

CHAPTER FOUR

PRODUCTION

COMMON NAMES

Archaeologically, a ware is something that can easily be separated out from the mass of ceramic finds. Terms such as 'Rhenish Ware' and 'Black Burnished Ware' refer to genres rather than to the products of any particular industry. In this work, the term is used with caution, but the concept is easier to visualise than a clutch of form and fabric numbers and more historically more apt. A ware comprises a range of forms in a limited number of related fabrics. In modern jargon it would equate to a product line. In the ancient world it would equate to a distinct product which was the result of combining a particular aesthetic style with appropriate forms and fabrics for the intended function.

"BB2"

The term 'black burnished ware' evolved out of research carried out on the northern frontiers in the late nineteen fifties. Originally known as 'fumed ware' or 'cooking pot fabric', the vessel forms were illustrated in Gillam's 'Types' article of 1957. The Mumrills report of 1963 identified a difference between handmade 'BB1' and the wheelmade 'BB2'. This refinement was appended to Gillam's 1968 and 1970 revisions of his earlier work and incorporated in the structure of frontier history by Gillam and Mann (1970). Peacock (1973, 63) proved a Durotrigan origin for BB1 and suggested a source in eastern England for BB2. Farrar (1973, 84) formalised the definition of the two wares as well as recognising the multiplicity of imitations of the fabrics. He proposed a parallel development of BB2 after its inception as a copy of BB1. Although tentatively identifying the southeast as the major supplier of BB2, he was uncertain as to the relative importance of Upchurch, Colchester and the Thameside kilns.

Gillam (1981, 10) developed the opinion that Upchurch was the major supplier of northern BB2. Williams (1977) performed a heavy mineral analysis to prove the issue, but did not include Upchurch in his sampling. His results stressed the importance of Colchester, with Thameside Kent playing a minor role. Both Williams' methods and conclusions have come under heavy criticism, particularly by Kendrick on the lack of archaeological evidence near Colchester itself (Pollard, 1982a, 321 discusses this further). The problem is still unresolved (Robin Symmonds, pers. com.) as there are several distinct fabrics found at Colchester some of which are virtually indistinguishable from Thameside products (See Appendix IV). The current author was unable to find much BB2 at Upchurch to analyse (1982b) but obtained a tentative separation of Thameside and Colchester pottery. Catherall (1983) and Pollard (1982a) have raised the profile of the Thameside kilns prior to this current work.

The fabric Slbs accords with the description of BB2 which has evolved over the past three decades. Farrar (1973, 84) states that slipping is a common feature of the fabric, but it is now obvious that the unslipped Sib is far more common and is otherwise identical in detail. He expressed surprise that BB2 ceased to be a distinct, homogenous when examined in the south. The variety of form and fabric seen within BB2 on northern Kentish sites is a natural result of their being close to the source of the pottery (Monaghan 1985). This partly explains the confusion that has grown up around BB2. Northern workers have insisted on a narrow definition of the fabric and the forms in which it occurs, based on the highly selective, consumer-defined northern frontier assemblages. Here standard, marketable forms would be found in a fabric that varied only within acceptable limits. Closer to the kiln site, variety would increase as costs fell and the consumers became less discriminating. The occurrence of experimental forms and aberrant fabrics would reach a maximum on a kiln site.

The term 'BB2' is perhaps as useful as 'samian' as a pottery category. At some distance from its source, the numerous fabrics can be considered *en bloc* for convenience. Care must be taken when considering the historical validity of the category; even if one excludes the many fabrics which do not meet all Farrar's criteria, there are still several separate sources which could have been supplying the pottery at various times. Any attempt to define BB2 at a national level is doomed to failure; it is a style rather than a true fabric. There are innumerable grey ware imitations and degenerate traditions of mainstream BB2 whilst the main production areas are so nebulous as to be difficult to pinpoint with any degree of realism.

The simple, robust, functional BB1 found widespread imitators, even on the continent (Santrout and Santrout 1979, fig 149). It is clear that one imitator was wheelmade (BB2) and developed its own distinctive style which was then copied further. Industries such as Alice Holt and Much Hadham produced pseudo-BB2 as minor parts of their output. One can spot grey ware imitations at small, local kilns as at Ash and degenerate fabrics as at Greenhithe. Large areas of the southeast were supplied with 'BB2' of a local nature but uncertain provenance.

The Thameside kilns produced BB2 as their major line of pottery, using fabric Sib and Slbs. Although principally for local use, some of this pottery was shipped north to make up a significant proportion of northern frontier BB2. It is illogical to separate the export component of the industry from products only used locally (Pollard in Catherall 1983, 123). It is also illogical to attempt to expand the narrow frontier definition of BB2 to embrace Kentish vessels in all their variety. It is only acceptable to use the term BB2 so long as it is recognised that no particular source is implied. One could refer to 'Thameside BB2' with the same degree of accuracy as the term 'Central Gaulish samian'.

