

CHAPTER SIX

THE HISTORY OF THE INDUSTRIES

Peacock has proposed a structure for pottery manufacture at several levels of organisation (1982, 8-11). The north Kent potteries appear at first to be a 'rural nucleation' (Peacock 1982, 95 . cf Pollard 1982a, 25). Whether the activity observed to have taken place on the north Kent marshes should be described as one industry or several is open to question. Production took place at several levels with varying degrees of motivation behind it. Each ware described in chapter 4 can be thought of as the product of one 'industry', which would mean that at least four industries were at work. The initial Hoo Ware and Upchurch Ware production appear to have merged at an early date - at least archaeologically - so the Upchurch marshes may be said to contain just a single 'industry'. Along the Thames there was the Thames Shelly Ware industry which could have pre-dated the Black Burnished Ware industry. The grey wares associated with both however are in the same style and have interchangeable fabrics and forms. The two could therefore be said to be facets of the same industry. The minimum number of industries is therefore two: Upchurch and Thameside Kent.

Along the Thames, many nuances of style can be noticed in the Black Burnished tradition, sufficient to assign particular characteristics to the typical products of individual production zones. The major problem in considering the Thameside industry is appreciating its scale: we know of only 25 kilns, most badly documented, plus a dozen suggested or claimed. This is one known kiln per ten years of the assumed span of production. Only if we assume that we have excavated fewer than one per cent of the original sites or allow an improbably long life for each structure, does this represent a true 'rural nucleation'. This would require contemporary production at many points across the marshes to be an accurate image. What may have been the case is that a lesser number of kiln groups were operating at any one time, but over the seasons they shifted their ground, possibly following available raw materials. What appears to be a dispersed industry on a distribution map may indeed have been a mobile industry. This mobility need not have been so drastic as the concept of itinerant (Peacock 1982, 27) or wandering potters (Hartley 1977) implies, but rather be analogous to that seen within the Wealden iron working industry (Cleere 1976, 234).

Co-existing with a shifting pattern of commercial pottery production were several sub-patterns of more casual potting. Some of the grey ware was produced by the same kiln-groups who were turning out the better wares. The rest was made at numerous points at various times with more limited objectives. Although kilns of this nature can be identified - Hew Ash Green is the best Kentish example - their products are limited in distribution, quantity and individuality and so are difficult to recognise. The contribution that these small concerns made to overall pottery supply cannot yet be estimated. The whole region therefore had a dynamic system of pottery production and distribution at many levels. This complex

interchange is encapsulated in the concept of a regional industry when the detail of the system is obscured by the limitations of the evidence. This does not permit the geographical or chronological precision required to properly assess the role of the more ephemeral concerns.

UPCHURCH: SYNTHESIS OF DEVELOPMENT

Pre-conquest

There is only a limited amount of evidence relating to the late Iron Age in the area of interest. Most of Thompson's (1982) distribution maps are blank in the marshlands. What evidence there is suggests that production was low in volume and highly localised. Upchurch and Maidstone are some fifteen kilometres apart yet each possessed a distinct local tradition. Potters in the vicinity of Maidstone produced the yellow-brown handmade 'greensand' tempered ware. On the Upchurch marshes, grey or black flint-tempered ware was the norm. Between the two lies Aylesford, one of the pair of type-sites for the Aylesford-Swarling tradition of cursive grog-tempered belgic vessels.

Production of coarse vessels on a restricted basis appears to have begun on the marshes around the beginning of the first century AD. Because there is no known Middle Iron Age occupation on the marshes, it is assumed that the sea level was too high before that time to permit regular occupation of the area (Ian Jackson pers. com.). The retreat of the sea permitted access to the outer marshes and pottery production would move outwards with the potters - who at this date appear to have been non-specialist.

The early Upchurch sites yield an amount of pottery of the Aylesford type and some in Maidstone fabrics, but the bulk was locally made. The main fabric was F1/lh in a variety of shades of orange, brown and grey although a tendency towards reduced vessels is marked. Typical forms manufactured were the belgic style bowls 4C and 4D, bead rim jars 3E and crude variants of the facet-rimmed jar 3G. There was an amount of experimentation with sand tempering and fabric S3/lhb was used before the conquest on the same range of forms as the flinty fabric. A small amount of grog-tempered vessels are also known in fabric G1/1: these are normally grey. The potters appear to have noticed the appeal of highly burnished black vessels as some have a very high gloss finish. There was little standardisation of form in this period, most vessels being unique in detail, suggesting casual production with low output. There was no 'trade' beyond perhaps local bartering for vessels that were surplus to a potters' personal requirements.

The pre-Flavian period

The conquest of AD 43 appears to have revolutionised the otherwise humble Upchurch potteries. Although it is difficult to distinguish sites which just pre-date the conquest from those of the early years of the occupation, one must conclude that the sudden expansion and diversification of potteries around the Medway estuary was directly linked

to the imposition of Roman rule. Perhaps the first noticeable change was in technology. Wheel-throwing started to be employed only during the conquest period, often at first only to finish the rims of otherwise handmade vessels. Although some pots are known in wheelmade F1/1 there was a discernible shift to the less coarse F2/1, perhaps less cruel to the potters hands when spinning on the wheel. The inclusion of increasing quantities of sand in lieu of flint indicates a growing sophistication.

