

UNIVERSITY OF SOUTHAMPTON

MEDIEVAL AND LATER CERAMIC
PRODUCTION AND DISTRIBUTION
IN SOUTH-EAST ENGLAND

A study in ceramic archaeology
and historical geography

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Part ii

(Master)

**4. CHRONOLOGY AND
CERAMIC DEVELOPMENT**

4. CHRONOLOGY AND CERAMIC DEVELOPMENT

4.1 INTRODUCTION

It would be inappropriate as part of this study of pottery production and distribution to attempt a comprehensive chronological synthesis. Nevertheless, an understanding of medieval ceramic development in South-East England is essential for the identification and interpretation of changes in the organisation of production and marketing.

Methodology for the dating of medieval ceramics was reviewed by Hurst (1962-3), who summarised the problem succinctly:

'The hypotheses of yesterday become the beliefs of today and the untruths of tomorrow' (ibid., 149).

It is clear - especially from the results of urban excavations undertaken in the 1970s - that understanding of the ceramic chronology depends not upon inferences drawn from typological classification but upon the identification of independently dated groups and systematic analysis of artifact dispersal represented in the archaeological record as a means of establishing the likely proportion of residual material in an assemblage. A rapid increase in both the extent and scale of excavation has resulted in the discovery of many closely dated groups of English medieval pottery, often in association with contemporary foreign imports. Reliable comparisons can only be made between contemporary assemblages, yet it is important that broad regional and chronological trends should not be obscured by the minutiae of ceramic chronology.

The need for a chronological framework applicable both to closely dated groups and other less clearly defined assemblages has been stressed in Section 2.5. Definition of these periods depends both upon the availability of dating evidence and upon trends within the ceramic sequence itself. The following chronological divisions have therefore been adopted for this survey of medieval and later ceramics in South-East England:

- Tenth/early eleventh century
- Mid-/late eleventh century
- Early/mid-twelfth century
- Late twelfth/early thirteenth century
- Mid-thirteenth/mid-fourteenth century
- Late fourteenth/mid-fifteenth century
- Late fifteenth/early to mid-sixteenth century

Late sixteenth/early seventeenth century

Mid-/late seventeenth century

Post-1700

Reasons for the selection of these periods are summarised in Section 10.1.

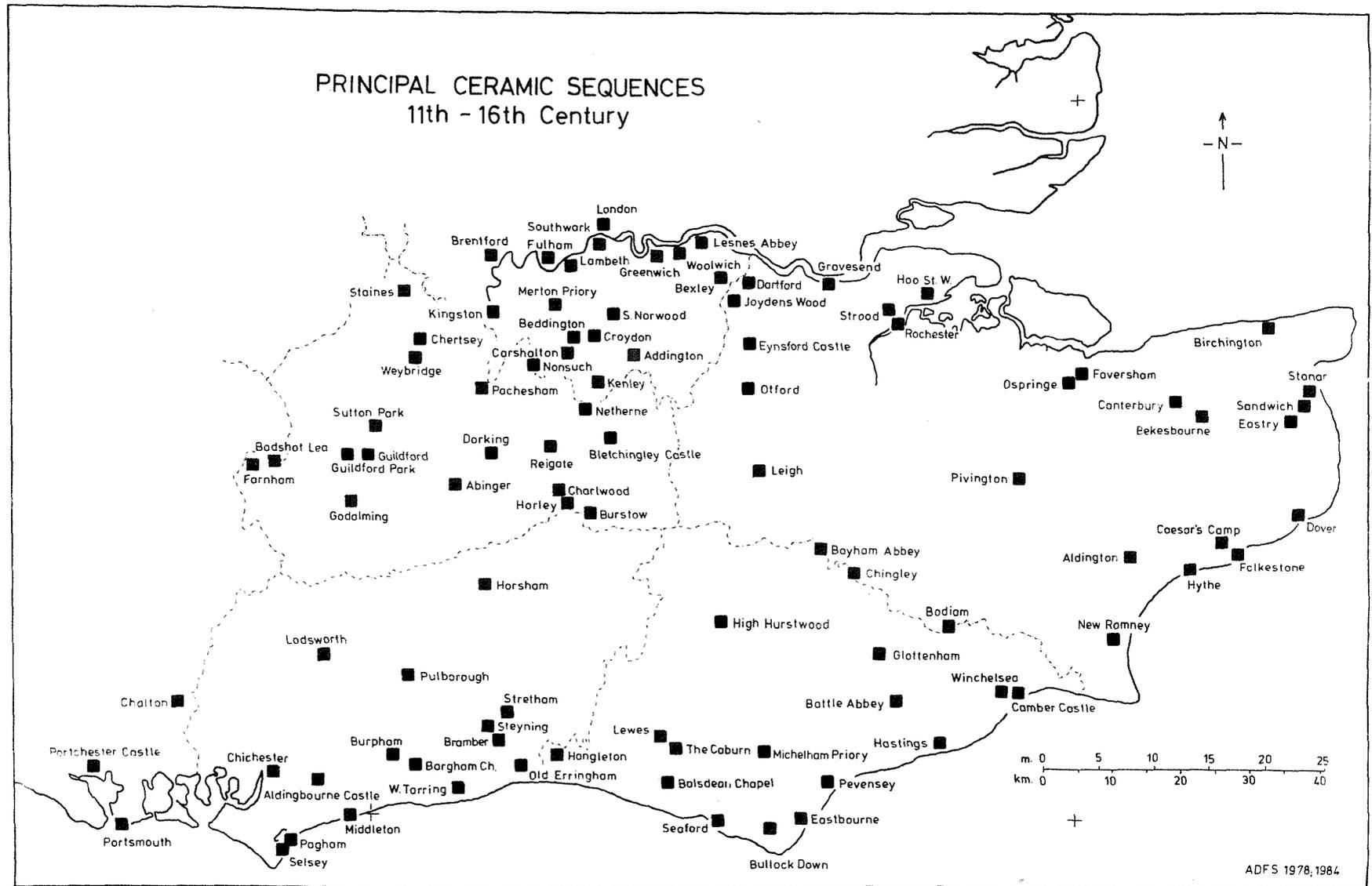
Similar period divisions have been adopted in other regions. Davey (1977, 5-7) favoured more sub-division of the thirteenth and fourteenth centuries and preferred 100-year units for the assessment of ceramic chronology during the fifteenth and sixteenth centuries. Vince (1977a, 281-288) also divided his discussion of Malvernian wares by century, although slightly different divisions were adopted for his period maps. Davey and Rutter (1977, 18-21) assessed the chronology of imported wares in North-West England within broad periods similar to those subsequently adopted for the Medieval Pottery Research Group Bibliography. While the latter is intended for use at a national level, the significance in South-East England of chronological divides at 1400 and 1500 is questionable. The periods have therefore been modified for the purpose of this regional study to include the late fourteenth/mid-fifteenth century and the late fifteenth/early to mid-sixteenth century. Such divisions correspond more closely with both ceramic and historical developments. In the field of vernacular architecture, for example, Mercer (1975, 5) considers that the term 'late medieval' can be applied to the period from the late fourteenth to the mid-sixteenth century.

Compilation of period maps necessitates the adoption of a systematic chronological framework such as that outlined above. Moreover, consistency is desirable if inter-regional comparisons are to be made. The maps illustrating ceramic production and distribution in South-East England cover the same periods as those prepared by Vince (1981, 310; 1977a, 285-287) for the early and later middle ages in Western England. Comparative maps showing production centres and medieval markets appear in Section 8.5, while the national summaries of medieval and later pottery manufacture (Section 8.2) follow the chronological conventions adopted for the Medieval Pottery Research Group Bibliography.

In the absence of independent dating evidence, the attribution of pottery to its respective period relies upon comparison with stratified sequences. Definition of ceramic regions, as outlined in Section 12.1, helps to determine those areas within which such comparisons are valid. The principal ceramic sequences in South-East

England are summarised on Fig. 4.1. Some of these sites have well defined stratigraphic sequences covering the entire medieval and/or post-medieval period (see Section 10). At other sites the stratigraphy may be instructive for one period but not for others. Excavations have therefore been selected for inclusion on the map where the pottery assemblage has contributed significantly to the establishment of a ceramic chronology for the region, irrespective of period.

Fig. 4.1 South-East England. Principal medieval ceramic sequences



4.2 DATING OF MEDIEVAL AND LATER CERAMICS

There are many approaches to the dating of medieval and later ceramics as described respectively by Hurst (1962-3) and Celoria (1966, 5-10). Most of these methods are applicable to the ceramic chronology in South-East England.

Pots with a dated inscription are not known before the mid-sixteenth century (Celoria 1966, 5). Sixteenth-century dates occur principally on imported stonewares from the Rhineland (e.g. Siegburg ware in Victoria and Albert Museum: 817-1868 (1570); 1918-1855 (1574) and C 2332-1910 (1580)). It should be stressed, however, that dated moulds could have remained in use for some time after the initial output and, likewise, hall-marks on the silver mounts attached to some of the stoneware tankards do not necessarily indicate the date when the vessel was made (Celoria 1966, 6). Nevertheless, dated vessels found in stratified contexts can provide a useful terminus post quem. Material associated with the High Lankhurst kiln at Westfield, East Sussex, for example, included a Raeren stoneware vessel dated 1583. Output of the kiln can be assigned on typological grounds to the late sixteenth /early seventeenth century (see Section 9.1.6, no. 528).

The practice of inscribing a date on locally produced earthenwares continued into the eighteenth and nineteenth centuries (Celoria 1966, 6; Baines 1980). Dated vessels occur among post-medieval wasters found at Dorking and Chichester. A vessel from the Crane Street kiln at Chichester, imitating imported stoneware forms, bears the date (16)44, while a slip-decorated vessel from the High Street kiln at Dorking is inscribed 173(-) (see Sections 9.1.5, no. 558 and 9.1.7, no. 299). The Wrotham potters in Kent are also well known for their inscribed seventeenth-century slipwares (see Section 9.1.4, no. 272, discussion).

In the absence of inscribed vessels during the middle ages, absolute dating of medieval wasters relies upon scientific analysis either of the vessels themselves, or of the kiln in which they were fired, or of fuel samples associated with the kiln. Methods of dating such as thermoluminescence are inappropriate for medieval ceramics owing to the margin of error. Pilot studies based on measurement of the strength of thermoremanent magnetism have, however, been undertaken on medieval pottery (Games 1981, 17), but so far there are no published examples of absolute dates derived from medieval ceramics found in South-East England.

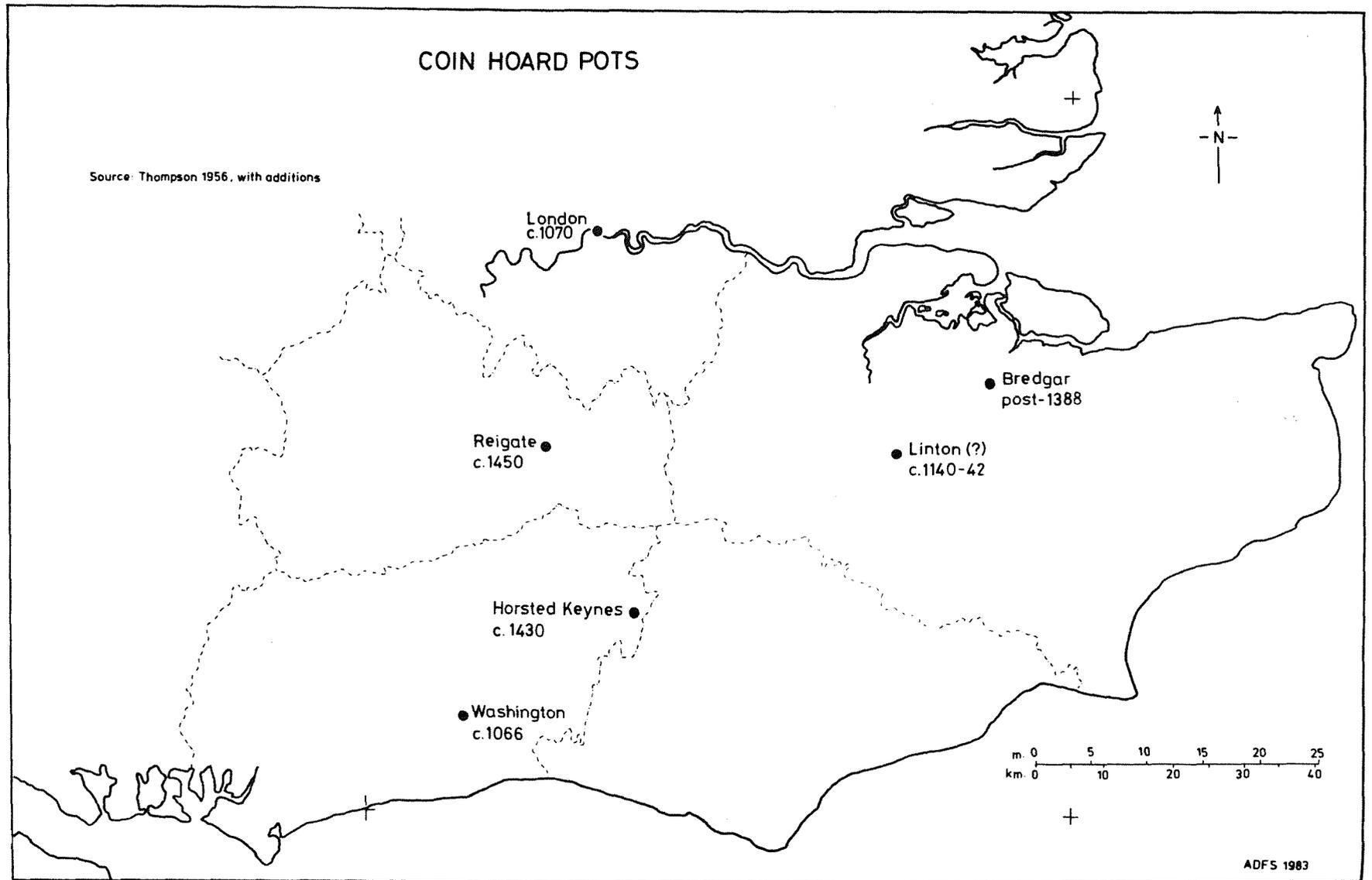
Most of the medieval kilns discovered since the mid-1970s - including some earlier discoveries - have been sampled for archaeomagnetic dating. Examples in the region include one of the medieval tile kilns at Tyler Hill (see Section 9.4.4, no. 56) and the pottery kilns at Binsted (see Section 9.1.7, no. 623), Chichester (see Section 9.1.7, nos. 556-7), Farnborough Hill (see Section 9.1.3, no. 124), Hareplain (see Section 9.1.4, no. 158) and Lower Parrock (see Section 9.1.6, no. 443). Results are also awaited for the samples taken from the High Lankhurst kiln (see Section 9.1.6, no. 528) and from a recently discovered production site at Kingston-upon-Thames (see Section 9.1.8, no. 648).

The reliability of radiocarbon dates derived from charcoal samples depends upon careful selection of the archaeological context from which the material is obtained. Results can therefore be less reliable than those obtained from archaeomagnetic dating of the kiln structures themselves. There is no inherent reason why charcoal from fuel found in a well stratified context should not offer an accurate date for pottery production, but the problems of interpretation encountered at Ringmer, East Sussex (see Section 9.1.6, no. 483) illustrate the difficulties of accurate dating using this method.

The wider application of archaeomagnetic dating to ovens and other fired clay structures on medieval settlement sites can also assist with the dating of associated ceramics. Reliability of the evidence depends, once again, upon the stratigraphic context, but at Bullock Down, East Sussex a group of early thirteenth-century pottery has been dated independently on account of its context. The material was sealed between two phases of a corn-drying oven, the earliest of which yielded an archaeomagnetic determination of c.1210 (Freke 1982, 157). Other forms of independent dating evidence, such as documentary sources or dendrochronology, are seldom applicable to rural medieval settlement sites. Stratigraphic association with structures dated by archaeomagnetism therefore makes a significant contribution to the establishment of a ceramic chronology in rural areas.

Coin hoard pots constitute another, albeit specialised, type of independent dating evidence for medieval ceramics. Among the early antiquarian discoveries, containers seldom attracted the same attention as their contents, but known examples of earthenware coin hoard pots found in South-East England are shown on Fig. 4.2. To these should be added the Maidstone hoard deposited in a sixteenth-century Raeren stoneware vessel (Warhurst 1952a; b) and the storage

Fig. 4.2 South-East England. Coin hoard pots



jar from Box Hill which is reported as containing coins (Salmon 1899). Both the Reigate and Bredgar hoard pots contribute important evidence for the dating of Cheam ware in the late fourteenth and fifteenth century (see Section 9.1.2, nos. 82-87).

Dating of most medieval ceramic assemblages is based upon interpretation of their stratigraphic context. In urban areas, the high proportion of residual Roman pottery - seldom less than 10-20% of the total on a site which has been occupied intensively since the Roman period - demonstrates the problems of identifying groups of contemporary material. These problems are exacerbated by the presence of stone-lined pits which were evidently intended to be cleaned out periodically and which occur increasingly from the fourteenth century onwards. By the sixteenth century - and much earlier in the large towns - rubbish was being carted away from urban tenements. In the countryside, too, large groups of stratified pottery are scarce owing to the absence of pits on most medieval settlement sites (see Section 1.5.5).

The largest stratified groups of medieval pottery are often associated with earthmoving, either as part of the make-up itself or as an uncontaminated dump sealed before its contents had been disturbed. Even when the dumping took place over a short period - as in the case of the revetment infills on the London waterfront at Trig Lane - the rubbish was often derived from a variety of different sources (Rhodes 1982, 85). Assuming that rubbish used for make-up levels at castles and religious houses was generally obtained from the site itself, these dumps are likely to contain a more restricted range of artifacts than that resulting from comparable earthmoving operations in a town, which might contain a mixture of industrial and domestic rubbish from different levels of society. Nevertheless, studies of vessel fragmentation on monastic sites show that rubbish could be dispersed widely (Le Patourel 1976, 170), a trend noted also at Castle Acre Castle where many joining sherds were found in make-up clearly attributable to different phases in the development of the earthwork defences (Coad & Streeten 1982, 197).

Implications for the dating of medieval pottery are self-evident. Indeed, Blake (1980, 8) has stressed the need for dating groups of pottery rather than the component types in an assemblage. Exotic forms, such as the Werra-type ware found in Norwich, can persist longer than contemporary coarsewares. Jennings (et al. 1981, 78) and Moorhouse (1978b, 5) have drawn attention to the dangers of

precise dates arising out of type-fossils such as Saintonge polychrome c.1300 and Cistercian wares c.1500. Quantification therefore has a significant role in assessing chronological trends as well as patterns of marketing.

Evidence for the independent dating of pottery found in a given context can be derived from several different sources. In favourable circumstances a broad indication of chronology may be obtained from the documented history of a site. Myres (1935), for example, drew attention to the significance of finds from the moat at Bodiam Castle which he inferred must post-date the licence to crenellate granted in 1385. Similar principles can be applied to the ceramics from any medieval town, castle, manor or religious house founded on a new site if it is certain that there was no pre-existing settlement. Thus, the absence of both soapy shell-tempered wares and flint-tempered fabrics at Bayham Abbey, which was founded in the first decade of the thirteenth century, may be significant for establishing the duration of these types (see Section 4.3.3). Dates of construction for castles and religious houses are generally better documented than those for lesser seigneurial residences. Lists and maps of both excavated and unexcavated examples are therefore given in Section 11.4 to illustrate the potential contribution which excavations at these sites could make to the calibration of the regional ceramic chronology.

Documentary evidence for the end of occupation is usually a less reliable guide to ceramic chronology than the terminus post quem offered by a known date of construction. Nevertheless, a dramatic end such as the fire at Basing House in October 1645 does provide a significant terminus, especially when artifacts in contemporary use can be identified by their blackened surfaces (Moorhouse 1970, 32-36). Indeed, the range of material from Basing House is similar to that associated with the lifespan of little more than a century at Camber Castle before the garrison there was disbanded in 1637 (Colvin et. al. 1982, 447; Streeten 1983b).

More specific dating evidence for medieval ceramic assemblages includes stratified association with datable artifacts such as coins, and association with structures dated either from documentary sources or by their architectural style or from scientific analysis such as dendrochronology and archaeomagnetism. In each of these cases, reliability of the evidence depends upon two factors: firstly, the accuracy with which associated artifacts and structures

can be dated, and secondly, the quality of the stratigraphic evidence.

Hurst (1962-3, 140-4) has emphasised the difficulties of making precise correlations between documentary sources and specific archaeological contexts. Thus the possible connection between documented medieval fires at Hastings in 1339 and 1377 and the destruction debris observed on a building site should be treated with caution until the pattern can be verified elsewhere in the town (Baines 1955, 4-5). Building campaigns, however, can often be identified on the ground, and significant evidence for the regional ceramic chronology has been obtained from the excavation of at least four Kentish castles, at Canterbury, Dover, Eynsford and Rochester (see Section 10.2.3). The chronological significance of pottery sealed by construction of the Aula Nova at Christchurch, Canterbury is also discussed in more detail in Section 4.3.4. Unlike the more general documentary evidence for the origin of a site, therefore, the terminus ante quem derived from structural association is often more unreliable than the terminus post quem.

Even when documentation is not available, structures dated by their architectural features can offer a significant stratigraphic terminus. Discussion of an example at Battle Abbey, where early Rye wares occur below the mid-thirteenth-century dormitory range, will be found in Section 4.3.2. Attention has been drawn to the potential of archaeomagnetic dating on rural settlement sites. Dendrochronology, too, has made a significant contribution to the medieval ceramic chronology of the London area, now that the dendrochronological evidence from medieval waterfront sites has been assimilated into the pottery type-series for the City of London (Orton 1982b; Pearce et. al. 1982; Vince 1983). All of these methods of dating are important for ceramic research, providing that there is a sound stratigraphic relationship between the structures and the relevant soil horizons.

The full potential of dated sequences can only be exploited if other less securely stratified finds can be related to these dated type-series. Early work on the dating of medieval ceramics suffered from the limitations inherent in typological analogies drawn over long distances. With the identification of local type-series, often representing the output of known industries, however, typological comparisons have become a more effective means of dating. Pottery is often the only clue to the date of an excavated context. It is desirable, therefore, that a broad geographical distribution of dated

sequences should be established. Fig. 4.1, however, illustrates the geographical bias of present knowledge, with few published ceramic sequences from the Weald.

Finally, attention should be drawn to the potential chronological information which can be derived from contemporary illustrations of medieval and later ceramics. It can be difficult to identify illustrations of pottery as opposed to metal or leather vessels, but there is no doubt that earthenware jugs appear in the Luttrell Psalter (Rokewode 1885, pl.xxiv no.3; see also Frontispiece). Moreover, the dating of forms, irrespective of material, is relevant to pottery skeuomorphs as well as to their metal counterparts. Antiquarian interest in the use of illustrations for the dating of medieval ceramics is discussed in Section 1.2.3, and a significant example of vessel forms dated by analogy with a contemporary illustration has been noted at Battle Abbey (see Section 4.3.2, Battle Abbey (pottery): 12). Sixteenth- and seventeenth-century paintings, such as the work of the Teniers family, often contain accurate representations of the vessels which were in vogue at the time (Platt & Coleman-Smith 1975, 2, 50-51). Used in conjunction with the chronology derived from archaeological evidence, these paintings can indicate the floruit of certain types within different social contexts (see Section 1.1.3).

4.3 SELECTED CERAMIC SEQUENCES IN SOUTH-EAST ENGLAND

4.3.1 Introduction

Details of the ceramic sequences identified on Fig. 4.1 will be found in the references cited in the gazetteer of 'consumer' sites (Section 10.2) and included in the bibliography (Section 14). A regional appraisal of medieval ceramic chronology in Sussex has also been published by Barton (1979). Four sites, however, have been selected for more detailed discussion to illustrate the methods of dating outlined above (see Section 4.2).

A comprehensive fabric classification has been prepared for the material from Battle Abbey and Bayham Abbey, and selective analyses have been undertaken on pottery found in the Aula Nova excavations at Christchurch, Canterbury. Finds from the two abbeys in East Sussex are included because they supplement Barton's regional survey and they fill a significant geographical void in the published sequences available for this part of the county. Material from Canterbury is important not only because of its contribution to the dating of twelfth-century wares in east Kent but also because the discovery of marketed vessels in a distinctive fabric implies an earlier origin for the Tyler Hill industry than has been supposed hitherto.

For each of these studies, the ceramic assemblages are set in their regional context, drawing upon relevant comparative material from other sites in the area. The significance of pottery identifications is considered both in terms of chronology and as evidence for ceramic marketing.

A different approach has been adopted for the case study of Eynsford Castle. This site has been chosen for synthesis because the ceramic sequence here provides dating evidence for many of the smaller assemblages found in west Kent. The material deposited at Maidstone Museum has been examined, but the synthesis is based upon published information. The intention is to present the complex arguments contained in the excavation report as an illustrative example of the approach to defining a ceramic sequence, rather than as an attempt at reappraisal of the evidence.

4.3.2 Battle Abbey, East Sussex

Introduction

The pottery from excavations at Battle Abbey between 1978 and 1980 provides important evidence for the dating of local wares. The ceramics themselves have helped to establish a chronology for some of the late medieval alterations and subsequent stages of destruction at the abbey. Furthermore, the identification of kiln sources offers an insight into the organisation of medieval and later pottery manufacture and marketing in the region. Significant variations in the range of vessels represented at different periods can also be detected, and specific activities such as distilling have been inferred from certain unusual forms.