"Upchurch Ware"

"The term now has no scientific connotations"

R.E.M. Wheeler (VCH 1932, 132)

"The use of the term is best avoided"

G. Webster (1964, 8)

Since Upchurch was initially recognised as a pottery production area, 'Upchurch Ware' has been synonymous with many varied types of pottery. Imprecise references are too numerous to list, but BB2, Gallo-Belgic TN, and native black beakers have all been lumped together under the phrase. There has been a degree of consensus that the term represents the upmarket finds of the antiquarians rather than the rather more plebeian discoveries of modern times. In popular modern usage, beakers in a dark grey or black fabric have been seen as its major component. The separate -if imprecise - recognition of BB2 in recent years has helped in this respect.

The term is best applied to the reduced fine ware fabrics from Upchurch (Monaghan 1984); N1/lb, N2/lb, and N3/lb. It should also embrace oxidised vessels in the same general style in the same fabrics. It should expressly exclude all fabrics with deliberate temper, whether of sand or otherwise. In addition the oxidised fabric N4/lb is adequately distinct to be treated separately. Upchurch pottery and Upchurch Ware should not be synonymous.

"Hoo Ware"

The questionable status of the flagon dump on Hoo Island has already been discussed. The distinctive fabric of the flagons has been recognised in London and elsewhere and has been tagged 'Hoo Ware'. Two problems are encountered here. First, there is no reason to assert that production was confined to Hoo Island. Second, the fabric is little more than an oxidised version of 'Upchurch Ware' N1/lb. That being said, the pottery is sufficiently distinct to merit individual recognition. The alien tradition of its forms and the use of non-local slips sets it apart. The continued use of the term 'Hoo Ware' is therefore possible if sufficient care is applied. It is probably as appropriate a name as 'Upchurch Ware'.

"Streak Burnished Ware"

The term was coined by Marion Green (1981) to describe pottery found at Canterbury. The fabric is fine with distinctive blotching on the surface, similar to N1/lb. The vessels are oxidised an orange-red and are burnished in visible streaks. The use of white painted swirls on beakers is a key decorative item. The fabric is not the same as the problematic 'Shorne Flagon' mentioned in chapter two and has been thought part of the Upchurch output. No examples of this fabric have come to light in any of the antiquarian or modern collections examined from the north Kent Marshes. It must be concluded that this fabric does not come from Upchurch and that a source must be sought elsewhere.

"Upchurch Painted Ware"

Pollard tentatively identified an oxidised fabric with cream painted decoration from Upchurch which he called fabric 24c (1982a, 564 and 315); Green also alludes to this fabric (1981, 128). A few vessels are known in N4/1s which are not flagons. These use the alien fabric and white slip on traditional forms, for example 4B4.1. Such pottery is however very rare and appears to have been experimental in nature; possibly being for the potters' personal use only. It does not form a significant part of Upchurch output and cannot be regarded as a ware in its own right.

"London Ware"

The term 'London Ware' has for several years been recognised as referring to a distinctive style of decoration which has also been known as 'West Stow Ware', 'Weymouth Ware' and even 'Upchurch Ware'. It incorporates designs using compass-scribed circles and semi-circles plus incised parallel lines and bands of rouletting. Vessels of this type were certainly produced in London (Marsh and Tyers 1976, 234) as well as at Upchurch and possibly at Weymouth and West Stow. It will probably be impossible to say from which place the style originated. Now that a distinct 'London Ware' fabric has been identified in London, it is time the term was used only to refer to vessels made in the environs of the City. It would not be correct to say that the Upchurch potters manufactured 'London Ware', but it would be acceptable to say that some of their products were in the same style.

"Thames Shelly Ware"

There has been a growing recognition of this fabric under a variety of titles. Chiefly it is the fabric H1/4h, almost exclusively appearing as the large storage jar 3D. The term should perhaps not be applied to fabric H2/4 which is substantially different in both fabric and form, without noting the distinction.

FABRIC DESCRIPTION

In this work, the definition of a fabric given by Webster (1964, 13) is adhered to strictly: "A term used to describe the material of a finished vessel including texture and colour of both paste and surface." Formal definitions of the fabrics used in this work are to be found in Appendix III. The relationship between sandy fabrics is shown in fig. 85.

Defining a 'fabric' as a distinct entity is rather more difficult than describing the fabric of a particular vessel. It requires Webster's maxim to be applied to a large number of vessels to produce a group definition: akin to the archaeological scientist's chemical fingerprint (Wilson 1978, 219) without the precision. An archaeologically useful fabric is characteristic of some individual aspect of pottery manufacture: the potter, the industry, the local drift geology, the technology employed. Difficulties arise when bracketing a group of pots together under the

