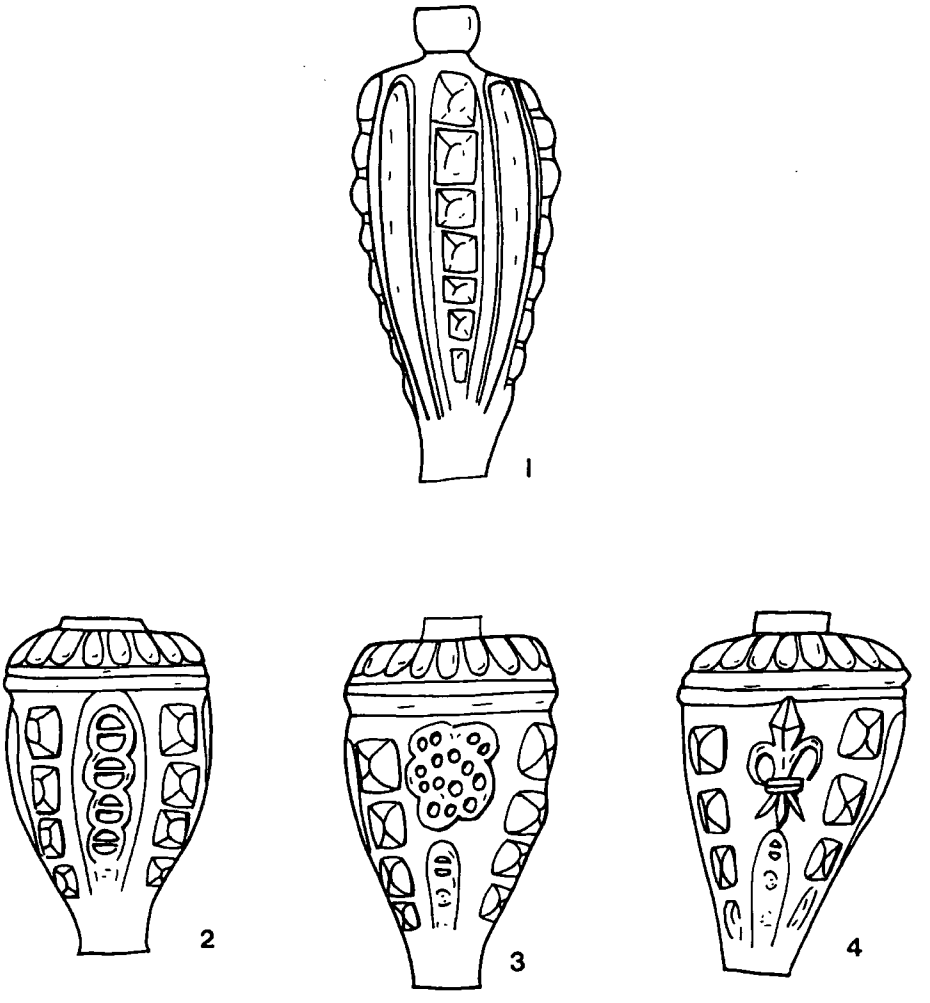


Figure 7.12 *Ladder Stem Numbers*

Type	*Location*	*Reference Number*
1	Bagshot	SHAHT A716
1	Eccleshall Castle	Sheale 1993 G1
1?	Eccleshall Castle	Sheale 1993 G150
1	London, Smith Collection	MOL 13333
1	London	MOL 13334
1	London	MOL A3567
1	London	MOL 27.25/1
1	London, St. Mary Spital	Brehm 1997 G80
1	Nonsuch Palace	114
1	Nonsuch Palace	165
1	Southampton	Platt 1975 G1565
2?	Beeston Castle	Charleston 1993 G1
2	London	MOL A1430
2	London	MOL A10745
2	London, Gracechurch Street	MOL 15533
2	London, Southwark	Hinton 1988 G172
3	London	?
3	London, Smithfield	MOL 13320
3	Oxford	Willmott 1995 G6
4	London	MOL 13329
4	London	MOL 13330
4	London	MOL 13379
4	London	MOL MVII/23
4	London	MOL 82.52/3

Figure 7.13 *Lion-Mask Stem Features*

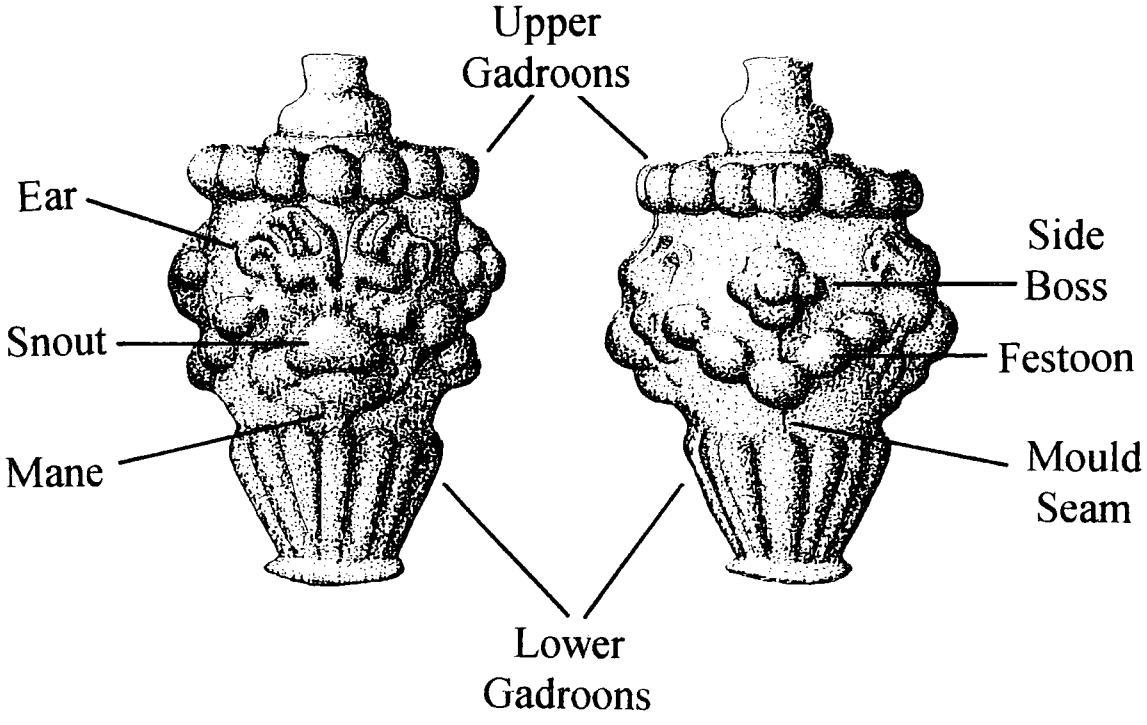


Figure 7.14 *Lion-Mask Stem Forms*

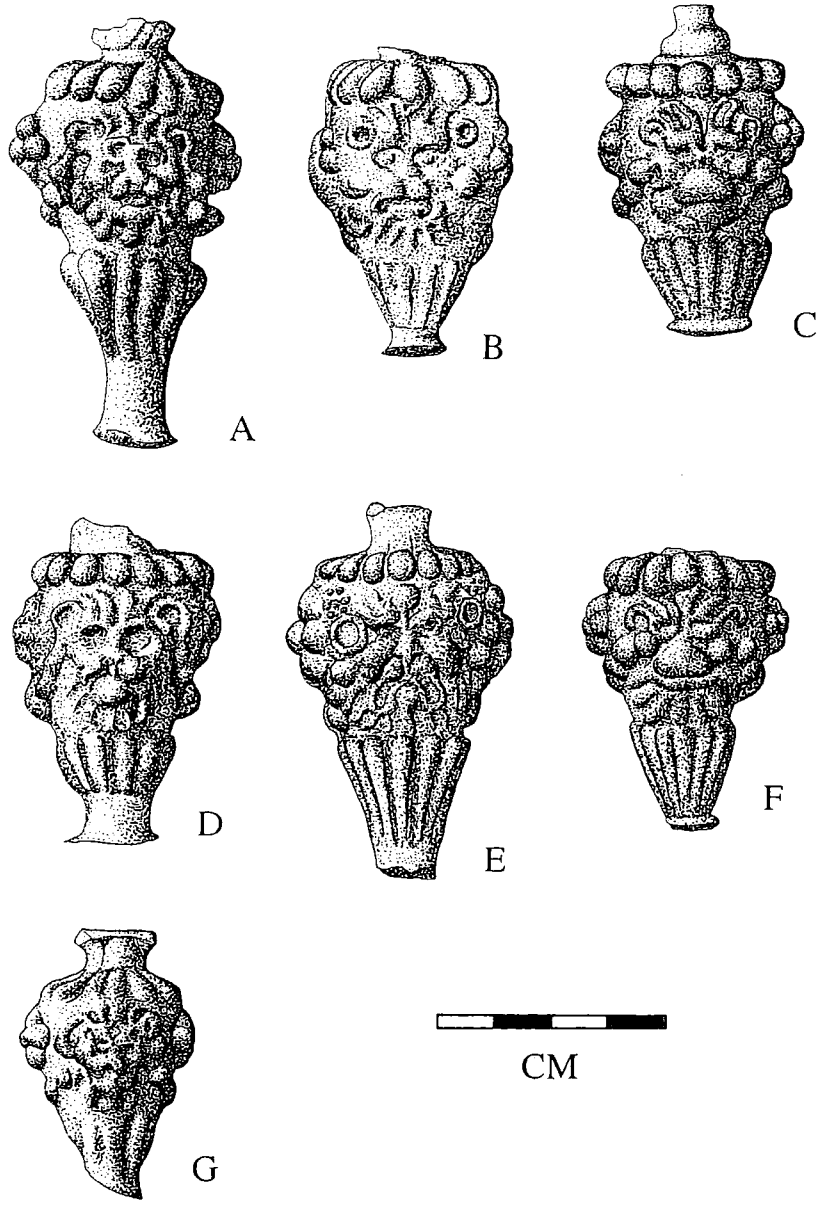


Figure 7.15 *Lion-Mask Stem Types from the Sample Sites*

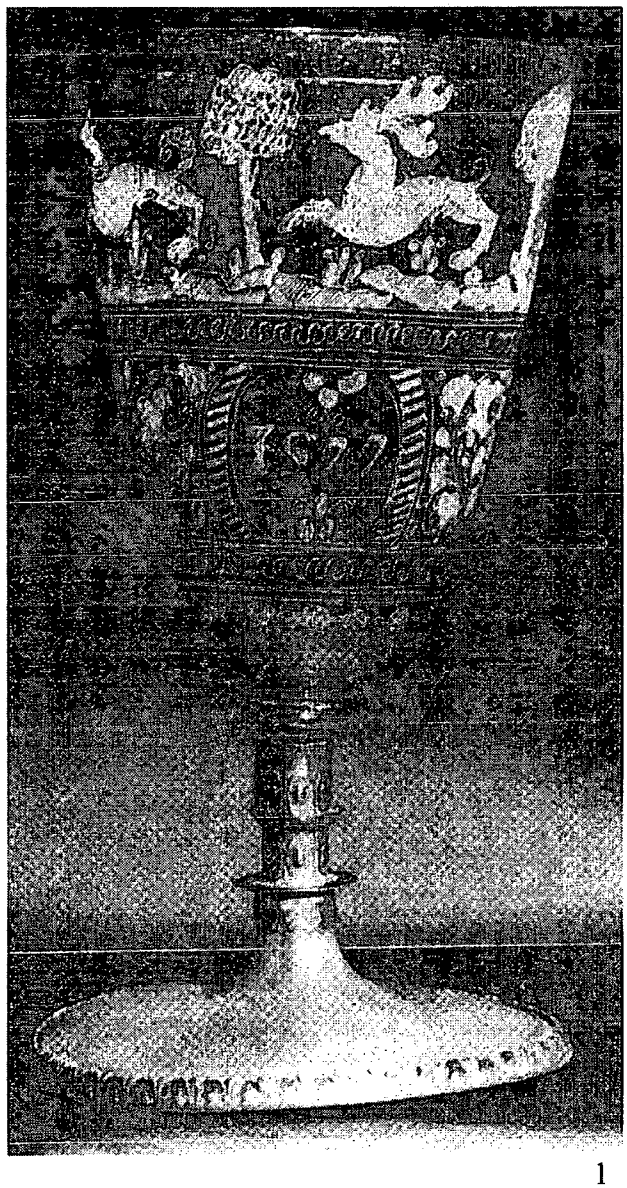
Urban Sites

	Mould Type	Number
Gracechurch Street	A	7
	B	1
	C	3
	E	1
	F	7
	No Match	1
Chester, Crook Street	B	2
Chester, Hunter Street	E	1
Bagshot	A	5
	G	1
	No Match	1

Elite Sites

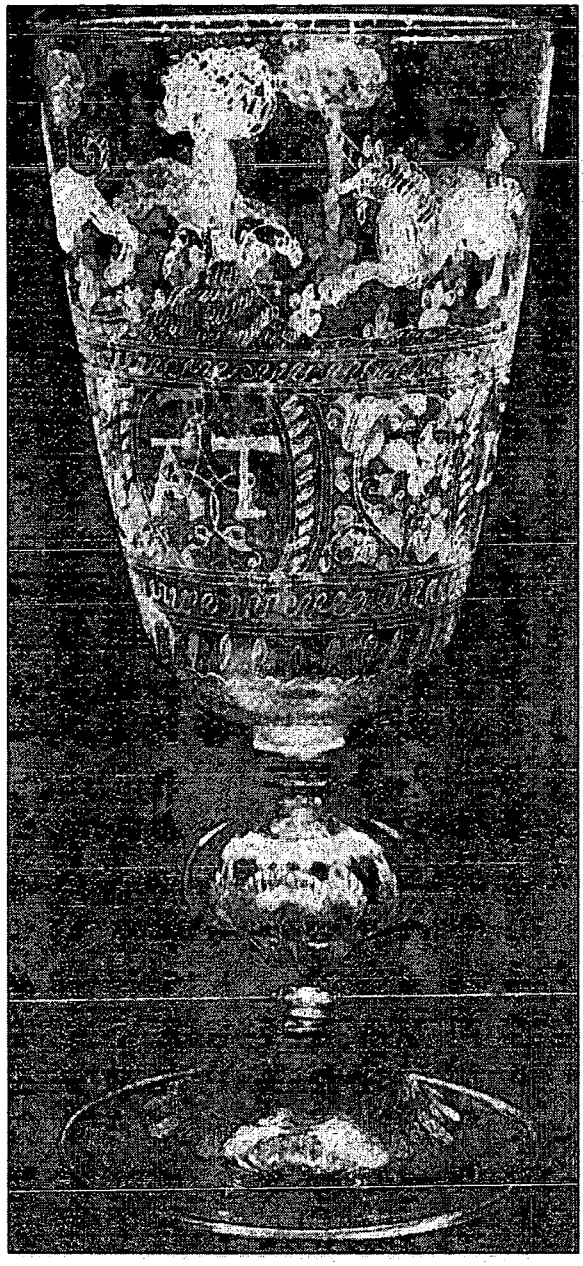
	Mould Type	Number
Nonsuch	No Match	4
Norton Priory	No Match	1
Eccleshall Castle	No Match	1