Successive alterations to the medieval and later ground levels have provided a valuable series of stratified archaeological deposits to which the ceramic sequence can be related. Thus, an accumulation of up to 1.0m on the north side of the reredorter represents both occupational debris and deliberate make-up during the three centuries or so following construction of the building in the mid-thirteenth century.

The largest group of pottery was found in rubbish dumps outside the reredorter and contained a wide range of objects discarded at, or shortly after, the Dissolution. Similar, yet less productive, layers were investigated in the chapter house. Earlier levels in both areas have provided valuable dating evidence for certain types of pottery. The later history of the site is not only represented by scattered sherds from the demolition rubble, but there is also an interesting group of post-medieval pottery from loam inside the demolished chapter house, which was at least partly sealed by an early nineteenth-century clay yard.

Taking the stratified assemblage as a whole, most of the vessels were discarded during periods D and E, that is after the Dissolution in 1538 (Fig. 4.12):

	weight	sherd count
Period A (before 13th-century rebuilding)	1%	2%
Period B (13th century)	2%	4%
Period C (late medieval)	4%	5%
Period D (16th and 17th centuries)	67%	69%
Period E (18th to 20th century)	25%	20%

Ceramic sequence

The stratigraphic sequence has been divided into five periods based upon the structural history of the monastic buildings. Each period includes several phases which form the basis for quantification of the pottery (Figs. 4.12-14). These are described in the forthcoming excavation report (Hare forthcoming). Published vessels (Figs. 4.5-11) have been assigned to these phases and can therefore be linked with the historical sequence. Both the date range and the quantity of pottery attributed to different phases varies considerably: some represent short-lived building activities; others cover longer periods of occupation; and some of the most interesting deposits contain objects which were probably dumped within a short space of time but which may have been in use for many decades beforehand. Unfortunately, therefore, the absolute chronology remains ill defined during some of the most significant periods for ceramic history, in particular during the fifteenth and late sixteenth centuries.

Period A: Norman: before the thirteenth-century rebuilding

An important dated group of pottery comprises the small collection of flint-/shell-tempered sherds from the presumed foundation trench of the chapter house, which was completed by c.1100. Evidence from other early contexts was less instructive because several of the chapter house graves had been disturbed, and there was no pottery from the make-up beneath Building Z. Drainage gullies in the reredorter area, however, did contain pottery which must be earlier than the thirteenth-century rebuilding, although, in the absence of clearly-defined construction debris, it has proved difficult to distinguish between material deposited before or during the building activity. Only finds from the primary silt of the drainage gullies or from immediately above the natural surface have therefore been attributed to Phase A5.

Period B: The great rebuilding: thirteenth century

Pottery was not recovered from limited investigation of the foundation trench for the dormitory at the north-west corner of the reredorter, but finds from make-up associated with the porch, which is contemporary with the rest of the range, have provided important evidence for the dating of vessels attributed to the Rye kilns. Construction of the reredorter would have entailed filling the earlier gullies at the east end of the new building, and a considerable depth of make-up was also added inside the reredorter. Although these

deposits may have contained residual material they are definitely earlier than the mid-thirteenth century. None of the finds from the area south of the reredorter was stratigraphically associated with the thirteenth-century rebuilding, and although some of the medieval layers may have originated during this period, they could not be distinguished satisfactorily from later occupation.

Period C: The later middle ages

The addition of an extensive drainage system involved raising the ground level on the north and east sides of the reredorter. It is difficult to distinguish between the deliberate make-up (Phase C14), which contains a wide range of pottery fabrics, and any earlier occupation layers which may have been sealed beneath it (Phase C11). A sherd of Tudor Green ware in the make-up suggests that the alterations are no earlier than c.1400; yet the deposit does not contain material which is later than the mid-fifteenth century. The presence of a marble shaft fragment, possibly placed here after remodelling of the cloisters, offers circumstantial evidence for a date c.1420. Only a few sherds were associated with other late medieval alterations.

Period D: The Dissolution and after: sixteenth and seventeenth centuries

Debris was discarded at, or shortly after, the Dissolution in the area outside the reredorter (Phase D21/22) and within the reredorter drain itself (Phase D30). Whatever the precise date of this operation, finds from these deposits are likely to reflect the range of utensils which had been used during the final years of monastic occupation. Diverse dates, however, are represented among associated coins from the reredorter. Dumps outside the reredorter were at least partly sealed by roof tile debris from initial decay of the buildings, and some finds were associated with primary destruction debris from the church and chapter house (Phase D20). Other phases within this period are associated with post-Dissolution activities. Some groups, such as the loam on the ground floor of the reredorter, contain finds which are indistinguishable from the Dissolution debris, but layers which were sealed by later masonry rubble rather than debris from initial decay of the buildings may be contaminated by later material.

In contrast to the Dissolution dumps which include a wide range of what are presumably residual thirteenth-/fourteenth-century sherds, these types are poorly represented among the layers inside the chapter house (Phase D23). A jetton from here is considered to have

been in circulation c.1600, and many of the pottery forms are typical of the late sixteenth and early seventeenth centuries. Odd fragments from later vessels were probably discarded before the early nineteenth-century clay yard was laid over these deposits.

Ceramics from Period D must therefore be divided into three separate groups (Fig. 4.12):

- i Dissolution debris in the reredorter area (Phases D21 & 22)
- ii Early post-medieval deposits containing pottery associated both with monastic occupation and with post-Dissolution activities (Phases D20 & D24-34)
- iii Late sixteenth-/early seventeenth-century and later wares from inside the chapter house (Phase D23).

Period E: The second phase of destruction and afterwards: eighteenth to twentieth century

Post-medieval deposits contain a wide range of residual sherds together with types which, with the exception of Phase D23, occur for the first time in this period. The reredorter was probably destroyed before c.1720 and this area was reoccupied for stables in the late eighteenth century. The early nineteenth-century clay yard provides a useful archaeological horizon for deposits both inside and outside the former chapter house, but even the recent garden soil above the clay contained some medieval sherds.

Methods of classification, analysis and quantification

The pottery fabrics have been grouped according to their composition, texture and colour, and the descriptions follow conventions recommended by Peacock (1977a). Thin-sections of the earthenwares have been prepared from type sherds (TF numbers), and sample numbers relate to the reference collection of microscope slides (see Section 12.3).

Quantification has been based upon body sherds and rim sherds because some phases comprise only small groups of pottery. Simple measures of weight and sherd count have therefore been adopted in preference to more sophisticated 'vessel equivalents' (Orton 1975, 31), but an estimated minimum number of vessels has been calculated for each phase and fabric. These figures are derived from an assessment of all sherds within each context. Apart from obvious joins, however, it was not possible to take account of different pieces from the same vessel which might have been found on different parts of the site.

Illustrated forms have been confined to unusual or near-complete vessels, and to items which assist with the dating of a particular fabric. Descriptive catalogue entries include only those features which are not visible on the drawing, and both the provenance and approximate date are indicated by the phase code. Most of the vessels which could be reconstructed were found among the Dissolution debris. (Period D).

The thin-sections from Battle have been compared with wasters from known kilns and with other marketed vessels from elsewhere, by rapid visual sorting of the slides under a petrological microscope. The fabrics have been grouped using sketches prepared from projected plain-light images of the thin-sections, and more sophisticated sampling has been undertaken in order to confirm the important identifications. This method of analysis is not intended as a substitute for classification according to ceramic traits which are visible to the naked eye, but it does provide an objective means of comparing fabrics.

Thin-section analysis not only provides a means of identification, but it is also possible to estimate the number of different sources represented in an excavated ceramic assemblage. At least four of the medieval fabrics found at Battle are sufficiently similar to be from the same kiln, and it is clear that the output of this, as yet unknown, industry included both grey coarsewares and sand tempered jugs (Fig. 4.3: Graph G).

Classification and comparison

The principal ceramic types represented at Battle Abbey are described on the accompanying tables. References to the results of textural analysis relate to Figs. 4.3-4 and illustrated forms appear on Figs. 4.5-11.

Battle Abbey (pottery): 1

MEDIEVAL AND LATER POTTERY

A Flint-tempered wares

Fabrics

Ai Grey core with brown surfaces. Hard, harsh texture; rough fracture. Moderate medium sand temper, with sparse fragments of coarse flint. (TF 71; Sample 1057).

Aii Pale grey core and surfaces. Hard, harsh texture; rough fracture. Moderate medium sand temper with abundant medium/coarse flint and sparse ironstone. (TF 42; Sample 998).

Aiii Grey core with red-brown surfaces. Fairly soft harsh texture; hackly fracture. Sparse medium sand temper with abundant coarse white flint and moderate ironstone. Probably Abbot's Wood kiln. (TF 38; Sample 994).

Aiv Grey core with red or red-brown surfaces. Hard, harsh texture; rough fracture. Moderate medium sand temper with moderate medium flint and sparse coarse flint; abundant ironstone and sparse fragments of sandstone visible in thin-section. Partial clear or pale green glaze on jugs. (TF 9; Sample 966).

Av Pale grey core with buff surfaces. Hard, fairly smooth texture; rough fracture. Abundant fine sand temper with sparse medium flint and abundant fine mica visible on surfaces. Partial green glaze on skillet. (TF 45; Sample 1001).

Forms and manufacture (Fig.45)

Vessels in Fabric Ai are probably hand made; others are wheel thrown. The coarse flint-tempered fabrics were used principally for cooking pots and skillets, but jugs occur in Fabric Aiv, and there is a spouted pitcher in Fabric Aiii

Battle Abbey (pottery): 2

1. ?Cooking pot. Sherd with rouletted decoration. Fabric Ai. Phase B7.
2. Spouted pitcher. Fabric Aiii. Phase C14.
3. Cooking pot. Irregular lines on the exterior show where the rim (?hand-made) has been attached to the body. Small splash of glaze on interior of the rim. Fabric Aiv. Phase B7.
4. Tripod vessel. Applied thumb-strip decoration, possibly festooned around the body. Internal stabbing above applied foot. Internal pale green glaze. Fabric Av. Phase C14.

Dating and comparison

The rouletted sherd (no.1) is probably residual in Period B and dates from the twelfth century or earlier. All these wares occur in Periods A or B, apart from Fabric Av which appears for the first time in Phase C14. The evidence from Battle therefore confirms previous suspicions that flint-tempered fabrics persisted after c.1300 in East Sussex (Barton 1979, 7).

Flint gritting is largely confined to southern areas of the Gounty, and, although isolated flint-tempered sherds are known from the Weald, none of the pottery from Bayham Abbey contained flint. Unlike some sherds from Clottenham (Martin n.d.; Sample 189) which have little or no sand, all the flint-tempered fabrics at Battle contain at least some quartz. Thin-sections prepared from Fabrics Ai and Aii show a similar range of quartz grain sizes which may indicate that these vessels are from the same unknown source. Both the colour and texture of Fabric Aiii is almost identical to wasters found in Abbot's Wood, Upper Dicker, and similar wares have been reported from Hastings (Rudling 1976, 172, No.64). The possibility that other centres were producing similar wares cannot be ruled out, but, if this identification is correct, then the occurrence of Fabric Aiii before the

Battle Abbey (pottery): 3

great thirteenth-century rebuilding at Battle may help to define the date range of the Abbot's Wood kilns.

Flint-tempered wares like Fabric Aiv have been found at Glottenham, but the range of quartz grain sizes is not precisely the same. Closer comparisons can be made with the flint-tempered wasters at Ringmer which are thought to have reached at least as far east as Michelham Priory (Streeten forthcoming ^b). The Battle fabric does not contain quite such a prominent groundmass of fine quartz as the Ringmer wasters but this identification remains probable. If it is correct, then the dating evidence from Battle confirms the early origin of the industry suggested by excavations at Ringmer (Hadfield 1981: 105).

The very sparse flint of Fabric Av, which is later than other types in this group, is similar to a vessel from Michelham Priory (Sample 365).

B. Flint-/shell-tempered wares

Fabrics

- Ba Grey core, sometimes with red-brown margins, and grey or black surfaces. Hard, fairly smooth texture; rough fracture. Moderate fine sand-temper with moderate coarse flint, sparse shell and ironstone. (TF 4; Sample 961).
- Bbi Grey core and surfaces. Hard, harsh texture; rough fracture. Moderate medium/coarse sand temper with moderate coarse flint; sparse flecks of shell and sparse ironstone. (TF 75; Sample 1060).
- Bbii Grey core with brown or red-brown surfaces. Hard, harsh texture; rough fracture. Abundant medium sand temper with moderate medium/fine flint and moderate specks of shell. Partial clear or green glaze on some sherds. Possibly Ringmer kilns. (TF 7; Sample 964).
- Bbv Grey core with dark grey or black surfaces. Fairly hard, slightly harsh texture; rough fracture. Moderate medium sand temper with moderate/

Battle Abbey (pottery): 4

sparse medium flint and occasional flecks of very fine shell. (TF 3; Sample 960).

Forms and manufacture (Fig.49)

Some vessels are probably hand made, and the wide range of surface colours suggests that they were fired in clamp kilns. Most of the sherds are from culinary wares, but there is one jug in Fabric Biv. Decoration is confined to combing, and to thumbed strips on the cooking pots.

5. Cooking pot. Buff-coloured internal surface; mottled grey to red-pink exterior. Fabric Biii. Phase A2.
6. Bowl. Patchy external green and clear glaze. Fabric Biiii. Phase D21.

Dating and comparison

All of these fabrics occur in Periods A and B, and the well-stratified context before c.1100 for no.5 (Phase A2) is particularly useful for dating this simple form of cooking pot rim. Fabric Biv which is dominant in the same phase is similar to the published description of a twelfth-century cooking pot from Hastings Castle (Moore 1974, 167, no.11), but, like the flint-tempered wares, other sub-types may have persisted well into the thirteenth-century or later.

The combination of flint and shell temper may indicate the use of beach sand in some fabrics (Dalley 1967, 219-20). Many of the vessels from Michelham Priory have 'flint and calcite' temper (Barton and Holden 1967: 9), and similar inclusions have been recognised at sites nearer the coast. Fabric Biii is comparable in thin-section with some of the Michelham wares in Wistley (Sample 474), and with another type from Denton (O'Shea 1979, 239; Sample 581). There is less quartz in the flint-/shell-tempered wares from Bramble

Battle Abbey (pottery): 5

Bottom, Eastbourne (Musson 1955, 162-6; Sample 556), and from Seaford (Preke 1977-B, 213, table 3; Sample 566), but the range of grain sizes in all of these fabrics is similar to the sand grains in wasters from Ringmer.

Specks of calcite are seldom to be seen in sherds found at kiln sites in Ringmer, but a few fragments from Norlington Lane (fieldwork by Mr C.E. Knight-Parr; Sample 591) do contain these characteristic white inclusions. The source of the Battle vessels cannot therefore be identified conclusively, but the affinities of Fabric Biii with finds from near the R. Ouse suggests an origin in the region west of the abbey.

C. Shell-/sand-tempered wares

Fabrics

Ci Grey core with dark grey or black surfaces. Hard, fairly smooth texture; rough or hackly fracture. Moderate fine sand temper with abundant coarse shell. One sherd has traces of an internal white slip. Possibly Rye kilns. (TP 6; Sample 963).

Cii Grey core with grey or dark grey surfaces. Hard, harsh texture; rough fracture. Abundant medium/coarse sand temper with sparse coarse shell. (TP 5; Sample 962).

Forms and manufacture (Fig.45)

Wheel-made vessels include both cooking pots and jugs, and there is a skillet in Fabric Ci. Decoration on the jugs includes stabbed and slashed handles, and combing. Some of the cooking pots have applied thumbed strips.

7. Cooking pot. Fabric Ci. Phase D24.
8. Jug. Fabric Cii. Phase C14.
9. Jug. Fabric Cii. Phase C14.

Battle Abbey (pottery): 6

Dating and comparison

Both fabrics occur in Phase A5 and in Period B, but they are more common in Period C, where flat-flanged cooking pot rims predominate. There is no conclusive evidence therefore that these shell-tempered wares were in use before the early thirteenth century.

Shelly wares are found extensively in Kent, Surrey and parts of Sussex, but they are less common in coastal regions of the County. Some of the coarsewares from Spittal Field, Rye have plate-like voids left by dissolved or burnt-out particles of shell, and the range of quartz grain sizes visible in thin-sections prepared from Fabric Ci compares closely with the Rye wasters. The Brede potters who used similar sands do not appear to have made shell-tempered wares.

Fabric Cii is coarser than the wasters found at Rye, and it is superficially similar to the grey wares from Bayham Abbey (Streeten 1983, 92; fabric Ai; Sample 395). This fabric cannot, however, be matched with any of the local kiln products, but it may belong with another group of wares which includes both oxidised and reduced vessels (see below).

D. Sand-tempered wares

Reduced (grey) fabrics

Di Pale grey core with dark grey surfaces. Hard, fairly smooth texture; rough fracture. Abundant medium/fine sand with sparse fragments of ironstone. Probably Rye kilns. (TP 1; Sample 958).

Dii Pale grey core with black surfaces. Hard, smooth texture; rough fracture. Abundant fine sand with sparse fragments of ironstone. Traces of green glaze on some sherds. Probably Rye kilns. (TP 2; Sample 959).

Diii Pale grey core with buff surfaces. Hard, harsh texture; rough fracture. Abundant medium/coarse sand. Jugs have partial green glaze. (TP 33;

Battle Abbey (pottery): 7

Sample 988).

Div Pale grey core with buff surfaces. Hard, harsh texture; rough fracture. Abundant medium/coarse sand. Some jugs have white slip decoration and green or clear glazes. (TF10; Sample 967).

Dv Pale grey core and surfaces. Very hard smooth texture; rough fracture. Moderate very fine sand temper. External green glaze and partial internal green glaze. (TP 72; Sample 1058).

Dvi Pale grey core with pale buff margins and surfaces. Very hard, smooth texture; fairly smooth fracture. Moderate medium sand temper with abundant iron ore. (TP 73; not thin-sectioned).

Dvii Pale grey core with pale buff margins and surfaces. Hard, fairly smooth texture; rough fracture. Abundant fine sand temper. Green glaze. (TP 43; Sample 999).

Forms and manufacture (Fig.4)

All vessels are wheel-thrown, and the repertoire of unglazed wares (Fabrics Di and Dii) includes jugs with incised decoration; stabbed and slashed handles; and thumbled bases, as well as cooking pots with flanged rims and applied thumbled strips. A jug in Fabric Div has applied pellets of red and white clay under a green glaze, and there is an oval dish in Fabric Dv.

10. Jug. Fabric Di. Phase D28.
11. Jug. Fabric Di. Phase D21.
12. Jug. Base thumbled from underneath. Fabric Dii. Phase D21.
13. ?Jug. Decoration applied to rim of ?jug, possibly representing a bearded face with applied pellets of red (stippled) and white clay. Hole and scar indicates probable broken spout. Fabric Div. Phase C14.
14. Jug. Patchy pale green and clear external glaze. Fabric Dvii. Phase E36.

Battle Abbey (pottery): 8

Dating and comparison

Examples of these fabrics, apart from Dvi, occur in Phase B7, and some reduced sand-tempered wares are represented in Period A. The form and decoration of the jugs is typical of the thirteenth/fourteenth century, but plainer forms such as no.11 are probably fifteenth century.

Textural analysis confirms that Fabrics Di and Dii come from Rye, (Fig.4: Graph A). Output of the Rye kilns is not thought to have commenced much before c.1300, but two sherds in these fabrics occur at Battle in contexts which are unlikely to be later than the mid-thirteenth century (Phases A5 and B7). The possibility that earlier wares made from similar raw materials were produced at another kiln cannot be ruled out, but oxidised glazed wares attributed to the Rye potters also occur in deposits associated with the thirteenth-century rebuilding (see below). Production may therefore have started by this time, and the longevity of these common fabrics is demonstrated by the apparent fifteenth-century form of no.11.

Fabric Diii, with its distinctive buff surfaces, occurs in several of the early phases within Periods A and B, although it may be intrusive in Phase A2. Textural analysis demonstrates that these vessels do not come from Rye (Fig.4: Graph H), and, although the source is not known, buff wares are represented among wasters from the thirteenth-century kiln at Streat some 10 km (6 miles) north-west of Lewes (excavated in 1981 by Mr C.Ainsworth).

The source of the other reduced sand-tempered wares has not been identified, but Fabric Div is paralleled at Bayham Abbey (Streeten 1983: 92, fabric Bvi). It may be from the same centre as some oxidised sandy wares and one of the shell-tempered fabrics found at Battle (Fig.4: Graph G; see below).

Battle Abbey (pottery): 9

Oxidised (red) fabrics

Dviii Pale grey core with red surfaces. Hard, harsh texture; rough fracture. Abundant medium/coarse sand temper with sparse very coarse grains and moderate ironstone. Partial pale green or clear glaze. (TF 47; Sample 1003).

Dix Red surfaces, sometimes with pale grey core. Hard, harsh texture; rough fracture. Abundant medium/coarse sand temper with sparse fragments of ironstone and siltstone. Partial pale green or clear glaze. (TF 34; Sample 990).

Dx Grey core with red surfaces. Hard, harsh texture, with badly spalled surfaces; rough fracture. Abundant coarse sand temper. Partial clear or green glaze. Possibly Ringner kilns. (TF 16; Sample 973).

Dxi Red core and surfaces, sometimes with indistinct pale grey core. Hard, fairly smooth texture; rough fracture. Abundant medium/fine sand temper. Partial green or clear glaze sometimes with internal white slip. Rye kilns. (TF 8; Sample 965).

Dxii Red core and surfaces. Hard, smooth texture; rough fracture. Abundant fine sand temper with moderate red iron ore. Partial dark green or clear glaze, sometimes with internal white slip. Rye kilns. (TF 46; Sample 1002).

Dxiii Red core and surfaces, sometimes with pale grey core. Hard, smooth texture; rough fracture. Abundant fine sand temper, with sparse medium grains and moderate red iron ore. Partial green glaze. Rye kilns. (Tr 44; Sample 1000).

Dxiv Pale grey core with pink surfaces. Very hard, fairly smooth texture; rough fracture. Abundant fine sand temper. Partial (sometimes complete) external green glaze. Rye kilns. (TF 69; Sample 1055).

Dxv Pink core and surfaces; sometimes with indistinct pale grey core. Hard, fairly smooth texture; rough fracture. Moderate fine sand temper.

Battle Abbey (pottery): 10

mottled clear/green external glaze. (TF 65; Sample 1006).

Dxvi Red core with brown surfaces. Hard, harsh texture; rough fracture. Abundant medium sand temper with sparse iron ore. External green glaze. (Tr 46; Sample 1004).

Dxvii Grey or pink core with brown surfaces. Hard, fairly smooth texture; rough fracture. Moderate medium sand temper with moderate red iron ore. Partial external green glaze sometimes with white slip decoration. (Tr 18; sample 975).

Forms and manufacture (Figs 45 and 46)

Most of the identifiable sherds are from jugs, but skillets occur in Fabrics Dxi-Dxiv, and a vessel in Fabric Dx has an internally flanged rim. The jugs have a wide range of combed, incised and thumbed decoration, but repoussé 'raspberry' stamps and leaf ornaments, which are distinctive of the Rye wares, are confined to Fabrics Dxi and Dxi. Some vessels in Fabric Dvii are knife-trimmed around the base, and others have white-painted decoration.

15. Jug. Thin internal white slip around rim. External pale green glaze. Fabric Dxi. Phase D31.

16. Jug. Patchy green glaze on exterior and at base of interior. Fabric Dxi. Phase D26.

17. Jug. Stabbed handle. Internal white slip. Patchy pale green external glaze. Fabric Dxi. Phase D21.

18. Jug. Mottled green glaze on exterior and at base of interior. Fabric Dxiv. Phase C14.

19. Cooking pot. Fabric Dvii. Phase D21.

20. Cooking pot. Fabric Dvii. Phase D21.

Battle Abbey (pottery): 11

Dating and comparison

None of the oxidised sand-tempered fabrics can be dated conclusively to before the early thirteenth century. One intrusive sherd (Fabric Dix) came from the disturbed chapter house graves (Phase A3), and other types attributed to Period A were recovered from levels in the reredorter area which could have remained exposed until the great thirteenth-century rebuilding (Phase A5). The less common earthenware fabrics (Dix-xviii) appear for the first time in Phase C14.

The coarser wares (fabrics Dviii-x) are superficially similar to oxidised wasters found at Ringmer, but the quartz groundmass, which is distinctive in thin-sections of the Ringmer wares, only occurs in Fabric Dx. Textual analysis shows that Fabrics Dviii and Dlx probably come from the same unknown source as the shell-tempered ware (Fabric Cii) and one of the reduced sandy fabrics (Div) (Fig.43: Graph G).