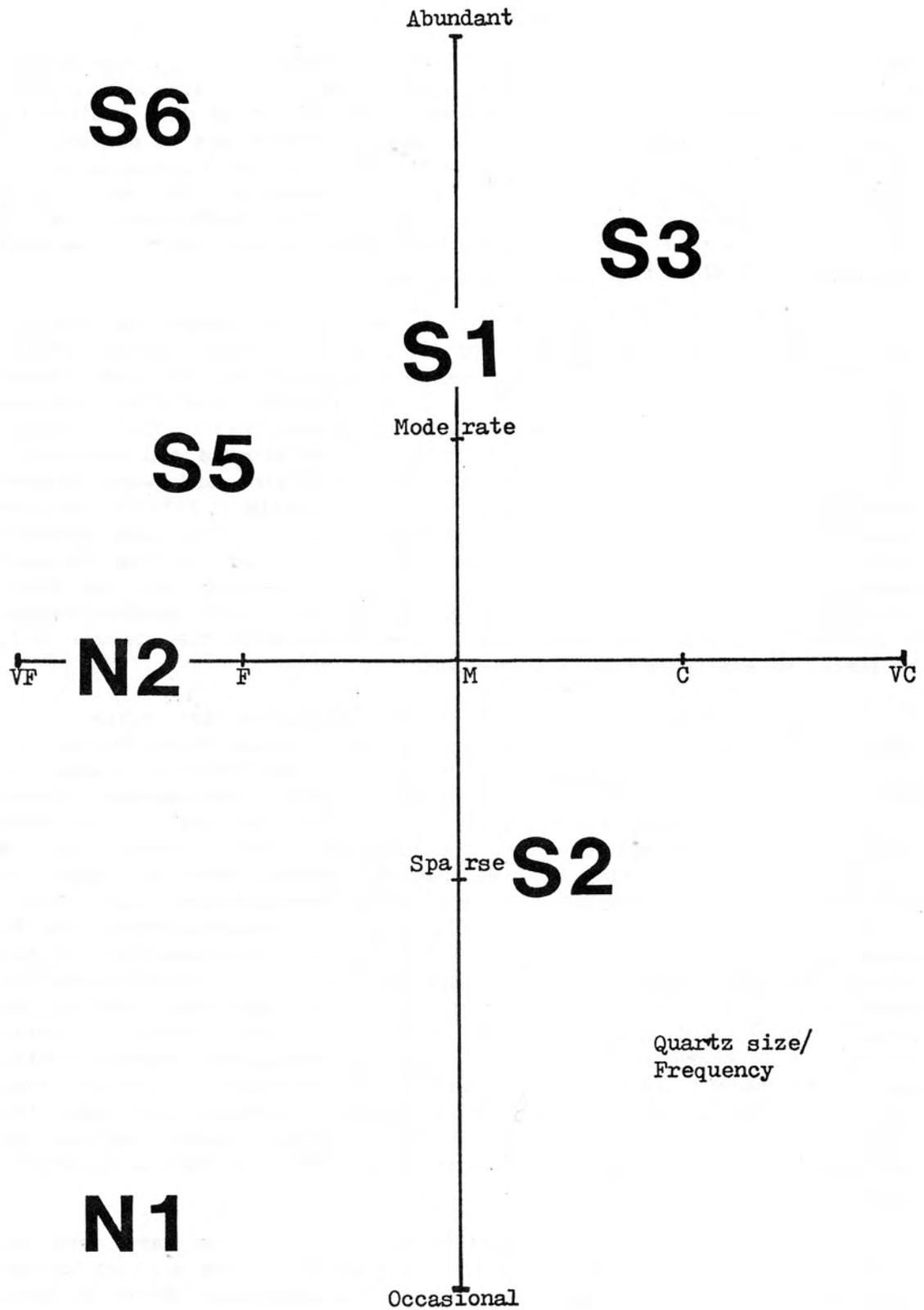


Fig. 85. Schematic relationship between sandy fabrics.

label of one fabric: each will vary slightly from the next and a point may be reached where this variation is judged to be significant. Defining the borderline between one fabric and another often has to be done arbitrarily as recognisable, consistent differences between fabrics may be difficult to describe in unambiguous terms. This partly explains the increasing use of scientific analysis, where the objective is to discover ever more subtle differences between otherwise similar vessels. The justification behind this approach is that some difference must exist between fabrics, the task being simply to identify it on a regular basis.

A 'fabric' has a chronological component. The fabric of Romano-British Upchurch Ware is not that of the 'Upchurch Ware' produced during the second quarter of the twentieth century, although the two have certain features in common. A second feature is geographical precision, one may wish to discuss 'BB2' or 'Thameside BB2' or indeed 'Cliffe BB2' This is affected by the detail involved in the definition process and the use to which the final definition is to be put. The third and most obvious component is physical. Two or more highly distinct fabrics may be produced during the same period in the same locality by the same potters. Typically the main criteria is the temper employed in the vessels' manufacture, followed by the finishing process employed and the minor inclusions present. The technique notes the vessels' most obvious feature to produce a general definition and then works towards the obscure until the limits of available resources are met.

All contributing factors in a fabric description are subject to a degree of latitude so that rigid definitions may be seen simply as meeting the requirements of archaeological convenience. If the division between two fabrics has to be arbitrary, its historical validity then becomes subject to question. The chronological aspect is the most difficult to accurately identify and the easiest to blur. The manufacture of a vessel takes a definite, very short, period of time. Between batches, over the years the fabric will alter in perhaps imperceptible or erratic ways. One 'fabric' can be said to change into another only when the archaeologist is able to detect and define a change, and this is subject to the sensitivity of the methods employed. The historical picture has to be that whilst successive generations of potters continue production in a restricted locality, of vessels with defined physical characteristics, the same 'fabric' is being produced. It is therefore acceptable to say that the SI/4b produced at the start of the second century is the same as that produced at its end, even though it is visibly coarser. There is no marked dividing line between the two, there is no noticeable geographic shift and the potters continue the same traditions. There was no switch from one fabric to another, rather a change took place within the fabric.