There was an immediate post-conquest emphasis on grey and black pottery, much more so than at the corresponding Thameside sites. Kilns are known from this period and the indications are that they could not have been adopted much before the conquest, if at all. The kiln, together with the kick-wheel seems to have been a post-conquest introduction at Upchurch.

Coarse sandy fabrics were made side-by-side with flint tempered wares following the invasion (Jackson 1962). Sand became increasingly popular at the expense of flint, until the latter had ceased to be employed by circa AD 70-80. Handmade and wheelmade vessels could be fired in the same kiln whilst many are ambiguously wheel-finished or wheel-burnished. S3/1 became a mainly wheelmade fabric during the Claudio-Neronian period. There was a good deal of variety even in sandy wares at that time; S4/1 is a minority fabric of that time which contains a good deal of 'occupation site' rubbish; charcoal, shell and bone. S2/1 contains much less sand of a somewhat larger grain size than S3/1. Some casual production in minor fabrics such as E5/lh and C1/lh took place.

The forms manufactured after the conquest reflect the Romanisation of the local fabrics. Much of the native remained in the vessels however: burnishing, stabbing, combing and the use of cordons still being prominent features of post-conquest pots. Wheel-throwing refined the shape of the bowls and a great variety of forms seems to have been made during the first three decades of Roman rule. 4C developed into 4F and also influenced 3I. The standard jar became 3G, its fabric shifting from F1/lh to F2/1, S3/lh and ultimately to S3/1. The bead-rimmed jar 3E diversified into the more hook-rimmed 3F and a few bead-rimmed bowls were made (4E), together with a limited quantity of sub-belgic wide-mouthed bowls (4I). Pedestal-based vessels (3C) do not appear to have been popular either side of the invasion, so the presence or absence of a pedestal is not a diagnostic feature.

The volume of output appears to have increased during this period, although quantitative confirmation of this is not possible, given the nature of the evidence. Although there was a great deal of variety in bowl forms made during this period, the large quantity of 3G1 jars which were made hints at some attempt at standardisation. Someone, perhaps just one potter began producing a distinctive type of vessel rather than turning out a mixed assortment of pots as and when the need arose. The market for the invasion period coarse wares did not, however, extend far beyond the marshes themselves.

Soon after the invasion - how soon cannot be proved archaeologically - continental influence made itself felt in the Medway estuary. Completely

alien flagon forms of Claudio-Neronian date (1E5) in a new, fine fabric N4/l_s started to be made on the western marshes. There was no precedent for their colour, orange- pink nor for their white slips in the area. The standard of craftsmanship was in a different league to that of contemporary potters who were still hand-building flint-tempered jars. The distinction is so marked that only immigrant potters with one eye on the military market could have been responsible. Quite what their relationship with the native potters was can only be speculated upon, but it is clear that there was some interplay. The Hoo Island site (Blumstein 1956) yielded a limited quantity of sub-belgic forms in the same fabric as the 'Hofheim' type flagons being made there. The tradition initiated by the Hoo Island potters lasted at least a century, later production appearing to dovetail with local pottery styles.

In this period there was a marked local reaction to the flood of continental imports which followed the military invasion. In particular, Gallo-Belgic terra nigra seems to have inspired the Upchurch potters into imitation. It was a small logical step from the oxidised N4/l_s which copied imported flagons to the reduced H1/l_b in which a substitute for TN could be produced. Perhaps at a different location on the outer marshes, the somewhat siltier fabric H2/l_b was used for the same purpose.

With enhanced technology, popular patterns to copy and perhaps immigrant potters to imitate, local craftsmanship improved. The initial volume seems to have been small as few examples can be found of each type of early vessel. The Gallo-Belgic imports provided direct models for local imitation; the whole of type 7 and class 5B had this ancestry. Upchurch potters turned out black butt-beakers (2B) and black carinated beakers (2G2). A typical attribute of the industry was to freely mix different native and imported styles. This can be seen in the few girth-beakers known to have been made, for example the rather hybrid 2F2.1. These beakers and platters were the beginnings of true 'Upchurch Ware'.

AD 70 - AD 130

The Flavian and Hadrianic periods saw the Upchurch potteries in their prime. The industry shifted gear to cope with a sudden, unprecedented demand for coarse pottery within northern Kent. That this demand was still essentially local is shown by the restricted distribution of S3/1 and F2/1. All evidence points to a small group - perhaps a single potter plus assistants - operating in the Upchurch marshes to produce fine wares for commercial gain. A greater variety of forms was produced during this time than at any other. The basic Upchurch fabrics were utilised for forms based on contemporary continental imports, native copies of these imports, or local development of earlier copies. The Upchurch beakers, initially 2G and 2B, later 2A and 2I enjoyed a wide distribution throughout Kent from an early Flavian date.

Fine flasks of classes 1A and 1B had no native predecessors and were made in small numbers from this period onwards with black being the preferred colour. Platters may have ceased to be made shortly after TN imports stopped; they were never particularly numerous in the region. The

carinated beaker 2G2, with its mixed native/TN ancestry developed into the finer Roman 2G1 with its thinner walls and sharper profile.

The butt-beaker ceased to be made well before AD 100. It gave way to a vessel which was to become the mainstay of the industry; class 2A, the poppyhead beaker. Upchurch examples date from perhaps as early as AD 70 through to the third century. The earliest variant, 2A1 seems only loosely based on continental prototypes and its successors follow a purely indigenous development. A short-lived but related form was the globular everted rim beaker 2I.