It is possible that this group represents a coarser type which has not been recognised so far among products of the Rye kilns, but analysis has shown that these fabrics are quite different from the known variants (Fig.44). Fabrics Dxi-xiv, however, definitely do come from Rye. The range of quartz grain sizes in all four of these types can be matched with either fabric 'one' or fabric 'two' at Rye (Fig.45: Graphs B-E). Sherds attributed to the Rye kilns are securely stratified in mid-thirteenth-century contexts at Battle, and one piece (Fabric Dxi) appears in Phase A5. Fragments from the area east of the dormitory (Phase B8) could be later, but other vessels are represented not only in the make-up which is contemporary with the reredorter (Phase E7), but also in the built-up ground associated with construction of the parlour porch (Phase B6). In view of the importance of these stratified finds, fabric identifications have been checked carefully

Battle Abbey (pottery): 12

by direct (macroscopic) comparison with the wasters from Rye. Even the sherd from Phase A5 stands up to careful scrutiny, and the form of the solid skillet handle from Phase B8 can be paralleled among the wasters (Barton 1979, 249; 251). Thumbled bases such as that from Phase B6 are not well represented at Rye, although they do occur (Barton 1979, 240, no.6). It therefore appears that the output of these kilns may have commenced somewhat earlier than has been supposed hitherto. Barton (1979, 219) places the origins of the Rye industry 'no earlier than about AD 1300', but the diverse dates of pottery associated with the kilns demonstrates that the vessels recovered by Vidler may not be fully representative of this long-lived industry. The fabric of stratified sherds from Battle shows that at least part of the repertoire, if not the full range of forms, must have been established at least 50 years earlier than c.1300.

The source of the other minor sand-tempered wares has not been identified, but Fabric Dxx is almost certainly non-local. The pink colour is similar to Scarborough ware (Farmer 1979, 28-31), but neither the range of inclusions nor the grain-size distribution visible in thin section is the same.

Sand-tempered wares persist throughout the medieval phases, and the oxidised jugs, like the reduced examples, are typical of the thirteenth/fourteenth century. Typologically no.18 would be ascribed to the fourteenth century, but a strikingly similar form is shown on the decorated initial from a page in the account rolls for the Bailiwick of South Malling (near Lewes), dated 1445-6 (Legge 1902, 77). Dating from contemporary illustrations is hazardous, but this document, combined with circumstantial evidence for the date of the make-up in which the jug from Battle was found, demonstrates that vessels of this shape remained in use during the first half of the fifteenth century.

Battle Abbey (pottery): 13

The distinction between these fine sandy wares and the later hard-fired earthenwares is sometimes difficult to define with precision. White-painted decoration such as that represented in Fabric Dxxvii has been dated independently to the second half of the fifteenth century in West Sussex, and the innovation of knife-trimming around the base of the vessels is also a late medieval innovation (Barton 1963: 31). Coarser fabrics, however, would have continued alongside the finer earthenwares, and the lid-seating on the rim of a vessel in Fabric Dx is similar to types from Bodiam Castle which can have been discarded no earlier than c.1386 (Myres 1935, 223).

E. English white wares

Fabrics

Ei Off-white core and surfaces. Hard, harsh texture; rough fracture.

Abundant medium sand temper. Partial green glaze. Possibly Rye kilns. (TF 31; Sample 989).

Eii Off-white core and surfaces. Hard, smooth texture; rough fracture.

Moderate fine sand temper. Partial green glaze. Farnborough Hill kilns. (TF 11; Sample 968).

Eiii Same as fabric Eii, but with yellow glaze. (TF 14; Sample 971).

Eiv 'Tudor Green' ware. Farnborough Hill kilns. (TF 12; Sample 969).

Eiv White core with faint traces of pink; off-white surfaces. Hard, very smooth texture; rough fracture. Sparse fine sand temper with sparse flecks of red iron ore. Yellow or green glaze. Probably High Lankhurst kiln. (TF 26; Sample 984).

Forms and manufacture (Fig.49)

Identifiable sherds of the coarser sand-tempered white fabric (Ei) are confined to jugs, and a typical biconical profile has been reconstructed

Battle Abbey (pottery): 14

(no.21). Other white wares are finer, and include the very thin-walled Tudor Green types (Fabric Eiv: Holling 1977: 62) as well as vessels with a slightly thicker body (Fabric Eii). Most have a characteristic lustrous green glaze, but there is a small group of yellow-glazed sherds (Fabric Eiii). Insufficient examples of the later white wares (Fabric Ev) were found to define the range of forms.

21. Jug. Bib of mottled green glaze on the shoulder, opposite the handle. Fabric Ei. Phase D21.

22. Jug. Bright green glaze on exterior and around inside of rim. Fabric Eii. Phase D22.

23. Dish. Knife-trimmed base. Internal pale green glaze. Fabric Eii. Phase D23.

24. Jug. Shiny clear (yellow) glaze on interior and exterior of rim. Fabric Eiii. Phase D22.

25. Jug. External lustrous mottled green glaze. Fabric Eiv. Phase D22.

26. Jug. Fabric Eiv. Phase D22.

27. Lobed cup. Fabric Eiv. Phase E42.

Dating and comparison

White wares do not occur before Period C, and the yellow-glazed types (Fabric Eiii) appear for the first time among the Dissolution debris (Phase D21/22). Isolated sherds of post-medieval white ware were found in later sixteenth- or seventeenth-century contexts (Phases D23 and D26) and in Period E.

'Tudor Green' forms have been dated as early as the second quarter of the fifteenth century at several sites, and the type is thought to have been introduced c.1400 (Moorhouse 1979, 54; 59). A sherd from Phase C14 at

Battle Abbey (pottery): 15

Battle therefore offers a terminus post quem for construction of the new drainage system on the north side of the reredorter, and also helps to date some of the associated coarsewares found in the same deposit.

Biconical jugs such as no.21 were found at Bodiam Castle (Myres 1935, 22, fig.3), and the form is conventionally ascribed to the fifteenth century. The colour and texture of Fabric Xi is superficially similar to wasters from the Cheam kilns in Surrey (Marshall 1924), but a small number of off-white wares are also represented among the material from Rye. Pottery manufacture at Rye probably continued into the early fifteenth century (Barton 1979, 218-22), and textual analysis of the coarser white wares found at Battle suggests that they are more likely to be products of this local kiln, rather than from Surrey (Fig.43: Graph F).

It is difficult to distinguish some of the finer English white wares from French imports, and even the grain-size frequency visible in thin-section shows little difference. Textural analysis, however, confirms that both the Tudor Green wares (Fabric Eiv) and the thicker-walled vessels (Fabric Eii) are products of the Farnborough Hill kilns on the Hampshire/Surrey border (Holling 1971^g, 61; Fig.44: Graph A). The later sixteenth-century output of these kilns is also represented by the small dish (no.23) which is typical of this period (Holling 1971^h, 73, fig.2, no.A1). Yellow glazes are not common among the wasters from Farnborough Hill (Holling 1977^g, 63) and significantly a thin-section of Fabric Eiii at Battle is different from the green glazed wares. The source of this type therefore remains unknown.

The fabric of the post-medieval white wares (Fabric Ev) is also different from the Surrey types. White clay was used by the local late-sixteenth-century potters at High Lankhurst, Westfield, but wasters from this kiln

Battle Abbey (pottery): 16

are virtually untempered (Sample 480). The Battle fabric does contain quartz, but the range of grain sizes is similar to some of the High Lankhurst red wares, and this is almost certainly a local rather than a 'Surrey' type.

F. Hard-fired earthenwares

Fabrics

- Pi Pale grey core with brown surfaces. Hard, harsh texture; rough fracture. Abundant medium/coarse sand temper. Partial green glaze. (TF 67; Sample 1053).
- Pii Buff core and surfaces. Hard, fairly smooth texture; rough fracture. Abundant fine sand temper. (TF 35; Sample 991).
- Piii Red core with dark grey or black surfaces. Hard, harsh texture; rough fracture. Abundant medium sand temper. Partial green or clear glaze. (TF 15; Sample 972).
- Piv Red or sometimes pale grey core with red or red-brown surfaces. Hard, harsh texture; rough fracture. Abundant medium sand temper with moderate pellets of red iron ore. Partial clear or green glaze. Some later types probably High Lankhurst kiln. (TF 21; Samples 978-979).
- Pvi Pale grey core with red-brown surfaces. Fairly hard, harsh texture, sometimes with pitted surfaces. Moderate medium/fine sand temper with sparse pellets of red iron ore. Partial yellow-green or clear glaze: High Lankhurst kiln. (TF 24; Sample 982).
- Pvii Pale grey core with red-pink surfaces. Hard, fairly smooth texture; rough fracture. Moderate fine sand temper with very sparse pellets of red iron ore. Partial green or clear glaze. (TF 49; Sample 1005).
- Pviii Red core with dark grey-brown surfaces and margins. Very hard, smooth texture; fairly smooth fracture (near-stoneware). Sparse fine sand temper. Partial colourless glaze. (TF 20; Sample 977).

Battle Abbey (pottery): 17

Pviii Red core with 'metallic' sheen on surfaces. Hard, fairly smooth texture; rough fracture. Moderate fine sand temper. Partial (sometimes complete) green or clear glaze. (TF 28; Sample 985).

Pix Red core and surfaces. Hard, smooth texture; rough fracture. Abundant very fine sand temper. Complete lustrous brown glaze with 'metallic' sheen. (TF 25; Sample 983).

Px Intermittent pale grey core with red-brown margins and dark grey external surface. Hard, fairly smooth texture; rough fracture. Abundant very fine sand temper with moderate pellets of red iron ore. Partial green or clear glaze. (TF 17; Sample 974).

Pxi Grey core with red margins and brown surfaces. Hard, fairly smooth texture; rough fracture. Fine sand temper with sparse medium/coarse quartz grains. Internal green glaze with white-painted external decoration. Graffham kilns. (TF 19; Sample 976).

Pxii Pink core and surfaces. Hard, smooth texture; rough fracture. Moderate very fine sand temper and streaks of pale coloured clay. Partial (sometimes complete) green or clear glaze. (TF 29; Sample 987).

Probable imports; source uncertain

Pxiii Red-pink core and surfaces. Hard, very smooth, 'soapy' texture; fairly smooth fracture. Moderate very fine sand temper. Partial internal clear glaze. (TF 22; Sample 980).

Pxiv Purple-pink core and surfaces. Hard, fairly smooth texture; rough fracture. Moderate fine sand temper, and distinctive white specks showing in the fracture. Abundant mica visible in thin-section. Complete external green glaze. (TF 36; Sample 992).

Battle Abbey (pottery): 18

Forms and manufacture (Figs.4-6-4)

The range of forms and fabrics reflects the transition from late medieval to post-medieval ceramics. Streaky surface colours on some vessels are probably distinctive of a particular method of firing, and some of the very hard fabrics have been fired to high temperatures. Knife-trimming is common.

'Medieval' forms such as the jug with frilled pedestal base (no.38) persist in these finer fabrics, and many of the jug handles are pricked in the medieval manner. Thumbing at the base of jug or bung-hole-pitcher handles is more common among the later types than in the medieval wares, but decoration is both simple and sparse. Cooking pots and deep pans occur fairly frequently, but several entirely new forms appear for the first time in these fabrics. Chafing dishes occur in Fabrics Pi and Piv, and the Dissolution debris outside the reredorter included large earthenware costrels (nos.44 and 45). 'Industrial' ceramics such as the alembic (no. 46), the perforated vessel (no.49), and possibly the divided dish (no.48) imply that, by the early sixteenth century, local potters were also able to meet specialised requirements. Pipkins, however, have only been recognised in the later phases of Period D and in Period E.

28. Chafing dish. Patchy internal green glaze. Repoussé decoration on rim. Fabric Pi. Phase D22.

29. Jug. Traces of lime(?) encrustation on interior. Fabric Piii. Phase D22.

30. Cistern (?). Knife-trimmed base. Patches of clear glaze on underside of base. Fabric Piii. Phase D24.

31. Cooking pot. Fabric Piv. Phase D24.

32. Handled cooking pot. Scar on rim indicates that there was at least one and probably two handles. Fabric Piv. Phase D22.

Battle Abbey (pottery): 19

33. Cooking pot. Fabric Fiv. Phase D22.
34. Deep pan. Fabric Fiv. Phase D22.
35. Bowl. Fabric Fiv. Phase D22.
36. Jug. Fabric Fiv. Phase D30.
37. Base of ?jug. Knife-trimmed base. Splashes of clear glaze on bottom. Fabric Fiv. Phase D30.
38. Jug. Fabric Fiv. Phase D22.
39. Bung-hole pitcher. Fabric Fiv. Phase D22.
40. Jug. Fabric Fiv. Phase D22.
41. Cistern(?). Knife-trimmed around base. Patches of clear/pale green glaze on base. Trickle of glaze down the side of the vessel show that it was fired upside-down in the kiln. Fabric Fiv. Phase D22.
42. Rim and spout of puzzle jug. Applied hand-made spout. Speckled clear and pale green glaze. Fabric Fiv. Phase D21.
43. Base of chafing dish. Knife-cut hole and knife-trimmed on bottom. Sparse splashes of clear glaze. Fabric Fiv. Phase D21.
44. Costrel. Applied spout luted on after two halves of the vessel had been joined around the girth. Fabric Fiv. Phase D21.
45. Costrel. Flat side and base. Patchy external glaze. Hole pierced through body with the scar of a presumed spout near the base of the vessel. Fabric Fiv. Phase D22.
46. Alembic. Patchy clear internal and external glaze. Knife-trimmed base. Pierced (not rolled) spout, with knife-trimming at the end and on the sides of the spout. Fabric Fiv. Phase D22.
47. Spout, probably from an alembic. Hand-made cylinder of clay with signs of knife-trimming on interior and at the end of the spout. Splashes of clear glaze. Fabric Fiv. Phase E35.
48. Divided dish. Possibly a cruet or for an 'industrial' purpose. Moulded base and sides with sanded surfaces. Knife-trimmed on top and

Battle Abbey (pottery): 20

- and inside. Two prominent finger prints on the bottom of the interior. Fabric Fiv. Phase E35.
49. 'Industrial' vessel(?). Splashes of clear glaze on exterior. Small holes pierced before firing; spalled internal surface indicates that larger holes were drilled after firing. Function uncertain. Fabric Fiv. Phase D21.
 50. Jug. Deep and slightly tapering thumb groove on the handle. This treatment is a distinctive feature of wasters from the High Lankhurst kiln. Fabric Fiv. Phase D23.
 51. Lid. Patchy pale green internal and external glaze. Fabric Fv. Phase E42.
 52. Jug. Dark green internal glaze. Band of white slip on exterior of neck. Fabric Fvi. Phase D23.
 53. Pipkin. Lustrous metallic internal glaze. Metallic sheen on external surfaces. Fabric Fviii. Phase D23.
 54. Pipkin. Internal metallic brown glaze. Slight soot-blackening on exterior. Fabric Fviii. Phase E42.
 55. Jug. Prominent throwing rings on base. Knife-trimmed around exterior of base. Fabric Fx. Phase D24.
 56. Cooking pot. External white-painted decoration. Green-glazed interior. Fabric Fxi. Phase E49.

Probable imports; source uncertain

57. Costrel. Thrown in two halves and luted together around the girth. Base flattened after joining the two halves of the vessel(?). Extensive knife-trimming. Fabric Fxiii. Phase D22.
58. Jar, possibly for mercury (R.G.Thompson, pers. comm.). Fabric Fxiv. Phase D22.

Battle Abbey (pottery): 21

Dating and comparison

It is not possible to make precise distinctions between late medieval and post-medieval vessels when there is only a small sample of sherds, and the identification of at least two of these fabrics in Period C illustrates the difficulties of classification. Thin-sections show that none of the hard-fired earthenwares appears to have been manufactured at the same centre as the earlier types, and these earthenwares, which are predominantly unglazed, occur for the first time in large quantities among the Dissolution debris in the reredorter area (Phases D21/22 and D30). The simple shapes of the cooking pots, bowls, jugs and pitchers are typical of the early sixteenth century (Figs 3.7 and 4.8) and can be paralleled among wasters from kilns of this period at Lower Parrock, Hartfield (Freke 1979) and at Kingston upon Thames (Nelson 1981). However, the pulled feet which are so common on vessels found in the London area are not represented in Sussex. At Battle, the proportion of the main fabric (Div) is significantly less in the later phases of Periods D and E (eg Phase D23), and output of these wares was probably confined to the late fifteenth and early sixteenth centuries.

Isolated sherds with a 'metallic' brown glaze also occur among the Dissolution debris, but they are more common in the later phases. This fabric would have continued into the later period, and the pipkin (no.53) from Phase D23 is typical of the late sixteenth or early seventeenth century.

Superficially similar hard-fired earthenwares were manufactured both locally and on the continent, particularly in the Low Countries, during the early post-medieval period, and some of the vessels attributed to this group at Battle may in fact be imports. Stylistic influences introduced by migrant potters, however, make positive identification difficult. The two coarser fabrics (Pi and Pii) are similar, although not identical, to

Battle Abbey (pottery): 22

the hard-fired late medieval wares (Fabrics Dvii and Dviii). The principal group of red earthenwares (Fabric Fiv), and associated vessels with dark surfaces (Fabric Fiii), is similar to the predominant fabric found in a roughly contemporary assemblage at Bayham Abbey (Streeten 1983^c, 93, fabric Diii). Textural analysis, however, shows that the monastic communities at Bayham Abbey and Battle Abbey probably patronised different workshops during the early years of the sixteenth century, even though the two houses are only 22 km (14m) apart as the crow flies (Fig 4.4: Graph B).

Certain vessels which occur in later contexts at Battle are indistinguishable, to the naked eye, from those found among the Dissolution debris, but the tapering thumb groove on the handle of one jug or pitcher (no.50) is identical to wasters from the High Lankhurst kiln. Thus, Fabric Fv with a distinctive yellow-green glaze, and Fabric Fvi are almost certainly products of that kiln (Fig 4.4: Graphs C and D). A small group of sherds with white-painted decoration occurs in Period E, and the same fabric is represented among the Dissolution debris (Phase D22). This distinctive type has been attributed to the Craffham kilns in West Sussex (Streeten 1980^c, 113, fig.40).

Fabrics Fvii-viii and Fix-x represent two sources, but none of the other types can be attributed to a specific kiln. The very smooth earthenware (Fabric Fxiii) is similar to the texture of imported Martincamp Type 1 flasks (Hurst 1977d, 156-7), which have been identified at Camber Castle, but the form of the costrel in this fabric can be paralleled among English wares in a group of early sixteenth-century wasters from Woolwich (Pryor and Blockley 1978, 48, no.25). Vessels which are similar to the small mercury jar(?) (no.58) have been found in London and Southampton as well as in St Giles' Churchyard, Winchelsea (Winchelsea Museum); at Bayham Abbey (Streeten 1983^c, 103, fig. 43, no. 52); and at Canterbury (Macpherson-Grant 1978, 189, fig. 23, no. 63). Thin-sections of these wares contain abundant mica but

Battle Abbey (pottery): 23

there are no diagnostic inclusions. A possible Mediterranean source has been suggested by Mr R.G.Thompson (pers. comm.).

G. Medieval and later imported earthenwares

Fabrics

G1 White core and surfaces. Hard, fairly smooth texture; rough fracture. Moderate fine sand temper. Red-painted decoration. Probably French. (TF 68; Sample 1054).

G11 Saintonge polychrome ware (TF 74; not thin-sectioned).

G111 Off-white core and surfaces. Hard, very smooth texture; rough fracture. Moderate fine quartz sometimes with sparse pellets of red iron ore. External green glaze. French. (TF 13; Sample 970).

G1v Red-pink core and surfaces. Hard harsh texture; rough fracture. Abundant fine sand temper with common plates of mica visible on the surface. Inclusions of granitic origin seen in thin-section. (TF 41; Sample 997).

Gv Pinkish core. Hard texture; rough fracture. Abundant medium sand temper. Thick and lustrous turquoise glaze with white slip decoration. E.Mediterranean (R.G.Thompson, pers. comm.). (TF 77; not thin-sectioned).

Forms and manufacture (Fig.4.11)

In most cases the imported earthenwares are represented by a single sherd, but the distinctive shape of the handle in Fabric G111 confirms a French origin for this vessel.

59. Jug. Red slip with incised graffiti decoration and clear glaze.

Fabric G111. Phase D22.

60. Jug handle. Mottled green glaze. Fabric G111. Phase D26.

Battle Abbey (pottery): 24

Dating and comparison

A red-painted sherd (Fabric G1) occurs in Phase D22 where it is almost certainly residual. The whiteness of the fabric and the character of the decoration suggest that this is an import from northern France (Dunning 1945b).

Saintonge polychrome (Fabric G11) is present in Phase C14, but these jugs are confined to a restricted date range c.1300, and the sherds must therefore be residual. Plain French white wares have been distinguished from the fine English fabrics by their very smooth, soapy texture. White wares may have been imported from South-West France from the early thirteenth century, and plain green glazed types continued to reach Britain until the sixteenth century (Hurst 1974, 224). Isolated sherds occur at Battle in Periods C and D, but the precise dating of small sherds is impractical. Incised decoration similar to no.59 can be paralleled on certain northern French wares (Platt and Coleman-Smith 1975, 132, no.980).

Like the South-West French pottery, Iberian micaceous red wares were imported from the thirteenth-century onwards (Hurst 1977b, 96). These vessels are found extensively in early sixteenth-century contexts, and the type occurs among Dissolution debris at Battle (Phase D21/22). Costrels were probably made at several different centres in Spain and Portugal, and, although the sample from Battle contains inclusions of granitic origin like those recorded by Vince(1982,138-40) in sherds from London, the quartz is finer than in comparable finds from Camber Castle (Sample 1038). A pilot study by Miss R.Tomber at Southampton University has shown that there is considerable variation among thin-sections prepared from Iberian micaceous wares, and specific sources are unlikely to be identified until more material from the probable areas of origin has been studied petrologically.

Battle Abbey (pottery): 25

H. Imported stonewares

Fabrics

- H1 Pale grey core with brown surfaces. Very hard smooth texture; smooth fracture. Probably Martincamp-type stoneware. (TP 37; Sample 993).
- H11 Buff core and surfaces with brown iron wash. Very hard smooth texture. Langerwehe stoneware. (TP 64).
- H111 Cream-buff core and surfaces. Very hard smooth texture. Siegburg stoneware. (TP 32).
- H1v Pale grey core and external surface; grey-brown interior. Very hard shiny external surface. Raeren stoneware. (TP 55).
- Hv Pale grey core with grey-brown or light brown surfaces. Very hard smooth texture; shiny external surface. Raeren stoneware. (TP 56).
- Hvi Grey core with light brown surfaces. Very hard, smooth texture with shiny surfaces. Langerwehe/Raeren stoneware. (TP 57).
- Hvii Grey core and internal surface, mottled light brown exterior. Very hard, fairly smooth texture. Cologne/Frechen stoneware. (TP 58).
- Hviii Pale grey core and internal surface; cobalt blue-glazed exterior. Westerwald stoneware. (TP 54).

Forms and manufacture (Fig.4.11)

It is not possible to reconstruct the forms of either the Martincamp ware (Fabric H1) or the filled jugs in Langerwehe stoneware (Fabric H11), but the Siegburg ware (Fabric H111) includes both jugs with flared rims and a costrel (no.62). Raeren forms (Fabric H1v-vi) are confined to the typical squat tankards with frilled bases (no.63), but rouletting occurs on the shoulder of a Langerwehe/Raeren vessel (no.64): The Cologne/Frechen wares (Fabric Hvii) are distinguished by ringed, as opposed to frilled bases, and

Battle Abbey (pottery): 26

one vessel has characteristic relief decoration (no.65). Westerwald stonewares (Fabric Hviii) have the typical blue glaze and applied medallions.

61. Jug. Probably Fabric H111. Phase D22.
62. Costrel. The absence of handles indicates that this vessel would have been suspended from its cladding. Part of the wicker container for a similar costrel was found in the wreck of the Mary Rose. Fabric H111. Phase D22.
63. Tankard. Fabric H1v. Phase D30.
64. Jug. Rouletted decoration. Traces of lime(?) encrustation on the interior. Fabric Hvi. Phase D22.
65. Jug or tankard. Fabric Hvii. Phase E37.

Dating and comparison

Martincamp, Langerwehe, Siegburg and Raeren stonewares were all found among the Dissolution debris (Phase D21/22). A stoneware industry was established at Raeren during the fifteenth century but the principal output dates from the early sixteenth century (Gaskell Brown 1979, 36). The tankards are typical of this period, and the jug with rouletted decoration (no.64) is possibly from Langerwehe (Platt and Coleman-Smith 1975, 161, no.1214).

Frechen stonewares generally belong to the second half of the sixteenth century or later, and, significantly, these are absent from the Dissolution debris. The vessel with applied stamped decoration (no.65) is probably from Cologne (Platt and Coleman-Smith 1975, 162, no.1213). Production of Westerwald stoneware commenced in the sixteenth century but most of the imported vessels found in England are of seventeenth- or eighteenth-century date (Gaskell Brown 1979, 38). This fabric occurs in the later fill of the chapter house (Phase D23) and in Period E.

Battle Abbey (pottery): 27

J. English stonewares

Fabrics

- Ji Grey core and internal surface; mottled dark brown exterior. Very hard, fairly smooth texture. Fulham stoneware(?). (TF 59).
- Jii Pale grey core with light orange-brown surfaces. Very hard, slightly harsh texture. (TF 62).
- Jiii Pale grey core and surfaces. Very hard, fairly smooth texture. (TF 60).
- Jiv Grey core with grey or brown surfaces. Very hard, very smooth texture. (TF 61).

Forms and manufacture

None of the vessels could be reconstructed, but sherds in Fabric Ji are probably from 'Bellarmine' jugs; those in Fabrics Jii and Jiii may be from tankards; and Fabric Jiv is typical of more recent mineral water bottles.

Dating and comparison

Fabric Ji is similar to Fulham stoneware and it occurs both in Phase D23 and in Period E. Other types are confined to Period E.