The geographic precision applied to a fabric may vary from an individual kiln up to a whole province, depending on the archaeologists' tolerance of variation within the 'fabric'. The ambiguous nature of this problem promoted the two-level approach to fabrics used in this work. The dilemma is eased in many cases -such as the current project- by the difficulty in assigning individual vessels to particular kilns; most of which may be unknown. The quality of the evidence prohibits the

assignation of one pot to Milfordhope and another to Slayhills simply on fabric grounds.

The historical situation could have been much more complicated than the picture presented so far, without this ever showing in the archaeological record. Groups of potters may have moved annually to exploit raw materials, peripatetic potters could have worked a circuit of sites around the marshes and non-specialist potters certainly started short-lived concerns at various locations. We do not know how many potters were involved or what the interval between contemporary working kilns was. If the number was small, then an industrious group may be seen as supplying the region as a whole. If the number was large, say one group per site identified, then the picture is one of a regional fabric being made at a number of points, the fabrics varying subtly between each until a point was reached where a different local tradition started to make itself felt. This is seen at Greenhithe, where the fabric is part of the Thameside tradition, yet is clearly on the fringes both physically and geographically. The recognition that a fabric did not emanate from a single point in space is evident in the trend towards identifying regional styles. It is both a neat way of side-stepping the problems of precise provenance as well as a realistic simplification of a complex situation.

The more precise a fabric definition, the fewer vessels it will embrace and may now be as accurate as the archaeologist desires. Increasing the detail in a fabric description does not necessarily increase its usefulness. Using a x20 microscope to create the definition excludes all the local groups who lack one from using the work to the full. If chemical or petrological means are employed then only a handful of specialists attached to major institutions will be able to fully exploit the information. The composition of a secondary clay bed may vary as much as + 30%, so that each pot can differ physically from the others made from the 'same' clay. The fabric of a vessel produced in several parts or built up over a period of days can vary considerably within the same pot.

Over a period of time, a group of ancient potters may employ clays from different beds and use temper from different localities. They would have applied only a rule-of-thumb guide to the requisite mix of clay and temper which would have varied around an acceptable norm. Over time, space and between individuals, one can see many 'fabrics' being produced that are so similar that the difference between each is less than the difference within each. We must therefore accept archaeologically broad fabric categories when dealing with regional coarse wares. The accent must be on typical examples, with regard to the acceptable variations. Divisions between one fabric and the next are chosen where the archaeologist can identify a difference: this need not be historically realistic.

The produce of one kiln-group is all inter-related by virtue of emanating from the hands of the same personnel using the same raw materials. The same clay was used for both fine and coarse ware production at Upchurch (Monaghan 1982b, 44), albeit differently treated. Although there are clear objectives in producing robust 'coarse' SI/lb and delicate 'fine' N1/lb, one can observe many vessels with ambiguous fabrics. It is not possible to state whether these are of a different, intermediate,

fabric, or are simply the more extreme variations on the norm. There is a degree of overlap between most of the fabrics described in this book: vessels occur in S3 which have so much shell they are almost H2: very sandy H2/1 merges with unusually fine S1/1. One can see the output of a kiln as being a continuum from the very fine to the very coarse, with frequency peaks indicating what the potter regarded as his intended products and what the archaeologist would call different fabrics. The blurring of divisions is most acute on the kiln site, but diminishes as distance of find-spot away from the kiln increases (Monaghan 1985).

RAW MATERIALS

The Upchurch and Thameside kilns are nearly all located directly on clay or alluvium. The latter produces a heavy, waxy clay with a water content up to 50% but is workable after levigation, especially if temper is added (David White pers. com.). Sites which are the exceptions to this rule are situated only a short walk from suitable clay. This raw material was required not only for the production of the pots themselves, but also for the construction of the kilns and kiln furniture. The potters appear to have used clay from the immediate vicinity (Monaghan 1982b, 40).

The source of iron-free clay for producing white slips is uncertain; certainly it does not appear on the marshland. The lack of a plentiful supply of such clay probably explains why the potters did not produce any pale fabrics, and possibly explains the absence of mortaria from their repertoire. David White reports the existence of a possible source for this clay high above the marshes in the region of Cliffe Woods. The industries practiced self-slipping rather than employing contrasting white slips. For this they chose the same clays as were used for the body of the pot, levigated to a colloidal state.

A black substance was painted onto certain first century vessels, notably the large storage jar form 3D. Raymond White of the National Gallery has provisionally identified the material as pitch, probably from deciduous trees such as Beech which grew in close proximity to the kiln sites. The same resinous pitch was employed to repair broken vessels. The use of cherry tree resin for this purpose has been a local practice up to modern times (Percy Payne pers. com.).