Figure 7.16 *Verzelini Glasses Type 1*



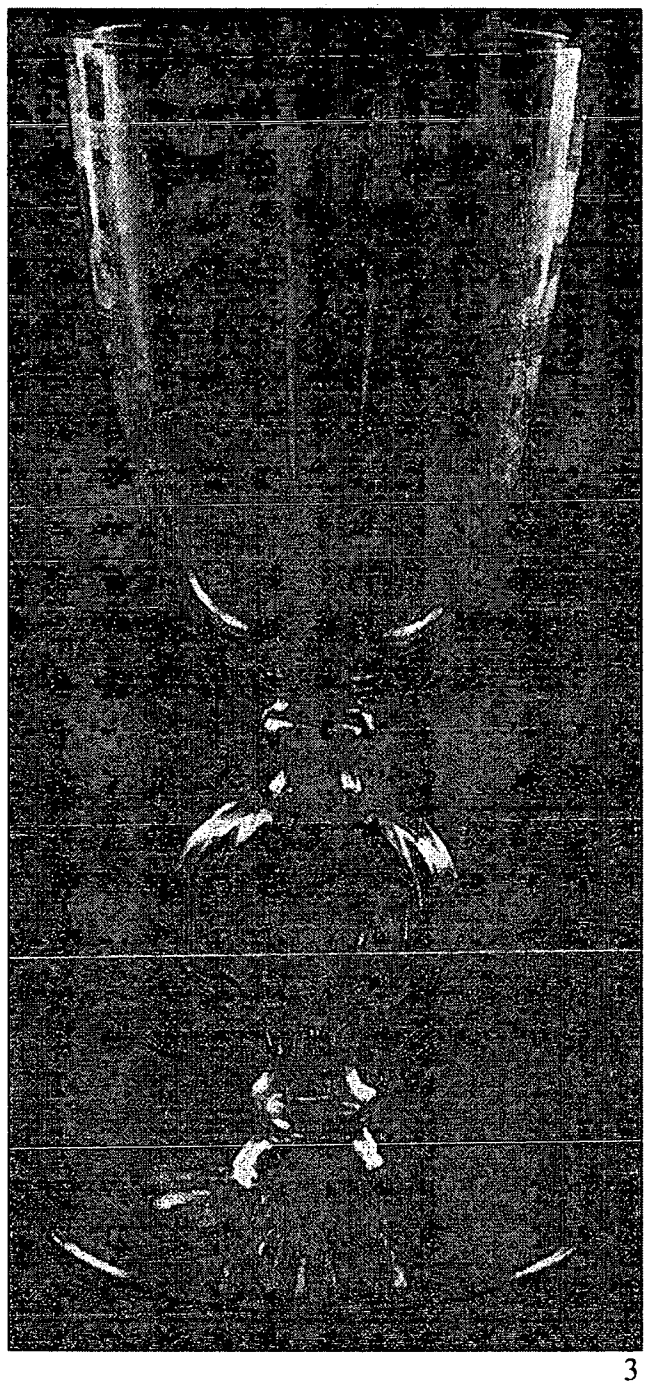
1

Figure 7.17 *Verzelini Glasses Type 1*



2

Figure 7.18 *Verzelini Glasses Type 1*

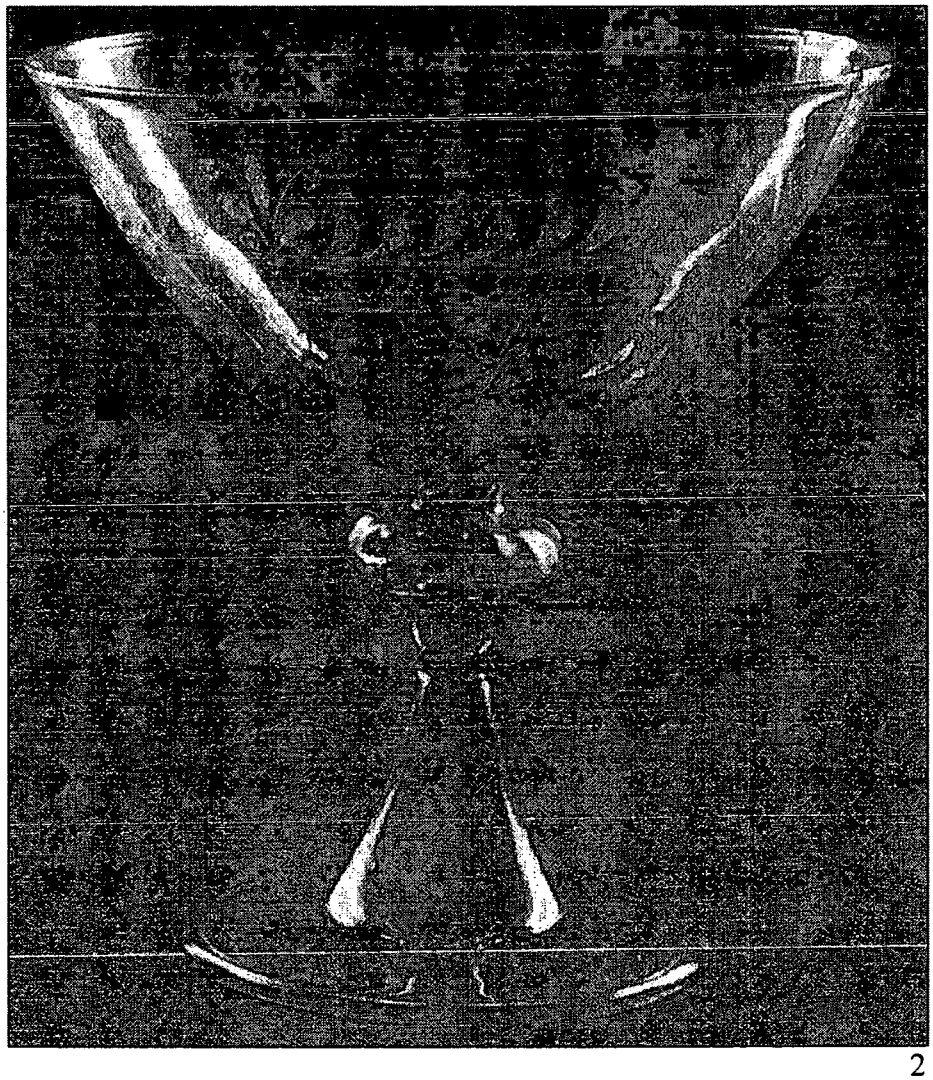


3

Figure 7.19 *Verzelini Glasses Type 2*

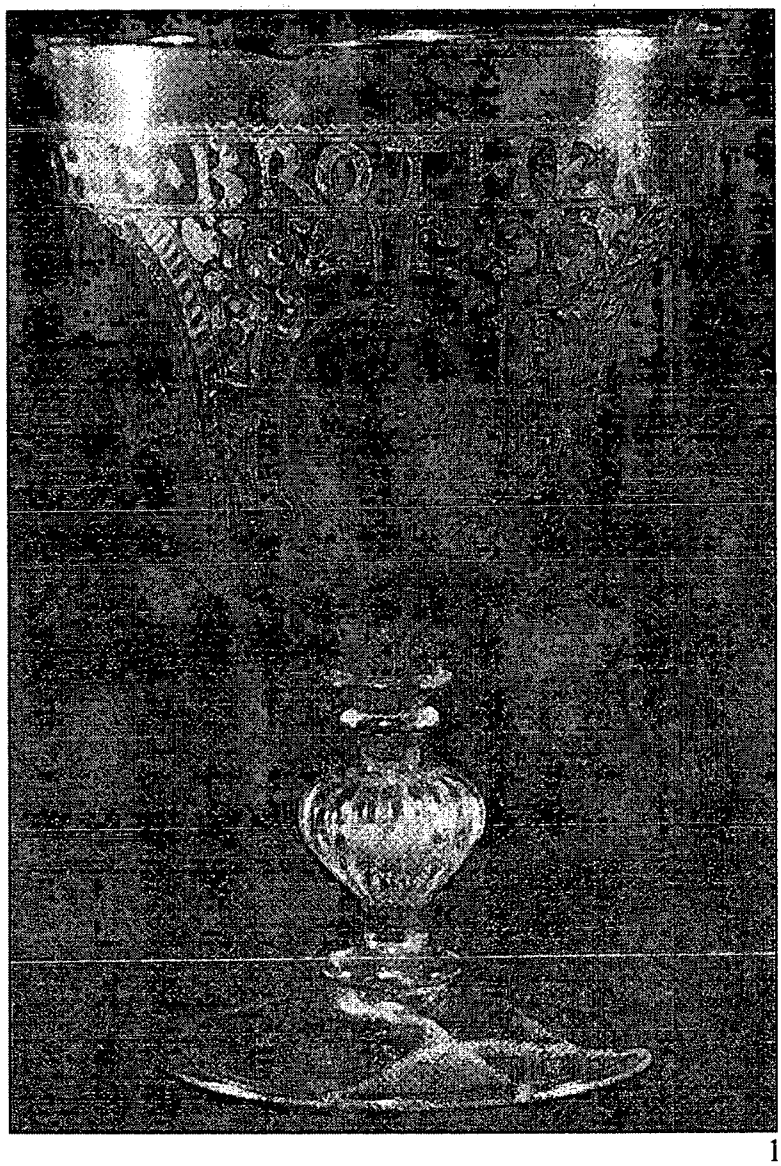
1

Figure 7.20 *Verzelini Glasses Type 2*



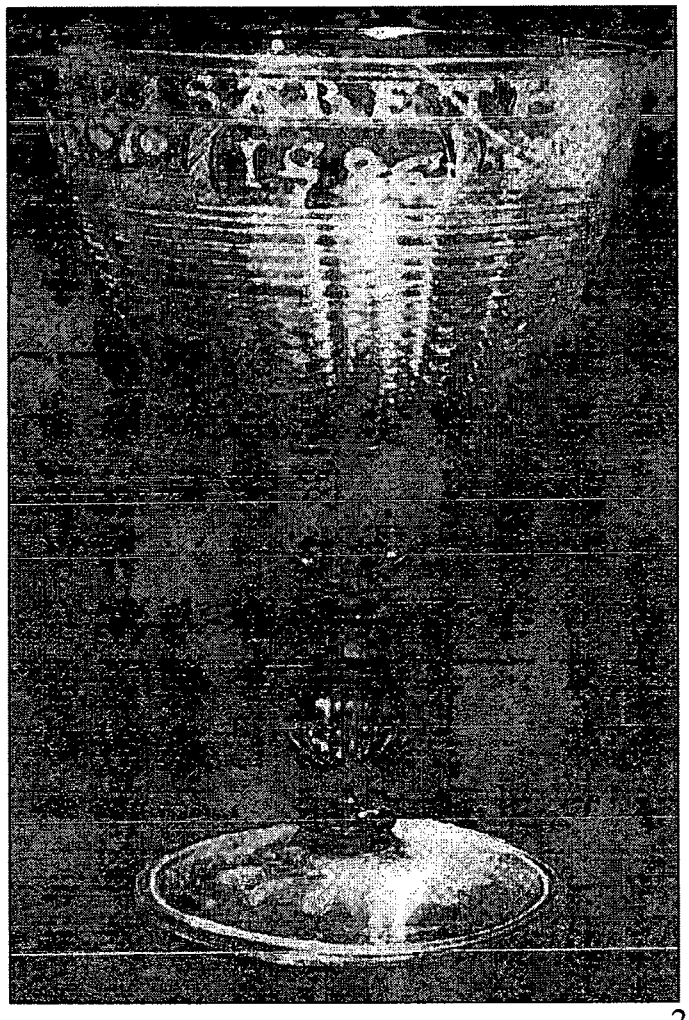
2

Figure 7.21 *Verzelini Glasses Type 3*



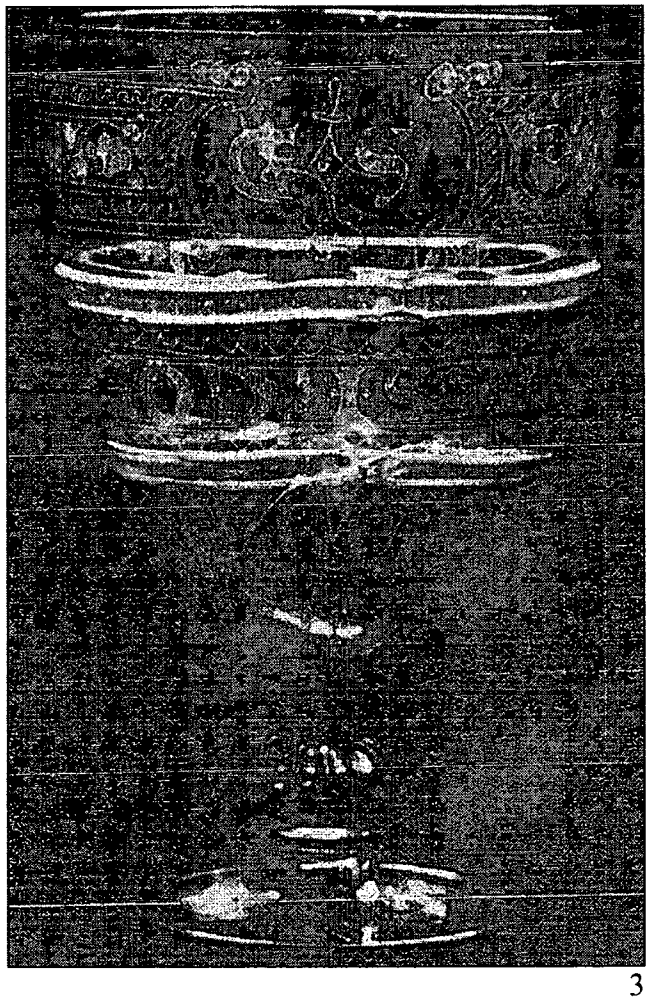
1

Figure 7.22 *Verzelini Glasses Type 3*



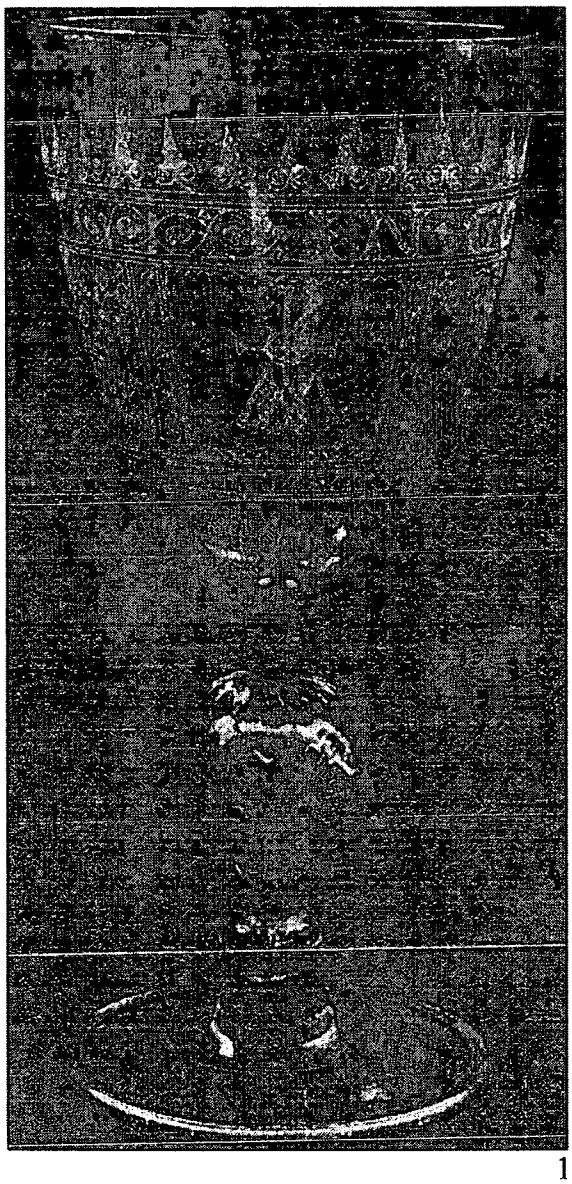
2

Figure 7.23 *Verzelini Glasses Type 3*



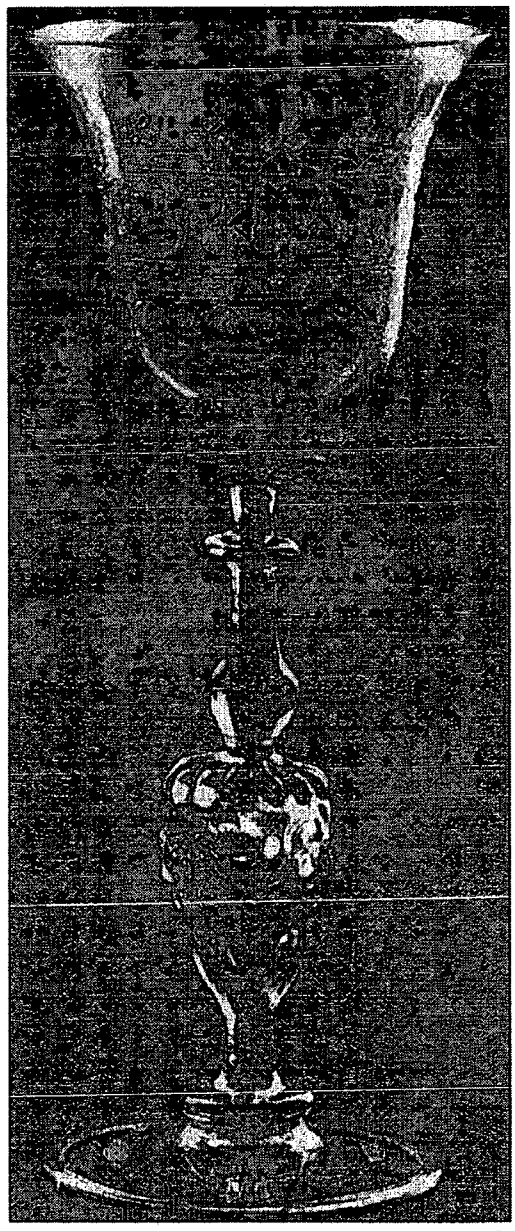
3

Figure 7.24 *Verzelini Glasses Type 4*



1

Figure 7.25 *Verzelini Glasses Type 4*



2

Figure 7.26 *Sites with Excavated Engraved Glass*

Site	Reference	Form	Sub Form	Motif	Figure
London, Minster House	MoL ER 208A	Goblet	Ribbed knop	Hunt	7.28
Southampton, Wacher Site E3	Charleston 1975; no. 1557	Goblet	Knopped	Hunt + Cartouche	7.29.1
Southampton, Wacher Site E3	Charleston 1975; no. 1558	Goblet	Knopped	Hunt + Cartouche	7.29.2
Southampton, Wacher Site E3	Charleston 1975; no. 1559-60	Goblet	Knopped	Hunt + Cartouche	7.29.3-5
London, Bloomfield Street	MoL A27858	Goblet	Knopped	Foliage	7.30.1
Wood Hall	20 1500	Goblet	Knopped?	Foliage	7.30.2
Camber Castle	833439	Beaker	Cylindrical?	Foliage	7.30.3
Nonsuch Palace	cx14 5; 93	Goblet?		Hunt?	7.30.4
Oxford, St. Ebbes	A G17/2012/28 nEg	Goblet	Ribbed Knop	Foliage?	7.31.1
Canterbury, Roman Theatre	CXVII D IV 3	Goblet	Tazza Bowl	Foliage	7.31.2
Acton Court	1044 C96	Goblet	Knopped	Foliage	7.31.3
Chelmsford, Moulsham Street	S42; XII; 1	Beaker?		Swag	7.31.4