A few cups are known that ape Samian forms (type 6) but these were in the ubiquitous grey or black and do not seem to have been in great demand. The Upchurch potters experimented with many popular forms of the period: 2H, 4H, 5B; all generally in restricted quantities. Perhaps the finest quality pottery ever produced on the marshes was that in the 'London Ware' style during the period AD 90-130. The dating of these vessels relies heavily on excavations in London and therefore this bracket is likely to alter given new findings in the City. The fabric H3/lb made a brief appearance at this time but was largely confined to platters of type 7 and bowls of class 4H. It is best seen as a variation on the standard Upchurch fabrics, but it is noticeable that this fabric tends to resemble true 'London Ware' more than do H1/lb or H2/lb.

The oxidised fabric N4/lb continued to be produced alongside reduced wares. It was employed solely for the manufacture of flagons with less experimentation than in earlier times. Its forms were less subject to direct continental influence and were generally smaller than the original Hoo Island finds. Some cultural assimilation must have taken place by this time between the postulated immigrants and the natives. By AD 70 there may have been a second generation with less fixed ideas regarding acceptable 'native' and 'Roman' styles of pottery. Ring-necked flagons of variant 1E1 are the main product during the later first century. This developed into the more cup-mouthed 1E2 by the early second. A number of less common forms were also produced. Towards the end of this period, restricted quantities of Upchurch pottery found its way to the army garrisons on the northern frontiers.

Coarse wares underwent a major transition during this period. Flint ceased to be a deliberate temper by AD 80 at the latest. Coarse sand-tempered S3/1 replaced F2/1 as it faded out, only to be replaced in itself by the finer, more Romanised S1/1 with its more moderate quantities of sand. Wheel-throwing became the rule and the general standard of workmanship improved, probably as a direct result of this. Vessels became lighter, more symmetrical and more standardised in form.

The wide range of conquest period bowls shrank to a developed belgic form, 4A3 and its successor, 4A1. The final inheritor of the tradition was the 4A2 S-profile bowl which appeared early in the second century. The cordons and shoulder decoration betray the vessels' ancestry, but the fabric was a wholly Roman S1/lb.

Bead-rimmed jars continued to be made into the second century, although declining in popularity. The popular early jar form 3G gave way to 3H towards the end of the first century. Whether there is any link between the two is debatable. One can see in 3H3 an intermediate form, but a gap of 10-30 years may have existed between the demise of one type and the adoption of the next. Most industries of the period produced a standard grey ware jar analogous to 3H, for example Cam. 267 (Hull 1963). It is simple, utilitarian, long-lived and typologically insensitive.

Jars of class 3A had been made prior to the conquest and follow a limited development from 3A2 to 3A1. The narrow necked form became a common vessel from the late first century onwards. Most lids recovered fall into this period as their fabrics are mostly S3/1. The advent of the dish as a vessel type may have made specialist lids redundant in the early second century. Upchurch did not make many vessels with grooves for seating lids, although a great variety of lid forms are found in the first century fabrics or forms which predate AD 130.

AD 130 - AD 200

This period saw the Upchurch industry in maturity. Two contrasting trends in fine ware production illustrate a more commercial attitude amongst the potters. The first was a marked increase in volume and a corresponding wider distribution. The second was a drastic narrowing of the range of vessels produced. Vessels of type 1 became increasingly rare after the middle of the second century. Fabric H4/1s ceased to be used and those few narrow-necked flasks and flagons which were produced are in reduced fabrics. All the vessels of Gallo-Belgic or Samian inspiration had ceased to be made by AD 130. The exotic shapes of forms 4H, 2G and eventually 2I were dropped in favour of producing poppyhead beakers to the virtual exclusion of everything else in fine ware.

There was a continuity of production which can be seen in the smooth development of class 2A. The small necked 2A1 and 2A2 developed first into the pear-shaped 2A3 and then into the globular 2A4 with its widely everted rim. After this, vessels became taller and started to lose their characteristic rectangular dot panels. Form 2A5 was produced towards the end of the second century, with the final vessels being variant 2A6, degenerate in form and decorated by rouletting. The last two variants are rare finds, even at Upchurch itself whereas the most common is 2A4.

The standardisation of the fine wares was mirrored in the coarser fabrics. Forms 3A, 3H and 4A2 replaced the heterogeneous first century grey wares. Vessels of class 3E and 3F continued to be used in limited quantities perhaps as late as AD 170. The fabrics employed were largely S1/1 and S1/1b, although S3/1 continued to be made well into the second century. It is clear that developments along the Thames, discussed in detail below, influenced the design of Upchurch coarse ware. The highly burnished S1/1b was employed on the new range of pottery in the 'BB2' tradition which appeared circa AD 110-130. Most noticeable amongst these are the dishes, chiefly the 'pie dishes' 5C and 5D and the simpler 5E. The latticed 'cooking pot' 3J was made in limited quantities but was less common than along the Thames.

The second century shift towards standardisation of forms could have been the result of pottery production being concentrated in fewer, more specialised hands. It could also indicate the presence of a uniform demand: a gradual acquiescence by the Britons of the new status quo and a resultant loss of identification with localised, traditional pottery styles. If a large market appeared for a particular product - the army is an obvious example - potters would tend to produce for this market and the existing customers would then be offered the same range. Their choice would be limited by the demand for bulk production. Standardisation is self-reinforcing: a well-defined product is easier to manufacture and once it becomes widely recognised, easier to market.