It is clear that many fabrics were deliberately fashioned from well-levigated and untempered clay (N1-N4). Others let the natural inclusions of fine silty sand within the alluvial clay serve as temper (S5 and S7). The major ranges of 'kitchen ware' employed temper as a matter of course. Grog was not used as a temper in the region after the late Iron Age, and rarely even then. A small local concentration of grog-tempered pottery occurs near Cliffe, but only very low quantities have been recovered. A few sherds also turn up on early Upchurch sites, especially that on Darnet Island. There does not appear to be a 'late groggy' fabric as occurs in London. Chaff was employed principally to temper low-fired ceramics for salt-boiling and to support kiln structures. Catherall reports that up to 70% of kiln bulk at Oakleigh was vegetable matter (1983, 140). A limited

quantity of other vessels were manufactured at Upchurch using chaff as a temper.

Shell-tempering was most popular along the Thames. Its major use was in large storage jars of fabric H1/4h, but in more moderate quantities, mixed with sand it served to temper a variety of vessels in fabric H2/4. Dr Ken Thomas has identified the shell used as oyster, an animal whose local importance has already been noted. Natural beach deposits of crushed shell also occur along the Cliffe foreshore (David White pers. com.).

Flint was used on its own (F1) and mixed with sand (F2) as the major temper for trans-conquest coarse ware production at Upchurch. The source is probably the chalk which is within half a mile of the marshes at Twydall (Payne 1915, 275). The flint would have been calcined to make it easier to crush. The fact that some flint-tempered vessels appear to be wheel-made is something of an enigma.

Quartz was the most popular post-conquest temper in the region. Apart from that already present in the clay, extra quartz could be obtained from the belts of sand which occur at intervals in the alluvial deposits. In addition, the high ground above the kiln sites includes the beds of Thanet and Woolhaven sands. The kilns at Higham and some of those postulated around Hoo Junction would have been dug into sand.

The non-deliberate inclusions in the pot fabric include fine silty quartz, plus the occasional larger, water-rounded grain which are normal constituents of the alluvial clays. Iron ores result from the iron pans which are common features of salt marshes; the marsh banks at Upchurch are stained by small patches of red iron. In the pottery it is manifest as soft, powdery magnetite when reduced, haematite when oxidised. Grains of rounded black 'greensand' have been washed downstream from the Maidstone region where the Medway cuts through Greensand beds. Flint, chalk and gravel chunks are derived from the Chalk and the gravel terraces which overlook the river valleys. The presence of muscovite mica probably dates to the original formation of the clays. Only in fabric N3 is mica particularly noticeable; here, burnishing has brought the fine mica particles to the surface giving a golden sheen, although without approaching the colour of a true mica dust. Charcoal, shell and grog pieces are probably rubbish from the kiln site, which may also be an occupation site, which has contaminated the clay/temper. The Museum of London regard such inclusions as diagnostic of North Kent (Barbara Davies pers com.).

VESSEL FORMATION

The forms in the typology exhibit features which give clues to the manner in which the potters made their wares. Practical experiment shows that whilst many forms are simple and can be made with only a little potting skill, others represent a very high degree of craftsmanship. Of particular note are the thin walls of the beakers and the brilliant gloss which is achieved on the better dishes. There is evidence of careless finishing of otherwise technically excellent vessels which suggests that a division of labour led to someone less skilled than the potter applying the decoration.

The most complex Upchurch form was the poppyhead beaker, class 2A. It is made from well levigated clay without using added temper, thrown on a wheel (fig. 86, 1). A crude pot is thrown, substantially heavier around the neck and base than the desired product (2). Once the pot has been allowed to dry so that it is only slightly malleable, it is returned to the wheel and inverted (3). Using a sharp tool, the potter turns a foot from the heavy base (4). A single vertical action with the tool on the base of the pot produces a foot-ring (5). One further action produces the hollowing of the base to complete the typical beaker base profile. The lower body may then be shaved to the requisite thickness: this action also prepares the surface for burnishing. The pot is then returned to the upright and its upper parts thinned to match the lower (8). The potter could omit this turning of the body, but would have to be satisfied with a thicker pot. At the neck, careful turning produces a cordon and a sharp, slender rim (9). The potter then holds the pot by its base and lowers it into a colloidal slip, usually of the same clay as that used for the pot's body. The slip usually stops short of the base - where the potter's fingers are! - and only covers a small part of the interior due to air pressure holding back the liquid (10). The pot is left to dry sitting on its base, resulting in trickles of slip running downwards. Before the pot is completely dry, the exterior is burnished using a smooth pebble (11). If done at the correct time, this produces the typical high gloss after firing.

The final act before firing is to apply the traditional decorative panels of 'barbotine dots'. This is not done in true barbotine fashion, as applying up to 1,000 dots individually would be an unnecessarily tedious business and add to the vessel's cost. Ian Jackson also pointed out that using combs to apply rows of dots would be equally impractical. The simplest and quickest method is to employ a leather template, which is placed on the pot before slip is painted over it. Pulling this template away produces the classic dot panels. Evidence that this was the technique used comes from the following four observations.

- i) Each panel on a pot tends to be identical.
- ii) Flaws are repeated from panel to panel.
- iii) Individual dots stray onto the neck cordon.
- iv) Small 'filler' panels of dots are needed when the vessels circumference does not equate with an integral number of standard rectangular panels.