Figure 7.27 *Excavated Engraved Glass Distributions*

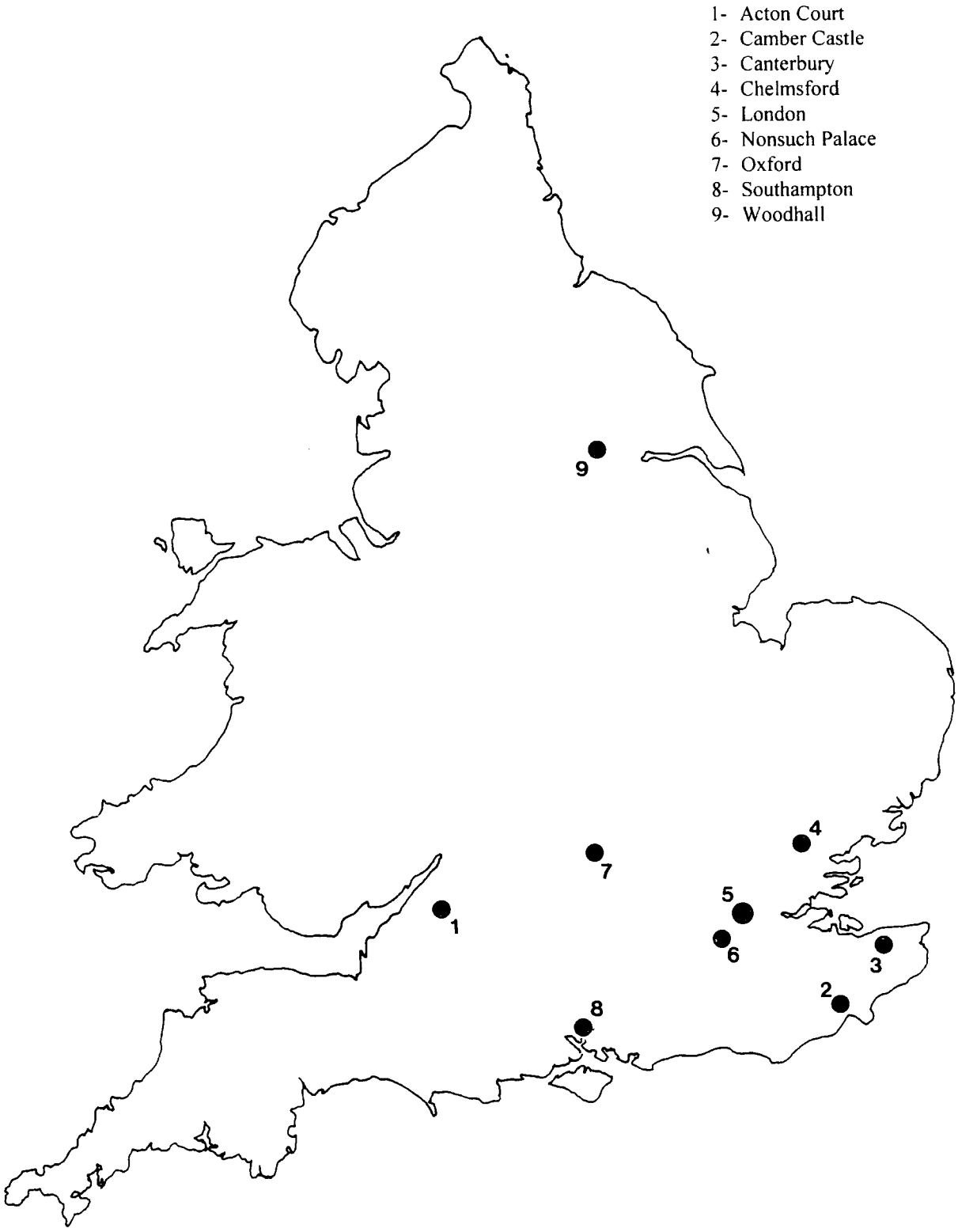


Figure 7.28 *Excavated Engraved Glass* 1:1

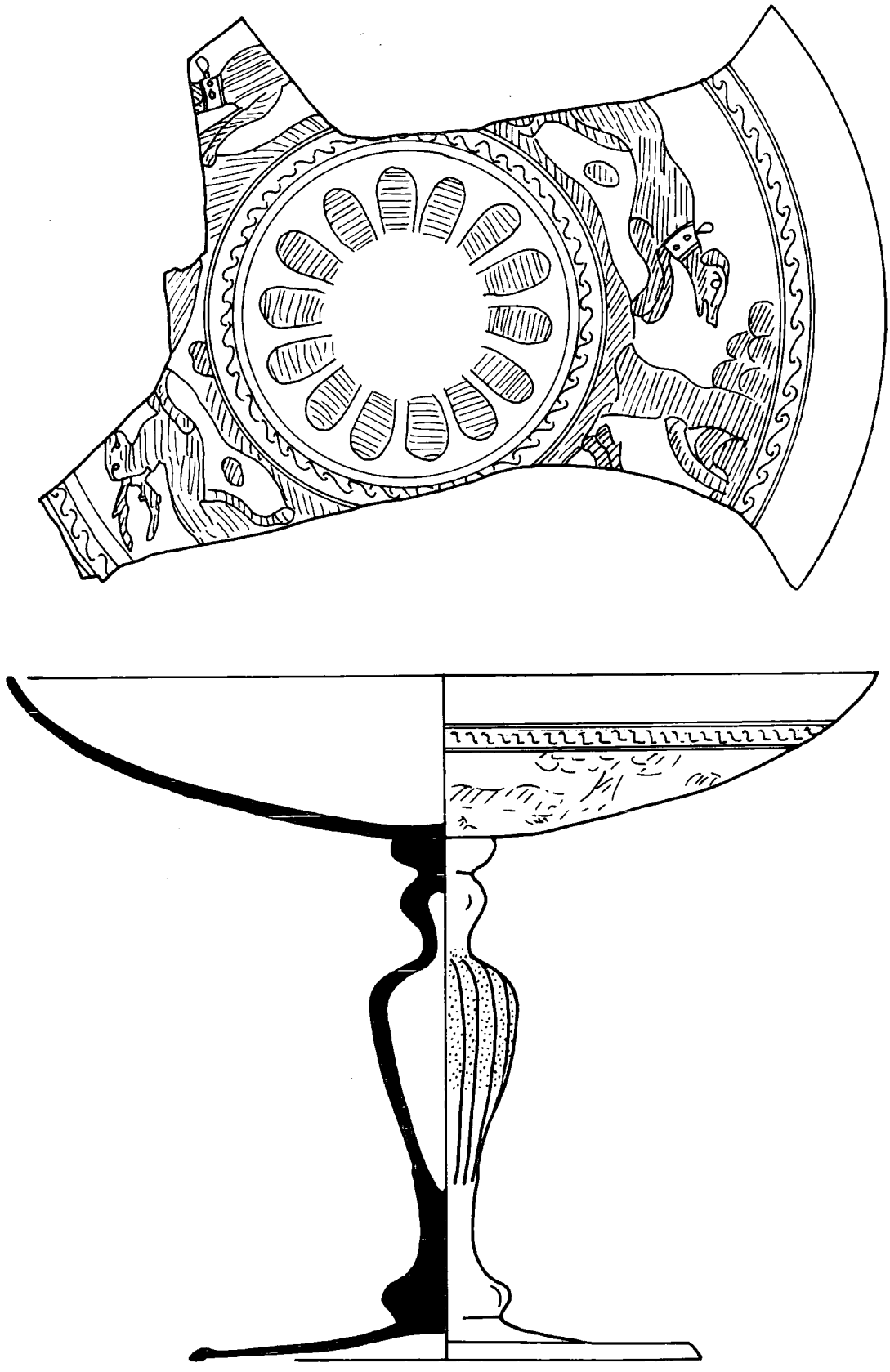
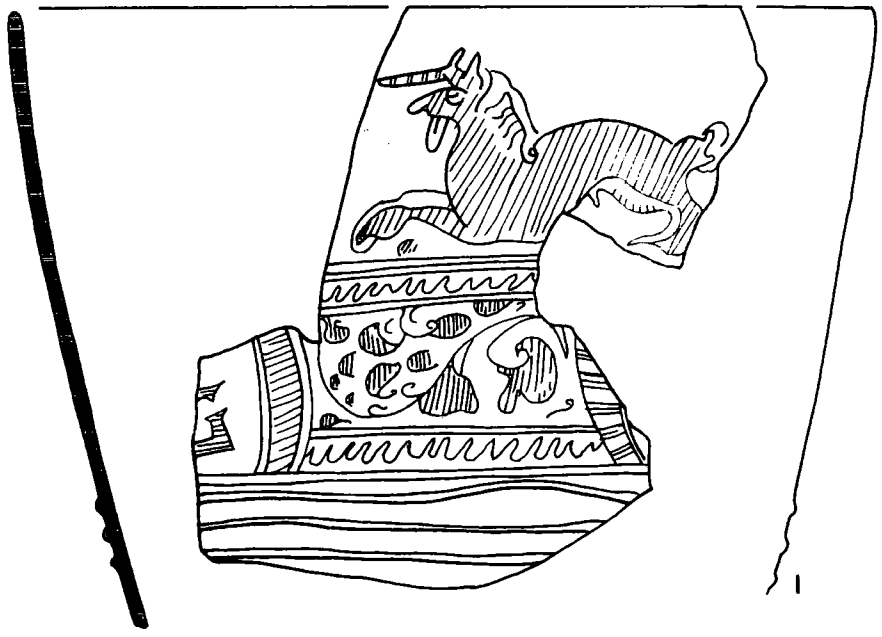
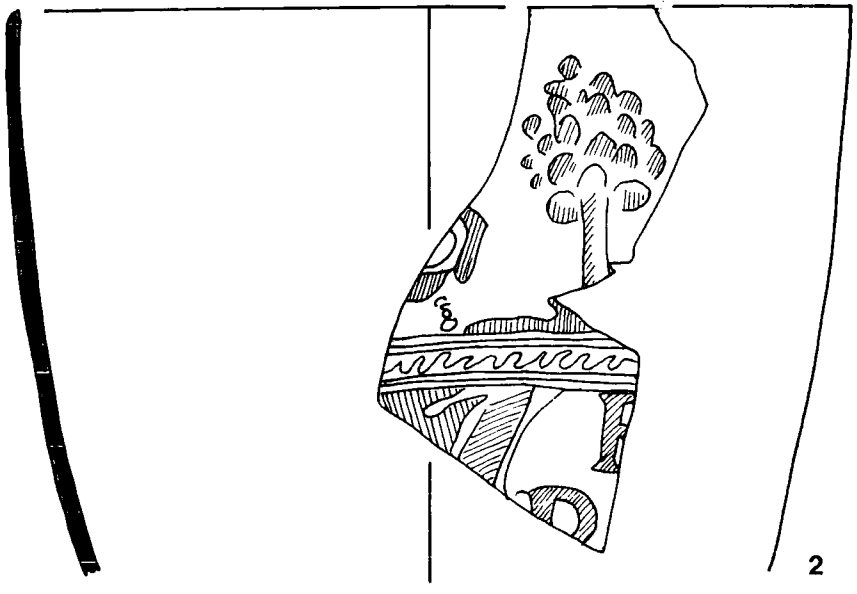
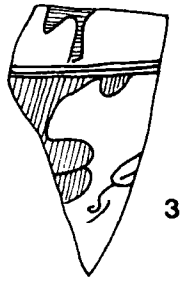
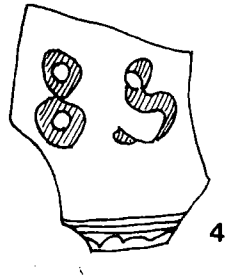


Figure 7.29 *Excavated Engraved Glass* 1:1









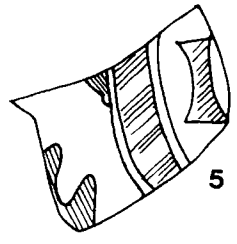


Figure 7.30 *Excavated Engraved Glass* 1:1

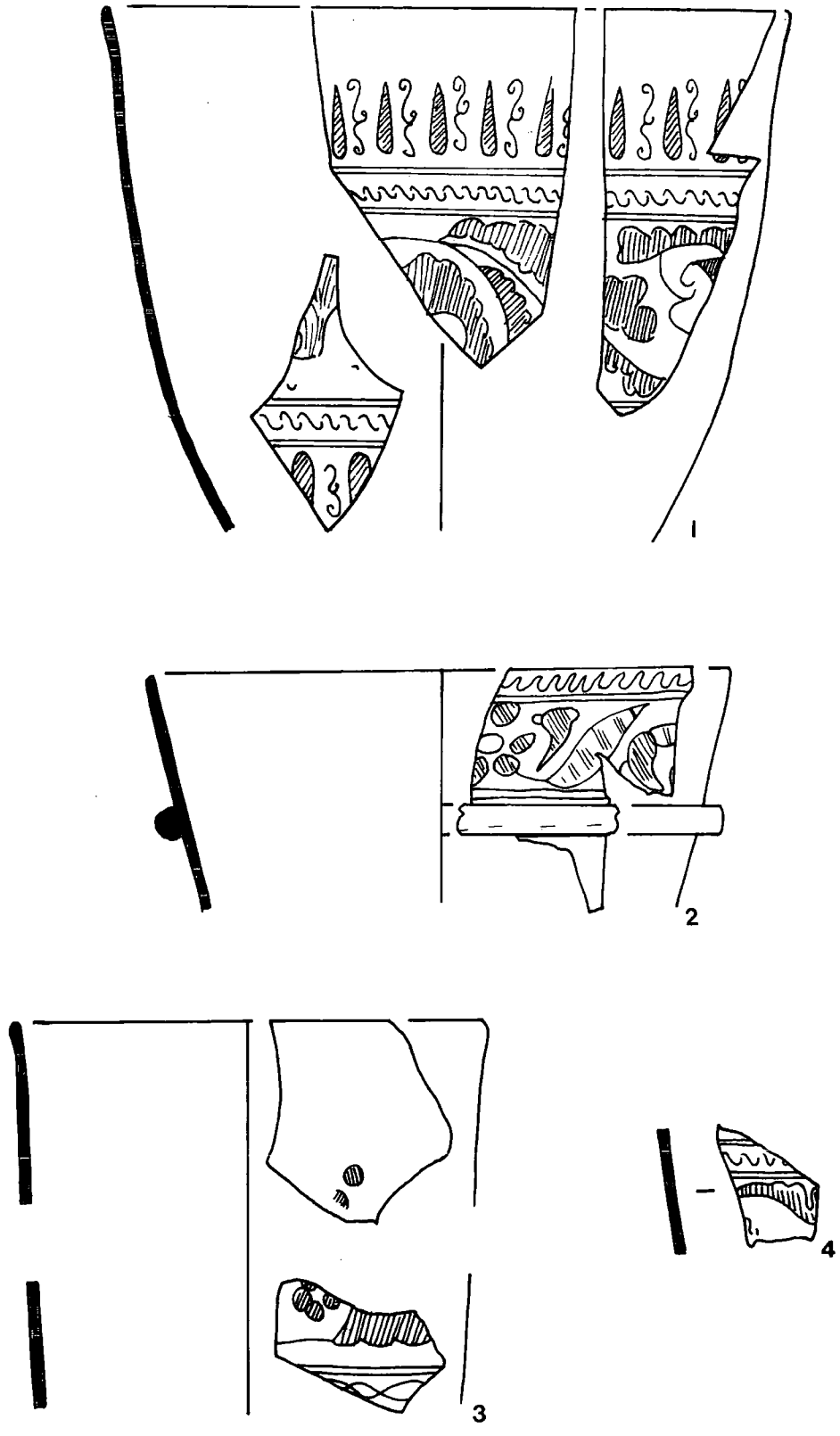


Figure 7.31 *Excavated Engraved Glass* 1:1

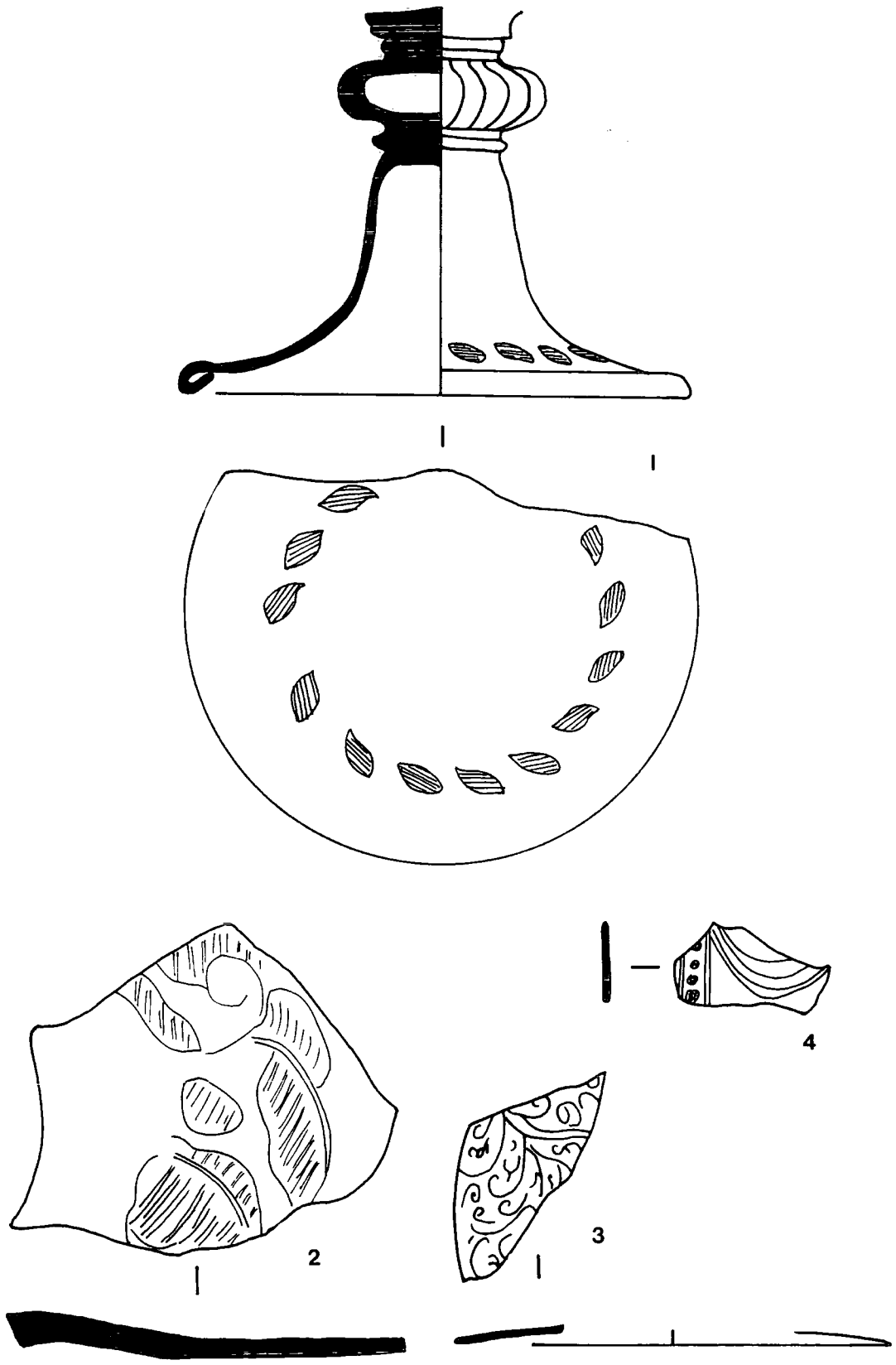


Figure 7.32 *Sites with Repaired Stems*

Find Spot	*Accession Number*	*Stem Form*	*Repair Type*	*Location*	*Fig.*
Bloomfield Street, London	MOL A28019	lion mask	lead	lower stem	7.33.1
London	MOL 13,323	lion mask	lead	upper stem	7.33.2
City of London	MOL 16,695	lion mask	lead	upper stem	7.33.3
London	MOL M VII/23	ladder stem	lead	upper stem	7.33.4
Bagshot	SHAHT A87	cigar	lead	upper stem	7.33.5
Bagshot	SHAHT A208	cigar	lead	upper stem	7.33.6
Bagshot	SHAHT A225	cigar	lead	lower stem	7.33.7
London	V&A C188x 1956	cigar	lead	upper stem	7.33.8
VAL, London	MOL Val 88 2/2d 945	cigar	lead	upper stem	7.33.9
VAL, London	MOL Val 88 2/2d 944	cigar	lead	upper stem	7.33.10
London	MOL 16,945	cigar?	lead	upper stem	7.33.11
London	MOL 84.250/14	cigar?	lead	upper stem	7.33.12
London	MOL 13,323	cigar?	lead	upper stem	7.33.13
London	MOL 20,537	inverted baluster?	lead	bowl merese	7.33.14
City of Westminster	V&A C188v 1956	multiple knop	lead	lower stem	7.34.1
Blossom's Inn Yard, London	MOL 12,407	inverted baluster	lead	upper stem	7.34.2
London	V&A C188mm 1956	ribbed round knop	lead	lower stem	7.34.3
Bagshot	SHAHT A157	ribbed round knop	lead	lower stem	7.34.4
Thames Foreshore, London	MOL 84.257/11	lead glass baluster	lead	entire stem	7.34.5
Bagshot	SHAHT A207	cigar	gilt wire	upper stem	7.34.6
London	MOL 86.240/2	cigar	gilt wire	upper stem	7.34.7
Oxford	ASH 1913.325 no.6	cigar	lead	upper stem	-