Coarse ware for the local market should be regarded as the staple product of the Upchurch industry, whilst the fine ware was the area in which the potters saw most marginal gain. In absolute terms, only a very small number of Upchurch vessels are known to have reached London, Canterbury or the frontier forts: a fraction of one per cent of a single potter's annual output (Horniman Museum 1974). This poses problems for considering how realistic a concept of organised trade in these items was, especially regarding its scale. A movement of pottery may equate to the movement of its owner or to the passing of some small consignment between many hands rather than have one middleman connecting potter to consumer. However complex the mechanisms were, the movement of such goods indicates that economic activity of some sort was taking place and that at some point in time, the pots were sold by their producers. Upchurch Ware was considered of sufficient value to be carried as merchandise, part loads or personal baggage throughout Kent and also to the northern frontier.

Throughout this period there was also parallel production of pottery on a casual basis in the local style. Ian Jackson's third, unpublished, kiln yielded very poor quality oxidised pottery in a variety of crude forms (pers. com.). This ware appears to have had little connection with mainstream Upchurch production and represents the non-specialist potter manufacturing vessels on a non-commercial basis. Jackson has observed that whereas first century production sites were normally associated with other activities, those of the second century were not. The idea of increasing specialisation is therefore reinforced. Fabric S1/lb tends to be cleaner than its predecessors, containing fewer inclusions of occupation site rubbish. Towards the end of the second century, it is assumed that a general rise in sea level effectively ended long-term occupation of the outer marshes. Later production moved to less exposed and presumably drier sites further inland (Hume 1954, 73 and 79).

The third century

The later Roman occupation of the marshes is not well understood due to the destruction of the inshore sites in the environs of Otterham Creek and elsewhere. It is clear that the Upchurch industry was stagnating at the start of the third century with standards of craftsmanship inferior to that during the period AD 130-170. It is also clear that by the last quarter of the third century, Upchurch had ceased to be a true industry. There was a reversion to the pre-conquest situation of production only to serve a restricted local demand.

Poppyhead beakers ceased to be made after the first quarter of the century, perhaps circa AD 230. They were succeeded by funnel-necked beakers of class 2C. This was the last new form introduced into the fine ware repertoire and pre-dated the adoption of the form by British colour-coated industries later in the century. The inspiration was probably from continental developments of the butt-beaker (Val Rigby pers. comm.). 2C1 is the earliest variant, with 2C2 being perhaps the last Upchurch beaker to be produced. Upchurch Ware had ceased to be made by circa AD 275, although one rather suspect example of variant 2C3 could push production into the early fourth century. Hume (1954, 79) believes that these vessels were made near Otterham Creek. Finds beyond the marshes are rare and no examples have come to light from modern investigations of the marshes themselves. It is to be concluded that the volume of third-century production was on a lower level than earlier.

Coarse wares of the third century are difficult to identify due to stylistic fossilisation. The previously popular forms 4A2 and 5C went out of use by the middle of the century. It is interesting to speculate upon exactly what the local populace were using as containers after this date: a dearth of well-dated third century sites in this region prevents elucidation of this problem. It is certain that 3H, 3A and probably 5E continued to be used - if not mass-produced - throughout the century and into the next. Dry land sites at Upchurch used the flanged dish 5A, although it is not clear whether this was made locally. By the middle of the third century, Upchurch had ceased to be a significant centre for pottery manufacture.

THAMESIDE KENT: SYNTHESIS OF DEVELOPMENT

Pre-conquest

Evidence for pre-conquest pottery production along the south bank of the Thames is even more slender than at Upchurch and most of the comments about pre-conquest Upchurch also apply to the start of production in this area. Flint was certainly not used as a temper but an occasional vessel of Upchurch origin is found along the Thames. A few Maidstone Greensand-tempered ware vessels can be found in the Arnold Collection from Shorne. There is a limited amount of evidence for the production of grog-tempered vessels around Vharf Farm, Cliffe in fabric G1/4, which being predominantly oxidised, contrasts with the grey G1/1. Some of the more curious sand-tempered vessels from the Eastborough Farm collection, Cooling, could also be pre-invasion; vessel 200.1 is a good candidate for this. There is very little to suggest that there was anything more than sporadic pottery production in this area during the late Iron Age.

The invasion to AD 110

Although individual sites are better understood than those on the Upchurch marshes, the evidence for the start of pottery production along the Thames is more piecemeal. The earliest distinct first-century site is

the first phase of occupation at Broomhey Farm, Cooling. Here the standard vessel was the oxidised, horizontally-combed 3G5 in fabric S3/6h. These vessels compare with the contemporary 3G1, reduced and vertically combed, which Upchurch was producing during the conquest period. Form 31 was also common and although dishes were not then in vogue, Cooling also produced 5E4, possibly inspired by imparted Gallo-Belgic platters. Some of these were 'signed' with a cross in the centre of the base, which again suggests affinity with stamped Terra Nigra. S3/6h contains a fair amount of shell and there are several early vessels which employ shell as their principal temper in fabric H2/6h. Pollard's inspection of material from the Broomhey section of the gas pipeline also revealed vessels in the same fabrics (Unpublished. See Pollard 1982a, 322 for comments). The Broomhey phase I dates to circa AD 50-70.