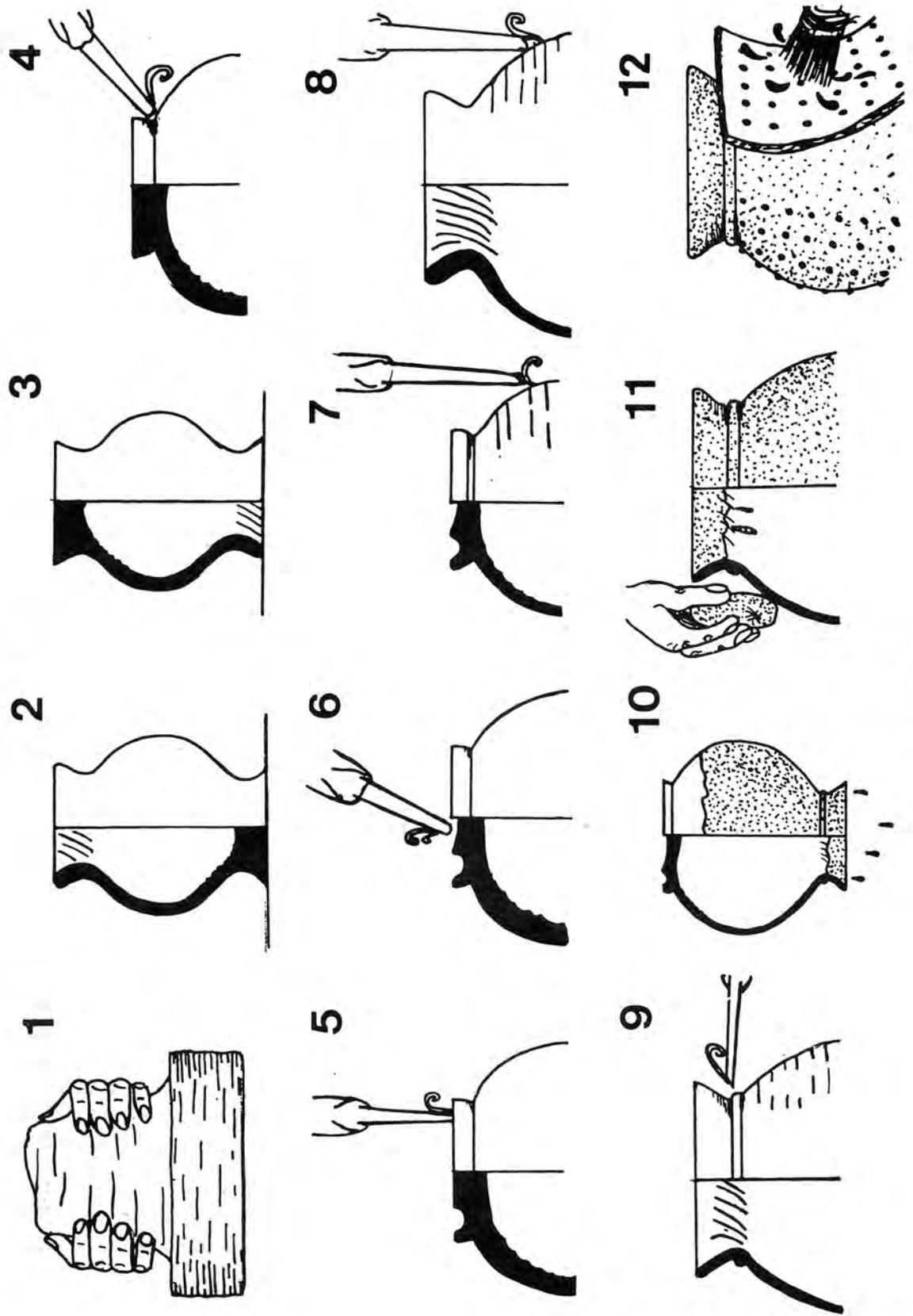


Fig.86

The techniques outlined above were applied to many other beaker styles. The form of the footring is very common at Upchurch and elsewhere. Carinated vessels of form 2G and 4G almost certainly required the use of templates in order to produce their elegant forms. The use of roulette wheels is common, but no examples of the wheels themselves are known from the region. Grooves on the vessels may be incised, excised or were commonly produced by heavy pressure on a burnishing tool.

The main family of flagons known to have been produced were made in two or three parts. Thickening around the junction of neck and body suggests that after the body was thrown it was left to partially dry before the neck was added. The foot ring may have been turned before this, using a chock of clay to support the vessel. The handle would be added soon after the neck: the two are normally well bonded. Oxidised flagons were slipped without being burnished.

The normal range of dish forms produced by the industries are, with the exception of form 5B, simple shapes which can be produced by a potter of only mediocre ability. They are therefore suitable for production in quantity, thrown on a wheel with no need for turning. A basal chamfer is produced with a tool just prior to the vessel being removed from the wheel. This serves to guide the wire when removal takes place and cleans off the sharp edge which would otherwise exist at the junction of wall and base. It is possible that a straight-edged template was used to form the walls of certain vessels; particularly forms 5E1 and 5F.