Figure 7.33 *Repaired Stems*

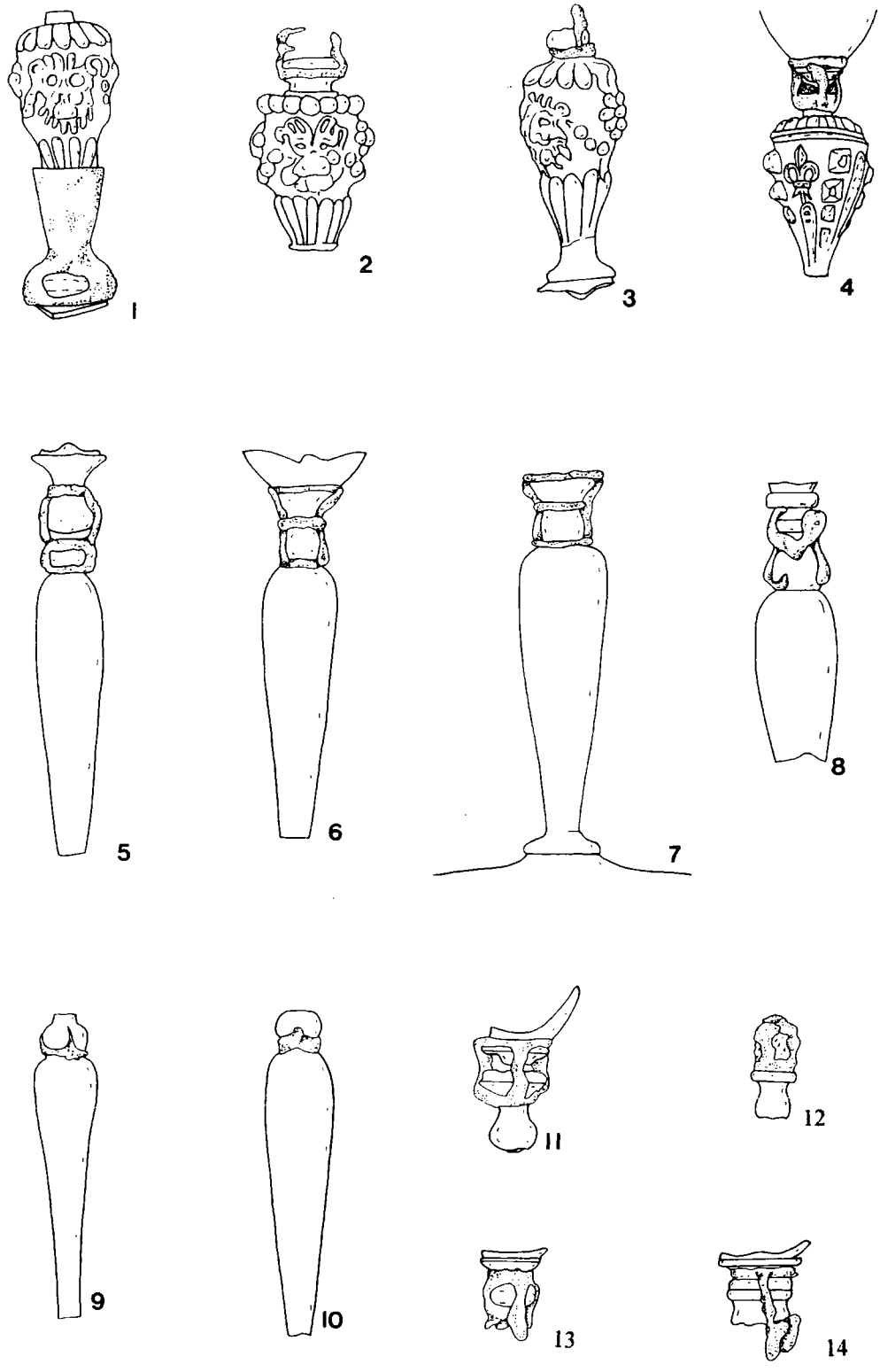


Figure 7.34 *Repaired Stems*

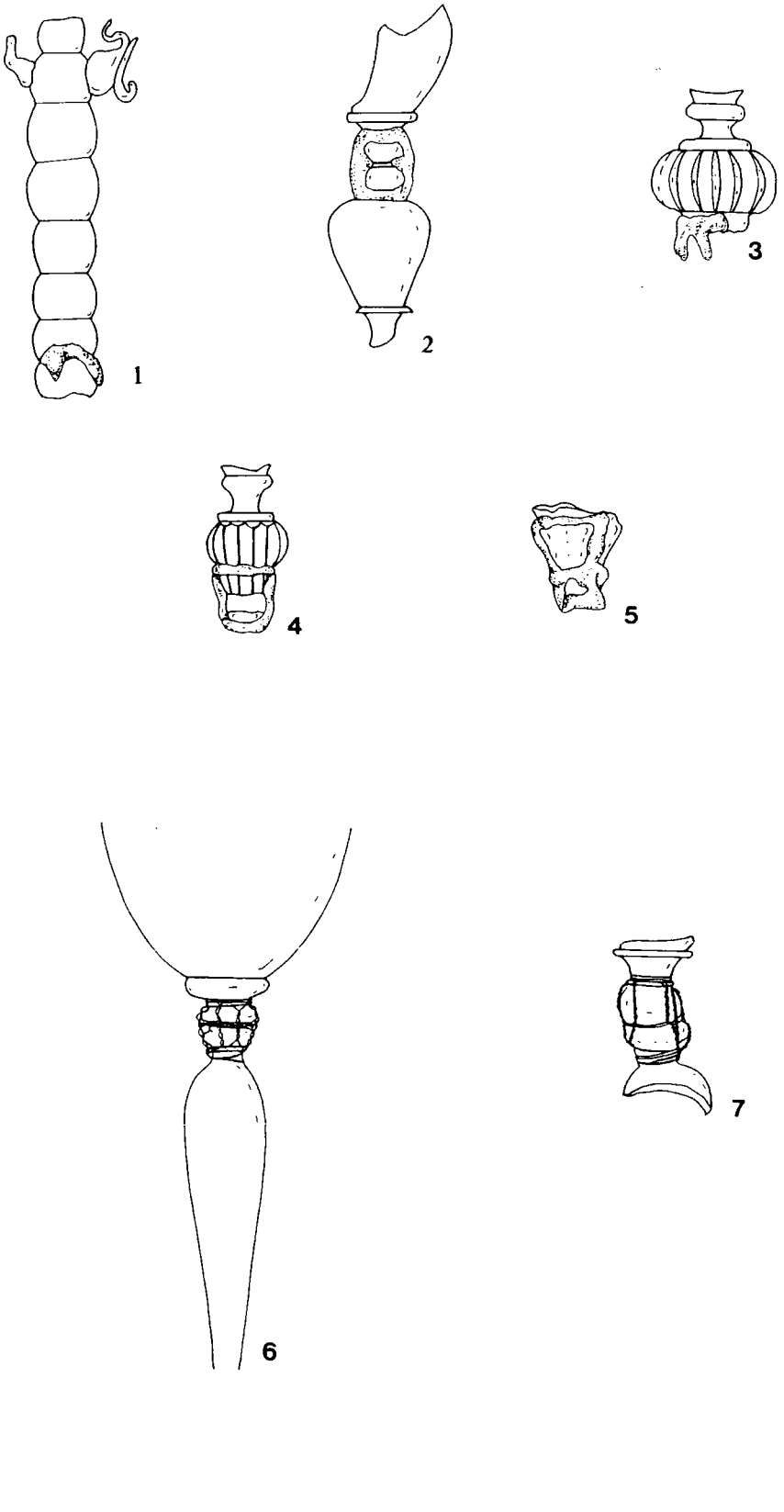
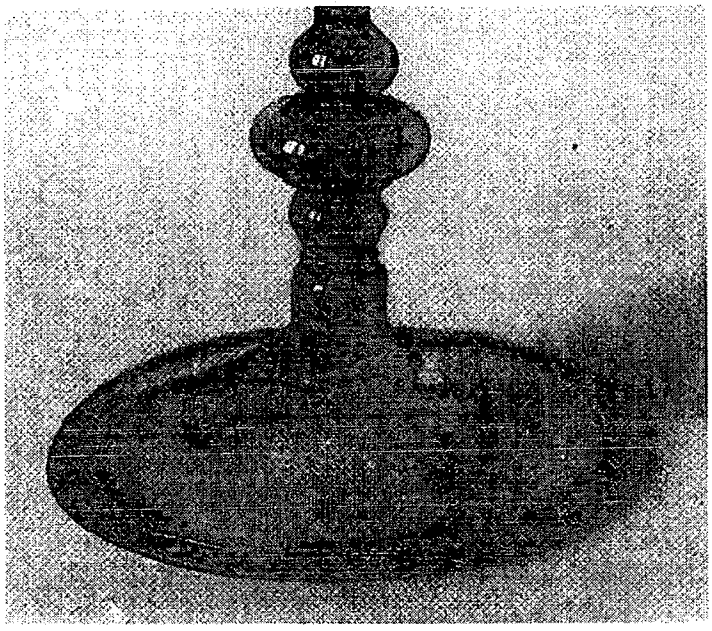


Figure 7.35 *Plain Verzelini Goblet Base Repair*



Appendix 1 *Catalogues of Glass from the Study Sites*

The following appendix contains the catalogues of glass from the twelve study sites discussed in this thesis. It does not contain the records of every excavated fragment from each site. Instead each vessel that could be identified as contributing to the minimum vessel count was included.

The material is primarily ordered by its typological code, class, group and sub group. Further brief details then are included on the metal type, vessel colour, a description of the fragment, reference numbers and any measured dimensions. Finally the described fragment is cross-referenced with the illustrations.

Appendix 1.1 *Gracechurch Street, London*

Code	Class	Group	Sub Group	Metal	Colour	Description	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	coloured trail	soda	clear	1 base and with a rigaree base ring, opaque white trails	3/5 [39]		7	
4.1.1	beaker	cylindrical	coloured trail	soda	clear	1 base and with a plain base ring, opaque white trails	15590		6	5.3.1
4.1.1	beaker	cylindrical	MB mesh	potash	green clear	1 base with a rigaree base ring	3/7 [7]		7	
4.1.1	beaker	cylindrical	MB mesh	potash	green clear	1 frag of base with a rigaree base ring	3/6 [72]			
4.1.1	beaker	cylindrical	MB mesh	potash	green clear	1 frag of base with a rigaree base ring	3/6 [75]			
4.1.1	beaker	cylindrical	MB mesh	potash	green clear	1 complete base with applied thin cut base ring	3/7 [3]		6.8	
4.1.1	beaker	cylindrical	MB mesh	potash	green clear	1 base with a rigaree base ring	3/7 [10]		6.4	
4.1.1	beaker	cylindrical	MB mesh	potash	green clear	1 complete base with a rigaree base ring	3/7 [8]		7.2	5.3.2
4.1.1	beaker	cylindrical	MB roundel	soda	clear	1 frag of rim	3/5 [53]	7		5.3.3
4.1.1	beaker	cylindrical	MB vertical rib	soda	clear	1 base with a rigaree base ring	15595		5.1	
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base with a plain base ring	15585		5	
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base with a plain base ring	15585		5.2	
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base with a plain base ring	15585		5	
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base with a plain base ring	15585		5.2	
4.1.1	beaker	cylindrical	MB vertical rib	soda	clear	1 base with a rigaree base ring	3/7 [1]		7.8	
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base with a plain base ring	15585		5.5	
4.1.1	beaker	cylindrical	MB vertical rib	soda?	clear	1 complete base with a plain base ring	15593		5.8	
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base and lower side with a rigaree base ring	3/7 [4]		7.2	
4.1.1	beaker	cylindrical	MB vertical rib	soda?	clear	1 complete base with a plain base ring and distinct pontil mark	15585		5	5.3.4
4.1.1	beaker	cylindrical	MB vertical rib	soda	clear	1 complete base and plain base ring	15585		5	5.3.5
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base with a plain base ring	15585		6	5.3.6
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	1 complete base with a plain base ring	15585		5.3	5.3.7
4.1.1	beaker	cylindrical	MB vertical rib and spiral	soda	clear	1 near complete base with a rigaree base ring	15593		5.6	
4.1.1	beaker	cylindrical	MB vertical rib and spiral	soda	clear	1 complete base with a plain base ring	3/5 [2]		4.7	
4.1.1	beaker	cylindrical	MB vertical rib and spiral	soda	clear	1 complete base with a rigaree base ring	15584		4.8	5.3.8
4.1.1	beaker	cylindrical	MB vertical rib and spiral	soda	clear	1 complete base with a rigaree base ring	15585		4.4	5.3.9
4.1.1	beaker	cylindrical	plain	soda	clear	1 base with a rigaree base ring	3/7 [6]		4.5	
4.1.1	beaker	cylindrical	plain	soda	clear	1 complete base with a rigaree base ring	3/7 [2]		4.5	

4.1.1	beaker	cylindrical	plain	soda	clear	1 complete base with a rigaree base ring	L230/33		8.4	
4.1.1	beaker	cylindrical	plain	soda	clear	1 frag of base with a rigaree base ring	3/5 [40]		5	
4.1.1	beaker	cylindrical	plain	soda	clear	1 complete base with a rigaree base ring	L230/27		6	
4.1.1	beaker	cylindrical	plain	soda	clear	1 complete base with a rigaree base ring	15593		4.3	5.3.10
4.1.1	beaker	cylindrical	thick cut spiral trail	soda	clear	1 base with a rigaree base ring	3/7 [5]		4.8	
4.1.1	beaker	cylindrical	thick cut spiral trail	soda?	clear	1 complete base with a rigaree base ring	15593		5	
4.1.1	beaker	cylindrical	thick cut spiral trail	soda	clear	1 complete base with a rigaree base ring	15593		5.7	
4.1.1	beaker	cylindrical	thick cut spiral trail	soda	clear	1 base with a rigaree base ring	15593		6	5.3.11
4.1.1	beaker	cylindrical	thin cut spiral trail	soda	clear	1 base and lower side with a rigaree base ring	15591		8.5	
4.1.1	beaker	cylindrical	thin cut spiral trail	soda	clear	1 base with a rigaree base ring	15585		5.4	
4.1.1	beaker	cylindrical	thin cut spiral trail	soda	clear	1 near complete base with a rigaree base ring	15585		5.2	5.3.12
4.1.4	beaker	pedestal	horizontal trail	potash	green clear	2 frags of rim and upper side	15550	8.2		
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 frag of upper base	3/7 [56]			
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 near complete base	3/7 [15]		6.2	
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 complete base	L230/26		5.8	
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 base	3/7 [14]		6.2	
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 complete base	3/7 [13]		6	5.4.1
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	1 complete base	3/7 [20]		7.4	5.4.2
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	1 complete base	3/7 [22]		8.6	5.4.3
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	L230/43			
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	3/7 [18]		6.2	
4.1.4	beaker	pedestal	plain	potash	green clear	1 near complete base	3/7 [21]		7.4	
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	-		7.5	
4.1.4	beaker	pedestal	plain	potash	green clear	1 near complete base	3/7 [24]		6.8	
4.1.4	beaker	pedestal	plain	potash	green clear	1 frag of base	3/7 [25]		8.5	
4.1.4	beaker	pedestal	plain	potash	green clear	1 frag base	3/7 [33]		5	
4.1.4	beaker	pedestal	plain	potash	green clear	1 frag of upper base	3/7 [50]			
4.1.4	beaker	pedestal	plain	potash	green clear	1 frag of upper base	3/7 [51]			
4.1.4	beaker	pedestal	plain	potash	green clear	1 frag of upper base	3/7 [52]			
4.1.4	beaker	pedestal	plain	potash	green clear	1 frag of upper base	3/7 [55]			

4.1.4	beaker	pedestal	plain	potash	green clear	1 frag of base	3/7 [49]			
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	3/7 [17]		5.2	5.4.4
4.1.5	beaker	pedestal flute	vertical and horizontal trail	soda	clear	1 complete base	L230/39		9	5.4.5
4.1.5	beaker	pedestal flute	vertical and horizontal trail	soda	green clear	15 fragments of base and body	15586		8.8	5.4.6
4.1.6	beaker	roemer	pulled prunt	potash	green clear	1 frag of body	3/6 [73]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [13]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [14]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem and lower bowl	L230/9			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [16]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem and upper base	L230/6			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [28]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [18]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [19]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [20]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [27]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [12]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [30]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [15]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	none			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [25]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and base	3/3 [32]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [24]ii			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem	L230/5			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem	L230/7			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [21]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [22]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [24]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem	L230/2			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [26]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of cigar stem	15538			

4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag stem	3/3 [2]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [17]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [11]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and base	3/3 [31]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and base	3/3 [34]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and base, folded under	3/3 [33]		9.2	
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	15541			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [29]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [6]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [10]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [9]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and lower convex bowl	15537			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [7]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and upper base	3/3 [4]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and upper base	3/3 [35]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem with. Possible heat distortion	15543			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem with upper flaring base	3/3 [5]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem	3/3 [8]			
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem and base	L230/3		8	5.5.1
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem and base	L230/1		8.2	5.5.2
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem and upper base	L230/4.			5.5.3
4.3.1	goblet	knopped	cigar stem	soda	clear	1 complete stem and flaring base	L230/8		7.2	5.5.4
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag stem	3/3 [1]			5.5.5
4.3.1	goblet	knopped	cigar stem	soda	clear	2 frags of stem and the upper base	15539			5.5.6
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and upper base	15542			5.5.7
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and lower steep sided bowl	15536			5.5.8
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and lower steep fluted bowl	15546			5.5.9
4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag of stem and lower tulip bowl	15516			5.5.10
4.3.1	goblet	knopped	cigar stem	soda	clear	1 stem	15540			5.5.11
4.3.1	goblet	knopped	cigar stem	soda	clear	3 joining frags of complete profile	15535	8	9.5	5.5.12

4.3.1	goblet	knopped	cigar stem	soda	clear	1 frag lower fluted bowl and short stem	15547			5.5.13
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem, upper base and lower bowl	15573			
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 complete stem and upper base	L230/11			
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 complete stem and upper base	L230/10			
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem	3/3 [3]			5.6.1
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 complete frag of base, stem and lower bowl	15548		8	5.6.2
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem and upper base	15550			5.6.3
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem	15551			5.6.4
4.3.1	goblet	knopped	inverted baluster	soda	clear	2 frags of base, stem and bowl with prunt	80.12/48		6.5	5.6.5
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem and lower bowl	15552			5.6.6
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem	15549			5.6.7
4.3.1	goblet	knopped	inverted baluster	soda	clear	2 joining frags of stem, upper base and lower tulip bowl	15553			5.6.8
4.3.1	goblet	knopped	ribbed round knop	soda	clear	1 complete stem	L230/12			
4.3.1	goblet	knopped	ribbed round knop	soda	clear	1 frag of base, stem and lower bowl	15575		7.8	5.6.9
4.3.1	goblet	knopped	round knop	soda	clear	1 complete stem	15544			
4.3.1	goblet	knopped	round knop	soda	clear	1 complete stem and upper flaring base	15573			5.6.10
4.3.1	goblet	knopped	round knop	soda	clear	1 frag of base, stem and lower bowl	L230/13			5.6.11
4.3.2	goblet	mould blown	ladder	soda	clear	1 complete stem and flaring base	15533		7	5.7.1
4.3.2	goblet	mould blown	lion mask -	soda	clear	3 joining frags of stem	15529			
4.3.2	goblet	mould blown	lion mask A	soda	clear	1 complete stem	15530			
4.3.2	goblet	mould blown	lion mask A	soda	clear	1 complete stem	15531			
4.3.2	goblet	mould blown	lion mask A	soda	clear	1 complete stem	15532			
4.3.2	goblet	mould blown	lion mask A	soda	clear	1 complete stem	15531			
4.3.2	goblet	mould blown	lion mask A	soda	clear	1 complete stem	L230/23			
4.3.2	goblet	mould blown	lion mask A	soda	clear	1 complete stem	5/4 [7]			
4.3.2	goblet	mould blown	lion mask A	soda	clear	1 complete base, stem and lower bowl	15564		8.2	5.7.2
4.3.2	goblet	mould blown	lion mask B	soda	clear	1 complete stem, possible heat distortion	3/1 [5]			5.7.3
4.3.2	goblet	mould blown	lion mask C	soda	clear	1 complete stem	82.5213			
4.3.2	goblet	mould blown	lion mask C	soda	clear	1 complete stem	5/4 [2]			
4.3.2	goblet	mould blown	lion mask C	soda	clear	3 joining frags of stem and base	15526		8	5.7.4