K. Post-medieval English earthenwares

Fabrics

- Ki Red core and surfaces. Hard, smooth texture; fairly smooth fracture. Sparse very fine sand temper. Clear (brown) glaze with flecks of iron; sometimes with white slip decoration. Sussex ware. (TF 23; Sample 981).
- Kii Red-pink core and surfaces. Hard, smooth texture; rough fracture. Moderate fine sand temper. Clear (light brown) glaze; thick white slip decoration. 'Metropolitan slipware'. (TF 70; Sample 1056).

Battle Abbey (pottery): 28

- Kiii Off-white, slightly pink core and surfaces. Hard, smooth texture; rough fracture. Abundant medium/fine sand temper. Thin red slip with thicker white slip on top. Staffordshire-type combed ware. (TF 27; Sample 986).
- Kiv Red core with grey surfaces and margins. Hard, fairly smooth texture; rough fracture. Moderate medium/fine sand temper. Dark 'metallic' glaze. (TF 40; Sample 996).
- Kv Brown core and surfaces. Very hard, smooth texture; rough fracture. Moderate medium sand temper with sparse very coarse inclusions of iron-stone. White slip and brown glaze. (TF 63; not thin-sectioned).
- Kvi Smooth red earthenware. Flower pot. (TF 39; Sample 995).

Forms and manufacture

Fine brown-glazed earthenwares (Fabric Ki) include cooking pots, jugs, pans and bowls. Some sherds from Staffordshire-type combed ware dishes (Fabric Kiii) have finger-pressed rims. A pipkin and large pans(?) are represented in Fabric Div, and some flower pots (Fabric Dvi) have stamped decoration.

Dating and comparison

Dated examples of early eighteenth-century Sussex ware are recorded (Baines 1980, 11-12), but most of these wares belong to the late eighteenth- or nineteenth centuries. Similar glazes appear on vessels in the later phases of Period D, but the typical 'Sussex' types are confined to Period E.

Thin-sections demonstrate the contrast between the local eighteenth-century wares (Fabric Ki), and the earlier 'Metropolitan slipware' (Fabric Kii). This was manufactured at Harlow, Essex (Newton and Bibbings 1960, 370-6) and elsewhere, and there are many dated examples from the early

Battle Abbey (pottery): 29

seventeenth century. Only one sherd of this ware occurs in Phase E38. Staffordshire-type combed wares and other post-medieval types are also confined to recent phases in Period E.

L. Tin-glazed earthenwares (Fig.4.11)

The tin-glazed wares are either plain (Fabric L1: TF 30) or decorated with blue (Fabric L11: TF 50), or blue and yellow, patterns (Fabric L111: TP 51). Two small ointment pots (nos. 66 and 67) are probably early seventeenth-century Southwark products (Lipski 1970, 73; Dawson 1976), but other types are later. Most are English wares, but one sherd which was firmly stratified among the Dissolution debris (Phase D22) is probably an import from the Low Countries.

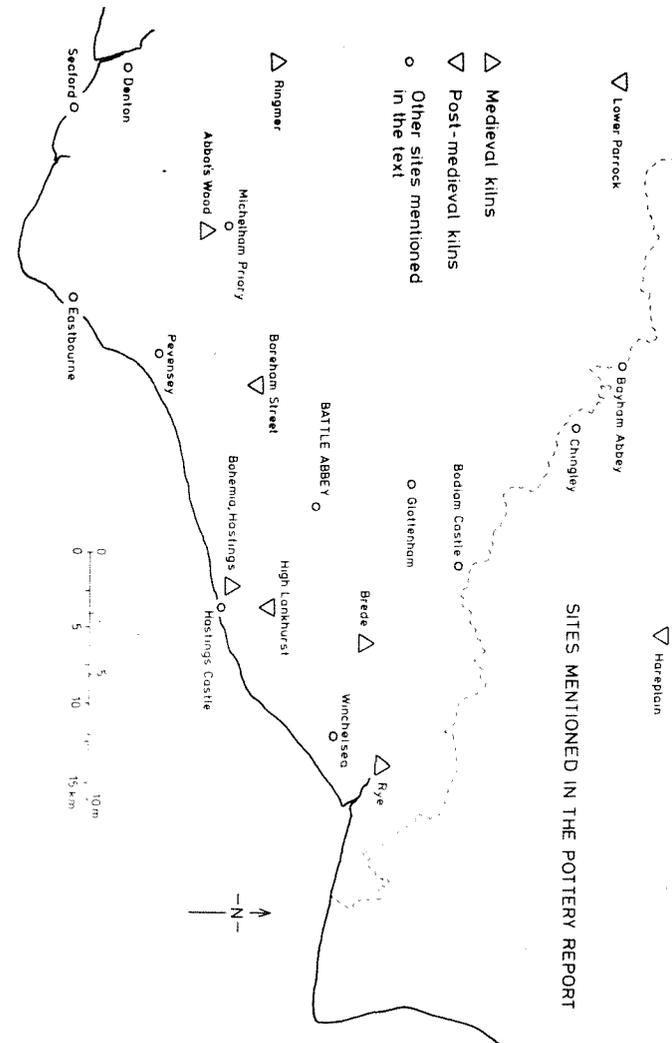
66. Ointment pot. Blue linear decoration. Purple lattice pattern. Phase D23.

67. Blue pattern with yellow V-shaped over-painting. Phase D23.

M. China

Plain white (Fabric M1: TF 52); transfer-printed (Fabric M11: TP 53); and other types (Fabric M111: TP 76) occur in Period E.

Battle Abbey (pottery): 30



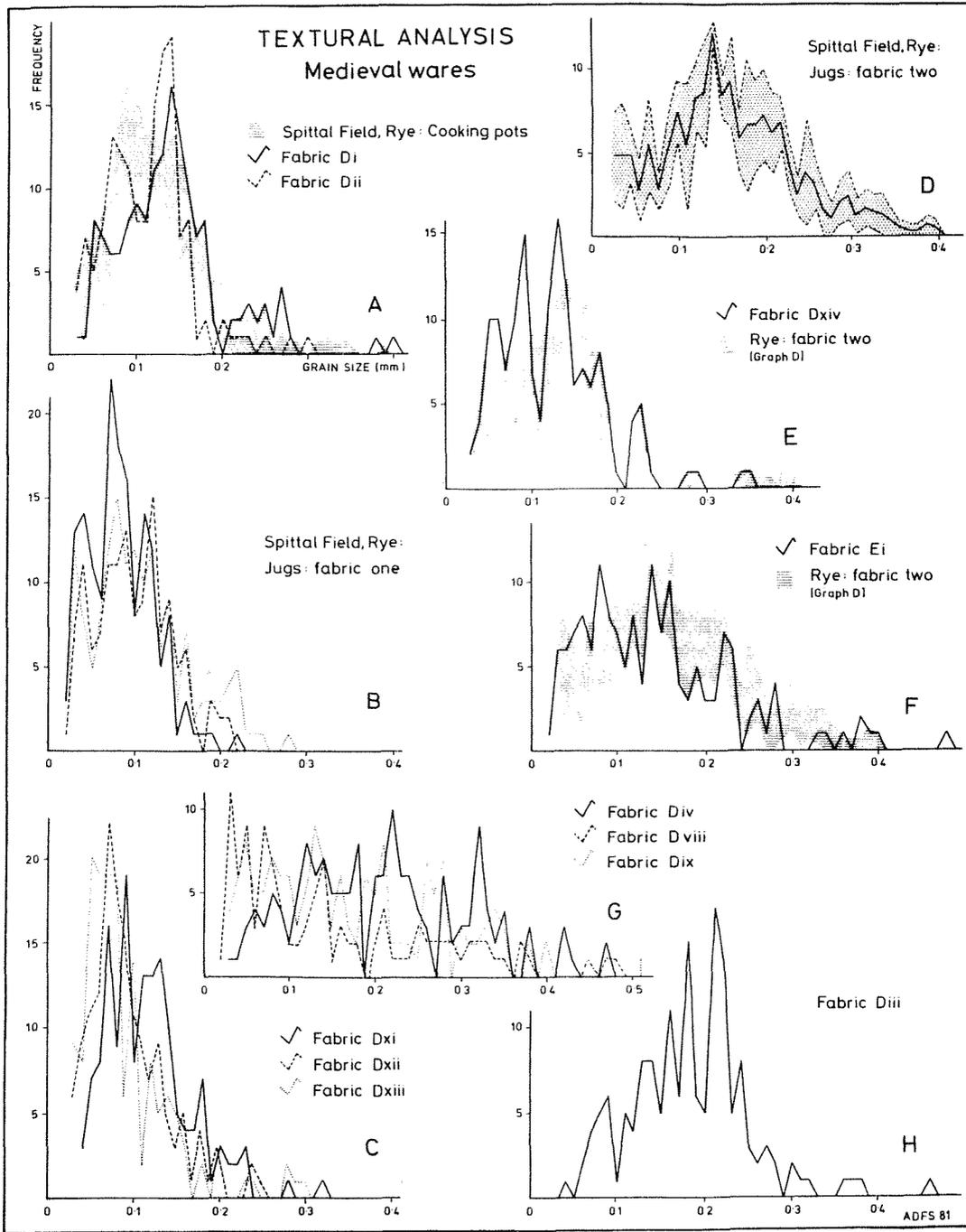


Fig. 4.3 Battle Abbey. Textural analysis of medieval pottery

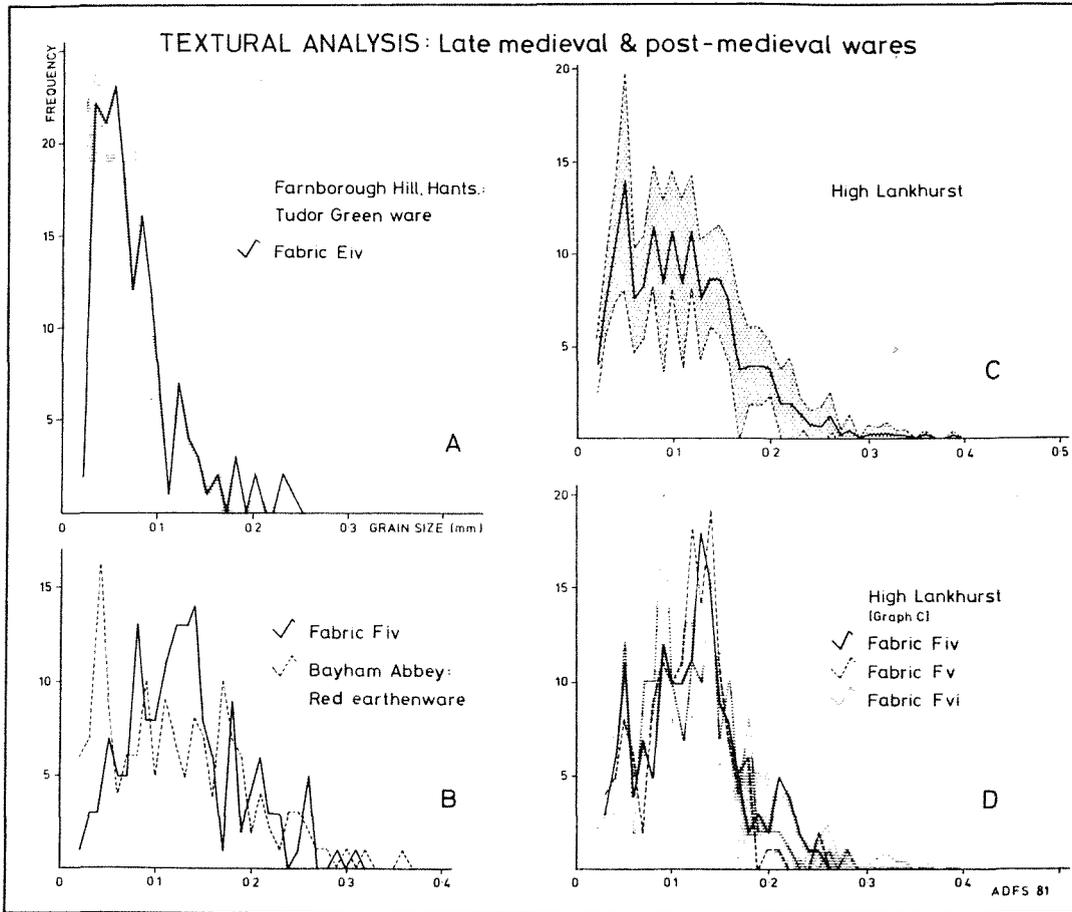


Fig. 4.4 Battle Abbey. Textural analysis of late medieval and post-medieval pottery

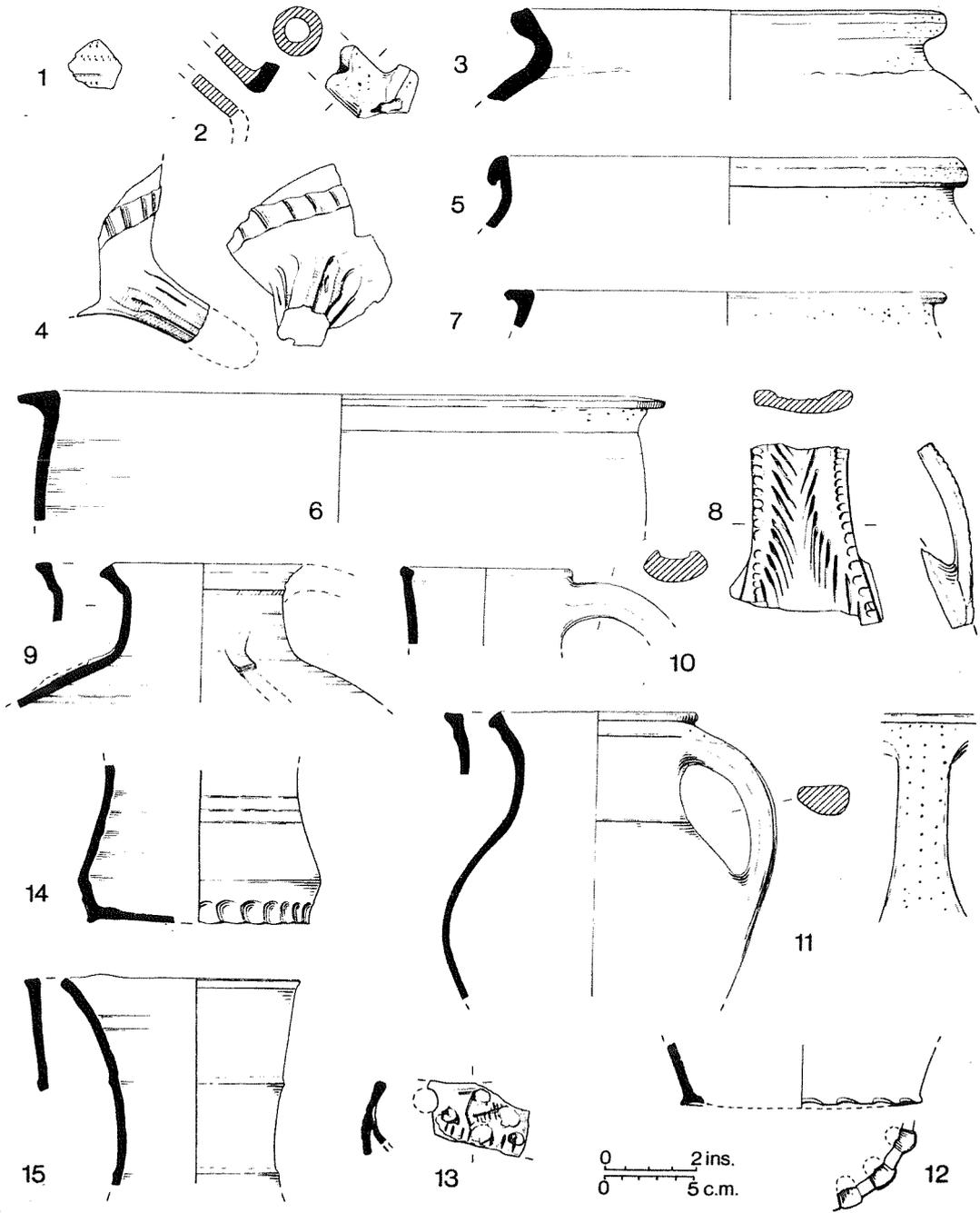


Fig. 4.5 Battle Abbey. Medieval pottery (4)

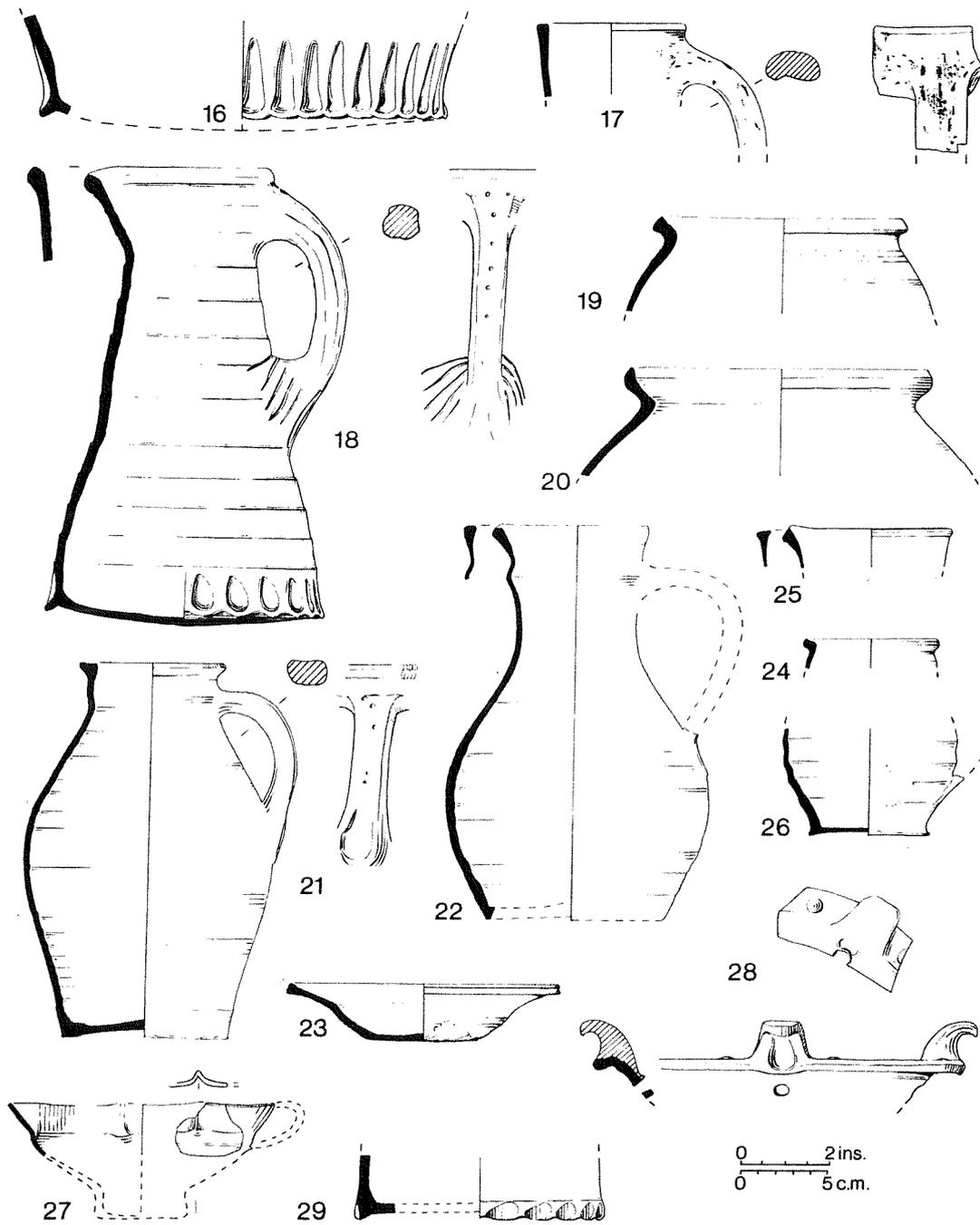


Fig. 4.6 Battle Abbey. Medieval and later pottery ($\frac{1}{4}$)

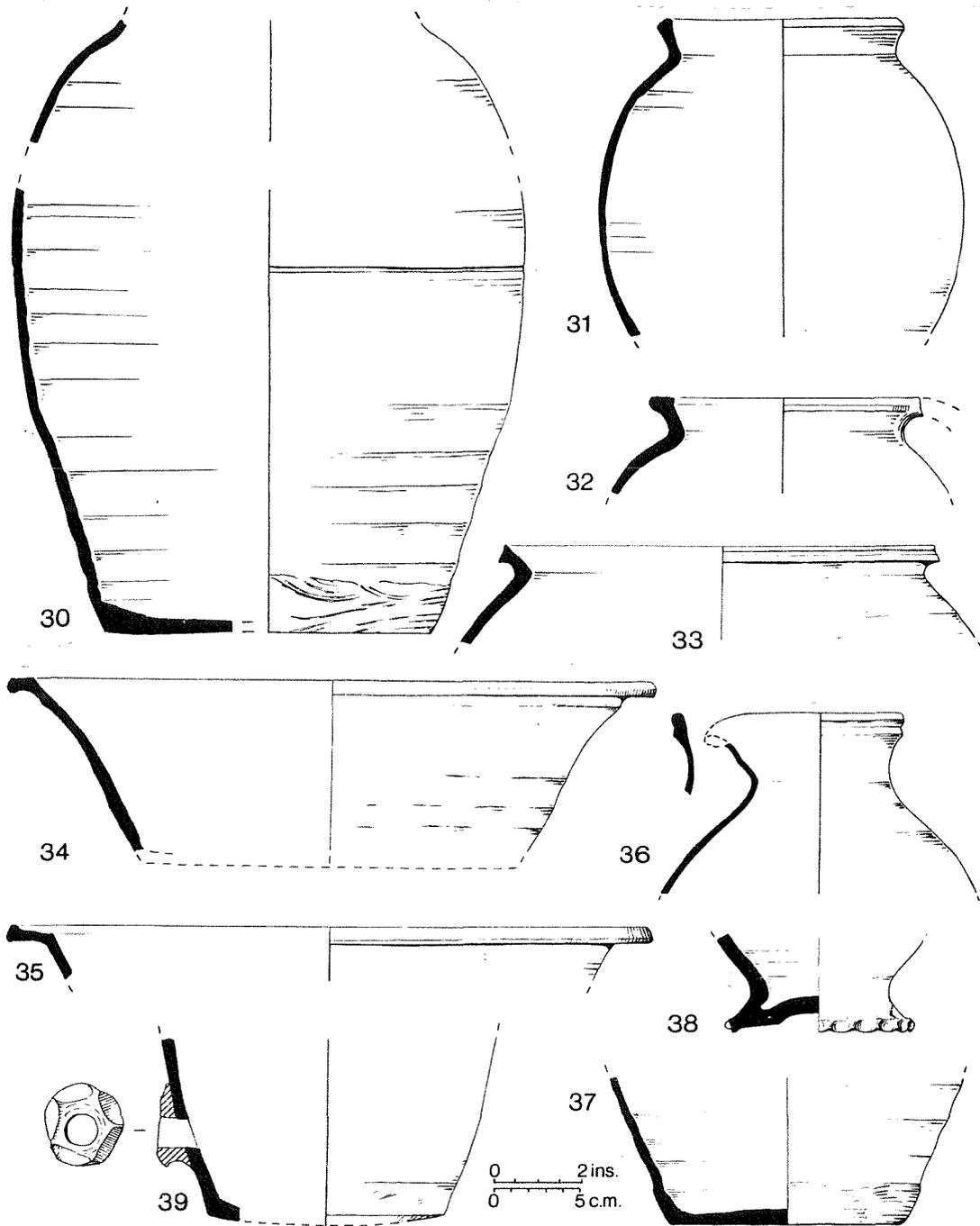


Fig. 4.7 Battle Abbey. Late medieval/early post-medieval pottery (¼)