Most vessels were returned to the wheel to be burnished, producing a smooth, silky finish free of obvious burnishing marks. Some were slipped prior to this, others were wet-burnished, giving the appearance of a slip. Decoration was normally done with the burnishing tool, a small pebble being adequate. Many vessels seem to have been decorated when held upside-down. It is not unusual to find a vessel whose interior was facet-burnished in the hand.

The distinctive rim-forms of the dishes were again simple and these improved the appearance of a vessel as well as the grip one could get upon it. The groove on 5F was made with a tool when the vessel was still on the wheel. In the 'pie dishes' (5C and 5D) many different ways of forming the rim can be detected (fig. 87). In 5D2, the rim is drawn up then squashed outwards by the potter's fingers: his thumb on the vessel's interior supports the action. This produces the triangular rim section with a slight internal overhang just below the rim. When forming 5C1, the rim is rolled outwards into a disc then further rolled underneath itself to produce the half-round section. If this action is carried a little further, the overhanging 5C4 is produced. A finger may be run underneath this to flatten the bead into a more triangular shape, 5C3. An alternative step is to key in the rolled rim with the body, producing 5C6. All of the other identified variants on these forms are only slight variations on this theme.

A dish of form 5A is a simple step onward from a form 5C. It is a straightforward matter to put a groove in a rolled rim to produce 5A1. In 5A6, the flange is depressed rather than rolled outwards during throwing.

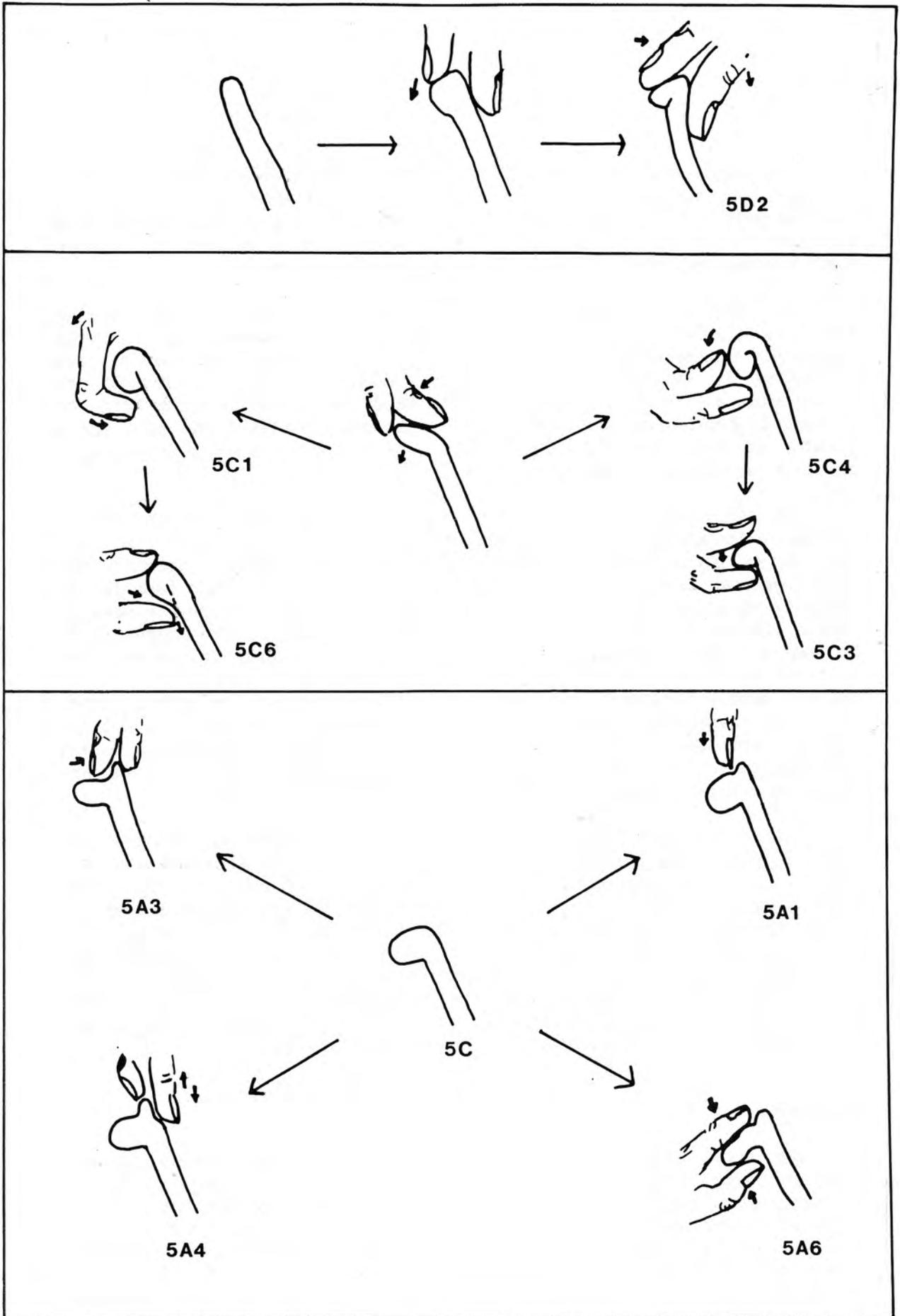


Fig. 87

Form 5A4 requires a rolled rim to be formed first, then a flange is formed off this rim by drawing up more clay from the inside of the pot to form a new rim with a pinched appearance. 5A2 is formed in a similar manner from a larger flange. 5A3 is formed by turning out the rim to form the flange, then drawing back part of this flange to form a new rim.