4.3.2	goblet	mould blown	lion mask E	soda	clear	1 complete stem	15528			5.7.5
4.3.2	goblet	mould blown	lion mask F	soda	clear	1 complete stem	3/1 [6]			
4.3.2	goblet	mould blown	lion mask F	soda	clear	1 complete stem	L230/24			
4.3.2	goblet	mould blown	lion mask F	soda	clear	1 complete stem and base	L230/22		7.5	5.7.6
4.3.3	goblet	compound	coiled and winged serpent	soda	clear	1 frag of stem with wings and head in blue	5/3 [3]			
4.3.3	goblet	compound	coiled and winged serpent	soda	clear	1 frag stem with two blue wings and head	no			5.8.1
4.3.3	goblet	compound	coiled and winged serpent	soda	clear	1 frag of stem with two blue wings and upper inverted blue V	15571			5.8.2
4.3.3	goblet	compound	coiled and winged serpent	soda	clear	2 frags of base and stem with two blue wings & head	L230/17		7.4	5.8.3
4.3.3	goblet	compound	loop and scroll serpent	soda	clear	1 frag of base and stem	15562		6.8	5.8.4
4.3.3	goblet	compound	loop and scroll serpent	soda	clear	1 large frag of base and complete stem	15572		7.5	5.8.5
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 large frag of stem	15569			
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 large fragment of stem	15570			
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 frag of lower bowl and upper stem	15567			
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 frag of stem with one blue claw	15554			
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 frag of lower bowl and stem	L230/21			
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 frag of lower bowl and upper stem	15568			
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 frag of lower bowl and stem	L230/20			
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 large fragment of stem and lower bowl	15563			5.8.6
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 complete base and stem	L230/19		7	5.8.7
4.3.3	goblet	compound	loop and wound serpent	soda	clear	1 frag of stem with two blue claws	5/3 [4]			5.8.8
4.3.4	goblet	pedestal	folded knop	soda	clear	1 frag of tubular base ring	3/2 [111]		8	
4.3.4	goblet	pedestal	folded knop	soda	clear	1 frag of base	3/4 [30]		5.8	
4.3.4	goblet	pedestal	folded knop	soda	clear	1 complete base, stem and lower narrow bowl	15578		5.5	5.9.1
4.3.4	goblet	pedestal	folded knop	soda	clear	1 complete base, stem and lower bow	15577		5.8	5.9.2
4.3.4	goblet	pedestal	folded knop	soda	clear	1 complete base, stem and lower bowl	15579		5.5	5.9.3
4.3.4	goblet	pedestal	folded knop	soda	clear	1 complete base, stem and lower bowl	-		5.8	5.9.4
4.3.4	goblet	pedestal	folded knop	soda	clear	1 complete base, stem and lower narrow bowl	L230/15		5.6	5.9.5
4.3.4	goblet	pedestal	folded knop	soda	clear	1 complete base, stem and lower bowl	L230/14		5.2	5.9.6
4.3.4	goblet	pedestal	plain	potash	green	1 complete base, stem and lower bowl	15590		7.5	5.9.7
4.3.4	goblet	pedestal	plain	potash	green clear	1 complete base and stem	L230/36		8.2	5.9.8

4.3.6	goblet	rod stem	solid knop	soda	clear	1 complete thin stem and lower bowl	15576		6.8	5.9.9
4.3.6	goblet	rod stem	solid knop	soda	clear	1 complete thin stem and base	L230/16		7	5.9.10
4.4.1	jug?			soda	red brown	1 frag of spout	3/7 [4]			
4.5.1	flask	globular	MB wrythen	potash	green clear	1 complete base	3/7 [77]		3.8	
4.5.1	flask	globular	MB wrythen	potash	green clear	1 complete base	3/7 [89]		4.5	
4.5.1	flask	globular	MB wrythen	potash	green clear	1 complete base	15608			
4.5.1	flask	globular	MB wrythen	potash	green clear	1 complete base	3/7 [85]		4.5	
4.5.1	flask	globular	MB wrythen	potash	green clear	1 complete base	3/7 [86]			
4.5.1	flask	globular	MB wrythen	potash	green clear	1 frag of shoulder	3/6 [64]			
4.5.1	flask	globular	MB wrythen	potash	green clear	1 complete base	3/7 [88]		4.5	
4.5.1	flask	globular	MB wrythen	potash	green clear	1 complete base	3/7 [90]		4.5	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [72]		4.3	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [70]		4.5	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [69]		4.2	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [67]		3.8	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [68]			
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [71]		4.5	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [83]		3.2	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [81]		4.2	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [82]			
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [80]		4.3	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	3/7 [79]			
4.5.1	flask	globular	plain	potash	green clear	1 complete base	15609		4	
4.5.1	flask	globular	plain	potash	green clear	1 complete base	15610		4	5.10.1
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	3/7 [78]			
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	3/7 [75]			
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	3/7 [74]			
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	3/7 [84]			
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	3/7 [76]		5	
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	L230/25		4.7	

4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	3/7 [87]			
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	3/7 [73]			
4.5.2	flask	oval	MB wrythen	potash	green clear	1 complete base	15608			5.10.2
4.5.3	flask	pedestal	plain	potash	green clear	1 complete base	3/7 [16]		7.4	
4.5.3	flask	pedestal	plain	potash	green clear	1 complete base	3/7 [19]		7.2	5.10.3
4.5.3	flask	pedestal	plain	potash	green clear	1 complete base	3/7 [23]		8.5	5.10.4
4.5.4	flask	conical	plain	potash	green clear	complete profile	15607	3.2	5	5.10.5
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete base	3/7 [42]		3.2	
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete base	15615		3.8	
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete base	15615		4.5	
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete base	15615		3.2	
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete base	15615		4	
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete base and lower side	15615		3.5	5.10.6
4.5.5	flask	case bottle	square	potash	green clear	1 complete base	15613		5.5	
4.5.5	flask	case bottle	square	potash	green clear	1 complete base	15612		3.8	
4.5.5	flask	case bottle	square	potash	dark green	3 frags of shoulder and base	15614			
4.5.5	flask	case bottle	square	potash	green clear	1 complete base	L230/29		5.8	
4.5.5	flask	case bottle	square	potash	green clear	1 complete base	3/7 [63]		5.8	
4.5.5	flask	case bottle	square	potash	green clear	1 frag of rim, neck, shoulder and upper side	15613		2.8	5.10.7
4.6.1	bowl	pedestal	lattimo	soda	opaque	1 frag base	3/7 [60]		8.5	
4.6.1	bowl	pedestal	lattimo	soda	opaque	1 complete base	3/7 [58]		6.8	5.10.8
4.6.1	bowl	pedestal	lattimo	soda	opaque	1 complete base and rim	3/7 [59]		6.8	5.10.9
4.7.1	jar	albarello	plain	potash	green clear	1 frag of rim	3/6 [28]	9.5		
4.7.1	jar	albarello	plain	potash	green clear	1 complete base and lower side	3/7 [10]		5.4	
4.7.1	jar	albarello	plain	potash	green clear	1 complete base and lower side	3/7 [12]		4.5	
4.7.1	jar	albarello	plain	potash	green clear	1 complete base and lower side	3/7 [11]		5	
4.7.1	jar	albarello	plain	potash	green clear	1 frag of rim	3/7 [66]	14.4		5.10.10
4.7.1	jar	albarello	plain	potash	green clear	1 frag of rim	3/7 [65]	11		5.10.11
4.7.2	jar	globular	MB vertical rib	potash	green clear	6 frag of base, body, neck and everted rim	15608	7	5	5.10.12
4.7.2	jar	globular	plain	potash	green clear	2 frags of rim and body	3/6 [2]	14		

4.8.1	chemical	alembic		potash	green clear	1 frag of rim	3/6 [48]	7.5		5.11.1
4.8.1	chemical	alembic		potash	green clear	1 frag of arm, 26cm long, 45 degree.	15602			5.11.2
4.8.1	chemical	alembic		potash	green clear	1 frag of arm joined to bowl	15603			5.11.3
4.8.1	chemical	alembic		potash	green clear	1 large portion of straight arm	L230/38			5.11.4
4.8.2	chemical	urinal		potash	green clear	1 frag of rim and narrow neck	3/6 [3]	9		

Appendix 1.2 *Abacus House, London*

Code	Class	Group	Sub Group	Metal	Colour	Description	Conte	Ref.	Rim	Base	Fig
4.1.1	beaker	cylindrical	coloured trail	soda	clear	3 frags of rim and upper body	793	283		4.5	5.13.1
4.1.1	beaker	cylindrical	fine cut spiral trail	soda	clear	1 frag of rim and upper body	793	50	7		5.13.2
4.1.1	beaker	cylindrical	horizontal trail	potash	green clear	1 frag of body with a rosette prunt	793	322			5.13.3
4.1.1	beaker	cylindrical	MB wrythen	potash	green clear	1 frag of body with a rosette prunt	793	223			
4.1.1	beaker	cylindrical	plain	soda	clear	1 complete base with rigaree base ring	793	296			
4.1.4	beaker	pedestal	MB boss	potash	green clear	1 complete base and lower side	793	337		6	
4.1.4	beaker	pedestal	MB mesh	potash	green clear	complete base and lower side	793	331		6.5	5.13.4
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 large frag of base	793	358			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	multiple frags of rim	793	347			
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	793	337		7	
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	793	338			
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base and lower side	793	332			
4.1.4	beaker	pedestal	plain	potash	green clear	multiple frags of base	793	333			
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base and lower side	793	359			
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	793	320		7.4	5.13.5
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base and lower side	793	328		7	5.13.6
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base and lower side	793	327		7.5	5.13.7
4.1.6	beaker	roemer	stemmed	potash	green clear	8 frags of round prunt roemer body, wavy base ring	793	324			5.13.8
4.3.1	goblet	knopped?	coloured trail	soda	clear	1 frag of everted rim	793	282	9		5.14.1
4.3.1	goblet	knopped?	enamelled	soda	clear	1 frag of deep bowl, enamelled lettering and in opaque white and brown	793	65	8.5		5.14.2
4.3.1	goblet	knopped?	tazza	soda	clear	2 frags of rim decorated with MB roundels	793	354	15		5.14.3
4.3.4	goblet	pedestal?	enamelled	soda	clear	2 frags of tulip bowl with radiating vertical rows of op white dots	793	279			
4.3.4	goblet	pedestal?	enamelled	soda	clear	2 frags of rim, decorated enamel	793	55	8		5.14.4
4.3.4	goblet	pedestal	folded knop	potash	green clear	1 frag of central folded knop	793	364			
4.3.4	goblet	pedestal	horizontal trail	soda?	clear	2 frags of rim decorated with fine opaque red/brown trails	793	62	7.2		
4.3.4	goblet	pedestal	horizontal trail	soda?	clear	1 frag of deep bowl, decorated with fine opaque red/brown trailing	793	277	12		5.14.5
4.3.4	goblet	pedestal	horizontal trail	soda?	clear	2 frags of rim decorated with fine opaque white trails	793	58	8		5.14.6
4.3.4	goblet	pedestal	horizontal trail	soda?	clear	3 frags of bowl	793	66			5.14.7
4.3.4	goblet	pedestal	plain	potash	green clear	complete base	793	360			

4.3.4	goblet	pedestal	plain	potash	green clear	1 complete base and lower bucket bowl	793	362		7.2	5.14.8
4.5.3	flask	pedestal	plain	potash	green clear	1 frag of base ring	793	329		13	
4.8.2	chemical	urinal		potash	green clear	complete base	793	295			
4.8.2	chemical	urinal		potash	green clear	complete base	793	299			
4.8.2	chemical	urinal		potash	green clear	complete base	793	304			
4.8.2	chemical	urinal		potash	green clear	complete base	793	309			
4.8.2	chemical	urinal		potash	green clear	complete base	793	292			

Appendix 1.3 *Crook Street, Chester*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	thick cut spiral trail	soda	clear	8 frags of rim, body and base	F 134B + F120B	339 + 1209	8	5.4	5.16.1
4.1.4	beaker	pedestal	MB boss	potash	green clear	17 frags of rim, body and base	IF B4A	1222	6	4.8	5.16.2
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	4 frags of rim	F134A	1223	8		5.16.3
4.1.4	beaker	pedestal	MB wrythen & vertical rib	potash	green clear	4 frags of rim and body	A 62	1361	7		5.16.4
4.2.1	tankard	cylindrical	prunted	potash	green clear	8 frags of rim, side and rigaree base ring	IF 128B	1217	11	10	5.16.5
4.3.1	goblet	knopped?		soda	clear	5 frags of rim and very small bowl	IF 128B	1212	5		5.16.6
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of base, stem and lower deep bowl	IF 128 B	4444		8	5.17.1
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of base, stem and lower deep bowl	I 7	1219		9	5.17.2
4.3.4	goblet	pedestal?	horizontal trail	soda	clear	3 frags of bowl	IF 134B	338	8.2		5.16.7
4.3.5	goblet	applied pedestal	coloured trail	soda	clear	3 frags of lower deep bowl and lower base	I 26+I 42	1535 & 1536		8	5.16.8
4.3.5	goblet	applied pedestal	plain	soda	clear	10 frags of rim, hemispherical bowl and base	IF 123B	1211	12	8	5.16.9
4.5.1	flask	globular	plain	potash	green	1 complete rim and neck	IF 128B	1210	1.8		
4.5.5	flask	case bottle	square	potash	green	Multiple frags of body and complete base	IF 128B	1216		8	
4.5.5	flask	case bottle	square	potash	green	12 frags of base and lower side	IF 134B	1539		8	
4.8.2	chemical	urinal		potash	green clear	1 frag of base	IF 128B	1218			

Appendix 1.4 *Hunter Street, Chester*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	horizontal trail	potash	green clear	3 frags of rim and vertical body	II40	204	8		5.19.1
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 frag of rim	II40	205b	6		
4.1.6	beaker	roemer		potash	green clear	5 frags of spherical bowl	II40	203 & 202b	8		5.19.2
4.2.1	tankard	cylindrical	plain	soda?	blue	15 frags of complete profile	II40	185	6.2	6.2	5.19.4
4.2.1	tankard	cylindrical	rigaree trail	soda	clear	2 frags of complete profile with a rigaree base ring	II40	175	7	7.4	5.19.3
4.3.1	goblet	knopped		soda	clear	6 frags of complete tulip bowl profile	II40	187	9		5.19.5
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem	II40	196			5.19.6
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of upper stem	II40	186			5.19.7
4.3.3	goblet	compound	coiled & winged	soda	clear	1 frag of stem with blue head and wings and base	II40	194 & 195		8.5	5.19.8
4.5.1	flask	globular	MB mesh	potash	green clear	1 complete base and lower body	II40	205a		4.2	
4.5.1	flask	pedestal	plain	potash	green clear	1 complete base	II40	202a		7.2	5.19.9
4.5.5	flask	case bottle	hexagonal	potash	green clear	2 frags of base, neck and rim	II40	212	2.5	6	
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete rim, neck & shoulder	II40	213b	2.5		
4.5.5	flask	case bottle	hexagonal	potash	green clear	1 complete base	II40	213a		6.5	
4.5.5	flask	case bottle	hexagonal	potash	green clear	4 frags of rim, neck & base	II40	215	2.5	5	
4.5.5	flask	case bottle	square	potash	green clear	11 frags of rim, neck and base	II40	211	5.2	8	5.19.1
4.5.5	flask	case bottle	square	potash	green clear	8 frags of rim, neck, body and base	II40	214	3	5.5	
4.6.2	bowl	hemispherical	plain	potash	green clear	6 frags of rim, body and base	II40	207+208	12	9	5.20.1
4.6.2	bowl	hemispherical	plain	potash	green clear	5 frags of rim, body and base	II40	206	11	3.5	5.20.2
4.6.3	bowl	dish	plain	soda	clear	9 frags of base and body	II40	199		4.5	5.20.3
4.6.3	bowl	dish	plain	soda	clear	9 frags of complete profile	II40	197	16	8.2	5.20.4
4.6.3	bowl	dish	plain	soda	clear	multiple frags of rim and base	II40	198	17	10	5.20.5
4.8.2	chemical	urinal		potash	green clear	13 frags of rim, neck	II40	209	6.4		
4.8.2	chemical	urinal		potash	green clear	11 frags of rim, neck, body and base	II40	210	7		

Appendix 1.5 *Bagshot*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	coloured spiral trail	soda	clear	1 frag of body with marvered blue trail	A/88/17/620	A698			
4.1.1	beaker	cylindrical	MB vertical rib and spiral trail	soda	clear	1 frag of base with rigaree base ring	A/88/17/620	A722		5.5	5.23.1
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 frag of rim	A/92/38/10	A825	8		5.23.2
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	3 fragment of base	A/87/17/487/2	A134			
4.1.4	beaker	pedestal	plain	potash	green	5 frags of base and 1 frag of rim	A/84/17/235	A86a	10	7.5	5.23.3
4.1.4	beaker	pedestal	plain	potash	green clear	1 fragment of base	A/84/17/235	A86b		7	5.23.4
4.3.1	goblet	knopped	?	soda	clear	1 frag of base with thin opaque white trails	B/83/04/A/44	A117		9.5	5.23.5
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem	A/87/17/497/3	A131			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper base and stem	B/83/04/A/44	A222			5.24.1
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem and lower convex bowl	B/83/04/A/44	A221			5.24.2
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem	B/83/04/A/44	A219			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of base and stem	B/83/04/A/44	A218			5.24.3
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem and upper base	B/83/04/A/44	A217			5.24.4
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem	A/88/17/620	A415			5.24.5
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem and lower steep sided bowl	B/83/04/A/44	A223			5.25.6
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem	A/84/17/377	A159			5.24.7
4.3.1	goblet	knopped	cigar	soda	clear	2 frags of stem and steep sided bowl	B/83/04/44	A50			5.24.8
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem	A/87/17/511/9	A121			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of base and stem	A/87/17/511/8	A120			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of base and lower stem	A/88/17/646	A679			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of base and lower stem	A/88/17/646	A680			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem	A/84/17/382	A153			
4.3.1	goblet	knopped	cigar	soda	clear	2 frags of upper stem and steep sided bowl	B/83/04/A/44	A212			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper base and stem	B/83/04/A/44	A216			5.24.9
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper base and stem	B/83/04/A/44	A215			5.24.10
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem	B/83/04/A/44	A214			5.24.11
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem	B/83/04/A/72	A220			5.24.12
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper base and stem	B/83/04/A/44	A224			5.24.13