The foreshore at Cliffe yields evidence of activity from the mid-first century to the late fourth. The lack of stratigraphy frustrates precise dating within these brackets! An analysis of the stray finds provides some solutions to the problems of early production. A batch of pre-Flavian fine ware sherds from the Black Shore suggests that these may have been made nearby. The fabrics called N1/4b and N2/4b are almost identical to the Upchurch equivalents, but the forms are not common at Upchurch itself. Very fine 4J bowls with heavy Gallo-Belgic influence form the core of this assemblage. This industry, if not just a freak deposit of early Upchurch material, was short lived, ending by c. AD 70. It is possible that there was some connection between the Cliffe and Upchurch potters at this time; they may indeed have been the same people.

The first unmistakable Cliffe product was the highly distinctive H1/4h. Oyster shell-tempered storage jars of class 3D made up the bulk of production. These weighed 30-40kg when empty and had a volume equivalent to contemporary wine amphorae (Zemer 1977), The analogy with amphorae may be carried a little further to suggest that the concentration of these vessels along the foreshore indicates the local production of goods to fill them with. The rise of H1/4h is mirrored in the general post-conquest demand for containers which prompted the flagon manufacture at Hoo, Eccles, Otford and elsewhere. Fragments of these vessels are now frequently being recognised in London.

Circa AD 70, a second shelly fabric was introduced, H2/4. Wheelmade, its vessel forms 3E, 3F and in particular 3L were heavily influenced by contemporary developments in Essex. Cliffe potters do not seem to have gone through a 'S3' phase before moving into fully Romanised S1. H2/4 was used instead of sandier fabrics for grey ware production at Cliffe in the later first century. This indicates that there was no late Iron Age production along the Black Shore which could have established such a tradition. When S3/4 does appear, it is largely in specialised forms such as types 10, 11 and 12. S1/4 started to be made after c. AD 70 at a similar time that Upchurch switched from flint to sand as a temper. The vessel forms produced were the same as in H2/4 and the two fabrics were probably produced in parallel to the end of the century. Burnished vessels in S1/4b were largely class 3A jars and bowl variant 4A1. A limited number of round-bodied jars with narrow necks and gently everted rims were also

in use along the Thames at this time (class 3B). The coarsewares produced up to this period are strictly local in their distribution.

AD 110 - AD 180

Sand started to supplant shell as a temper in the second century. H2/4 ceased to be made after c. AD 110. H1/4h continued to be made perhaps as late as AD 140 and individual vessels persisted beyond this. The large, robust 3D jars could have had a lengthy useful life and a high survival rate which makes dating the end of production difficult. The bead-rimmed vessels and jars with everted lips were replaced by class 3H, the observed preference for reduced shades beginning when sand tempering became the norm. Jars of classes 3E and 3F dwindled in popularity and had disappeared by AD 170. There was no known attempt to produce fine wares within this period.

The major external stimulus to the Thameside potteries was the introduction of Durotrigan 'BB1' into the region c. AD 110. During the period 110-120, the local potters successfully produced a comparable product in the derivative 'BB2'. The local bowl form by this time was 4A2, in reduced Sib. In the same fabric, the potters started to imitate the new ware, the most obvious copy being the latticed cooking pot 3J. From this point on, the Thameside wheelmade burnished ware diverged from its handmade inspirator. Dishes began to be made in large numbers in a fabric only slightly coarser than that used for the jars. The simplest form was 5E2, which probably bore some relationship with the rare, early 5B4. Some 5E2 vessels are known in S3/6b which dates them as early as AD 70. A more distinctive product was the decorated 'pie dish' 5D2. Its origins lay in the BB1 latticed dishes, but it is distinguished by subtleties in form and the distinctive addition of a basal chamfer.

The standard S1 fabric became appreciably finer during the second century, although never so much that it became a distinctly different fabric. At an uncertain location, probably within Cliffe parish, there was an unusual aberration in the production of fabric S5/4b in the mid-to late second century. The very low quantity of fine sand employed as a temper would suit a fine ware analogous to N2/lb. It was however employed for dishes and occasionally for jars in the same forms as the considerably tougher S1/4b.

As the century progressed, the rim-form of the pie dish diversified from the earlier triangular 5D2 to more rounded profiles. Vessels also lost their decoration and became somewhat deeper. These later vessels are designated as class 5C. The change from 5D to 5C started around AD 150 and was complete by 170/180. The dish 5E2 developed into a straight walled, chamfered 5E1 with a few vessels of variant 5E3 appearing in the middle of the century. Around AD 140, 5E1 was modified by the addition of a groove below the rim to create a new dish design, 5F. A more narrow, deeper form, this was an innovation that owed nothing to BB1 prototypes.

The development of 3J jars has to be studied via complete vessels as the form often cannot be determined from rims alone; base and body

sherds do not reward close study. The close-meshed acute lattice was a favourite early second century scheme of decoration, found particularly on the upright-rimmed 3J1 and 3J2. From the mid-second century, the rims tended to be more splayed and body decoration diversified to include vertical parallel lines. This is typical of the commonest variant, 3J3. The Cliffe foreshore and the Queen's Farm, Shore, site yield the earliest forms of 3J. The few examples found at Oakleigh Farm, Higham were also of an early date. The 3J3 vessels in the Arnold Collection, produced by unlocated Shorne kilns, are the most typical mid-second century finds.

Small, specialised drinking vessels of class 2J are rare products of the Thameside industry. 2J 1.1 is the only example of a tankard seen by this author in Thameside fabrics. A further curiosity is the range of orange-red flagons from the Arnold Collection. They form a disturbingly homogeneous group, but in the absence of any other evidence that these were Kentish products, it is assumed that they were imported from elsewhere.