The complementary jar to the dishes described above is the 'cooking pot' form 3J. Swirls on their bases show they were removed from a moving wheel. Burnishing was done on the wheel after the vessel had been allowed to harden. It was confined to the neck, shoulders and inner rim of the vessel plus a zone around its foot: the base, waist and interior were not burnished. Burnishing the lower part of the body obviated the need for a chamfer to trim the foot. It was often of a severe nature, producing a distinct narrowing of the vessel.

The jar form 3H was contemporary with 3H and seems to have been a cheaper alternative, because their fabrics are identical apart the fact that 3H is hardly ever burnished. No attempt was made to decorate the vessel or even finish it neatly; the rough junction of foot and base is not normally smoothed off. The many rim variants of this form can be seen as simple variations of the rolled rim. There is no evidence to suggest that 3J was any more efficient than 3H as a jar. Although burnishing does improve the liquid retaining properties of a vessel (Oetgen 1982, 17), 3J is only partly burnished and then only on the exterior. The author tested the water retaining properties of a complete vessel of fabric S3/lh: there was no appreciable loss of its contents, even over a period of weeks, although the fabric itself became damp. The regions sandy fabrics are therefore suitable liquid containers even if unburnished.

Earlier jar forms than these exhibit certain interesting features. The faceted jars, form 3G, often exhibit signs of burnishing around the rim. This in fact emanates from the manner in which the rim is formed. The potter's thumb rests on the outside of the vessel as the rim is shaped and pulled upwards. The thumb produces the facet as a by-product of this action as well as imparting a gloss to the surface. The large storage jars of form 3D made at Cliffe had handmade lower parts and a wheel-finished rim. These vessels were probably made in sections over a number of days to prevent the vessels collapsing under their own weight; a fact that could bedevil those attempting to analyse them chemically.

DECORATION

The style of the local pre-conquest vessels was loosely 'belgic' although grog was not the preferred temper (cf. Thompson 1982). Characteristic belgic features are a cursive profile and the use of cordons. Burnishing all or part of a vessel was a common late Iron Age process. The burnishing tool was also used to decorate the vessels, commonly with rows of crosses or parallel lines. The use of pitch as a decorative medium was also a pre-conquest trait. Highly localised decorative schemes may be identified, for example the horizontal rilling of form 3G5 at Cooling and the vertical combing of 3G1 jars at Upchurch.

Another Iron Age tradition - Durotrigian BB1 - was incorporated into the local style in the early second century AD. Although the burnished lattice is known on belgic vessels before this date, it only becomes popular when associated with pots ultimately derived from Durotrigan prototypes. The local potters soon vulgarised the standard BB1 lattice to produce open lattices or a set of simple, vertical parallel lines. The sine wave is another device which becomes more common after the introduction of BB1 although used occasionally prior to this. Whereas the design is used on the necks of BB1 'cooking pots', the Thameside and Upchurch potters used it on bowl and narrow mouthed jar necks and on burnished dishes. The intersecting arcs common on later BB1 dishes and the decoration on vessel bases (Farrar 1973, 103, fig 12) were not adopted.

The use of lines of stabbing or thumbnail impressions around the shoulder is a regional tradition spanning the conquest. Numerous patterns are known, many employing shaped sticks to produce uniform diamond or circular impressions, others consist of rows of crosses or diagonal slashes. They are found on shelly H1/4h at Cliffe, flinty F2/1h at Upchurch, grogged 'Patch Grove' wares in western Kent and Sussex and in sandy fabrics in southern Essex and south-eastern Kent.

The use of slips is a post-conquest trait and is first seen on the flagons in N4/1s. A white slip was necessary to make these otherwise orange vessels conform to fashion. A small amount of experimentation occurred whereby this slip was used to decorate other vessel- for example 4B4.1 - but this never became an important part of production other than for flagons. Iron-free and iron-rich clays were used in the popular 'barbotine' dot panels on poppy head beakers. There was a widespread use of self-slips to improve the quality of pot surfaces prior to burnishing. Rouletting was adopted as a purely decorative technique rather than for its original purpose of hiding joints. The method of using compasses to inscribe circles on the pot surfaces has uncertain origins as described earlier in this chapter.

There are several techniques which the industry did not adopt whilst copying the styles of vessel upon which they were most commonly used. The Cliffe industries produced Essex-style ledge rim jars (form 3L) but did not copy the use of graffiti common across the Thames. When terra nigra was imitated, stamps - even illiterate ones - were omitted. Some of the 5E4 dishes did however have a simple "signature". Later beaker production copied imported and native colour-coated wares without needing to employ a slip to produce the desired effect.

The overriding impression gained from a study of the regional pottery is that of an industry with solid local traditions merging these with incoming fashions, producing a hybrid range of wares.