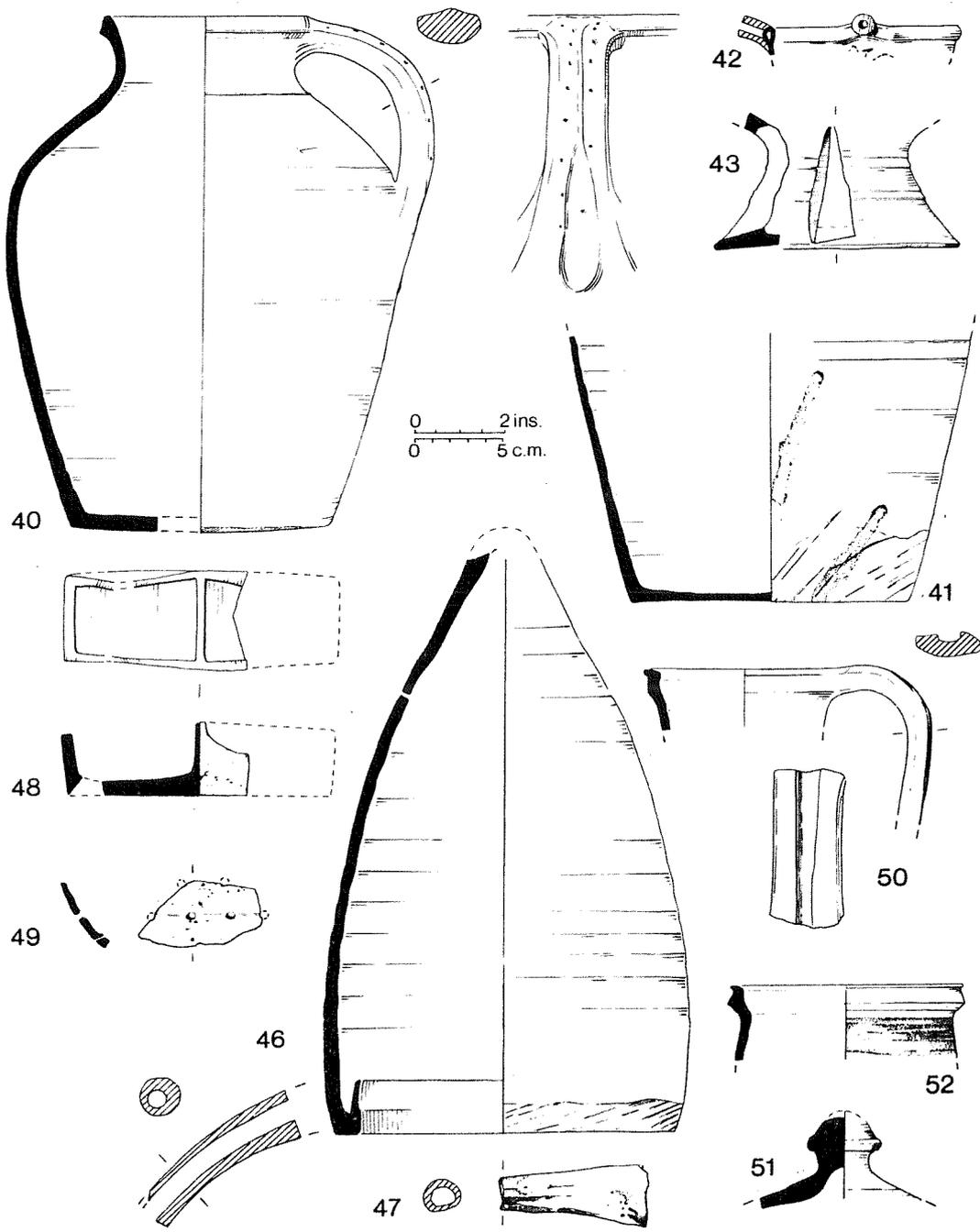


Fig. 4.8 Battle Abbey. Late medieval/early post-medieval pottery (¼)

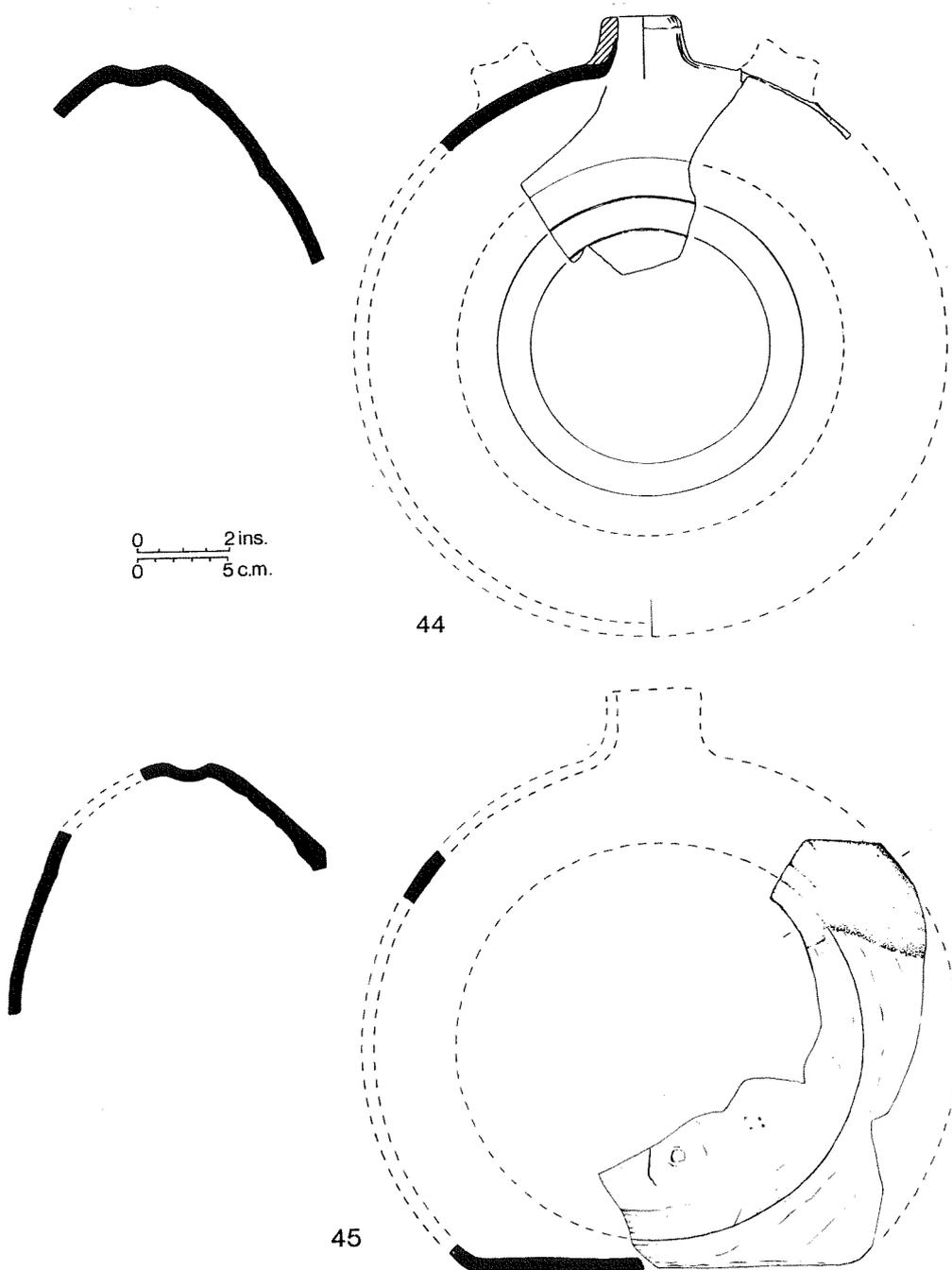


Fig. 4.9 Battle Abbey. Hard-fired earthenware costrels ($\frac{1}{4}$)

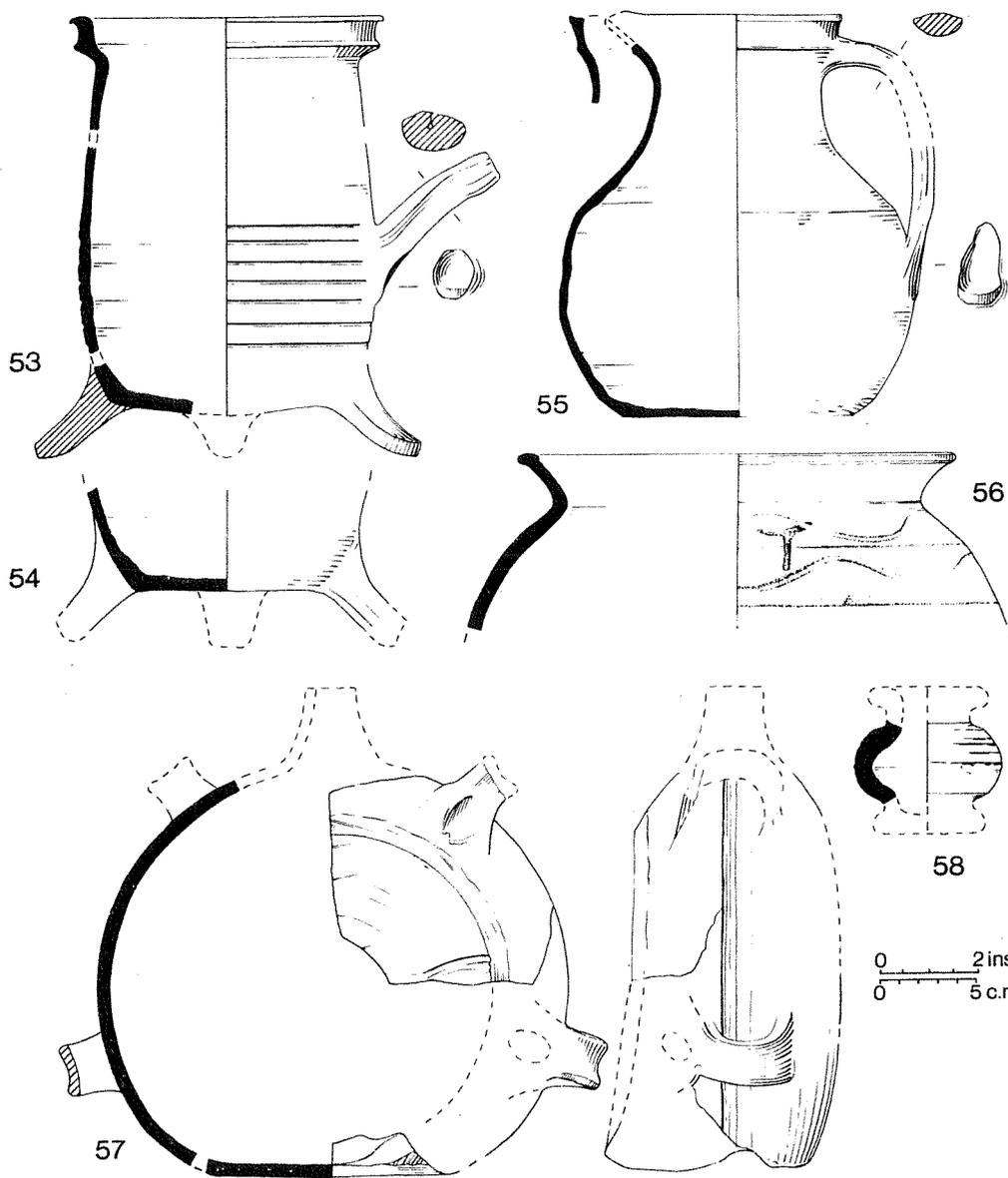


Fig. 4.10 Battle Abbey. Late medieval and post-medieval pottery ($\frac{1}{2}$)

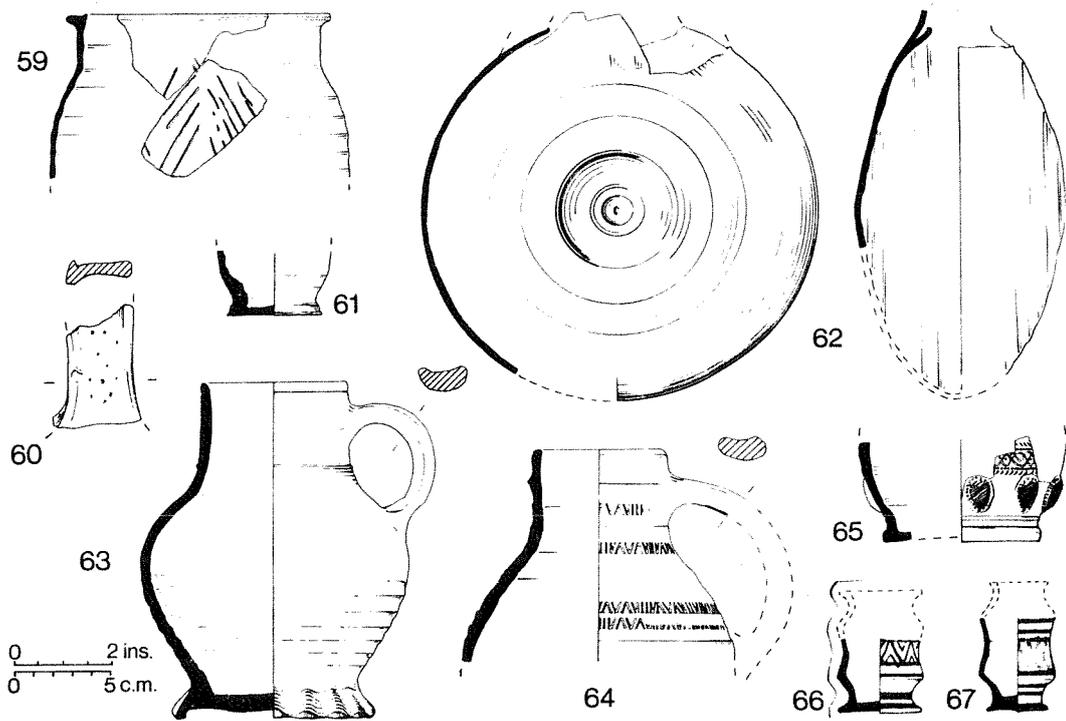


Fig. 4.11 Battle Abbey. Medieval and post-medieval pottery (4)

Trends within the ceramic sequence

Quantification of the fabrics not only provides valuable evidence for dating specific types, but it also illustrates the more general trends within the ceramic sequence. Fig. 4.12 shows the relative quantity of pottery discarded at each period, and on Fig. 4.13 pottery attributed to the various fabric groups, is expressed as a percentage of all sherds in each phase. Thus each vertical column adds up to 100%, and the changing proportion of the fabrics through time is shown by the relative height of the histograms in the horizontal rows. Results using both weight and sherd count are generally consistent, but an estimate of the minimum number of vessels has been included on Fig. 4.13 to indicate where the evidence is based upon small samples.

Flint-/shell-tempered wares are dominant up to the mid-thirteenth century (Periods A and B), but the proportion of these types declines with the emergence of sand-tempered wares. There can be little doubt, however, that the deliberate make-up in Phase C14 contains a high proportion of abraded residual material.

Hard-fired earthenwares are dominant among the Dissolution debris (Phases D20; D21/22; D30), but residual medieval wares are still represented at this period. The circumstances in which the material was discarded are not fully understood, but medieval sand-tempered fabrics account for as much as 15% (weight: Phase D21/22 and D30) of the pottery which is presumed to have been thrown out in the reredorter area shortly after 1538 (Fig. 4.12). Some abraded sherds may have come from the medieval ground surface, but ceramics found in the reredorter at Bayham Abbey, which are presumed to have been dumped deliberately when the house was dissolved in 1525, also included some 18% of medieval wares. Dumps such as these may therefore provide valuable evidence for assessing the life-span of coarsewares used by a monastic community. The proportion of the individual fabrics from Phase D21/22 at Battle has therefore been plotted for comparison with the pottery from Bayham, which was probably discarded a decade or so earlier (Figs. 4.14 and 4.21). Both assemblages attest the persistence of medieval wares alongside vessels from several different sixteenth-century potteries. The presence of residual wares in less clearly defined archaeological contexts at Battle is not so surprising, and the disturbance of medieval levels or the small size of the sample would account for an abnormally high proportion of sand-

tempered wares in the later phases of Period D.

Imports do not feature prominently at any period, but the early sixteenth-century Raeren stonewares are well represented among the Dissolution debris. The pattern of residual sherds in later phases is similar to that of the contemporary hard-fired earthenwares. The extent of post-Dissolution activity is conveniently illustrated by the proportion of later fabrics, such as the brown-glazed 'Sussex' earthenwares, compared with earlier types. In some cases there is little later pottery (Phases E35 and E37/39), but in others the quantity of post-medieval wares is considerable (Phases E36; E38 and E40-47).

Distribution and marketing

Several fabrics have been attributed to specific local kilns on the basis of detailed fabric analysis, but the quantities from each source can only be assessed by visual comparison with the type sherds. This is inevitably less precise than the thin-section analysis, and some coarsewares such as the probable Abbot's Wood ware have been found in contexts which are appreciably earlier than the date conventionally ascribed to these kilns. In the case of the Ringmer fabrics, however, the evidence accords with the early origins of the industry suggested by radiocarbon dates from Barnett's Mead (see Section 9.1.6, no. 483). The identification of marketed products on the basis of their fabric alone is hazardous, but, in the absence of extensive excavation and absolute dating of the kilns, fabric analysis of marketed wares from securely stratified contexts may help to define the date range of particular industries (see Section 3.4.4).

It may be possible, once more corroborative evidence is available, as in the case of Ringmer, to demonstrate that production at some of the Sussex kiln sites commenced earlier than has been supposed previously. Fine wares from Rye, for example, have been recognised in contexts at Battle which must be earlier than the mid-thirteenth century. Some of these vessels are therefore earlier than the stylistic evidence from the wasters would suggest. With a few exceptions, however, the source of pottery in Periods A and B cannot be identified with certainty.

In view of these difficulties, Fig. 4.12 only shows probable sources of the pottery attributed to Period C and to the Dissolution debris in the reredorter area. The sizes of the circles,

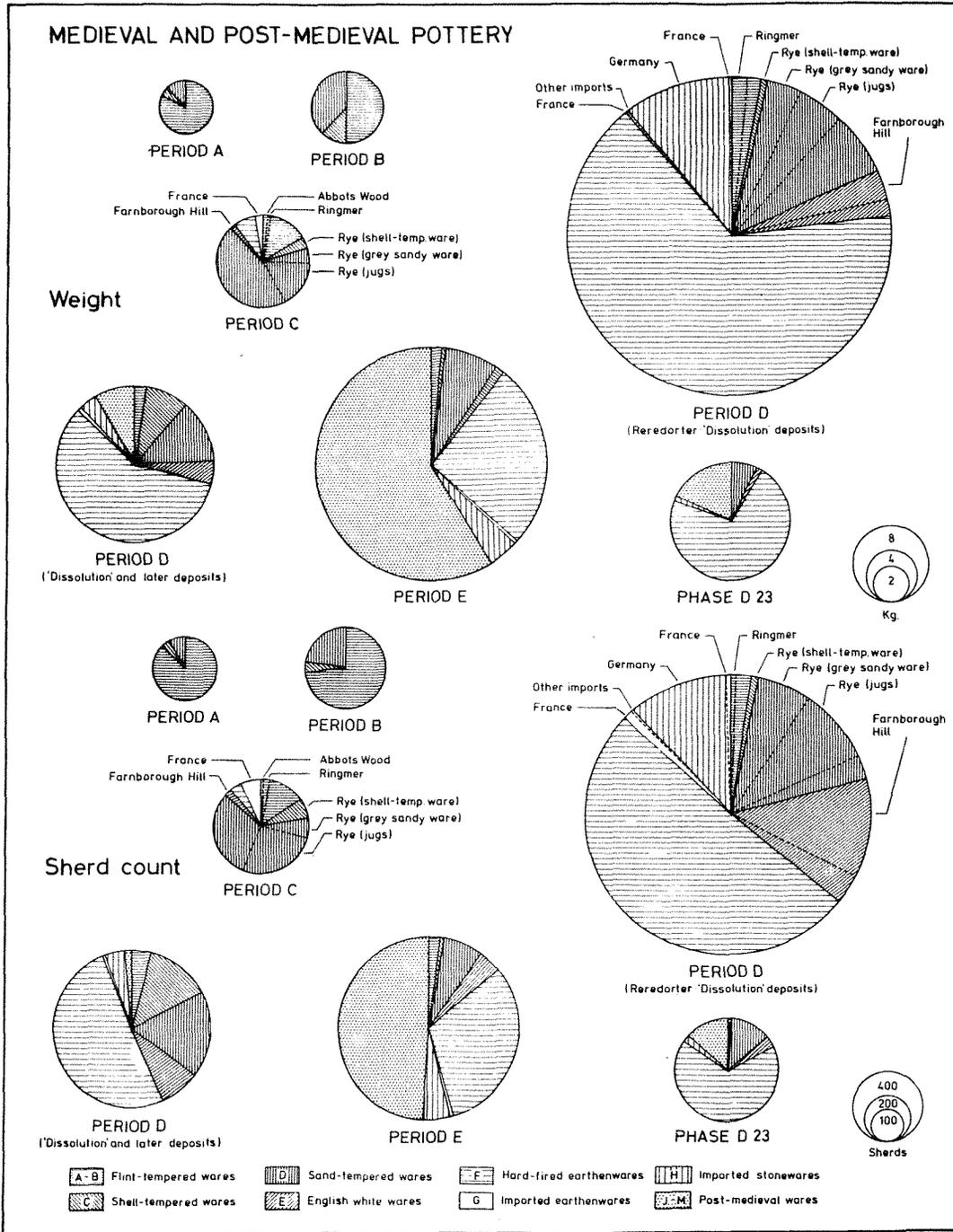


Fig. 4.12 Battle Abbey. Ceramic sequence. Proportional circles showing the relative quantity of pottery discarded at each period. Quantification is by weight [A] and sherd count [B]

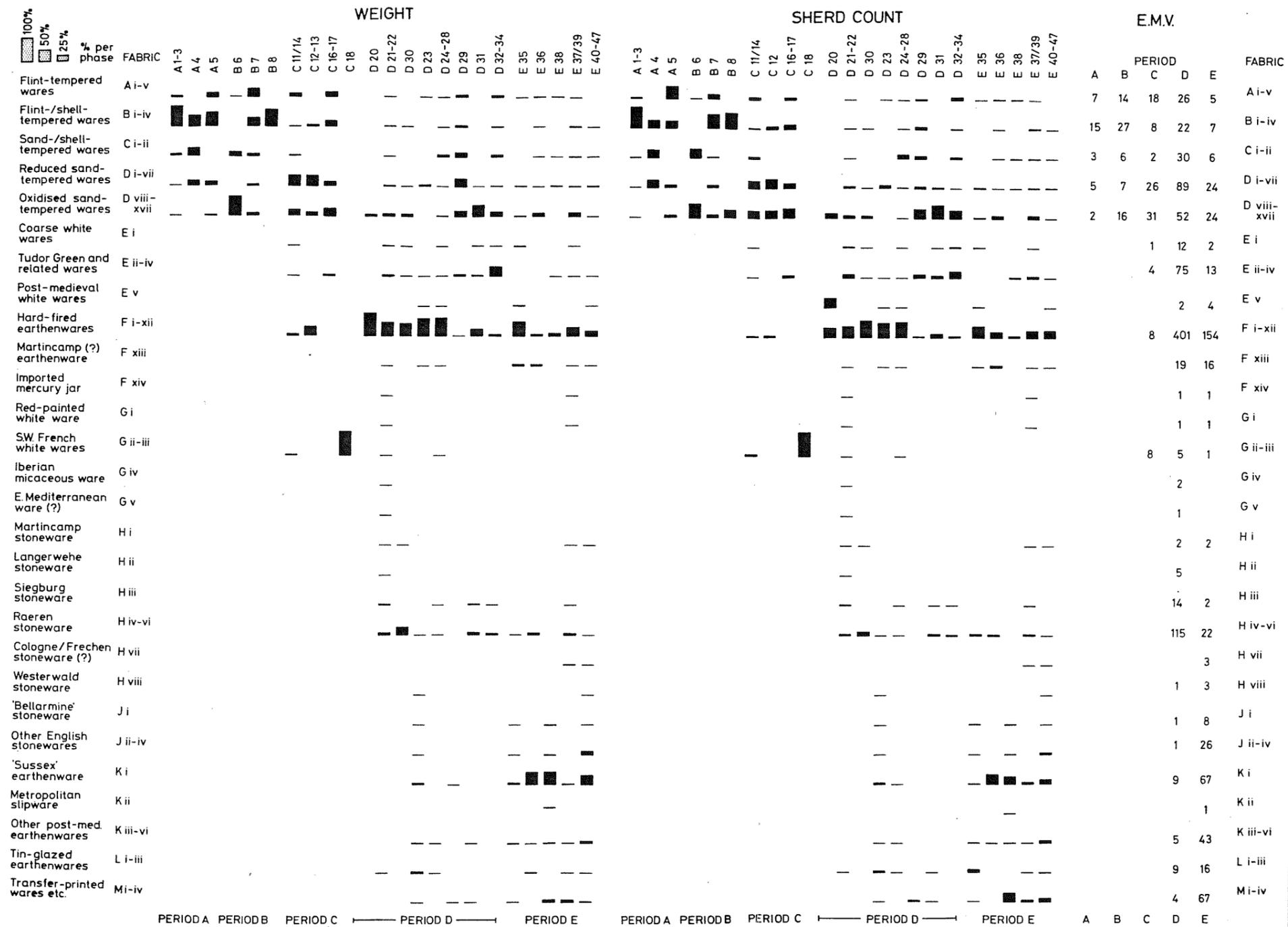


Fig.4.13 Battle Abbey: ceramic sequence. Histograms showing the proportion of pottery fabrics represented in each phase. Quantification is by weight and sherd count, and the size of the sample is indicated by the estimated minimum number of vessels (EMV).