The striking emergence of S1b as a popular Thameside product is rather more difficult to explain than that of the rise of the attractive Upchurch beakers. On aesthetic grounds, the fabric and its forms have little to their credit. Whilst individual vessels can have a brilliant finish and pleasing decorations, *en masse* S1b pots are drab, uniform and functional to a fault. They are, however, superior to the even more mundane S1 and the distribution maps clearly show that the difference was appreciated by the inhabitants of Roman Britain. Burnishing is a time-consuming process and so S1b would be the more expensive of the two fabrics.

The popularity of Dorset BB1 probably inspired the sudden adoption of the new forms although it is itself, fairly rare in northern Kent. The local potters turned their hands to the new style but retained their established fabrics and techniques. Form 4A2 was produced as a sop to tradition. The new ware rapidly (in archaeological terms) became the dominant regional fabric, making a significant contribution to the coarse ware supply to London.

The connection between the industries and the north is the most intriguing aspect of the distribution patterns. It is especially so because the normal distribution area of their wares stops short in southern Essex. 'BB2' is not thought to have reached the north much before AD 140, a score of years after BB1 (Gillam 1973, 55). When Kentish S1b did arrive, it was manifest only in a limited number of forms. It is usual to find 5D and 3J, less so 5A, 5C, 5E, 5F, 4A and 3A. 4A is a mainly Kentish form and so perhaps had no market. 3A is not generally numerous and so only a limited number would be expected. The low quantity of 5F is difficult to understand because it is very common in Kent; perhaps the fact that it had no equivalent in BB1 is part of the answer. A shortage of form 5C and the near-absence of 5A suggests that on a typological basis, the Kentish link with the north does not seem long-lived, ending in the early third century. Gillam (1973, 60) shows that BB2 as a whole had ceased to be imported into the north by the mid-third century. At Vindolanda, however, the peak of frequency of BB2 finds is in the period 235-250 (Bidwell 1985,

173). These finds are predominantly of forms given late second or early third century dates here.

The garrisons of the frontier forts provided a market for traders from the south. These need not have been primarily involved with a trade in pottery: a ship bearing several tons of Sib is not inherently likely. More probable is the carriage of limited quantities of many such goods as deck cargo, rather analogous to the practices of tramp steamers of the early twentieth century. Could a pottery industry established in Kent with the singular idea of supplying the northern frontier have been a viable proposition? Much more likely is that a large sustained military demand shaped the attitudes of the potters. Although produced to military tastes, most of the pottery would then be sold to natives nearer home. A selection of the best that the industry had to offer was then taken north. The question of a military contract has to be borne in mind, although Gillam thinks it unlikely (1981, 21). One can see in the bulk purchase of standard forms the hand of a military quartermaster, and such a contract would replace the military potters of earlier times (Peacock 1982, 136). An arrangement of this type would be needed when the army was stationed in a region with no native ceramic tradition on a temporary basis, but when its period of operation stretched to decades and ultimately centuries, one wonders why some more satisfactory system was not devised. If the military went to the trouble of establishing specific pottery suppliers, why did they choose Dorset, 1,000 km distant and the Thames, 700km away? The military dimension in pottery supply might be no more than the casual inclusion of vessels along with regular supplies. We may be witnessing evidence of unofficial profiteering by minor officials rather than organised, regular shipments.

AD 180 - AD 250

The major sites yielding evidence for pottery production during this period are the later phases at Broomhey Farm and Oakleigh Farm. SI and Sib were the major fabrics produced at this time. Both S1/3 and S1/6 are both rather finer than the earlier S1/4 and S1/1, although this may be a locational rather than a chronological difference. The use of a self-slip to improve the finish of burnished vessels is more noticeable in this period, but remained a minor practice. The glossiest black finishes are in fact found on unslipped vessels, so the technique may have been of limited value.

The staple product remained the BB2 suite; 3J, 5C, 5E, 5F and 4A2 plus the complementary 3H. The jar 3J9 was taller with a more flaring rim than its predecessors, with an open lattice decorative scheme becoming popular. The obtuse lattice as seen on later BB1 jars, for example Gillam (1970) type 145, was not employed. The latest and rarest variant was 3J5 with its limited decorative zone. This was produced up to AD 250 and perhaps somewhat later. In common with 2A, the later variants of 3J tend to be taller with more splayed rims.

The vessel that was proposed earlier to be the cheap alternative to 3J, the roll-rimmed jar 3H, went through a few barely perceptible changes at the start of the third century. 3H7 was taller, with a wider mouth and

a more subdued profile than its predecessors. Most of the other rim forms continued to be made, perhaps by accident, as only habit would lead a potter to produce one variant in preference to another as there is little functional or aesthetic difference between them. 3H5 with its bifid rim and 3H4 with its sharply undercut rim both occur more frequently in late second and early third century contexts. 3H8 and 3H6 together with 3H7 are all typically early third century. 3H9 is not a common find south of the Thames and appears to be a later third century variant inspired by similar forms in Essex (R.S. Jeffries pers. com.). The tendency for 3H to become wider and less shapely as time progressed mirrors the changes which took place in 4A.

The dishes, other than in class 5F, were plain after AD 180. One in ten vessels of class 5F featured a sine wave, sometimes double, as its decoration. The form had an early end, going out of use by c. AD 230. No variants of 5E are known to have appeared other than those which featured on the Broomhey Farm site, whose last features date to c. AD 230. Sherds were found in the Chalk cellar deposit (Johnson 1972, 131. 36) which, if not residual, would carry the class into the fourth century. 5C diminished as the major dish class after AD 250, having been gradually overtaken by class 5A.