4.3.1	goblet	knopped	cigar	soda	clear	1 complete base and stem	B/83/04/A/44	A210		8.2	5.24.14
4.3.1	goblet	knopped	cigar	soda	clear	5 frags of base, stem and lower steep sided bowl	B/83/04/44	A56		7.4	5.25.1
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper base and stem	B/83/04/A/44	A213			5.25.2
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem	B/83/04/A/44	A211			5.25.3
4.3.1	goblet	knopped	cigar	soda	clear	3 frags base, stem and lower steep sided bowl	B/83/04/44	A209			5.25.4
4.3.1	goblet	knopped	cigar	soda	clear	2 frags of base, stem and lower convex bowl	B/83/04/44	A55			5.25.5
4.3.1	goblet	knopped	cigar	soda	clear	1 complete stem	B/83/04/A/66	A249			5.25.6
4.3.1	goblet	knopped	cigar	soda	clear	2 frags of base and stem	B/83/04/A/44	A227			5.25.7
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of complete base and stem	B/83/04/44	A226		7.3	5.25.8
4.3.1	goblet	knopped	cigar (repaired)	soda	clear	5 frags of stem and lower bowl with a gilt wire repair	B/83/04/66	A207			5.26.1
4.3.1	goblet	knopped	cigar (repaired)	soda	clear	2 frags of stem and lower convex bowl with a lead	B/83/04/A/44	A208			5.26.2
4.3.1	goblet	knopped	cigar (repaired)	soda	clear	4 frags of base and stem with a lead repair	B/83/04/A/44	A225			5.26.3
4.3.1	goblet	knopped	cigar (repaired)	soda	clear	2 frags of stem and lower convex bowl with a lead	B/83/04/A/44	A87			5.26.4
4.3.1	goblet	knopped	ribbed round knop (repaired)	soda	clear	1 complete stem with a lead repair	A/84/14/D/6	A157a			5.26.5
4.3.2	goblet	mould blown	ladder	soda	clear	1 frag of upper stem	A/88/17/620	A716			5.27.1
4.3.2	goblet	mould blown	lion mask	soda	clear	8 frags of base, stem and complete trumpet bowls	B/83/04/66	A54	8	6.7	5.27.2
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of lower stem	A/88/17/620	A696			5.27.3
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of upper stem	A/84/14/G/9	A161			5.27.4
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of lion mask stem and deep bowl	B/83/04/A/66	A53			5.27.5
4.3.2	goblet	mould blown	lion mask	soda	clear	1 complete stem	B/83/04/A/44	A206			5.27.6
4.3.2	goblet	mould blown	lion mask	soda	clear	12 frags of base, stem and bowl	B/83/04/A/44	A228		9	5.27.7
4.3.2	goblet	mould blown	lion mask	soda	clear	1 stem	B/83/04/A/44	A205			5.27.8
4.4.1	jug	pedestal	plain	potash	green	1 frag of body and curved handle	A/87/17/539	A577			
4.5.1	flask	globular	MB wrythen	potash	green	1 frag of body	B/83/04/A/44	A403a			

Appendix 1.6 *Poole*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	MB bosses	soda	clear	rim and body	F25	52	9		5.30.1
4.1.1	beaker	cylindrical	MB bosses	soda?	clear	rim and body	VI L1	51	7		5.30.2
4.1.1	beaker	cylindrical	MB bosses	soda?	clear	rim	VI L1	50	8		5.30.4
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	base with rigaree base ring	VI L1	38		6.5	5.30.3
4.1.1	beaker	cylindrical	prunted	soda	blue	complete profile with pointed prunts, with traces of gilding	u/s	16	9	11	5.30.5
4.1.2	beaker	barrel	horizontal trail	soda	clear	rim and body with an impressed prunt	F23	26	6		5.31.1
4.1.3	beaker	squat	plain	soda	clear	base with opaque white impressed prunt foot	F37	49	6		5.31.2
4.1.4	beaker	pedestal	enamelled	soda	clear	body decorated with enamelled letters	F33	6			5.31.3
4.1.4	beaker	pedestal	enamelled	soda	clear	rim and upper body, enamelled letters	F25	5	8		5.31.4
4.1.4	beaker	pedestal	enamelled	soda	clear	rim enamelled	F4	10	7		5.31.5
4.1.4	beaker	pedestal	enamelled	soda	clear	rim enamelled	F4	8	7		5.31.6
4.1.4	beaker	pedestal	enamelled	soda	clear	rim enamelled	F4	7	8		5.31.7
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	base	VI L1	36		7.5	5.31.8
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim	VI L1	40	7		5.31.9
4.1.4	beaker	pedestal	plain	potash	green clear	base and body	VI L1	32		9	5.31.10
4.1.4	beaker	pedestal	plain	potash	green	upper base	VI L1	4			5.31.11
4.1.4	beaker	pedestal	plain	soda	clear	base	F23	19		9	5.31.12
4.1.4	beaker	pedestal	plain	soda	clear	majority of base	VI L1	22		8.5	5.31.13
4.1.4	beaker	pedestal	plain	soda	clear	complete base	VI L1	34		8	5.31.14
4.1.4	beaker	pedestal	plain	potash	green clear	base	VI L1	37		6.5	5.31.15
4.1.4	beaker	pedestal	plain	potash	green clear	complete base	F4	9		9	5.31.16
4.3.1	goblet	knopped		soda	clear	tall bowl with opaque white dots on vertical ribbing	F23	11			5.32.1
4.3.1	goblet	knopped	cigar	soda	clear	upper stem	VI L1	55			5.32.2
4.3.1	goblet	knopped	ribbed inverted baluster	soda	clear	complete stem with remains of gilding	VI L1	15			5.32.3
4.3.1	goblet	knopped	round knop	soda	clear	trumpet shaped bowl and upper knop	VI L1	23		9	5.32.4
4.3.1	goblet	knopped	round knop	soda	clear	flaring base, stem and lower bucket bowl	F37	42		8	5.32.5
4.3.1	goblet	knopped	round knop	soda	clear	flaring base, stem and trumpet shaped bowl	F37	44		8	5.32.6
4.3.3	goblet	compound	cable	soda	clear	fragment of looped stem with white red and yellow core	F37	48			5.32.7

4.3.4	goblet	pedestal	horizontal thread trail	soda	clear	deep bowl decorated opaque white trails	F36	20	1		5.32.9
4.3.4	goblet	pedestal	horizontal thread trail	soda	clear	rim with opaque white trailing	VI L1	14	1		5.32.10
4.3.4	goblet	pedestal	knopped	soda	clear	complete base, with vertical opaque white marvered trails	VI L1	12		8.5	5.32.8
4.3.4	goblet	pedestal	knopped	potash	green clear	complete base	F23	27		8	5.32.11
4.3.4	goblet	pedestal	plain	potash	green clear	complete profile	F37	28	5.5	7	5.32.12
4.3.4	goblet	pedestal	plain	potash	green clear	central pedestal	VI L1	39			5.32.13
4.3.4	goblet	pedestal	vertical rib	potash	green clear	lower base	VI L1	33		8	
4.5.1	flask	globular	plain	potash	green clear	complete rim and neck and lower base	VI L1	35	3	6	
4.5.1	flask	globular	wrythen	potash	green	rim and neck	IV F46	41	6.5		
4.6.1	bowl	pedestal	plain	soda	op white	fragment of pedestal base	VI L1	18		7	5.32.14
4.7.1	jar	albarello	square	potash	green clear	rim and upper body	F37	54	6		5.32.15
4.7.1	jar	globular	wrythen	potash	green clear	rim, neck and spherical body	F45	29	5.5		5.32.16

Appendix 1.7 *Camber Castle*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	engraved	soda	clear	3 frags of rim and body, engraved	CT V 66	833439			6.3.1
4.1.1	beaker	cylindrical	thin cut spiral trail	soda	clear	1 frag of body	I 3	833507			
4.1.1	beaker	cylindrical	thin cut spiral trail	soda	clear	1 frag of body	IQ	753881			6.3.2
4.1.4	beaker	pedestal	MB mesh	soda?	clear	1 frag of rim and body	OT III 287	832713	7.5		
4.1.4	beaker	pedestal	MB mesh	soda	clear	1 frag of rim	EBY 2 DW	833513			6.3.3
4.1.4	beaker	pedestal	MB roundel	potash	green	2 frags of rim and upper body	KT 1 & 2	753893a	6		6.3.4
4.1.4	beaker	pedestal	MB vertical rib	potash	green	2 frags of body	CT II 86	833433	8		
4.1.4	beaker	pedestal	MB wrythen	potash	green	1 frag of rim	G IV 268	832704	8		
4.1.4	beaker	pedestal	MB wrythen	potash	green	2 frags of rim and upper body	CT V 59 & 66	833440&83345			6.3.5
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	4 frags of rim and body	NB X 145	833461	7		6.3.6
4.1.4	beaker	pedestal	plain	potash	green	2 frag of rim	NB X 157	833469	8		
4.1.4	beaker	pedestal	plain	potash?	clear	multiple frags of complete base	A VII 2	833496			6.3.7
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	B VI 2/4	833497			6.3.8
4.1.4	beaker	pedestal	plain	potash	green	3 frags of base	KK	753887		6	6.3.9
4.1.4	beaker	pedestal	plain	potash	green	1 frag of base	KT 1 & 2	753893b		8	6.3.10
4.1.4	beaker	pedestal	plain	potash	green	1 frag of base	LO	767208b		6	6.3.11
4.1.4	beaker	pedestal	plain	potash	green clear	multiple frags base	Multi-Garderobe	833504			6.3.12
4.1.4	beaker	pedestal	plain	soda?	clear	3 frags of base	NB EB u/s	u/s 1		8	6.3.13
4.1.4	beaker	pedestal	plain	potash?	clear	1 complete base	u/s	833491		6.8	6.3.14
4.1.5	beaker	pedestal flute	plain	soda	clear	3 frags of lower body and upper base	CT 17	833571			6.3.15
4.3.1	goblet	knopped		soda	clear	1 frag of lower bowl with rigaree trail	CT III 286	832711a			6.4.1
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem, heat distorted	NB EB u/s	u/s 5			6.4.2
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of upper stem	CT V 99	833444a			6.4.3
4.3.1	goblet	knopped	inverted baluster	soda	clear	3 frags of body and stem, floral engraving	A V 1/2&82 CT V	833494&83344		5.8	6.4.4
4.3.4	goblet	pedestal		potash	green clear	1 frag of upper base	u/s	833493b			
4.3.4	goblet	pedestal		potash	green clear	1 frag of upper base	u/s	833493a			
4.3.4	goblet	pedestal		potash	green	1 complete base	cellar	833503		8.5	6.4.5
4.3.4	goblet	pedestal		potash	green clear	1 complete base	cellar	833503		8	6.4.6

4.3.4	goblet	pedestal		potash?	green	1 frag of upper base	KO 1 & 2	753889			6.4.7
4.3.4	goblet	pedestal		soda	clear	1 frag of base	KP	753891		8	6.4.8
4.3.4	goblet	pedestal		potash	green	3 frags of complete base	LO	767208a		9	6.4.9
4.3.4	goblet	pedestal		potash	green	1 complete base	NB I 2	833560			6.4.10
4.3.4	goblet	pedestal		potash	green clear	1 complete base	NB II 1	833563		8.5	6.4.11
4.3.4	goblet	pedestal		potash	green clear	3 frags of lower bowl, with two prunts	NY 48.94	767207			6.4.12
4.3.4	goblet	pedestal	coloured trail	soda	clear	1 frag of rim	NBY 352	832724b			
4.3.4	goblet	pedestal	coloured trail	soda	clear	2 frags of trumpet bowl	G I 64&CT II 81	833429&83347	10.5		6.4.13
4.3.4	goblet	pedestal	coloured trail	soda	clear	2 frags of rim and body	NB I 2	833559&83350	8		6.4.14
4.3.4	goblet	pedestal	enamelled	soda	clear	1 frag of bowl with blue and white	NB X 145	833468			6.4.15
4.3.4	goblet	pedestal	enamelled	soda	clear	1 frag of bowl with white	NBY 352	832724a			6.4.16
4.3.4	goblet	pedestal	horizontal trail	potash?	clear	1 frag of lower bowl	NB I 5	833565			
4.3.4	goblet	pedestal	horizontal trail	potash?	clear	1 frag of rim	EBY 2 DW	833513a			
4.3.4	goblet	pedestal	horizontal trail	potash?	green clear	4 frags of rim	cellar	833503	11		6.5.1
4.3.4	goblet	pedestal	horizontal trail	soda	clear	14 frags of base and lower bowl, with prunt	EBY 2	833513		10.5	6.5.2
4.3.4	goblet	pedestal	horizontal trail	potash?	green	1 frag of rim	LO	767208c	12		6.5.3
4.3.4	goblet	pedestal	horizontal trail	potash?	green clear	1 frag of rim	NB I 3	833564	10		6.5.4
4.3.4	goblet	pedestal	horizontal trail	potash?	clear	1 frag of rim	NB I 5	833565	11		6.5.5
4.3.4	goblet	pedestal	horizontal trail	potash?	clear	multiple frags of body with enamelling	OX	767206	10		6.5.6
4.3.4	goblet	pedestal	horizontal trail	potash?	clear	7 frags of rim	u/s	833492a	8		6.5.7
4.3.4	goblet	pedestal	horizontal trail	potash?	clear	2 frags of rim	u/s	833492b	10		6.5.8
4.3.4	goblet	pedestal	MB roundel	soda?	clear	1 frag of lower bowl	CT I 115	833420			6.5.9
4.3.4	goblet	pedestal	MB vertical rib	potash	green	2 frags of lower base	CT II 86	833435&83343		8	
4.3.4	goblet	pedestal	MB vertical rib	potash	green	2 frags of base	NB I 2&NB II 2	833561&83357		7.5	6.5.10
4.5.1	flask	globular	MB vertical rib	potash	green clear	1 frag of neck	G I 14	833470			
4.5.1	flask	globular	plain	potash	green	1 complete base	NB EB u/s	u/s 3		6	
4.5.1	flask	globular	plain	potash	green	1 frag of complete rim, neck and body	G VI 65	833489	2.5		
4.5.1	flask	globular	plain	potash	green clear	2 frags of base	C IV 2	833498		3	
4.5.2	flask	oval	MB wrythen	potash	green	1complete rim and neck, trail on neck	CT IV 316	832721	2.8		6.5.11
4.5.2	flask	oval	plain	potash	green	1 complete base	CT V 119	833446		8.5	6.5.12

4.5.5	flask	case bottle	square	potash	green	1 complete base	CT V 99	833444b		4.3	
4.5.5	flask	case bottle	square	potash	green clear	1 complete base and lower side	CT II 36	833569		4	
4.5.5	flask	case bottle	square	potash	green	47 frags of base, shoulder and body	CT III 287	832712a		8	
4.6.3	bowl	dish	plain	potash	green	2 frags of rim	CT III 287 &282	832712b&8327	20		6.5.13
4.7.1	jar	albarello	plain	potash	green	1 frag of rim	SBC 9/GF	833520	9		
4.8.2	chemical	urinal		potash	green	1 frag of rim	EB X 3	833516b	7		
4.8.2	chemical	urinal		potash	green	1 frag of base	G II 133	833483			
4.8.2	chemical	urinal		potash	green clear	1 frag of rim	NB II 2	833573	9		6.5.14
4.8.3	chemical	lamp		potash	green	1 frag of lower base	u/s	833517			6.5.15

Appendix 1.8 *Acton Court*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	colour trail	soda	clear	folded base ring with one small lion prunt	136	C69		15.8	6.7.1
4.1.1	beaker	cylindrical?	enamelled	soda	op white	fragment of body, with green and red enamel and gilding	1291	1467 C4			6.7.2
4.1.1	beaker	cylindrical	MB mesh	potash	green	1 frag of body	1781	1141 C65			
4.1.1	beaker	cylindrical?	MB wrythen	soda	clear	2 frags of body	128	1096 C22			
4.1.1	beaker	cylindrical	plain	potash	green	near complete base with rigaree base ring	1723	1067 C100		6.5	6.7.3
4.1.1	beaker	cylindrical	plain	soda	clear	fragment of rim	469	C86	15.5		
4.1.1	beaker?	cylindrical?	prunted	soda	clear	complete applied lion face prunt	136	542 C72			6.7.4
4.1.4	beaker	pedestal	colour trail	soda	clear	upper base	1778	1129 C16			6.7.5
4.1.4	beaker	pedestal	enamelled	soda	clear	4 frags of rim with enamel in red, white and blue and gilt	1044	907 C28	6.6		6.7.6
4.1.4	beaker	pedestal	plain	potash	green clear	pedestal base	136	215 C75			6.7.7
4.1.4	beaker	pedestal	plain	potash	green	complete base	1781	1140 C66		9.4	6.7.8
4.1.4	beaker	pedestal	plain	potash	green clear	complete base	2763	C78			6.7.9
4.3.1	goblet	knopped	cigar	soda	clear	complete stem	136	C70			6.7.10
4.3.1	goblet	knopped	cigar	soda	clear	complete stem	136	302 C71			6.7.11
4.3.1	goblet	knopped	cigar	soda	clear	upper portion of stem	1766	1110 C113			6.7.12
4.3.1	goblet	knopped?	engraved	soda	clear	1 frag of goblet base with engraved floral pattern	1723	1044 C96		7	6.7.13
4.3.1	goblet	knopped?	ice glass	soda	clear	slightly everted rim in ice glass	1043	535 C57	13.8		6.7.14
4.3.1	goblet	knopped	inverted baluster	soda	clear	complete stem and upper base	1044	884 C58			6.7.15
4.3.1	goblet	knopped	Nef	soda	clear	four frags of boat shaped bowl with coloured trails	1048	C27			6.7.16
4.3.1	goblet	knopped	ribbed round knop	potash	uncertain	complete stem	1042	878 C83			6.7.17
4.3.1	goblet	knopped	round knop	soda	clear	fragments of upper round knop and trumpet bowl	-	C30	12		6.8.1
4.3.1	goblet	knopped	round knop	soda	clear	complete base	2027	687 C51		5.6	6.8.2
4.3.1	goblet	knopped	round knop	soda	clear	complete stem and upper base	282	C1		8.4	6.8.3
4.3.1	goblet	knopped	round knop	soda	clear	complete base, stem and lower bowl.	469	876 C26		8.8	6.8.4
4.3.1	goblet	knopped	round knop	soda	clear	complete stem	735	458 C109			6.8.5
4.3.1	goblet	knopped?	sandwich	soda	clear	3 frag of rim, with out-fold	1723	C95	9.2		6.8.6
4.3.1	goblet	knopped	tazza colour trail	soda	clear	near complete shallow bowl	1291	C2	20		6.8.7
4.3.1	goblet	knopped	tazza colour trail	soda	clear	fragments of shallow bowl	137	1163 C5	21		6.8.8