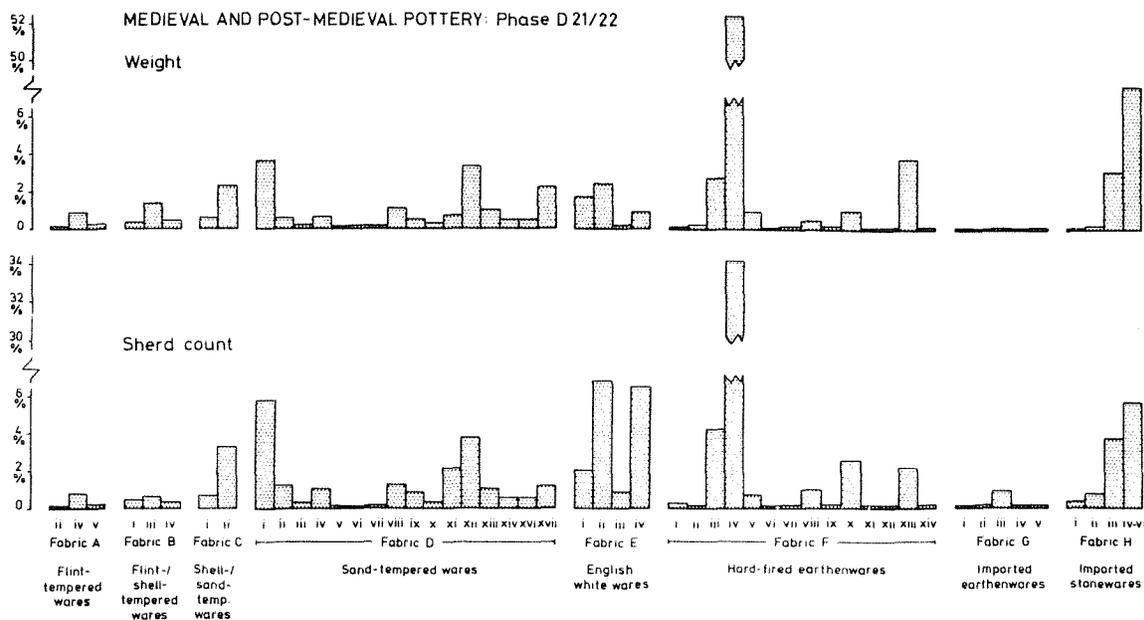


Fig. 4.14 Battle Abbey. Ceramic sequence (Phase D21/22). Histograms showing the proportion of each pottery fabric represented among the Dissolution debris outside the reredorter. Quantification is by weight and sherd count.

calculated by both weight and sherd count, are proportional to the total quantity of pottery assigned to the various phases, and no attempt has been made to exclude residual wares. Thus, although products of the Rye kilns account for some 5% of the pottery discarded at the Dissolution, this does not necessarily represent contemporary output; indeed most of the German stonewares in Period E are residual.

This method of presenting the data highlights the nature of the Period D deposits because only at this time was pottery being dumped deliberately. The wares from Dissolution debris in the reredorter area represent a variety of different sources ranging from local earthenwares to the fragment of an East Mediterranean vessel. Imports account for 2% of the total in Period C, but the influx of German stonewares increases the proportion to 10% in the early phases of Period D (weight: phase D21/22 and D30). At Camber Castle, on the other hand, German stonewares comprised 33% of the pottery from the north bastion which was filled with shingle c.1570 (Wilson & Hurst 1964, 259-60). This reflects both the different dates of the assemblages and perhaps the contrasting demand for mass-produced drinking vessels used by a garrison compared with a monastic community.

Medieval Rye jugs were traded over considerable distances (Barton 1979, 232), and the identification of marketed coarsewares at Battle demonstrates that these potters also served local needs. It is possible that some vessels were made at Brede, but Rye wares certainly account for the highest proportion of identifiable medieval types. The large number of sherds attributed to another, albeit unknown, source may indicate local manufacture, but it is possible, although unlikely, that these fabrics are also from Rye.

There is evidence for competition with the potters' products from further afield at Abbot's Wood and Ringmer and if these identifications are correct, then Battle represents the eastern limit of the known Ringmer distribution.

The multiplicity of local sources in the medieval period, is also matched by a wide variety of later fabrics, but hard-fired earthenwares are predominant in the Dissolution debris (Figs. 4.12-14). Similarity with the fabrics found at Bayham Abbey probably indicates local manufacture, but some vessels may be Dutch imports. It is surprising that products of the Boreham Street kiln which were well represented at Michelham Priory have not been recognised at Battle, but this reinforces the impression that minor early post-

medieval potteries in East Sussex served very restricted markets (Streeten 1981a, 342).

Later sixteenth-/early seventeenth-century products of the High Lankhurst kiln occur in small quantities at Battle, and similar fabrics were also found among the Dissolution debris. Like the medieval wares in Periods A and B at Battle, the source of these vessels cannot be identified with certainty, but earlier potters may have used similar raw materials to those from which later vessels were made at High Lankhurst.

In addition to the local English earthenwares, fine white wares from Surrey reached Battle during the fifteenth and early sixteenth centuries. The thin-walled vessels are both light and liable to be broken into small fragments. Simple measures of weight and sherd count do not therefore provide a reliable indication of the quantities (Figs. 4.12-13). Battle is one of numerous sites where these wares have been found at some distance from the production centre, suggesting a sophisticated system of marketing for Tudor Green ware. Unlike Bayham Abbey, however, products of the Cheam kilns do not appear to have reached as far as Battle. Forms and fabrics which are very similar to Cheam white wares are represented, but textural analysis shows that they are more likely to come from Rye than from Surrey. In the light of this evidence, the suggested identification of Cheam vessels at Bodiam Castle may require reappraisal (Myres 1935, 229; Orton 1982a, fig 26).

Few of the kilns which have been identified in East Sussex have been investigated and published thoroughly. Definitive identification of marketed vessels must therefore await further excavation at production centres, and there are many aspects of both dating and distribution which would repay further work at Rye.

Conclusion

The ceramics from Battle add significantly to knowledge of the local pottery industry before the Dissolution. The transition from medieval to later wares is well illustrated by the contrast between the early fifteenth-century material associated with the installation of rainwater drains, and the much wider range of vessels discarded at or shortly after the Dissolution. There are few signs of continuity between the medieval and later traditions, and what evidence there is for the location of post-medieval kilns suggests a

change in the methods of marketing. In part this may reflect a wider trend which is appropriately documented in the town of Battle. In the later fifteenth century, the declining weekly market was replaced by permanent shops in which a more diverse range of goods perhaps including non-local table wares could be kept in stock (Searle 1974, 365-6).

It is difficult, however, to make positive links between the precisely-dated documentary sources and the ill-defined archaeological sequence, because, despite the well stratified contexts at Battle, there are difficulties in identifying contemporary types. Vessels may have remained in use for many decades and the extent of the residual material is clearly demonstrated in Period E at Battle. It is therefore ironical, although not surprising, that middens containing contemporary ceramics tend to be found on domestic sites where the independent dating evidence is poor, whereas the well-stratified medieval make-up levels at monastic sites such as Battle contain a high proportion of residual types, yet little contemporary rubbish.

4.3.3 Bayham Abbey, East Sussex

Introduction

None of the pottery found during excavations at Bayham Abbey between 1973 and 1976 can be linked directly with building phases. The thirteenth-/fourteenth-century finds do not therefore contribute to an absolute ceramic chronology for the area although foundation of the abbey during the first decade of the thirteenth century does offer a significant terminus post quem. An important group of pottery was recovered from the reredorter and drain. Although close dating is not possible, this is likely to represent debris discarded at the Dissolution in 1525. Both medieval and later post-medieval wares were found during excavation of the nearby iron-working site at Chingley, Kent (Crossley 1975c). The reredorter group from Bayham, probably dating from the late fifteenth/early sixteenth century, fills an important gap in the sequence established at Chingley.

Excavation of the claustral ranges was largely confined to clearance of post-medieval demolition rubble. A small group of medieval pottery was, however, recovered from what is presumed to be the medieval ground surface outside the west wall of the cellarer's undercroft, and further isolated sherds were found in uncontaminated medieval depressions cut into the floor of the west range.

In addition to the large group from the reredorter and drain a small quantity of early sixteenth-century fragments was found among debris on the floor of the dorter undercroft and another group was recovered during consolidation of the south wall of the frater (Fig. 4.20: nos. 57 and 60). This deposit is presumed to represent the contemporary ground surface of the outer court.

Later post-medieval wares were found among the demolition rubble of the claustral ranges and in the upper fill of the reredorter and drain. Certain finds from the frater undercroft can probably be dated to the late sixteenth or early seventeenth century (Fig. 4.20: nos. 56, 58 and 61) but the same deposits also contained later wares, clay pipes and fragments from eighteenth-century glass bottles.

Contexts cited in the catalogue of illustrated vessels (e.g. 'Fig.8: layer 11') refer to section drawings in the published excavation report (Streeten 1983a).

BAYHAM ABBEY

FABRIC CLASSIFICATION

The pottery available for study has been classified according to conventional criteria of composition, texture and colour, and fabric descriptions follow the conventions recommended by Peacock (1977). Thin-section numbers relate to a reference collection assembled by the writer and held at Southampton University. The categories must remain to a certain extent subjective, and particular difficulties were encountered in the identification of heavily-stained sherds from waterlogged deposits in the reredorter and drain. Glazes were sometimes discoloured as noted among material from a cess-pit at Southampton (Platt & Coleman-Smith 1975, ii, 51), and in many cases the fabric itself has been disguised by coating and staining similar to that observed on certain vessels from the reredorter at Chelmsford Dominican Priory (Drury 1974, 65).

It is difficult to distinguish between the fine late medieval and early sixteenth-century wares, and certain of the hard-fired sixteenth-century types almost certainly continued into the later post-medieval period. The earthenwares represented in the assemblage from the reredorter and drain (Fabric E) have therefore been separated from those found exclusively among the later demolition debris (Fabric G). Although this distinction may appear arbitrary, it does provide a convenient illustration of the transition from medieval to post-medieval wares which could not be established from the Chingley material.

IDENTIFICATION AND COMPARISON

The reliability of source identification and comparisons depends upon the level of analysis which has been undertaken. In more than one instance, sherds have appeared identical to recognised ceramic types and this would normally form the basis of a definite identification, but thin-sections have shown important differences. Rapid visual comparison of microscope slides has proved a convenient method of checking identifications but detailed textural analysis has been undertaken to illustrate some of the more important results.

CATALOGUE OF ILLUSTRATED VESSELS

Illustrated vessels have been selected principally from the stratified groups in the reredorter and drain, and no attempt has been made to show the full range of later post-medieval wares, some of which were discarded during the excavation. Detailed descriptions have been minimised by reference to the fabric code, and probable kiln sources are indicated where relevant. Verbal descriptions are confined to technological features or distinctive details of manufacture not visible on the drawings themselves, and each entry is followed by the provenance of the vessel. 'Reredorter' refers to the stratified group found in the waterlogged deposits, and 'drain' applies to finds from the corresponding silt layers east of the reredorter. Vessels from the covered drain west of the reredorter are denoted 'dorter drain', and selected later post-medieval wares from the claustral ranges are identified by reference to the published section drawings.

FABRIC DESCRIPTIONS

A. *Shell-tempered wares*

- (i) Variable grey surfaces with no distinct core. Surface texture ranges from soft to moderately hard and from vesicular to smooth. Rough or hackly fracture. Variable inclusions of sand and crushed shell, ranging from abundant large shell fragments with little or no sand to sparse shell and moderate sand. Fig. 4.18: nos. 4 and 6. Sample 395.
- (ii) Red-brown surfaces with ill-defined grey core. Soft harsh texture with laminated fracture. Moderate medium/coarse sand with sparse fragments of coarse shell. Similar texture to Fabric B. Fig. 4.18: no. 5.

A. *Shell-tempered wares*

Flint-tempered fabrics found in southern parts of Sussex are not represented at Bayham Abbey, and the quantity of shell-tempered ware (Fabric A) is very small. Use of this tempering agent continued until c. 1300 in West Kent (Rigold 1971, 158), but may have ceased earlier in Sussex, possibly before the Premonstratensian canons settled at Bayham in the first decade of the thirteenth century. The sand in the fabric of shell-tempered sherds found at Upper Parrock, Hartfield, East Sussex (Sample 415) is coarser than in those from Bayham, but a sherd from Chingley, Kent (Sample 197) and probably another from Bodiam Manor, East Sussex (Sample 483) appear to be from the same, albeit unknown, source as the Bayham example. The laminated texture of Fabric Aii is matched by a vessel from Batsford Furnace, and this demonstrates that poorly-fired wares remained in use even as late as the sixteenth century.

B. *Sand-tempered wares*

Reduced fabrics

- (i) Pale grey core with internal and external surface colours shading from dark grey to black. Soft, smooth texture, easily abraded. Rough fracture. Distinctive fine sandy fabric with no large inclusions. Fig. 4.18: no. 2. Sample 394.
- (ii) Grey core, sometimes with dark grey surfaces. Fairly hard, harsh texture. Rough fracture. Abundant medium/coarse sand temper. Sample 949.
- (iii) Variable grey surfaces with no distinct core. Hard, fairly harsh texture. Rough fracture. Moderate medium sand temper Fig. 4.18: nos. 1 and 8. Sample 396.
- (iv) Superficially similar to Biii; the surface colours are similar but the fabric is red-brown in fracture, sometimes with a thin grey core. Surface texture is fairly hard and harsh, with a rough fracture. Moderate medium/coarse and sand temper. Fig. 4.18: no. 3. Sample 397.

Oxidised fabrics

- (v) Buff-pink internal and external surfaces with medium grey core. Hard, very harsh surface texture. Rough fracture. Abundant coarse sand temper, with colourless and some red-pink grains. Sparse fine mica dust on surfaces. Fig. 4.18: no. 7. Sample 398.
- (vi) Red-brown (sometimes grey) core and surfaces. Hard, harsh texture. Rough fracture. Abundant medium sand temper. One sherd has a narrow band of white slip. Sample 950.
- (vii) Grey core with red internal surfaces and similar exterior covered with white slip. Hard, fairly harsh texture. Rough fracture. Moderate medium sand temper with very sparse fragments of coarse angular flint. Sample 951.
- (viii) Pale grey core with bright pink surfaces and outer margin. Hard, fairly smooth texture. Rough fracture. Moderate fine sand temper with sparse fragments of coarse siltstone. Sample 952.
- (ix) Pale grey core with buff surfaces. Hard, smooth texture. Rough fracture. Moderate fine sand temper. Sample 953.
- (x) Red-brown surfaces, sometimes with intermittent grey core. Soft, harsh texture with laminated fracture. Moderate medium/fine sand temper. Sample 399.

1. Jug. Fabric Biii. Reredorter.
2. Jug. Fabric Bi; possibly Rye kilns. Reredorter.
3. Cooking/storage vessel with lid seating. Fabric Biv. Reredorter.
4. Cooking/storage vessel. Fabric Ai. Reredorter.
5. Cooking/storage vessel with lid seating. Fabric Aii. Reredorter.
6. Cooking/storage vessel. Fabric Ai. Drain.
7. Cooking/storage vessel. Fabric Bv. Reredorter.
8. Jug. Fabric Biii. Drain.

B. Sand-tempered wares

Reduced (grey) sand-tempered wares (Fabrics Bi-Biv) occur over large areas of West Kent, East Surrey and East Sussex, and were found in large quantities at Chingley. A massive production centre is known at Limpsfield, Surrey but textural analysis confirms earlier suspicions that similar wares found in West Kent come from yet another source (Streeten, 1982a). Several of the Sussex kilns including Brede, Ringmer and Rye also produced vessels in a grey sand-tempered fabric and it appears that the same type of pottery was manufactured at a variety of different centres. At least some of the Bayham vessels (Fabric Bi) probably come from Rye. The texture is distinctive, and although the size-frequency of the quartz is not matched precisely, the absence of large grains may be due to the omission of deliberate sand-temper added by the potter (Fig. 4.15: graph B). Were it not for the distinctive range of grain sizes, however, this criterion of identification would be most unreliable.

The sand temper used at Brede and Ringmer is generally coarser than that in the Bayham fabrics and certain of the firing characteristics show greater affinity with West Kent types. The brown margin of Fabric Biv is matched at both Joyden's Wood, Bexley (Sample 687) and at Boxley Abbey (Sample 644), and the thin-sections show the same range of quartz grain sizes. Fabric Biii is identical to sherds from Fawkham (Sample 548) and Lenses Abbey (Sample 673) but a positive link cannot be demonstrated by textural analysis because the Bayham sample has a groundmass of small quartz grains not found in the West Kent wares (Fig. 4.15: graph C).

The oxidised (red) sand-tempered wares present similar problems of identification and comparison (Fabric Bv-x). The large quartz grains protruding from the surface of Fabric Bv have affinities with the Earlswood products found at Upper Parrock (Samples 217-8) and the colour is similar to a sherd from Lansdowne Road, Tonbridge (Sample 300). In neither instance, however, can the comparison be verified by thin-sections, and the source and affinities of this fabric remain unknown. Likewise, the texture of a jug with white slip decoration (Fabric Bvi) is superficially similar to Tyler Hill ware but the absence of mica renders such an identification improbable. It is similar to a vessel from recent excavations at Battle Abbey (Sample 967), and, although the source is not known, the relatively large quantity of the fabric found at Battle may indicate manufacture in that area.

Jugs with a thick white slip and green glaze are found extensively in West Kent, frequently in association with the grey coarsewares. Similar technological characteristics are also common to the Aardenburg-type imported pottery (Dunning 1976, 184-6), but in this instance textural analysis shows that the Bayham sample (Fabric Bvii) probably belongs to the West Kent group (Fig. 4.15: graph F), rather than the continental type which has been found at the medieval port of Stonar, Kent (Fig. 4.15: graph G).

The bright pink colour of Fabric Bviii is unusual, but could be from the kilns at Rye. Fabric Bix (Sample 953) on the other hand, although of superficially similar texture to the so-called West Sussex ware jugs (Barton 1979, 93-107) and visually identical to the fabric of a jug from Upwaltham, Sussex (Sample 428), is almost certainly a product of the Rye kilns (Fig. 4.15: graphs D and E). Similar identifications based upon textural analysis have been made at Bodiam (Sample 478), Michelham Priory (Sample 475) and Seaford (Sample 564). The source of Fabric Bx is not known.

C. White and off-white sand tempered wares

Although consistent as a group, this material is not easily sub-divided. The following distinctions appear valid, but not all sherds could be assigned to a particular category.

- (i) Colours vary from white to almost grey, and although some external surfaces show signs of reduction, the core and interior are usually lighter. Hard, fairly smooth surface texture. Rough fracture. Moderate medium sand temper. Fig. 4.18: nos. 9-11. Sample 400.
- (ii) Similar colour to Fabric C; but the external surfaces are often buff-pink. Hard, smooth texture. Rough fracture. Moderate fine sand temper. Vessels in this fabric usually have thinner walls than those in Fabric C. Fig. 4.18: nos. 12-26. Sample 401.
- (iii) Similar to Fabric Cii, but with flaking surfaces and hackly fracture. These are probably poorly-fired examples of Fabric Cii. Fig. 4.18: nos. 27 and 28.
- (iv) 'Tudor Green Ware'. Off-white core and surfaces. Hard, fairly smooth texture. Fairly smooth fracture. Moderate fine sand temper. Sample 954.

9. Jug. Fabric Ci; possibly Cheam kilns. 'Bib' of mottled dark green glaze. Reredorter.
10. Jug. Fabric Ci; possibly Cheam kilns. Splash of dark green glaze. Drain.
11. Jug. Fabric Ci; possibly Cheam kilns. 'Bib' of mottled dark green glaze. Reredorter.
12. Jug. Fabric Cii; Cheam kilns. Traces of dark encrustation on interior. Reredorter.
13. Jug. Fabric Cii; Cheam kilns. Patches of dark green glaze. Reredorter.
- 14-19. Jugs. Fabric Cii; Cheam kilns. Handles applied by stabbing (14-17) and luting (18-19). Reredorter (14, 15 and 17-19) and drain (16).
20. Bottle. Fabric Cii; Cheam kilns. Applied neck. Possibly used as a 'receiver' in conjunction with distilling apparatus. Dorter drain.
- 21-26. Jugs. Fabric Cii; Cheam kilns. Splashes of green glaze. Reredorter (21, 22, 24 and 26) and drain (23 and 25).
- 27-28. Jugs. Fabric Ciii; Cheam kilns. Traces of lime encrustation on no. 27. Drain.

C. White and off-white sand-tempered wares

Outcrops of the Reading Beds clay in Surrey are one of the principal sources of locally-produced white-fired wares in South-East England. Coarse sand-tempered white wares have been found in contexts dating from the mid-thirteenth century, but most are ascribed to the fourteenth century. Sherds from Bayham (Fabric Ci) are identical in thin-section to those at Upper Parrock (Sample 414) and, although this type is common in Surrey and was produced at a number of kilns, Bayham appears to be near the limits of the distribution in Sussex.

The finer cream or slightly grey coloured wares are later than the coarser fabrics and probably belong to the fifteenth century. Both the form of the biconical jugs from Bayham (Fig. 4.18: Nos. 14-19, 26-28) and the technique of attaching handles by pricking through the body of the vessels (Fabric Cii) is the same as wasters from Cheam, Surrey. Textural analysis demonstrates clearly that the fabric comes from this source (Fig. 4.16: graphs A and B) and, although a sample has not been thin-sectioned, it is assumed that the poorly-fired types are from the same source (Fabric Ciii).

Unlike the earlier Surrey wares which have a restricted distribution, the so-called 'Tudor Green' thin-walled vessels are found extensively throughout Southern England and further afield. This type has been found in early fifteenth-century contexts at Coventry but appears commonly later in the century and in the early sixteenth century (Moorhouse 1979). It is difficult to distinguish the English wares from possible continental types (Hurst 1964, 141), but biscuit-fired wasters from a kiln at Farnborough Hill, Hants. provide conclusive evidence for production in South-East England. Textural analysis shows that the Bayham vessels are almost certainly products of the Farnborough Hill kilns and the fabric containing a dense scatter of angular quartz grains is distinctive (Fabric Civ). Similar thin-walled vessels have also been noted amongst kiln debris from Kingston-upon-Thames and, although this type is likely to have been manufactured at a number of centres, very little quartz is visible in thin-sections taken from the Kingston examples.

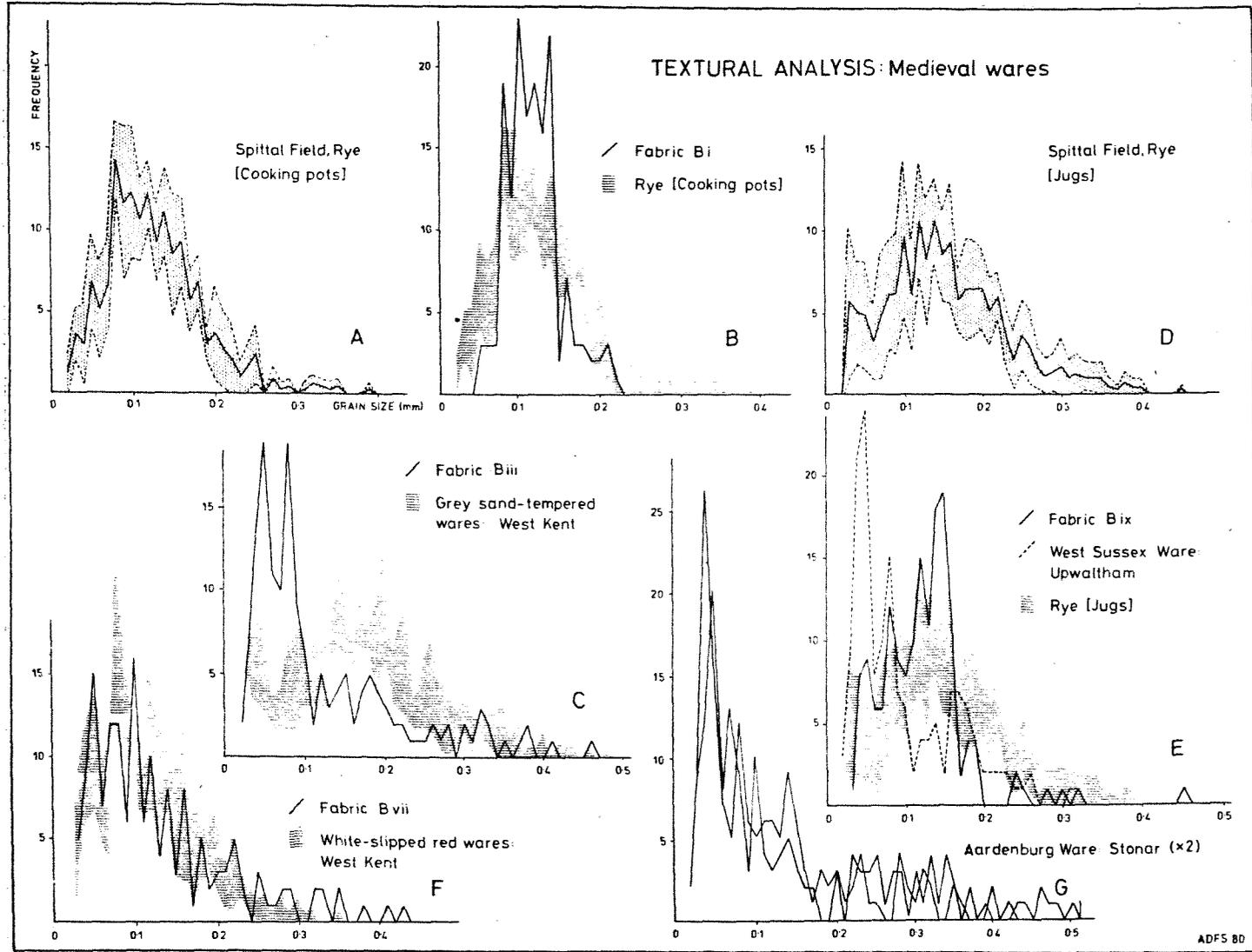
D. Late medieval and early post-medieval earthenwares