There are known prototypes for flanged dishes in BB1 (Gillam 1970, type 314) and it is possible that the Thameside potters returned to the handmade fabric for the inspiration of their last dish form. 5A1 is little more than a deep 5C with a groove around its rim. It is therefore also possible that there was parallel development of a flanged dish in Kent, with 5A1 as the prototype as many features of the BB1 bowls are not copied. The incipient flanged dish 5A1 is found commonly in mid-second century deposits; at Springhead, it is often the latest form within deposits which would otherwise be given secure second century dates (S.R. Harker, pers. com.). This suggests a date no later than AD 190 for the start of production of this form. There are none of this class of vessel in the main Cooling dump which places the deposit in a window between the demise of 5D and the rise of 5A. Second century 5A vessels are therefore possible if 5D was phased out by AD 170. Developed variants of the class are securely third century and occur only in the latest, post-production, phases at Cooling and in small quantities at Oakleigh Farm (Catherall 1983, 133). A kiln site producing 5A in bulk has yet to be located in the region. This poses a problem, for the class may have continued to have been made into the fourth century.

The last bowls to be made were larger, wider examples of 4A2. Otherwise the form remained unchanged over a century before going out of use circa AD 230. A late innovation was form 4L1 which enjoyed a brief appearance at the start of the third century.

The early end to shipments to the north may have been a commercial blow to the north Kent potters, but they continued to produce their wares nonetheless. The thriving production site at Broomhey Farm post-dates the end of the trading link, as does the last phases at Oakleigh Farm, Higham. The evidence points to at least a generation of Thameside potters producing Sib without the benefit of a military market. There is no

evidence of a contraction in the distribution area during the late second and early third centuries AD, but the quantities found are less at individual sites. 5A is never as common as was 5D or 5C which it replaced, although current for a century and distributed - albeit thinly - over the same area. This illustrates that though the industry was in decline, the distribution networks it utilised within the southeast appear to have remained intact.

In the early years of the third century, perhaps at the very time Upchurch production began to falter, the Thameside potters turned their hands to beaker production. Only limited numbers of Thameside beakers are known, with coarser fabrics and less impressive finishing than Upchurch examples. S1 sufficed to make small numbers of folded beakers, class 2D. At Cooling, the clay used to make S1/6 was used, untempered, to produce fabric S6/6b. This was employed in the manufacture of beakers of form 2C6, although again, not many examples of these are known. This divergence from the accepted status quo indicates that after a century of high volume and low variety production, the Thameside industries were experiencing change.

There is very little local evidence for production after AD 250. There was however continued use of pottery beyond this date in a local style and in local fabrics. The surviving forms were 3A, 3H, 5A and probably 5E; all in small quantities and none in innovative new variants. The late kiln sites have not been identified and any production must have been at low volume, judging by the scarcity of finds.

THE BID OF THE INDUSTRIES

Upchurch

It is clear that the Upchurch marshes had ceased to be an important regional manufacturing centre by the middle of the third century AD. It is much less clear why this should have been so. The popular antiquarian answer was a cataclysm: a storm at sea swamping the marshes for all time, washing away the potters and their kilns. Charles E. Woodruff realised the fallacy of this supposition at an early date: "There is no ceramic Pompeii here" he wrote in a letter to George Payne (Payne 1893, 78). Inundations are known phenomena on the marshes and they have caused several deaths and much damage over the centuries. A disastrous storm is unlikely to have proved more than a temporary setback to the local community, given the relatively low level of technology involved. Kilns could be rebuilt on higher ground and even new potters found if there remained a demand for pottery. Much the same logic can be applied to any other likely human or natural disaster. The "Saxons" are plausible culprits, disrupting coastal trade and threatening low-lying estuary sites where both the potters and their customers lived and using the Medway as a route into one of the richest regions of the province. The evidence of the distribution of the later Thameside coarse wares indicates that commercial trade was still operating at the time of Upchurch's demise, so the effect of raiders may have been limited.

A more reasonable postulate would be commercial strangulation, but this fails on two counts. The first is the lack of an obvious ceramic replacement for the Upchurch products; this is supported by the scanty archaeological evidence which is known to exist in the area. The second is that the Upchurch potters never experienced difficulty in answering rivals, by producing copies or adequate substitutes. The cost of long-distance transportation biased such competition in favour of the competent local producer. It would be convenient to see the late third-century surge in pottery production evident elsewhere in the province as dealing a death blow to the industry, but Upchurch was in terminal decline half a century before this renaissance and on evidence of previous performance, should have exploited the new climate to the full.

The Upchurch industry relied first and foremost on northern Kent as a market for its products. The northern frontier, London and Canterbury were at the ends of the distribution network and could only have absorbed a fraction of total output. It is within north Kent that the answer to the question of the end of the potteries must be sought. This includes the deterioration in the standard of the vessels, the reduction in volume and variety and the contraction of the marketing area to the point of commercial extinction.