4.3.1	goblet	knopped	tazza colour trail	soda	clear	4 frags of lower bowl	1618&1	1052 C15			6.8.9
4.3.1	goblet	knopped	tazza colour trail	soda	clear	lower flat bowl	3510	1948 C37			6.8.10
4.3.1	goblet	knopped	tazza colour trail	soda	clear	rim and shallow bowl	935	C48	16.2		6.8.11
4.3.1	goblet	knopped	tazza colour trail	soda	clear	lower bowl	935	407 C47			
4.3.1	goblet	knopped?	trailed	soda	clear	fragment of hemispherical bowl	1605,	798 C107			6.9.2
4.3.1	goblet	knopped?	trailed	soda	clear	large frag of rim from a hemispherical bowl	1723	1028 C14	14		6.9.3
4.3.1	goblet	knopped?	trailed	soda	clear	rim from a deep bowl	1948	1326 C36	10		6.9.1
4.3.1	goblet	knopped?	vase	soda	clear	1 frag of body and neck	1742	1101	6		6.9.4
4.3.4	goblet	pedestal?	enamelled	soda	clear	1 frag of rim, with white enamel and scratched gilt	1993	1425 C41	7.8		6.9.5
4.3.4	goblet	pedestal	folded knop	potash	green	complete pedestal base	947	780 C77		8.8	6.9.6
4.3.4	goblet	pedestal	plain	soda?	clear	lower base	1014	C84		11.4	6.9.7
4.3.4	goblet	pedestal	plain	soda?	clear	base	127	1474 C8		13	
4.3.4	goblet	pedestal	plain	soda	clear	lower base	1778	1131 C23		8	6.9.8
4.3.4	goblet	pedestal?	plain trailed	soda	clear	3 frags of bowl	1778	1012 C21			6.9.9
4.3.8	goblet	lid	colour trail	soda	clear	central fold	1043	874 C56			6.9.10
4.3.8	goblet	lid	colour trail	soda	clear	2 fragments of central fold	1344,	1286 C108			6.9.11
4.3.8	goblet	lid	colour trail	soda	clear	lower frag of edge and fold	1778	1125 C17	6		6.9.12
4.3.8	goblet	lid	plain	soda	clear	1 frag of edge and fold	1742	1081 C105	7		6.9.13
4.3.8	goblet	lid	plain	soda	clear	1 frag of central fold	1993	1365 C42			6.9.14
4.3.8	goblet	lid	plain?	soda	clear	complete upper plain finial	1618	1015 C114			6.9.15
4.3.8	goblet	lid	plain?	soda	clear	complete upper plain finial	1778	1135 C25			6.9.16
4.4.1	jug	pedestal	colour trail	soda	clear	folded base ring	121	441 C6		8	6.10.1
4.4.1	jug	pedestal?	colour trail	soda	clear	curved shoulder and short neck	1477	1324 C35			6.10.2
4.4.1	jug	pedestal?	colour trail	soda	clear	fragment of trefoil pouring lip, folded out	1778	1137 C19			6.10.3
4.4.1	jug	pedestal?	handle	soda	clear	complete handle with a lower blue rosette prunt	-	C18			6.10.4
4.4.1	jug	pedestal?	handle	soda	clear	lower curved handle	136	220 C73			
4.4.1	jug	pedestal?	handle	soda	clear	near complete curved handle	1723	1051C99			6.10.5
4.4.1	jug	pedestal?	handle	soda	clear	fragment of lower handle	2128	C85			
4.4.1	jug	pedestal?	handle	soda	clear	lower twisted handle with a rosette prunt	935	860 C50			6.10.6
4.4.1	jug	pedestal?	plain	soda	clear	fragments of trefoil pouring lip	1778	1134 C20			6.10.7

4.5.1	flask	globular	plain	potash	green	base	1044	C62		9.6	
4.5.1	flask	globular	plain	potash	green	base	1993	C46		7	
4.5.1	flask	globular	plain	potash	green	base	1993	C45			
4.5.3	flask?	pedestal?	colour trail	soda	clear	lower body	1286	1468 C3			
4.5.3	flask	pedestal	cruet	soda	clear	complete stem, base and neck fragment	1723	1091 C97	1.8	7.5	6.10.8
4.5.3	flask	pedestal?	enamelled	soda	clear	rim and upper neck, with enamel and gilt	1993	1363 C40	2.2		6.10.9
4.5.3	flask	pedestal	plain	potash	green clear	2 frags of base	136	1476 C74		9.5	6.10.10
4.5.4	flask	conical	plain	potash	green	fragment rim and body	469	C89	4.6		
4.5.5	flask	case bottle		potash	green clear	complete neck and shoulder	941	C79			
4.5.5	flask	case bottle		potash	green	flat base	944	756 C67			
4.5.5	flask	case bottle	square	potash	green	flat base	1044	C63			
4.6.1	bowl	pedestal	MB vertical rib	soda	clear	upper base	1822	1512 C9			6.10.11
4.6.1	bowl	pedestal	MB vertical rib	soda	clear	5 frags of lower base	1822	1166 C10		11	6.10.12
4.6.1	bowl	pedestal	MB vertical rib	soda	op white	small bowl with everted lid rest and lower lid	1993	C38 & C39			6.10.13
4.6.1	bowl	pedestal	plain	soda	clear	upper portion of bowl	1762	1092 C115			6.10.14
4.6.1	bowl		plain	soda	op green	2 frags of bowl in chalcedony glass, green with brown streaks	518&52	85 C53	9.8		6.10.15
4.6.2	bowl	hemispherical	MB vertical rib	soda	clear	fragment of base with pulled base ring	1993	1407 C43		8.2	6.10.16
4.7.1	jar	albarello	plain	potash	green clear	fragment of rim	2128	C87	11.6		
4.7.1	jar	albarello	plain	potash	green clear	fragment of rim	413	C88	8		
4.8.1	chemical	distilling	alembic?	potash	green	end of spout	535	78 C55			
4.8.2	chemical	urinal		potash	green clear	curved base	-	C33			
4.8.2	chemical	urinal		potash	green	convex base	1044	C60			
4.8.2	chemical	urinal		potash	green	convex	1044	C61			

Appendix 1.9 *Nonsuch Palace*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	coloured trail	soda	clear	3 frags of body, with blue and opaque white	aw8 7	107+109			
4.1.1	beaker	cylindrical	MB mesh	soda	green clear	1 frag of rim	aw5 2	29	7		
4.1.1	beaker	cylindrical	MB mesh	potash	green	3 frags of base with a rigaree base ring	bw ii/iv 3	1021,		8	6.13.1
4.1.1	beaker	cylindrical	plain	soda	clear	2 frags of base with a rigaree base ring	case no 10	169a?		6.5	
4.1.4	beaker	pedestal	MB mesh	potash	green clear	1 frag of rim	aq1 4	18	10		
4.1.4	beaker	pedestal	MB mesh	potash	green clear	1 frag of rim	c ch ii 9	1054			
4.1.4	beaker	pedestal	MB vertical rib	potash	green blue	10 frags of rim, body and base	bw4 ii/iv 4 y	172	10	7.5	6.13.2
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	22 frags of complete profile	y4 34 & 35	1241,	5.2	7	6.13.3
4.1.5	beaker	pedestal flute	octagonal	soda	clear	1 frag of base with blue threads	?	charls 56		5	6.13.4
4.2.2	tankard	bellied	plain	soda	clear	2 frags of rim	case no 10	169?	5.5		
4.3.1	goblet	knopped		soda	clear	pedestal vase goblet with lattimo decor. .	case no 8	?	10.8		
4.3.1	goblet	knopped	capstan	soda	clear	8 frags of base, stem and lower bowl	aw5 ex 2d	156		6.5	6.13.5
4.3.1	goblet	knopped	capstan	soda	clear g/t	1 frag of lower bowl and upper stem	cx14 3	84			
4.3.1	goblet	knopped	cigar	soda	clear	1 frag of stem	a r8 3	lm273?			6.13.6
4.3.1	goblet	knopped?	enamelled	soda	clear	1 frag of bowl, white enamel	bw4 ii/iv	179			6.13.7
4.3.1	goblet	knopped?	engraved	soda	clear	1 fragment of bowl engraved curls and foliage	cx14 5	93			6.13.8
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem and upper base	aw5 4	126			
4.3.1	goblet	knopped	inverted baluster	soda	clear	1 frag of stem	bw4 ii/iv	charls 21			6.13.9
4.3.1	goblet	knopped	inverted baluster	soda	clear y/t	1 complete stem	p/o 15/16 16 T	charls 14			6.13.10
4.3.1	goblet	knopped	inverted baluster	soda	clear g/t	1 frag of stem	bh a g8i 4	523			
4.3.1	goblet	knopped	inverted baluster	soda	clear	complete profile	case no 16	?			6.13.11
4.3.1	goblet	knopped	inverted baluster	soda	clear	2 frags of stem	p/o 15 16 16 T	181			6.13.12
4.3.1	goblet	knopped	inverted baluster	soda	clear	2 frags of stem	at8 2a	2			
4.3.1	goblet	knopped	ribbed inverted	soda	clear	1 frag of stem	aw2 1	13			6.13.13
4.3.1	goblet	knopped	ribbed inverted	soda	clear	1 complete base, stem and frags of bowl	case no 11	?	11.2	7.5	
4.3.1	goblet	knopped	ribbed multiple	soda	clear	11 frags of complete profile some trailing over gilt.	case no 7	? (323)	11	7.2	
4.3.1	goblet	knopped	ribbed round knop	soda	clear	1 frag of stem	s8 2	34			6.13.14
4.3.1	goblet	knopped	ribbed round knop	soda	clear	1 frag of stem	bh d5 ii 4	503			6.13.15

4.3.1	goblet	knopped	ribbed round knop	soda	clear	1 frag of stem and lower bowl	bx4 1	53			6.13.16
4.3.1	goblet	knopped	ribbed round knop	soda	clear gy/t	1 frag of upper base, stem and lower bowl	cx14 4	charls 43			6.13.17
4.3.1	goblet	knopped	round knop	soda	clear	5 frags of base, stem and bowl	w5 ex 2d	charls 1		5.5	6.13.18
4.3.1	goblet	knopped	tazza	soda	clear	1 frag rim	at8 1	8	20		6.14.1
4.3.1	goblet	knopped?	wing	soda	clear	1 complete wing	cq14 iii 5	89			6.14.2
4.3.1	goblet	knopped?	wing	soda	clear	1 frag of clear curl	aw5 4 -	127			6.14.3
4.3.1	goblet	knopped?	wing	soda	clear	2 complete wings in clear and blue	at7 iii 3 p	151			6.14.4
4.3.1	goblet	knopped?	wing	soda	clear	2 identical wings	t7 iii 3 p	152			6.14.5
4.3.2	goblet	mould blown	ladder	soda	clear	1 frag of stem and upper base	bw4 34 o	165			
4.3.2	goblet	mould blown	ladder	soda	clear	24 frags of rim, stem and bowl	aw2 5d	114	10		6.14.6
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of lower stem	cx14 5	lm315			6.14.7
4.3.2	goblet	mould blown	lion mask	soda	clear g/t	13 frags of bowl, stem and base	aw2 5c 3	9430		8.5	6.14.8
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of upper stem	(a) q1 3	14			6.14.9
4.3.2	goblet	mould blown	lion mask	soda	clear	1 frag of upper stem	x16 2b	79			
4.3.4	goblet	pedestal	folded knop	soda	clear	1 frag of stem and lower rounded bowl	cx14 4a	91			6.14.10
4.3.5	goblet	applied	enamelled	soda	clear	31 frags of complete profile with enamel and gilding	case no 6	6 (52)	14	12	
4.3.5	goblet	applied	plain	soda	clear	3 frags of base, stem and lower bowl	?	charls 35		8.5	6.14.11
4.3.6	goblet	rod stem		soda	clear	1 frag of thin solid rod stem	cq 15 4	88			
4.3.6	goblet	rod stem	solid knop	soda	clear gy/t	1 frag of complete stem lower broad bowl	cw13 8	85			6.14.12
4.3.7	goblet	cage stem	plain	soda	clear y/t	7 frags of stem	p/q 15/16 16T	186			6.14.13
4.3.8	goblet	lid	coloured trail	soda	clear	10 frags of lower lid	case no 9	?	22	18	
4.3.8	goblet	lid	plain	soda	clear	1 frag of folded lid	unstrat	2355f			6.14.14
4.4.1	jug	pedestal	MB vertical rib	potash	green clear	11 frags of rim and handle	case no 15	?	7		
4.5.1	flask	globular	MB wrythen	potash	green clear	4 frags of rim, neck and base	aw8 5	1176	5.5	6.5	
4.5.1	flask	globular	MB wrythen	potash	green	6 frags of rim and neck	bw ii/iv 4 y	1194	5		
4.5.1	flask	globular	plain	potash	green	1 complete rim and neck	aw8 1	1158	3.8		
4.5.1	flask	globular	plain	potash	green clear	1 complete base	aw5 ex 2d	1137		6	
4.5.1	flask	globular	plain	potash	green clear	2 frags of rim, neck and base	bw4 ii/iv 3	1022 &	2.5	4.7	
4.5.1	flask	globular	plain	potash	green	7 frags of base and side	bw ii/iv 4	1203		6.2	
4.5.1	flask	globular	plain	potash	green clear	5 frags of base and body	case no 12	?		4.8	

4.5.2	flask	oval	MB wrythen	potash	green	6 frags of rim, neck, body and base	aw2 5d	1120	1.7	2.5	
4.5.2	flask	oval	plain	potash	green clear	6 frags of rim, neck and body	bw4 ii/iv 4 y	1182	2.6		
4.6.1	bowl	pedestal?		soda	opaque red	6 frags of rim and bowl, uneven swirled colour	?	charls 75	10		6.15.1
4.6.1	bowl	pedestal	plain	soda	clear	1 complete base from a bowl	si 13 ii	132		7	6.15.2
4.6.1	bowl	pedestal?	plain	potash	green	1 frag of rim and side	aq5 8	1002	13		6.15.3
4.6.3	bowl	dish	plain	soda	clear	18 frags of near complete plate	case no 13	?	18.5	12	
4.7.1	jar	albarello	plain	potash	green clear	4 frags of complete rim and shoulder	w1 5a	1092	6.2		6.15.4
4.7.1	jar	albarello	plain	potash	green clear	4 frags of rim, neck and shoulder	bw4 ii/iv 4	1191	10		
4.7.1	jar	albarello	plain	potash	green clear	3 frags of base and side	case no 14			7.5	
4.7.1	jar	albarello	plain	potash	green	4 frags of rim, body and base	cq 13 iv 5	1252	7	8.2	6.15.5
4.7.1	jar	albarello	plain	potash	green	9 frags of rim, neck and shoulder	bw4 ii/iv 4 y	1183	13		
4.8.2	chemical	urinal		potash	green clear	1 base	aw5 ex 2d	1144b			
4.8.2	chemical	urinal		potash	green clear	1 frag of rim and neck	bw4 ii/iv 4 y	1196	7		
4.8.2	chemical	urinal		potash	green clear	1 base	aw5 ex 2d	1144a			
4.8.2	chemical	urinal		potash	green	2 frags of rim and neck	cw 12/13 8	1257	3.8		
4.8.2	chemical	urinal		potash	green clear	18 frags of rim, neck and body.	aw1 5c	1105	7.5		
4.8.2	chemical	urinal		potash	green	1 complete base	aw1 5a e	1095			
4.8.2	chemical	urinal		potash	green	1 frag of complete base	aw1 5a E	1100			
4.8.2	chemical	urinal		potash	green clear	3 frags of complete rim and neck	w1 5a e	1089	8.2		

Appendix 1.10 *Norton Priory*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	MB vertical rib and spiral	soda	clear	1 frag of body	-	10			
4.1.1	beaker	cylindrical	plain	potash	green clear	2 fragments of base with rigaree base ring	67 (9)	661		7	6.18.1
4.1.1	beaker	cylindrical	plain	potash	green clear	1 complete base rigaree base ring	-	5		4.5	6.18.2
4.1.1	beaker	cylindrical	thick cut spiral trail	soda	clear	2 fragments of base with rigaree base ring	67 (14)	665		6	6.18.3
4.1.1	beaker	cylindrical	thick cut spiral trail	soda	clear	3 frags of everted rim and body	-	1	7.5		6.18.4
4.1.1	beaker	cylindrical	thin cut spiral trail	soda	clear	1 fragment of upper body	67 (12)	663			6.18.5
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	8 fragments of rim and upper body	67 (9)	547	7.8		6.18.6
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	5 fragments of rim	67 (9)	978	8		6.18.7
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	-	4		5	6.18.8
4.1.4	beaker	pedestal	plain	potash	green clear	1 complete base	-	3		8	6.18.10
4.1.4	beaker	pedestal	plain	potash	green clear	1 fragment of rim	67 (12)	-	7		6.18.9
4.3.1	goblet	knopped?		soda	clear	1 fragment of rim	80 (2)	669	8		
4.3.1	goblet	knopped		soda	clear	2 fragments of base 1 fragment of lower deep bowl	67 (9)	546b		9	6.19.1
4.3.1	goblet	knopped	cigar	soda	clear	1 complete stem	-	7			6.19.2
4.3.1	goblet	knopped	cigar	soda	clear	1 complete stem	-	8			6.19.3
4.3.2	goblet	mould blown	lion mask	soda	clear	1 complete stem	-	9			6.19.4
4.3.4	goblet	pedestal?	colour trail	soda	clear	1 fragment of bowl with opaque white trails	67 (4)	-			6.19.5
4.3.4	goblet	pedestal	plain	potash	green clear	1 fragment of base	80 (1)	668		7.5	6.19.6
4.3.5	goblet	applied pedestal	plain	potash	green clear	1 fragment of upper stem and lower flat bowl	-	6			6.19.7
4.4.1	jug	pedestal?		potash	green clear	1 fragment of upper handle	67 (14)	664			6.19.8
4.6.1	bowl	pedestal	plain	potash	green	1 fragment of base ring	71 (4)	671		11	6.19.9
4.6.1	bowl	pedestal	plain	potash	green clear	1 complete base	-	2		7.5	6.19.10
4.6.3	bowl	dish	plain	potash	green clear	1 fragment of rim	3 (4)	635	16		6.19.11

Appendix 1.11 *Eccleshall Castle*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	coloured trail	soda	clear	vertical rim and most of body	J & K (A)	107	8		
4.1.1	beaker	cylindrical	MB mesh	potash	green clear	complete base, plain base ring	C	97		7	6.21.1
4.1.1	beaker	cylindrical	MB vertical rib	potash	green clear	complete base, rigaree base ring		103			
4.1.1	beaker	cylindrical	plain	potash	green clear	complete base, rigaree base ring		102			6.21.2
4.1.1	beaker	cylindrical	plain	potash	green clear	complete base, rigaree base ring		101			
4.1.1	beaker	cylindrical	plain	potash	green clear	complete base, rigaree base ring		104			6.21.3
4.1.1	beaker	cylindrical	plain	potash	green clear	complete base, rigaree base ring		105			
4.1.1	beaker	cylindrical	plain	potash	green clear	complete base, rigaree base ring		106			
4.1.1	beaker	cylindrical	plain	potash	green clear	complete base, rigaree base ring		100			
4.1.1	beaker	cylindrical	thick cut spiral trail	soda?	clear	near complete body	J & M	96	9.4		6.21.4
4.1.1	beaker	cylindrical	thin cut spiral trail	potash	green clear	complete profile, rigaree base ring	K (C)	98	8.7	7	6.21.5
4.1.1	beaker	cylindrical	thin cut spiral trail	potash	green clear	complete base, rigaree base ring	M	99		6.6	6.21.6
4.1.4	beaker	pedestal	horizontal trail	potash	green clear	rim and upper side	0	109	6		6.21.7
4.1.4	beaker	pedestal	horizontal trail	potash	green clear	rim and upper side	K (C)	111	8.4		
4.1.4	beaker	pedestal	MB boss	potash	green clear	near complete body	C/E	94			
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	complete base		79			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim		85			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim		84			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim		83			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim		82			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim		81			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	near complete body		80			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim		87			
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	rim		86			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		70			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		72			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		63			6.21.8
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		73			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		75			