- (i) Dark purple-grey surfaces with dull red core. Harsh, hard surface texture. Rough fracture. Moderate medium sand temper. Fig. 4.19: no. 29. Sample 402.
 - (ii) Grey fabric with intermittent red core, nearer the outer surface than the inner. Surface colours vary from grey to light brown in streaks. Soapy, very hard texture. Fairly smooth fracture. Few visible inclusions. Fig. 4.19: no. 40 and 41. Sample 96.
 - (iii) Red-brown core with brown exterior and bright red internal surface. Smooth, hard texture. Fairly rough fracture. Few visible inclusions. Fig. 4.19: nos. 34, 38, 39 and Fig. 43: no. 60. Sample 403.
 - (iv) Red core with slightly mottled dark brown surfaces. Smooth, hard texture. Fairly rough fracture. Sparse fine sand temper. Fig. 4.19: no. 33. Sample 95.
 - (v) Red-pink core with buff-coloured surfaces. Smooth, fairly hard texture. Rough fracture. Moderate fine sand temper. Sample 404.
 - (vi) Red core with red-brown surfaces, sometimes with dark brown specks. Hard, harsh texture. Rough fracture. Abundant medium sand temper. Two sherds are covered with a thin white slip. Fig. 4.19: nos. 35 and 43. Sample 405.
 - (vii) Red-pink fabric without distinct core. Fairly hard, smooth texture. Rough fracture. Few visible inclusions. Sample 406.
 - (viii) Brown core, sometimes with grey margins. Hard, smooth texture. Rough fracture. Few visible inclusions. Sample 407.
 - (ix) Pale buff-brown surfaces with distinct grey core and red margins. Fairly soft, smooth surfaces which are easily abraded. Fairly smooth fracture. Abundant fine sand temper. Two similar sherds do not have the distinctive core and are less easily abraded. Fig. 4.19: no. 42 and Fig. 4.19: no. 45. Sample 408.
 - (x) Grey-brown surfaces with grey core and ill-defined slightly oxidised margins. Fairly hard, smooth texture. Rough fracture. Moderate medium sand temper. Fig. 4.19: nos. 30-32. Sample 409.
 - (xi) Pink fabric without distinct core. Pale green glaze. Fairly hard, very smooth texture. Rough fracture. Few visible inclusions. Fig. 4.20: nos. 44-45. Sample 410.
 - (xii) Dull red fabric without distinct core. Hard, fairly smooth texture. Smooth fracture. Sparse fine sand temper. One handle and a body sherd in a similar fabric have a grey core. Fig. 4.19: nos. 36 and 37. Sample 411.
 - (xiii) Dull red fabric sometimes with grey core. Lustrous brown glaze. Rough fracture. Moderate medium sand temper and sparse fragments of siltstone. Fig. 4.20: nos. 46-48. Sample 412.
 - (xiv) Red core with brown surfaces shading to dark grey. Very hard, smooth texture. Smooth fracture. Few visible inclusions, but small fragments of siltstone have caused spalling of the surface. Fig. 4.20: no. 61. Sample 957.
 - (xv) Purple-pink core and surfaces. Pale green glaze. Hard, fairly smooth texture. Rough fracture. Moderate medium sand temper showing as white specks in fracture. Fig. 4.20: no. 52. Sample 956.
 - (xvi) Red-pink core and surface. Hard, fairly smooth texture. Rough fracture. Moderate fine sand temper and sparse small pellets of red iron ore. Sample 955.
 - (xvii) Red-brown core and surfaces shading to grey. Lustrous green glaze. Hard, fairly smooth texture. Rough fracture. Moderate medium sand temper. Fig. 4.20: nos. 49, 50 and 53.
29. Jug. Fabric Di; Reredorter.
 30. Jug. Fabric Dx. Knife-trimmed base. Drain.
 - 31 & 32. Jug. Fabric Dx. Thick internal lime encrustation. Drain.
 33. Cooking/storage vessel. Fabric Div; Hareplain kiln. Splashes of brown glaze on external surfaces and interior of base. Reredorter.
 34. Jug. Fabric Diii. Splashes of orange-brown glaze. Drain west of dorter.
 35. Lid. Fabric Dvi. Reredorter.
 36. Jug. Fabric Dxii. Partial internal and external thin white slip; 'bib' of orange-green glaze. Reredorter.
 37. Jug? Fabric Dxii. Painted thin white slip decoration. Reredorter.
 38. Cooking/storage vessel with lid seating. Fabric Diii. Reredorter.
 39. Cooking/storage vessel. Fabric Diii. Orange-brown glaze on interior of base. Reredorter.
 - 40-41. Cooking/storage vessel. Fabric Dii; Lower Parrock kiln. Reredorter.
 42. Cooking/storage vessel. Fabric Dix; probably Lower Parrock kiln. Drain.
 43. Pedestal base. Fabric Dvi. Drain.
 44. Cooking/storage vessel. Fabric Dxi. External pale green glaze. Reredorter.
 45. Cooking/storage vessel? Fabric Dix; probably Lower Parrock kiln. Reredorter.
 46. Divided dish. Fabric Dxiii. Internal and external brown glaze. Reredorter.
 47. Bowl. Fabric Dxiii. External brown glaze. Reredorter.
 48. Plate. Fabric Dxiii. Internal brown glaze. Reredorter.
 49. Knob from lid. Fabric D xvii. Reredorter.
 50. Lid. Fabric D xvii. Reredorter.
 51. Pedestal base; probably the base of a pedestal mantle for holding a chemical unit (S. Moorhouse, pers. comm.). Red-pink core and surfaces. Hard smooth texture with rough fracture. Sparse fine sand and coarse fragments of ironstone. Some streaks of cream coloured clay. Extensive knife trimming.
 52. Jar, probably a container for mercury (R. G. Thompson, pers. comm.). Fabric D xv. Reredorter.
 53. Spout; possibly from an 'industrial' vessel. Fabric Dxii. Drain.

D. Late medieval and early post-medieval earthenwares

Precise dating of the transition from coarse sand-tempered fabrics to finer hard-fired red earthenwares is difficult. Evidence from West Sussex suggests that the distinctive white-painted vessels of that region were in use from c. 1450 (Barton 1963: 30), but an archaeomagnetic date for the Hareplain kiln is somewhat later (Hawley 1972), and similar tests at Lower Parrock indicate production in the second quarter of the sixteenth century (Clark 1979). Hard-fired wares

Fig. 4.15 Bayham Abbey. Textural analysis of medieval pottery



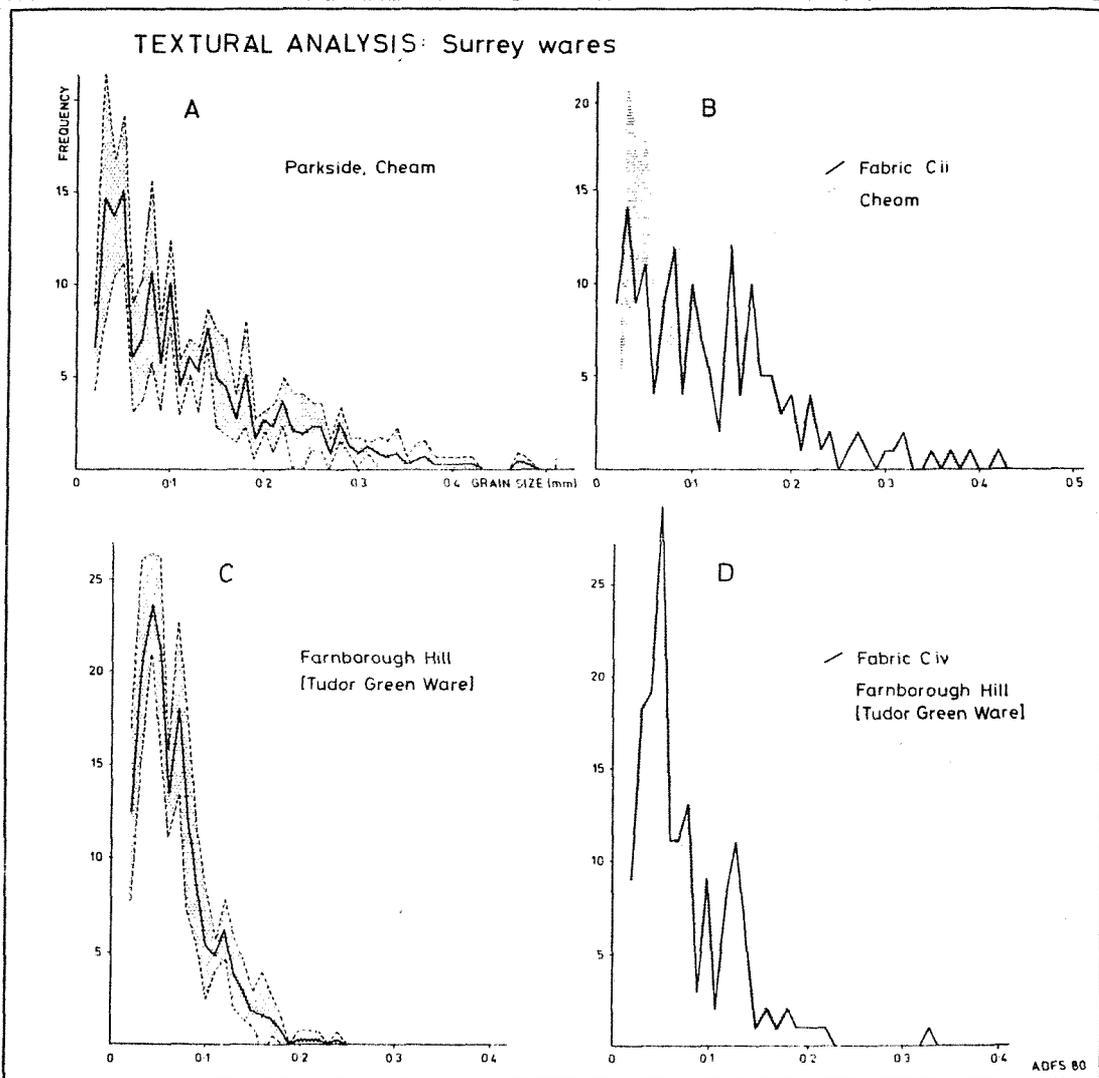
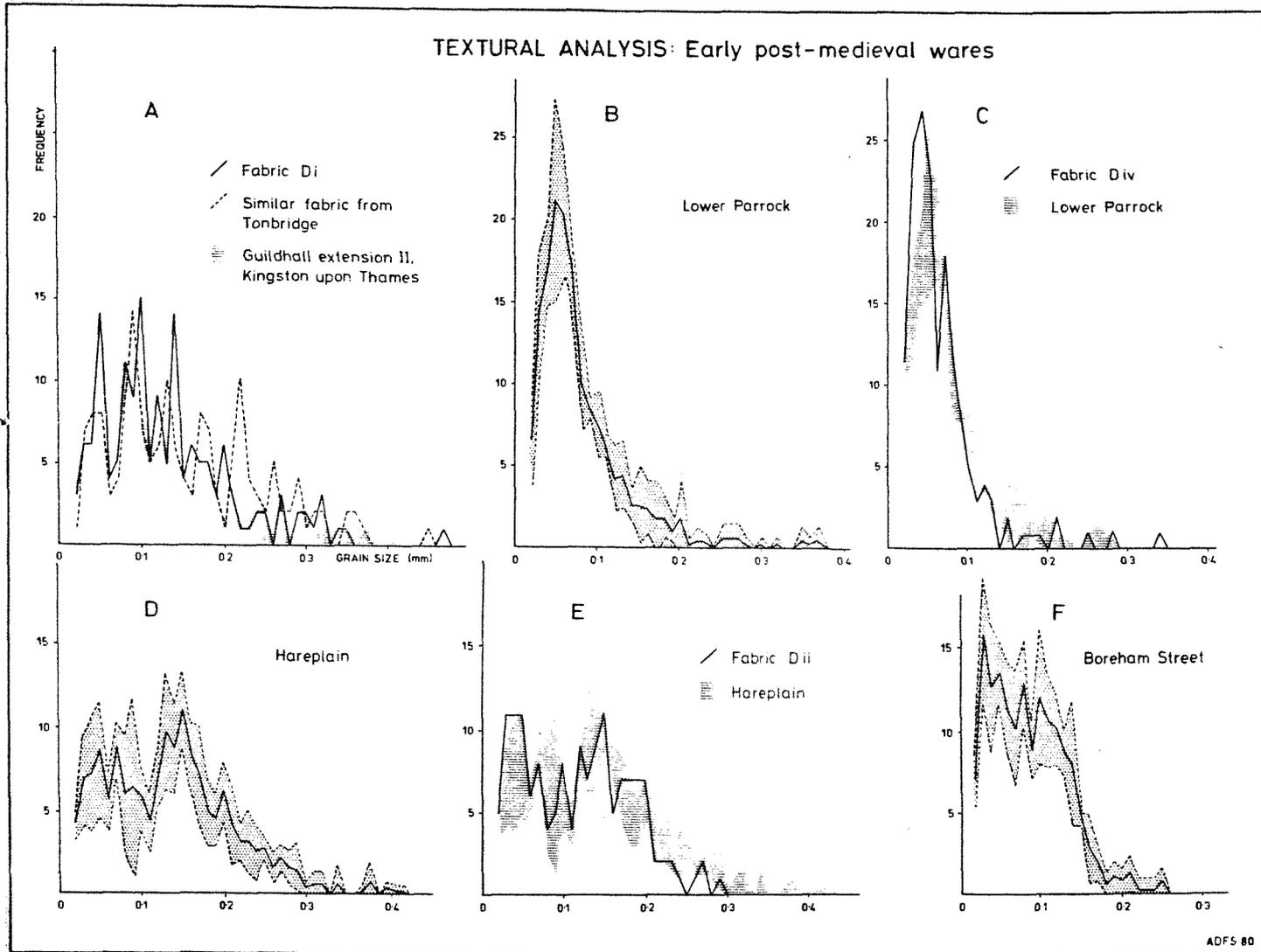


Fig. 4.16 Bayham Abbey. Textural analysis of Surrey wares

Fig. 4.17 Bayham Abbey. Textural analysis of late medieval and post-medieval pottery



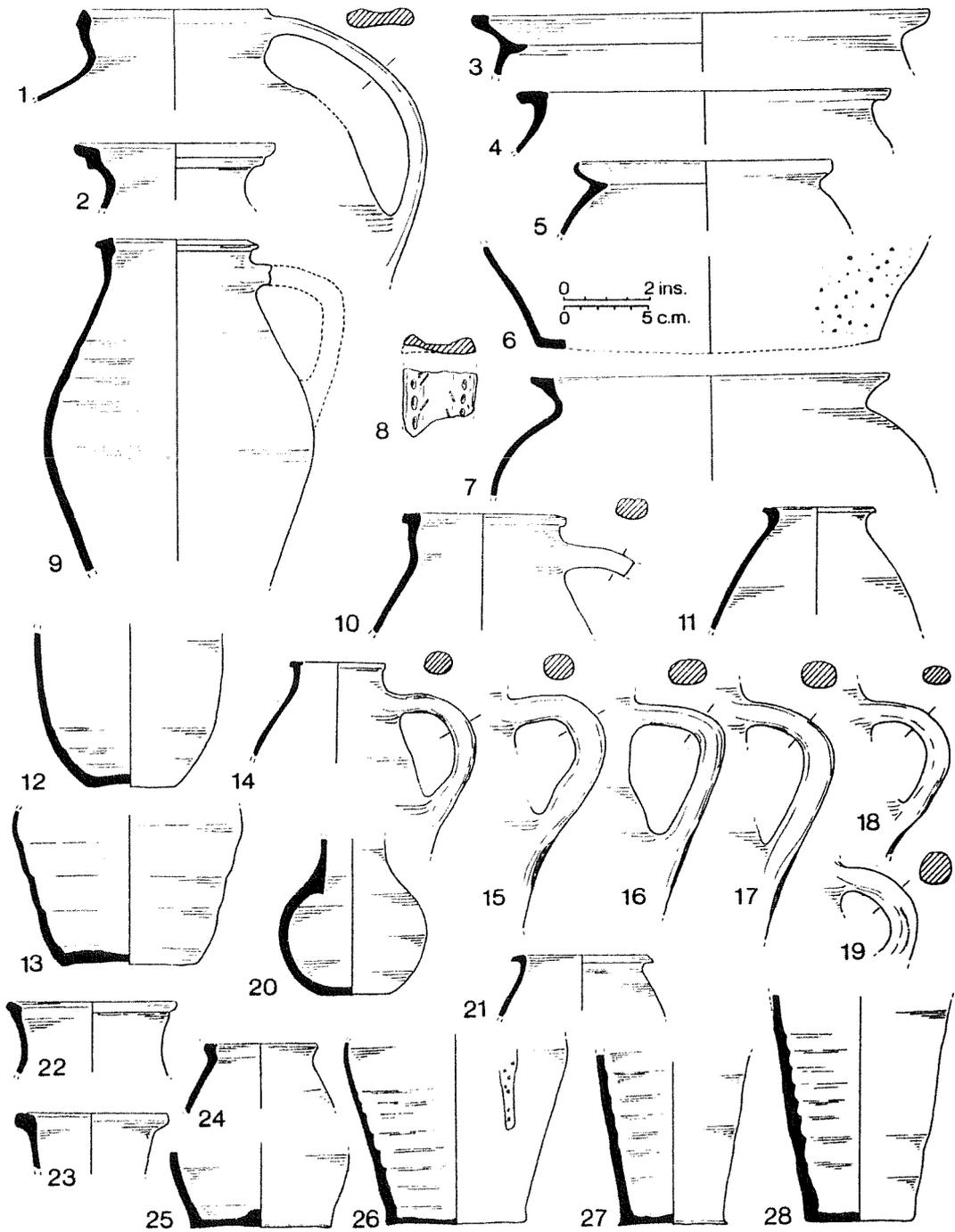


Fig. 4.18 Bayham Abbey. Medieval pottery from the reredorter and elsewhere ($\frac{1}{4}$)

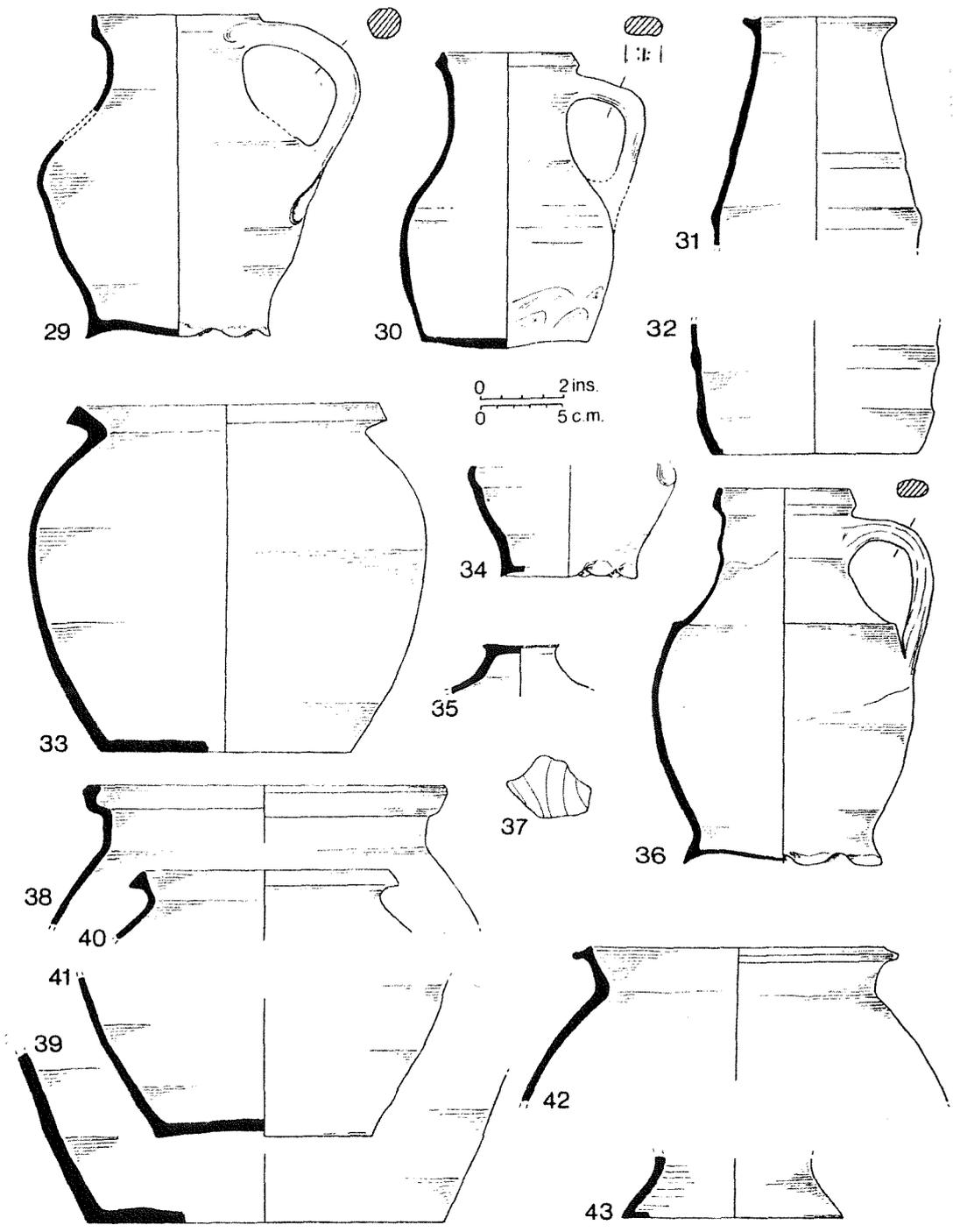


Fig. 4.19 Bayham Abbey. Late medieval and early post-medieval pottery from the reredorter(1)

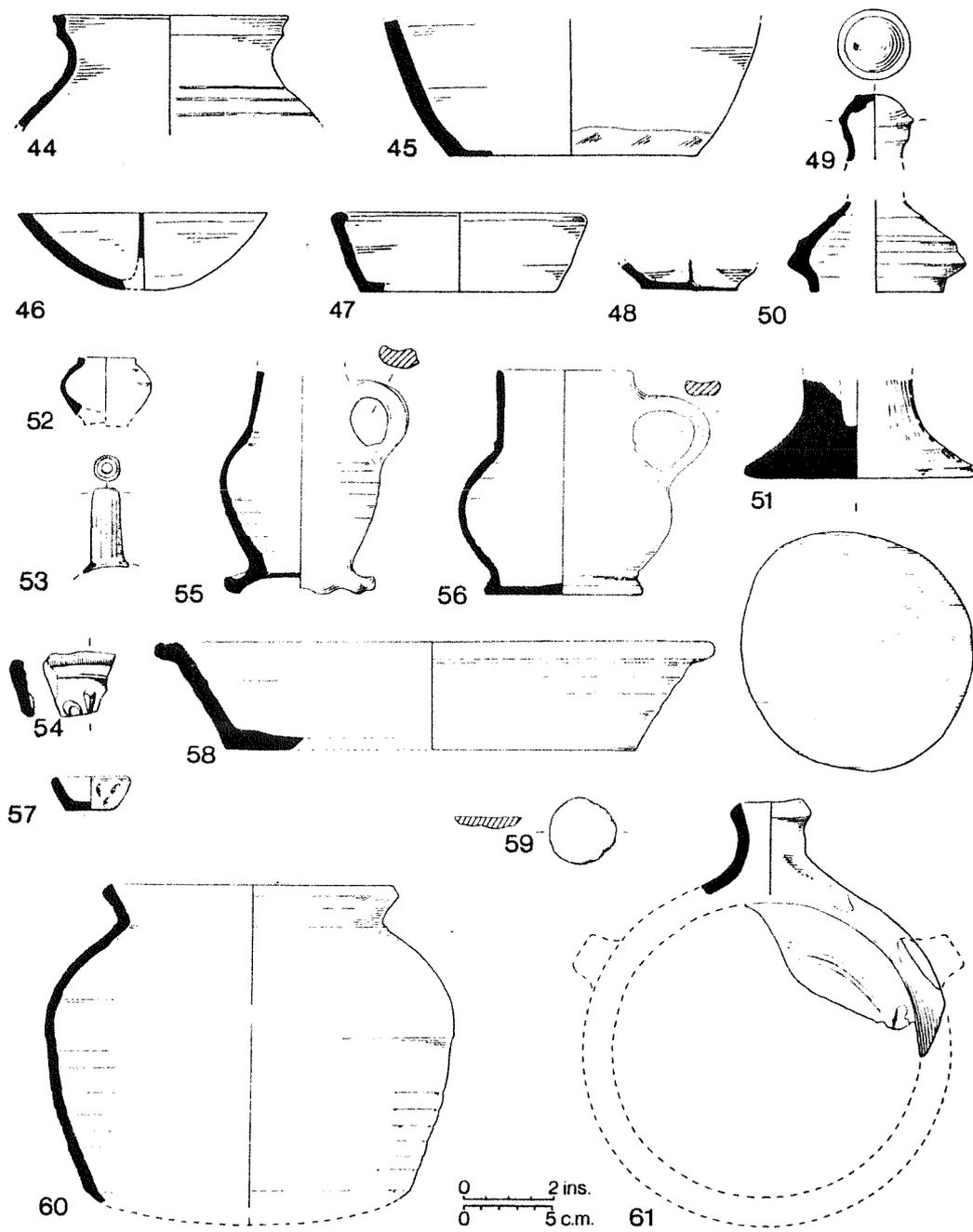


Fig. 4.20 Bayham Abbey. Late medieval and early post-medieval pottery from the reredorter and elsewhere ($\frac{1}{4}$)

are frequently associated with Dissolution debris on monastic sites, and predominance in the reredorter assemblage at Bayham demonstrates that these vessels were also readily available in this part of the Weald by the early sixteenth century. They were evidently supplied from a number of different kilns, and thin-sections indicate the possibility of at least thirteen sources, albeit represented by varying quantities of material.