The malaise of third century Roman Britain, starting with the confiscations of Severus after AD 197 is an obvious target for the root of the industry's problems. A general dislocation in trade would remove competition and hence the inspiration of the potters. Economic recession would have meant the loss of markets. In particular, the non-local markets would have been vulnerable in a depression which resulted in restricting the commercial scope of the industry. One can easily see the potters lowering their horizons and having less reason to maintain standards. Perhaps during the later second century they had become blase and content to produce their limited range of forms without seeing the need to diversify. Perhaps there was a reversion to the Iron Age practice of part-time pottery production with a resultant dilution of the potters' skills by the need to find additional means of support.

If the cumulative effect of the above factors was to depress the market for Upchurch Ware and remove its *raison d'etre*, the next question is why did the industry not revive at the end of the third century? The expansion of Alice Holt, New Forest and Oxford potteries after AD 270 is well known. In Essex, Much Hadham and Rettendon wares came to the fore, but in Kent there was no response. Perhaps the industry had died a total death before the market revived and no specialist patters remained to lead the recovery. Even in this case, it is likely that someone would have taken advantage of a marketing opportunity and restarted the industry, even if only to satisfy local demand. It is curious that the inhabitants of the region did not emulate their forefathers and imitate each new style of pottery as it came along. There was even a new market in the form of the Saxon Shore forts, although these may never have been as densely occupied as was the northern frontier.

Upchurch did not recover: not even a handful of copies are known of early fourth century forms. Whatever economic recovery transpired may not

have had the stimulus of the conquest which inspired the original Upchurch Ware, The new colour-coated wares could satisfy the markets' demand for fine pottery and no-one on the marshes seems to have been interested in rising to the challenge. Coarse ware production continued but was highly conservative and at very low volume.

A question which remains is why did not some local specialist coarse ware production begin again, perhaps to serve as a basis for more ambitious marketing ? The answer may be that local demand had fallen away, An industry at Upchurch may have no longer had an immediate market to serve and those further afield were adequately catered for. The possibility of local population decline has been examined by Pollard (1982, 338) and rejected. Perhaps the answer is that the local population had changed in character, shifting permanently away from using pottery. This would explain why the industry was not replaced by another and why mass importation of wares from surrounding industries did not take place. It also explains why the distribution of the later forms seems to become thinner rather than the distribution area contracting as would be the case if the industry were under commercial pressure. If the population cared less about their pottery than before, a deterioration in standards would be permissible. In the decline of "Upchurch Ware" one could perhaps visualise the arrival a new wave of immigrants from the continent who had little use for the native style of vessels. That Essex did not undergo a complementary change during this period is significant: the whole question of third century Saxon settlement is an intriguing line for future study.

Thameside Kent

The decline of the Thameside industries is perhaps more inexplicable than that of Upchurch. One could understand that the demand for luxury goods would fall in a recession, but Thameside Sib made up the core of the region's kitchen ware requirements and would have been less expendable than Upchurch Ware. The latest Sib vessels were a good as the earliest, albeit plainer. Pots in the latest Cooling deposits have perhaps the best finish of any the industries produced whilst the fabric remained as sturdy and practical as ever. There is no evidence of degeneracy but some indication of stagnation in the lack of originality shown during the last half century of production. The economic performance of the industries must be measured by the evidence they left behind, and this simply tails off after the mid-third century.

The main problem in understanding the last years of the industries is a lack of suitably well-dated contexts in the region. The Chalk cellar deposit (Johnson 1972) is the most enticing due to its date of c. AD 300. Unfortunately, much of the pottery within it is obviously residual and this throws doubt on the status of those vessels which conceivably could still have been in production at that time. The marked "crowding" of the typology between the years 170 and 230 may be partly responsible for the illusion of collapse. Despite a general dearth of well dated third century deposits in the north, the general impression gained from sites such as Vindolanda (Bidwell 1985) is a rapid fall-off in Sib usage by c. AD 250. Most of the vessels appearing in mid to late third century frontier deposits seem "old", in that they still include vessels such as 4A, 5D and early 3J's and generally exclude late vessels such as 5A. Future

excavations may provide sharper dating which enables the "latest" Kentish dates to be extended to match this, and even therefore to extend the active life of the industry, but the evidence will have to be stretched very thinly to postulate significant production into the fourth century.

The failure must be explained: physical calamity has not been postulated as causing the end of the Thameside kilns. The general rise in sea level may have made the sites we now identify untenable, but there was nothing to prevent the potters from moving slightly inland as the waters advanced. The potters seem to have survived the first half of the third century with their skills unimpaired, producing a modified range of forms even after the much vaunted trade with the northern frontier garrisons came to an end. Pollard sees the loss of this market as a key cause of the industries' demise (1982a, 340) but it does not seem to have been more than one contributing factor. It is difficult to imagine an industry existing for a century on such a tenuous link alone; the major market for Thameside pottery was closer to hand. The long-distance trade may have been a welcome supplement to their incomes, but the potters still had considerable marketing scope in London, Rochester and the thousands of inhabitants of rural north Kent. This is especially true as no major coarse ware manufacturing concern arose to challenge the industry within the region. It must also be said that the latest Cooling and Higham finds indicate that production of a high standard continued for at least a generation after the severing of the northern connection. At many small sites within Essex - Mucking for example - there was a good deal of local manufacture at this time, but these were probably making up for a failure in supply rather than offering a serious commercial threat.

Many of the comments made concerning the end of the Upchurch industries hold true for the failure of their neighbours. The main reason for the stagnation and slow disappearance of pottery production appears have been the loss of local demand. The Thameside industries may have survived for a generation beyond the end of Upchurch, but their end eventually came and was probably due to the same underlying cause: their products were no longer required.