4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		78			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		64			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		76			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		65			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		66			6.21.9
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		67			6.21.10
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		68			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		69			6.21.11
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		71			
4.1.4	beaker	pedestal	plain	potash	green clear	complete pedestal base		74			
4.1.4	beaker	pedestal	plain	potash	green clear	complete base	K (C)	130			
4.1.5	beaker	pedestal flute	octagonal and thread	potash	green clear	rim	J & K (A)	108			6.21.12
4.1.6	beaker	roemer	pulled prunt	potash	green clear	multiple frags of base with a pulled base ring	K (D)	125			
4.3.1	goblet	knopped	cigar	soda	clear	complete profile	E	5	9.8	7	6.22.1
4.3.1	goblet	knopped	cigar	soda	clear	complete profile	E	6	10	6.6	6.22.2
4.3.1	goblet	knopped	cigar	soda	clear	complete stem, base and lower bowl	B moat	7		8.8	6.22.3
4.3.1	goblet	knopped	cigar	soda	clear	complete stem	K (D)	8			6.22.4
4.3.1	goblet	knopped	inverted baluster	soda	clear	complete stem, base and lower bowl	unstrat	10		6	6.22.5
4.3.1	goblet	knopped	inverted baluster	soda	clear	complete stem, base and lower bowl	unstrat	9		6.4	
4.3.1	goblet	knopped	inverted baluster	soda	clear	complete stem and lower thistle bowl	K (B)	12			
4.3.1	goblet	knopped	ribbed multiple	soda	clear	complete stem	C/D	26			6.22.6
4.3.1	goblet	knopped	round knop	soda	clear	complete stem and base	E	27		7	6.22.7
4.3.1	goblet	knopped	round knop	soda	clear	complete stem, base and fluted bowl	unstrat	11	5.8	5.8	6.22.8
4.3.1	goblet	knopped?	winged	soda	clear	frags of bowl with applied folded wing	K (A)	13			
4.3.2	goblet	mould blown	ladder	soda	clear	complete stem and lower bowl	J	2			6.22.9
4.3.2	goblet	mould blown	ladder	soda	clear	fragment of stem	K (C) &	150			
4.3.2	goblet	mould blown	lion mask	soda	clear	complete stem and flaring base	unstrat	1		8.4	6.22.10
4.3.4	goblet	pedestal?	colour trailed	soda	clear	complete bowl profile with opaque white trails	M	16	9		
4.3.4	goblet	pedestal	enamelled	soda	clear	bowl frags with red, green, white and yellow enamel	E & J	4	8.8		6.23.1
4.3.4	goblet	pedestal	enamelled	potash	green clear	complete profile, enamelled lettering	H & J	3	6.8	6	6.23.2
4.3.4	goblet	pedestal	folded knop	potash	green clear	complete base	K (C)	24		6.4	6.23.3
4.3.4	goblet	pedestal	plain	potash	green clear	upper base and lower deep bowl	unstrat	43			

4.3.4	goblet	pedestal	plain	potash	green clear	complete base	J	134			
4.3.4	goblet	pedestal	plain	potash	green clear	complete base and lower folded bowl	K (B)	17		8	6.23.4
4.3.8	goblet	lid	plain	soda	clear	edge and fold	unstrat	149	7.8		
4.5.1	flask	globular	kuttrolf	potash	green clear	rim and upper neck		302	6.2		6.23.5
4.5.3	flask	pedestal	plain	potash	green clear	complete base		215			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		219			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		216			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		217			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		218			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		224			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		223			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		222			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		221			
4.5.3	flask	pedestal	plain	potash	green clear	complete base		220			
4.5.5	flask	case bottle	square	potash	green	complete base		240			
4.5.5	flask	case bottle	square	potash	green	complete base		243			
4.5.5	flask	case bottle	square	potash	green	complete base		241			
4.5.5	flask	case bottle	square	potash	green	complete base		244			
4.5.5	flask	case bottle	square	potash	green	complete base		245			
4.5.5	flask	case bottle	square	potash	green	complete base		239			
4.5.5	flask	case bottle	square	potash	green	complete base		246			
4.5.5	flask	case bottle	square	potash	green	complete base		238			
4.6.1	bowl	pedestal	lattimo	soda	opaque white	complete base	F	133		7	
4.6.1	bowl	pedestal	plain	potash	green clear	complete base	K (C)	131			
4.6.1	bowl	pedestal	plain	potash	green clear	complete profile	C	129	13	6.8	6.23.6
4.6.1	bowl	pedestal	plain	potash	green clear	complete profile	O	128	13.2	7.6	6.23.7
4.6.2	bowl	hemispherical	handled	potash	green clear	rim and vertical handle	M & E	342	15		
4.6.2	bowl	hemispherical	handled	potash	green	complete base, bowl, rim and horizontal handle	unstrat	127	9	6.2	6.23.8
4.6.3	bowl	dish	plain	potash	green clear	lower base	M	145		7	
4.6.3	bowl	dish	plain	potash	green clear	lower base	K	146		9	
4.6.3	bowl	dish	plain	soda	clear	lower body and base	J	144		9.6	
4.8.1	chemical	distilling	alembic	potash	green clear	complete vessel	unstrat	333			6.24.1

4.8.1	chemical	distilling	cucurbit	potash	green clear	rim and convex base		334	6.4		6.24.2
4.8.1	chemical	distilling	cucurbit	potash	green clear	rim		335	7.8		
4.8.2	chemical	urinal		potash	green	convex base		332			
4.8.2	chemical	urinal		potash	green	convex base		331			
4.8.2	chemical	urinal		potash	green	convex base		330			

Appendix 1.12 *Woodhall*

Code	Class	Group	Sub Group	Metal	Colour	Description	Context	Ref No	Rim	Base	Fig
4.1.1	beaker	cylindrical	thin cut spiral trail	potash	green clear	11 frags of complete base with rigaree trail	27 3272	20		6.4	6.27.1
4.1.3	beaker	squat	MB bosses	soda	clear	1 frag of rim	27 736	2	8		6.27.2
4.1.3	beaker	squat	MB bosses	soda	clear	1 frag of base with opaque white impressed prunt foot	20 736	27			6.27.3
4.1.3	beaker	squat	plain	soda	op white	9 frags of base, rim and impressed prunt foot	20 1059	16	7	6	6.27.4
4.1.3	beaker	squat	plain	soda	clear	1 frag of base with blue impressed prunt foot	8 156 29	8			6.27.5
4.1.3	beaker	squat	plain	soda	clear	1 frag of rim with blue rim trail	20 736	10	8		6.27.6
4.1.4	beaker	pedestal	MB mesh and vertical rib	potash	green clear	3 frags of body	27 3272	19			6.27.7
4.1.4	beaker	pedestal	MB vertical rib	potash	green clear	1 frag of rim	27 3272	18	7		6.27.8
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	1 frag of rim	20 1041	21	10		6.27.9
4.1.4	beaker	pedestal	MB wrythen	potash	green clear	2 frags rim	27 3272	5	8.2		6.27.10
4.1.4	beaker	pedestal	plain	potash	green clear	4 frags of base	20 810	34		10	6.27.11
4.1.4	beaker	pedestal	plain	potash	green clear	1 frag of rim	20 736	9	9		6.27.12
4.3.1	goblet	knopped		soda	clear	1 frag of lower bowl, heat distorted	20 1593	6			
4.3.1	goblet	knopped		soda	clear	1 frag of lower deep bowl	27 736	11			6.28.1
4.3.1	goblet	knopped		soda	clear	1 frag of steep sided bowl	27 736	12			6.28.2
4.3.1	goblet	knopped		soda	clear	1 frag of bowl	20 736	26			6.28.3
4.3.1	goblet	knopped	engraved	soda	clear	2 frags of rim with thick horizontal trail, floral engraving	20 1500	25	8.5		6.28.4
4.3.4	goblet	pedestal		soda?	clear	1 frag of tubular base ring	20 899	31		9	6.28.5
4.3.4	goblet	pedestal	folded knop	soda	clear	30 frags of complete profile decorated with enamel and	20 810	35	10	9.8	6.29-30
4.3.4	goblet	pedestal	horizontal trail	soda?	clear	17 frags of bowl	20	24	8		6.28.6
4.3.4	goblet	pedestal	MB bosses	soda	clear grey	20 frags of trumpet shaped bowl	20 810	33	8.5		6.28.7
4.4.1	jug?	pedestal?	colour trail	soda	clear	1 frag of shoulder opaque white trails	27 3003	30			6.28.8
4.4.1	jug	pedestal?	colour trail	soda	clear	1 frag of base opaque white trails	14 1800	28			6.28.9
4.5.1	flask	globular?		potash	green	2 frags of neck	20 1041	7			
4.5.3	flask	pedestal?		soda	clear	1 frag of constricted neck and applied wavy trail	27 736	3			
4.6.1	bowl	pedestal	plain	soda	op white	9 frags, very degraded	20 1041	15			
4.6.2	bowl	hemispherical		potash	green clear	1 frag of rim	20 81	32	13		6.28.10
4.6.3	bowl	dish	plain	potash	green clear	7 frags, 5 rim 2 base	27 3272	4	16	8	6.28.11

4.7.1	jar	albarello	plain	potash	green clear	3 frag of rim and body	27 3272	17	6.5		6.28.12
4.7.1	jar	albarello	plain	potash	green	1 frag of rim	27 3272	14	8		6.28.13
4.7.1	jar	albarello	plain	potash	green clear	1 frag of rim	20 1593	13	8.2		6.28.14

Appendix 2 *Mould Blown Stem Type Descriptions*

Ladder Stems (fig. 7.11)

Ladder Mould One

A clear-cut mould simply executed, clearly different from all other types. The stems undergo significant distortion after removal from the mould, seemingly intentionally elongated or compressed into inverted baluster shapes. The main decoration consists of eight prominent vertically running ribs. Four of these are plain and encircled by a lower secondary ridge. Interspersed evenly between these are four vertical running ribs consisting of eight increasingly smaller squared bosses, encircled again with a lower secondary ridge. The lowest, and smallest, of these bosses can be obscured by the join between the stem and basal merese.

Ladder Mould Two

A complex pattern, usually sharply defined. The stem can undergo significant distortion on removal from the mould. The top zone is clearly defined with sixteen short rounded gadroons, terminating at a horizontal ridge. The main design consists of four vertical rows of four prominent squared bosses, which diminish in size down the stem. Interspersed between these are four oval panels, two of which incorporate the mould seams. These panels are decorated with four vertically running raised circles, with a ridge across their diameter.

Ladder Mould Three

A complex pattern, usually sharply defined. The stem can undergo significant distortion on removal from the mould. The top zone is clearly defined with sixteen short rounded gadroons, terminating at a horizontal ridge. The main design consists of four vertical rows of four prominent squared bosses, which diminish in size down the stem. Interspersed between these are four oval panels. The two which incorporate the mould seams are of the same form as mould type B, running the full length of the stem and decorated with four vertically running raised circles. The two panels on the front faces of the stem are shorter, starting at the bottom and terminating half way up its length. Above these on both faces are floral designs with five lobed petals, similar to the Tudor Rose.

Ladder Mould Four

A complex pattern, usually sharply defined. The stem can undergo significant distortion on removal from the mould. The top zone is clearly defined with sixteen short rounded gadroons, terminating at a horizontal ridge. The main design consists of four vertical rows of four prominent squared bosses, which diminish in size down the stem. Interspersed between these are four oval panels. The two which incorporate the mould seams are of the same form as mould type B, running the full length of the stem and decorated with four vertically running raised circles. The two panels on the front faces of the stem are shorter, starting at the bottom and terminating half way up its length. Above these on both faces are a three leafed *fleur de lis*, with diamond shaped upper and curled side leaves.

Lion Mask Stems (fig. 7.14)

Lion Mask Mould A

A clearly cut mould, but of quite a crude nature. The stems seem to quite often undergo very significant distortion subsequent to their removal from the mould. Both faces are broadly similar. The noses are shaped like an inverted 'v' in three parts with a small slightly open mouth and the nose bridge continues into wavy eye brows. The chins are quite rounded and pronounced, whilst the ears are round. There are thin strands of mane above and below the face. There are fourteen gadroons of very uneven size, but conforming to a uniform pattern. Sometimes they are flattened on top, but always extend down the very top of the stem. There are eleven lower gadroons of uneven shape. The side bosses are of a medium size and are quite protruding, consisting of five grouped roundels, although the mould seam can interrupt these. The five linking roundels on each side are round and join the faces just below each ear.

Lion Mask Mould B

A uniform mould, well executed, but the stem is seemingly quite often subsequently distorted. Both faces are in quite low relief. They have distinct semi-circle eye brows and snout. The snout is divided into three parts with a small rounded lower chin and the mouth horizontal with turned down corners. The ears on both faces are separate circles. The upper mane consists of two sprouts from each eyebrow and there is some very indistinct lower mane below the face. There are twelve quite evenly spaced upper gadroons, which are slightly flattened on top, but curve down the very upper portion of the stem. The ten lower gadroons are fairly even. The side bosses are quite large and distorted by the mould seams. The five linking roundels on each side are quite large and join the upper cheeks of the opposed faces.

Lion Mask Mould C

A very uniform mould, quite crisply executed. The resulting stem undergoes little subsequent distortion. Both faces are quite similar. They both have very pronounced rounded noses with a horizontal mouth. One face has a slightly more inverted 'v' shaped nose than the other and this face also has a distinct dimple on the chin, the other face's chin being plain. Both have small round cheeks and ears and have large brows with a clear centre parting of the upper mane. There are fourteen upper gadroons, all short and rounded with a flattened top. There are twelve well-formed lower gadroons. The side bosses are quite small, on one side the boss is a crisp cluster of five roundels, on the other it is more disturbed by the mould seam, sometimes giving the appearance of a cluster of eight roundels. There are five slightly oval linking roundels on both sides, joining the opposing faces at the cheek.

Lion Mask Mould D

Quite a uniform mould of quite good execution. The stem seems to undergo little subsequent distortion. Both faces are similar. Their noses are quite small with rounded prominent cheeks. The eyebrows are in quite low relief with two mane curls coming from each. The ears are quite large and very slightly semi-circular. The chins are rounded, one on one face having a slight dimple. There are distinct lower manes below each face. There are fifteen upper gadroons, uneven in size and flattened on top. The ten lower gadroons are slightly uneven in size. The side bosses are quite small and made up of five un-joined roundels arranged in a cross shape. The five linking roundels on each side are joined together and attached to the ears of the faces. The upper four are quite small, the lowest being large and prominent.

Lion Mask Mould E

A very uniform mould, crisply executed. The resulting stem seems to undergo very little subsequent distortion. Both faces are very similar. Both are quite 'human' in appearance, with large cheeks, angular noses and low turned down mouths. Both have pronounced lumped fore heads without upper mane above head. The ears are separate circles and on one face the right ear is distinctly lower than the left. There are seventeen upper gadroons, crisp low and flattened on top. There are thirteen regular lower gadroons. Both side bosses are large with seven grouped roundels. Each side has five quite pronounced linking roundels, joining the ears of each face. Each face has an additional group of five raised dots in a petal formation above each ear.

Lion Mask Mould F

A fairly uniform mould, not very crisply executed. The stem can face later distortion. Both faces are very similar and simplistic, mainly consisting of raised lines. Their noses are short, broad and flat, with horizontal lips and mouth. The chins on both are flat and well rounded. They have quite distinct circular eye sockets and small ears. Both faces have a full spiky mane above and below the head. There are sixteen short rounded upper gadroons, flattened on top. There are fourteen indistinct lower gadroons. Both the side bosses are medium sized, consisting of elongated clusters of seven roundels, and distorted by the mould seam. There are five rounded linking roundels on each side, the lowest being elongated horizontally by the mould seam.

Lion Mask Mould G

A very small mould which is quite poorly executed. The resulting stem can undergo subsequent distortion. Both faces are broadly similar. Both have quite triangular noses and enclosed eye sockets. Both have dimples above a fine eyebrow, and have thick short curls of upper mane on the top of the head. The ears are both rounded circles, except on the face, where the right ear is elongated downwards, joining a lower linking roundel. There are twelve upper gadroons that are small and quite flattened on top. The eight lower gadroons are uneven in size and spacing. The side bosses are quite pronounced, each consisting of a cluster of five roundels. The five linking roundels are all joined and attached to the opposing face's ears.

Appendix 3 *Gazetteer of Published Glass Vessels*

Alcester (Warwickshire)-

Booth, P (1983) 'Glass.' Excavations at 64 Bleachfield Street, Alcester, Warwickshire 1981. *Birmingham & Warwickshire Archaeology Society* 93, 24.

Basing House (Hampshire)-

Charleston, RJ (1971) 'Glass.' Finds from Basing House, Moorhouse S. *Post-Medieval Archaeology* 5, 63-70.

Battle Abbey (Sussex)-

Charleston, RJ (1985) Vessel Glass. *Battle Abbey*, Hare JN. HBMC, 139-46.

Bawtry (Nottinghamshire)-

Courtney, P (1996) Vessel and Bottle Glass. *Excavations at 16-22 Church Street, Bawtry.* Dunkley, JA & Cumberpatch, CG. British Archaeological Reports 248, 138-40.

Bedford (Bedfordshire)-

Baker, D; Baker, E; Hassal, J; Simco, A (1979) 'Vessel Glass.' Excavations in Bedford 1967-77. *Bedfordshire Archaeological Journal* 13, 267-74.

Beeston Castle (Cheshire)-

Charleston, RJ (1993) The Seventeenth Century Glass. *Beeston Castle, Cheshire.* Ellis P. English Heritage, 170-2.

Berry Pomeroy Castle (Devon)-

Allan, J (1996) 'The Excavated Glass Vessel Fragments.' Berry Pomeroy Castle, Ed. Brown, S. *Devon Archaeological Society* 54, 237-8.

Boston (Lincolnshire)-

Charleston, RJ (1972) 'Glass.' Finds from the Excavations in the Refectory at the Dominican Priory, Boston. Moorhouse S. *Lincolnshire History & Archaeology* 7, 45-8.

Bristol (Somerset)-

Barton, KJ (1964) 'Glass.' Excavations of a Medieval Bastion at St. Nicholas' Almshouses, Bristol. *Medieval Archaeology* 8, 210-11.

Good, GL (1987) 'The Glass.' The Excavation of Two Docks at Narrow Quay, Bristol 1978-79. *Post-Medieval Archaeology* 21, 104-6.

Cannons Ashby (Nottinghamshire)-

Taylor, SJ (1974) An Excavation of the Site of the Augustinian Priory, Canons Ashby, Northants. *Northamptonshire Archaeology* 9, 57-67.

Canterbury (Kent)-

Charleston, RJ (1987) The Post Medieval Glass. *Canterbury Excavations, Intra & Extra Mural Sites 1949-55 1980-84.* Eds. Frere, SS & Bennett, P. Kent Archaeological Society, Maidstone, 232-49.

Shepherd, J (1985) 'The Glass.' Excavations at No. 41 St. George's Street, Canterbury. Ed. Blockley, K. *Archaeologia Cantiana* CV, 150-63.

Shepherd, J (1990) Late Medieval and Post-Medieval Glass. *Excavations in the Cathedral Precincts, 2, Linacre Garden, 'Meister Omers' & St. Gabriels Chapel.* Eds. Driver, Rady & Parks. Archaeology of Canterbury IV, 208-14.

Shepherd, J (1995) The Glass, iii Medieval, iv Post-Medieval. *Canterbury: Marlowe Car Park and Surrounding Area.* Ed. Blockley, K. Archaeology of Canterbury V, 1250-9.

Castle Rising (Norfolk)-

Cool, HEM (1997) Vessel Glass. *Castle Rising Castle, Norfolk.* Eds. Morley, B & Gurney, D. East Anglian Archaeology 81, 104-6.

Chelmsford (Essex)-

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