Only two types can be confidently assigned to a specific kiln. Textural analysis has matched cooking pots found in the reredorter (Fig. 4.19: nos. 40-1: Fabric Dii—Sample 96 and Fig. 4.19: no. 33: Fabric Div—Sample 95) with wasters from the Lower Parrock (Fig. 4.17: graphs B and C) and Hareplain (Fig. 4.17: graphs D and E) kilns respectively. Two other fabrics (Dv: Sample 404, and Dix: Sample 408) are also likely to be Lower Parrock products, because they are similar to a sandy ware which occurs in small quantities among the wasters. The texture and colour of another jug (Fig. 4.19: no. 29) is identical to certain of the red-ware wasters found recently in Kingston-upon-Thames, but a thin-section taken from the Bayham vessel (Fabric Di: Sample 402) does not have the groundmass of fine quartz which is present in the Kingston fabric (Sample 895). The nearest comparable sherd is from Tonbridge (Sample 297). Another kiln at Plaxtol, Kent represented by only a small group of wasters (Sample 635) is probably of somewhat later date than the Bayham reredorter assemblage, but similar very smooth hard-fired sherds (Fabric Dixiv: Sample 957) may possibly come from this source.

Minor variations in the texture of the ubiquitous red earthenwares did not prove significant, and several of the fabrics defined macroscopically appear in thin-section to be from the same source (Fabric Dviii: Sample 407; and Fabric Dx: Sample 409). Vessels found at Boxley Abbey (Sample 642) are also likely to be from the same unknown kiln, and, significantly, the texture of the sherd with linear white-painted decoration from Bayham (Fig. 4.19: no. 37: Fabric Dixii—Sample 411) belongs to this group as well. There can be little doubt that both plain and painted wares were manufactured at the same place, and textural analysis has enabled these and the white-painted products of the Graffham kilns in West Sussex (Streeten, 1980 a) to be isolated from a wider tradition of ceramic decoration. However, comparison of this Bayham fabric not only with others from the site (Fabric Dvi: Sample 405) but also with isolated finds elsewhere, suggests that, unlike the widely-distributed Graffham products, the white-painted sherds from Kent and East Sussex were manufactured at more than one centre.

Certain of the remaining minor groups can be paralleled at sites in the vicinity of Bayham. Fabric Dvii (Sample 406) is matched by finds from the bloomery site at Piping Wood, Hartfield (Sample 222); another type (Fabric Dxxv: Sample 955) is identical to sherds found at Tonbridge (Sample 301) and possibly Copperhurst, Aldington (Sample 485). None of these wares can be attributed to a specific source, but unsuccessful attempts to find long distance parallels point to local production, possibly at small rural kilns such as those already found at Hareplain and Lower Parrock. On the other hand, a distinctive small jar (Fig. 4.3: no. 52: Fabric Dxxv—Sample 956) can be paralleled macroscopically by finds over a wide geographical area, including Canterbury (Macpherson-Grant 1978, 190, no. 63; and pers. comm.), Battle Abbey (Sample 992) and Winchelsea. These are probably imports used as containers for mercury, but the source has yet to be identified (R. G. Thompson, pers. comm.).

E. Stonewares

- (i) Raeren
Fig. 43: no. 55.
- (ii) Frechen
Fig. 43: no. 56.
- (iii) Siegburg.
- (iv) Westerwald.
- (v) Other stonewares.

F. Other imports

- (i) South-West French white ware.

54. Rim of plate. Grey-buff core with buff external surface. Hard smooth texture with rough fracture. Moderate fine sand. Traces of yellow and dark brown glaze. Reredorter.
55. Jug/tankard. Fabric Ei; Raeren stoneware. Dorter drain (Fig. 5: C, layer 16).
56. Jug/tankard. Fabric Eii. Frechen stoneware. Frater (Fig. 8: layer 11).

E and F. Imported wares

The writer is indebted to Mr. J. G. Hurst for identification of the imported wares. Despite the small quantity of early material, it may be significant that no medieval imports have been found. A similar pattern is emerging from limited excavations elsewhere in the Weald at Chingley and Moat Farm, Leigh and no imports have been recognised among the surface scatter of thirteenth-/fourteenth-century pottery from Upper Parrock, Hartfield. The evidence supports the conclusion that imported wares were not apparently sold in the High Wealden markets until the late fifteenth-/early sixteenth-century Rhineland stonewares (Fabrics Ei and Eiii) became available, and the single sherd of South-West French white ware (Fabric Fi) is probably contemporary with the German vessels.

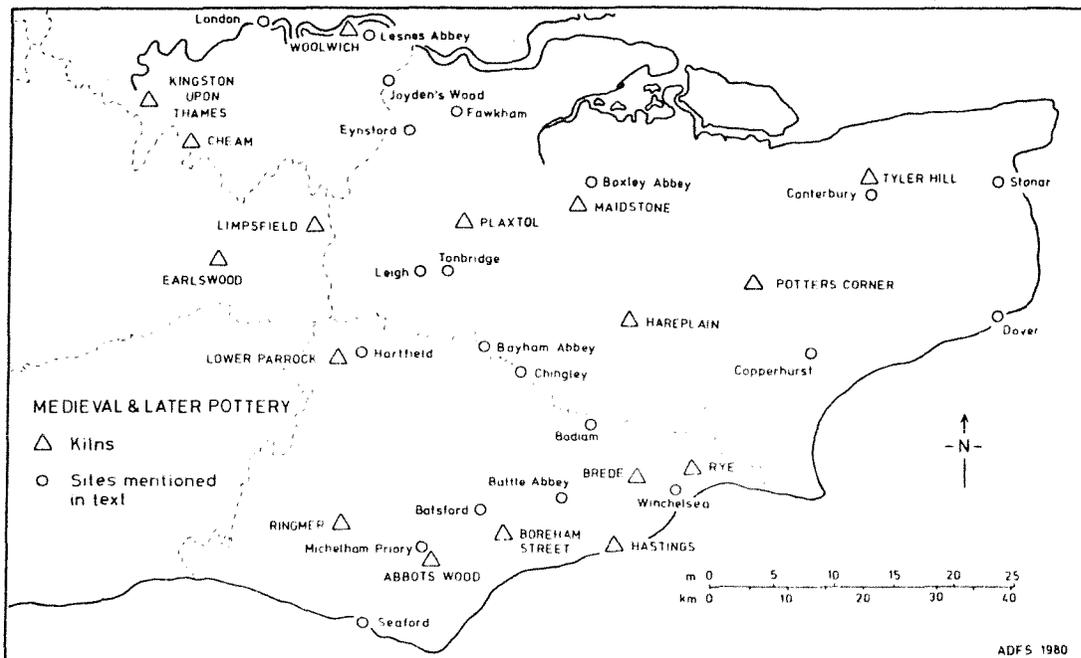
G. Later post-medieval earthenwares

- (i) Red core and surfaces. Hard, smooth texture. Fairly smooth fracture. Dark purple-brown glaze with metallic sheen.
 - (ii) Red core and surfaces. Hard, smooth texture. Fairly smooth fracture. Brown glaze with flecks of iron. Fig. 4.20: no 58.
 - (iii) Red core and surfaces. Hard, smooth texture. Smooth fracture. Dark green glaze.
 - (iv) Same as Fabric Giii, but unglazed.
 - (v) White core and surfaces. Hard, smooth texture. Smooth fracture. Yellow and brown glazes.
 - (vi) Tin-glazed earthenwares.
 - (vii) Staffordshire-type 'combed' ware.
57. Small dish. Similar fabric to no. 51. Hand-made with knife-trimmed exterior (Fig. 8: layer 18).
 58. Pan. Fabric Gii. Frater (Fig. 8: layer 11).
 59. Disc, possibly used as a counter. Cut from a plain tile with streaky white slip (Group J); smoothed edges (Fig. 10: layer 17).
 60. Cooking/storage vessel. Fabric Diii; possibly Lower Parrock kiln. South of south range (Fig. 8: layer 18).
 61. Costrel. Fabric Dxiv. Unusual flat rather than domed surface; scar of applied handle (Fig. 8: layer 11).

G. Later post-medieval earthenwares

The few fragments of brown lead-glazed earthenware (Fabric D_{xiii}) found in the reredorter, demonstrate that these wares were already available by the early sixteenth century, but most of the examples come from later seventeenth- and eighteenth-century contexts (Fabrics G_{i-iv}). None of these wares has been thin-sectioned, and, although the fabrics are similar to those from Chingley, no attempt has been made to identify their source of manufacture. The white wares (Fabric G_v) however, are almost certainly post-medieval products from the Hampshire/Surrey border industry (Holling 1971) from where some of the earlier types were also derived, and the range of fabrics and yellow and brown glazes has been compared directly with the published group of marketed vessels from Dover Castle (Mynard 1969).

The fabric of the pedestal vessel base (Fig. 4.20: no. 51), and a small handmade dish (Fig. 4.20: no. 57) is not matched by any of the wheel-thrown wares, and the crudeness suggests that these objects represent non-specialist, possibly even domestic, manufacture.



Bayham Abbey. Sites mentioned in the pottery report.

List of sites mentioned in the pottery report

Detailed references in the text are confined to specific comparisons with published vessels. All local sites, however, are shown above, and accounts of the relevant material are listed in the bibliography. Museum locations have only been cited where there is no publication.

- | | |
|---|---|
| *Battle Abbey, Sussex | Webster & Cherry 1979, 253 |
| *Batsford Furnace, Sussex | Streeten 1980b |
| *Bodiam, Sussex | Martin 1970 |
| *Boreham Street, Sussex | Barton 1979, 156 |
| *Boxley Abbey, Kent | Maidstone Museum, med. 97; 98 and 101 |
| *Brede, Sussex | Austen 1946, 94-5 |
| *Canterbury, Kent | Macpherson-Grant 1978 |
| *Cheam, Surrey | Marshall 1924 Orton 1979a, b |
| *Chingley, Kent | Crossley 1975c |
| *Copperhurst, Aldington, Kent | Mrs. P. Winzar, pers. comm. |
| *Dover Castle, Kent | Mynard 1969 |
| *Earlswood, Surrey | Turner 1974a |
| *Farnborough Hill, Hants. | Holling 1977, 61 |
| *Fawkham, Kent | Walsh 1967 |
| *Hareplain, Kent | Kelly 1972 |
| *Piping Wood, Hartfield, Sussex | Tebbutt, 1975, 147, Fig. 1 no. 4 |
| *Lesnes Abbey, Kent | Dunning 1961a |
| *Limpsfield, Surrey | Prendergast 1974 |
| *Joydens Wood, Bexley, Kent | Tester & Caiger 1958 |
| *Kingston-upon-Thames, Surrey | Hinton 1980; Richardson 1980, 187 |
| *London | See text |
| *Michelham Priory, Sussex | Barton & Holden 1967a; Streeten forthcoming |
| *Moat Farm, Leigh | Parfitt 1976 |
| *Lower Parrock, Sussex | Freke 1979a |
| *Upper Parrock, Sussex | Tebbutt 1975a; Streeten 1979a |
| *Plaxtol, Kent | Maidstone Museum, med. 129 |
| *Ringmer, Sussex | Martin 1902 |
| *Rye, Sussex | Vidler 1936; Barton 1979, 191-254 |
| *Seaford, Sussex | Freke 1977-8c |
| *Stonar, Kent | Pearce 1937 |
| *Tonbridge, Kent | Streeten 1976a |
| *Tyler Hill, Kent | Spillett et al 1942 |
| *Upwaltham, Sussex | Chichester Museum |
| *St. Giles Churchyard, Winchelsea, Sussex | Winchelsea Museum |
| *Denotes sites shown on map | |

Discussion of pottery from the reredorter and drain

There is insufficient material to permit comparison of pottery from different periods, but quantification of the group from the reredorter and drain, combined with detailed analysis of the fabrics, does give considerable insight not only into the marketing of late fifteenth/early sixteenth-century ceramics, but also into the organisation of the pottery industry itself during an important period of change.

Quantification has been based upon visual classification of the fabrics, but more objective thin-section analysis shows that some of these sub-divisions merely represent variation between products from the same source. On the other hand, it is frequently difficult to distinguish between the marketed vessels from known kilns, and matching an identified sample with a quantified group of material is inevitably subjective. These problems have been minimised by rigorous reference to type sherds. Because some of the groups are fairly small, simple measures of sherd count and weight have been adopted in preference to 'minimum vessel numbers' or 'vessel equivalents' (Orton 1975). Broadly similar results were achieved by both methods (Fig. 4.21), but the solid clay vessel base (Fig. 4.20: no. 51) acquires undue prominence because of its weight.

The vessels found in the reredorter are likely to have been in use during the last years of monastic occupation, and were presumably discarded at or shortly after the Dissolution in 1525. The watercourse was doubtless cleaned regularly while in use, even if not quite so frequently as once a week^{as} at Christchurch Priory, Canterbury in the thirteenth century (Urry 1967, 157). Some of the pottery may have been dropped into the drain after it was cleared for the last time, but the standards of hygiene are indicated by a thick lime encrustation on at least two of the jugs (Fig. 4.10: no. 27 and Fig. 4.19 nos. 31-2) which may have been used as containers for lime. Interestingly, similar deposits were noted on certain vessels found in the reredorter at the Chelmsford Dominican Priory (Drury 1974, 65 nos. 13 and 15), and it may have been common practice to sprinkle lime into monastic drains. It is doubtful whether all the pottery was derived from this part of the abbey, and the dump presumably represents rubbish collected from elsewhere. However, the late fifteenth/early sixteenth-century style of the shoes, which were also found in the reredorter (Jones & Thornton 1983, 120), is consistent with the range

of pottery types. It appears that certain technical details of shoe manufacture represented in this assemblage are unlikely to be earlier than the first decades of the sixteenth century.

Some of the pottery, in particular the shell-tempered ware (Fabric A), must therefore be residual, but the medieval sand-tempered wares (Fabric B) are surprisingly well represented (Fig. 4.21). These originate in the thirteenth/fourteenth century, but may well have continued into the fifteenth, although they are unlikely to be contemporary with the Lower Parrock or Hareplain wares. Dating of the Surrey white wares (Fabric C) has been refined in the light of evidence from well-stratified groups found at London waterfront sites. Biconical Cheam jugs similar to those from Bayham (Fig. 4.18) first appear c.1365 at Trig Lane, and were also found in a large deposit at Baynards Castle dated c.1480 (Orton 1979a, 303). Associated finds at Bayham, however, suggest that the terminal date for this type can be no earlier than c.1500 even if the monastic community possessed a valued 'set' of jugs already of some age in 1525. A longer life-span for the white-ware jugs could account for the unexpected occurrence of culinary wares from the Lower Parrock and Hareplain kilns (Fabric Dii and iv) in the same deposit as marketed vessels from Cheam. Results from archaeomagnetic tests on the Hareplain kiln were poor but would be compatible with the excavator's suggested range of c.1500-20 (Hawley 1972). At Lower Parrock, however, an archaeomagnetic date in the second quarter of the sixteenth century has been inferred (Clark 1979). Attempts to locate other kilns in the vicinity were unsuccessful, and in both instances it is assumed that the potters were working only for a short period. Given these and other assumptions about the circumstances in which the Bayham pottery was discarded, one of the cooking pots (Fig. 4.19: nos. 40-41) and indeed the short-lived activities of the Lower Parrock potter, can be dated with unusual precision to within a very few years of 1525.

Excluding sherds which are probably residual, detailed fabric analysis has shown that pottery used at Bayham in the late fifteenth and early sixteenth century is likely to have been obtained from approximately twenty-one different sources, of which thirteen were producing hard-fired, predominantly red, earthenwares. The relative proportion of each type recovered from the reredorter is shown in Fig. 4.21. Medieval shell- and sand-tempered wares, together with the early 'Surrey' white wares, comprise 18% of the assemblage by weight. Later Surrey types represent 17% but very few sherds of

'Tudor Green' ware were found. Foreign imports form 5%, but local hard-fired earthenwares make up the largest single group, totalling 51%, of which Fabric Diii, from an unknown source, accounts for the highest proportion. Identified products from the known kilns at Lower Parrock and Hareplain represent 2.5% and 4% respectively, but, if the sandy Parrock fabric is also included, then the total from that source amounts to just over 10%. Many of the minor types however, form less than 1% of the total assemblage.

Imports from the Rhineland and South-West France were doubtless available in local markets, and it is unlikely that the 'Tudor Green' or Cheam wares were obtained direct from the potters, on account of distance. Some of the earthenwares have been paralleled with finds in Tonbridge, where the market would have been easily accessible from Bayham along the nearby route from Rye to London. Vessels were also supplied from small enterprises at Hareplain and Lower Parrock, and the existence of other small, probably rural, workshops can be inferred from the restricted area over which precise parallels can be drawn. This multiplicity of suppliers reflects both the chronology and organisation of the industry at this period. Evidence suggests that activity at Hareplain and Lower Parrock was short-lived and the same may apply to the unknown kilns, but in contrast to West Sussex, the Wealden markets of Kent and East Sussex appear to have been supplied from a variety of small workshops rather than larger centres selling over a wider area. The large number of sources represented in a single assemblage may indicate purchase either through markets or from itinerant salesmen in preference to direct purchase from the individual potters, but a miniature hand-made dish from the frater demonstrates that not all needs could be met by specialist suppliers at this period.

Conclusion

Despite the limited range of medieval pottery, enough has been found to show that the wares from Bayham have greater affinities with known Kentish than Sussex types. A few jugs and culinary vessels reached the site from Rye, probably via the nearby route to London, but apart from the fourteenth-century 'Surrey' wares, it has not proved possible to identify the products of other specific kilns. The earliest imports are the ubiquitous Rhineland stonewares, and the quantity of late fifteenth- or early sixteenth-century Surrey wares is

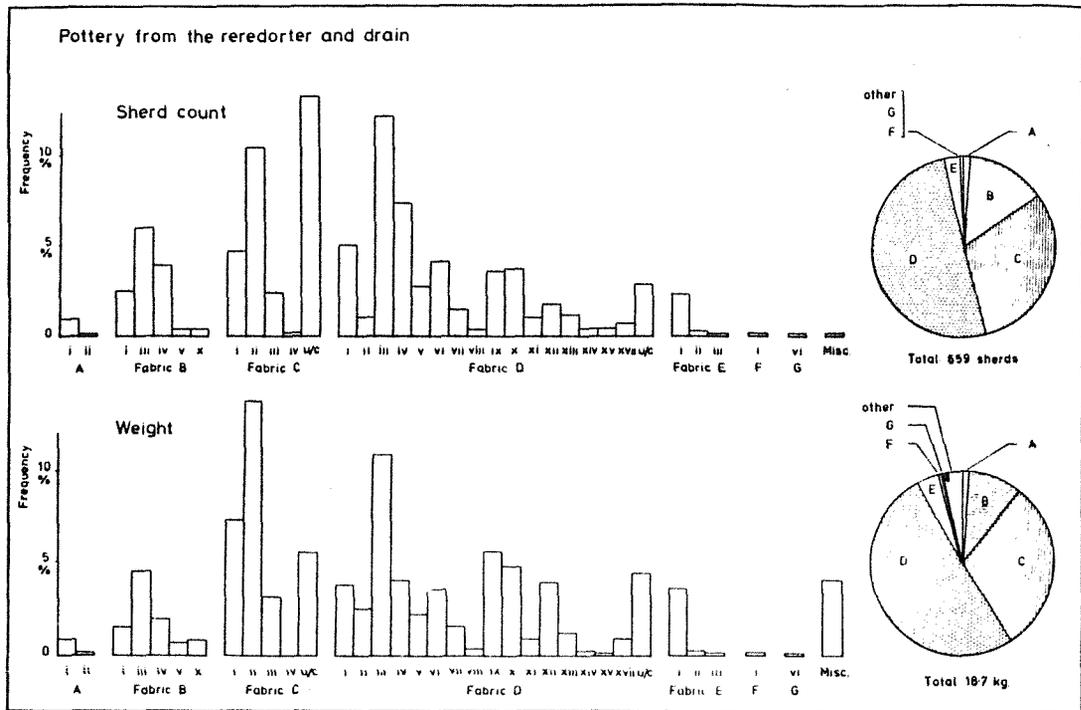


Fig. 4.21 Bayham Abbey. Ceramic sequence. Histograms showing the proportion of each fabric represented among Dissolution debris in the reredorter and drain

larger than that for the earlier period. Demand for kitchen wares, however, appears to have been met locally, and evidence from the important reredorter assemblage has permitted speculation about the organisation of the Wealden pottery industry at this time.

4.3.4 Christchurch, Canterbury, Kent

Introduction

The stratigraphic sequence identified on the Aula Nova (or 'Norman Staircase') site at Christchurch Cathedral Priory in 1977 must be regarded as one of the most significant contributions to the definition of medieval ceramic chronology in the region during the 1970s. The interest of these assemblages is enhanced by subsequent discoveries in the Close at the Almonry Chapel (Mint Yard) and Linacre sites. The material has been studied in detail by N. Macpherson-Grant for the Canterbury Archaeological Trust and a full account of the excavations and ceramics is to be published in the Archaeology of Canterbury III.

Excavation has shown that, following a period of occupation in the late eleventh/early twelfth century (Period III), large quantities of soil were dumped - probably in the space of no more than a year during the mid-1150s - on what later became the site of the Aula Nova (Period IV). Material associated with construction of the Aula Nova (Period V) can be dated independently to c.1160-65. There followed a long period of soil accumulation containing pottery discarded between the late twelfth and late thirteenth century (Period VI). Small quantities of pottery were also recovered from later medieval contexts (Periods VII and VIII).

The early medieval wares for which the Aula Nova has provided a terminus post quem of c.1160-65 can be distinguished by eye from contemporary material found at certain sites elsewhere in South-East England. Within Kent itself, sufficient broadly contemporary material is also available from different parts of the county for comparison with the Aula Nova groups. Samples have therefore been examined to establish whether or not the pottery from other Kentish towns can be attributed to the same source as that found in Canterbury (see Section 6.3). In this way it is possible to gain an insight not only into the marketing of ceramics but also, by inference, into the hinterland of the twelfth-century city itself. Well-stratified groups also provide an opportunity to compare the fabric of early wares with later types, the source of which is known from kiln wasters. By analysing marketed vessels it is possible to establish whether or not they come from the same source as later wares in the area, thereby elucidating the origins of the local medieval pottery industry.

In the ensuing discussion of the ceramic sequence,

reference is made to the contexts, periods and illustrated vessels which will be published in the forthcoming excavation report.

Ceramic sequence

Mid-twelfth century (Periods IVA and IVB)

Early sand-tempered wares

Most of the cooking pots have a grey core with either grey or sometimes mottled red-pink surfaces. The distinctive 'close' texture is hard and fairly harsh, with a rough fracture. Coarse quartz and, very rarely, fragments of flint are visible to the naked eye. In addition to light reflected from facets of the quartz grains, fine mica dust can also be detected under certain lighting conditions (Sample nos. 178, 179, 375 and 376 from layers 198, 252, 295 and 200 respectively). One glazed sherd in a similar fabric has also been analysed (Sample no. 377 - layer 284) and two samples from different sand-tempered fabrics provide a contrast to the main group. One (Sample no. 378 - layer 387) has a red core with brown surfaces. The texture is barely distinguishable from the other sherds, but is generally finer. Some mica dust is visible. The other (Sample no. 180 - layer 272) also has a red core, with a brown internal surface and black exterior. The texture is very hard and fairly smooth, with a rough fracture. Fine quartz and some mica dust is visible on the surfaces. Another sherd with identical surface texture and colour has flint and shell inclusions (Sample no. 176 - layer 312).

Early shell-tempered wares

The range of colours is similar to that for the sand-tempered sherds. Most have a grey core with either grey or red-pink surfaces. The texture varies according to the amount of sand in the fabric, ranging from smooth and sometimes soapy to fairly harsh. The surfaces are hard and fracture is rough. Both the quantity and the size of the shell temper varies considerably from abundant coarse to moderate medium, but all the samples examined have at least some mica dust on the surfaces (Sample nos. 177 - layer 172 and 380-3 - layers 170, 312, 294 and 158 respectively).

The quartz grain-size distribution observed in the principal group of mid-twelfth-century sand-tempered wares is distinctive. In thin-section, these sherds are characterised by a groundmass of small grains $\geq 0.05\text{mm}$, and a relatively high proportion of grains $< 0.2\text{mm}$ (Fig. 4.22: Graph A). Sparse fragments of flint, similar in size to the larger quartzes, have evidently been introduced with the sand rather than as a deliberate temper.

A similar pattern is produced by a sample from earlier excavations in the city (Fig. 4.22: Graph B). This was associated with twelfth-century wares in Rose Lane pit M8, but is typologically the same as an earlier vessel from pit M14 (Frere 1954, 130, fig. 16, no. 8). An isolated find from Wingham (Greenfield 1960, 69-70: Maidstone Museum, med. 125), identical in form to a rim from pit M9 (Frere 1954, 132, fig. 17, no. 20) demonstrates that pottery from the same source was also available in the hinterland of the city (Fig. 4.22: Graph B). For comparison, sherds in different sand-tempered fabrics from the Aula Nova site have been plotted to demonstrate the contrast (Fig. 4.22: Graphs D and E).

Some of the shell-tempered wares have little or no sand in the fabric and cannot therefore be subjected to this type of analysis. However, even without plotting on a graph, purely visual comparison of the thin-sections shows that the groundmass of small quartz grains, which is found in the smooth shelly wares as well as in the sand-tempered types, must derive from the clay itself rather than the temper (Fig. 4.23: Graph A). Other shell-/sand-filled wares show a generally similar range of quartz grain sizes to the pure sand-tempered ones, although the larger grains are not so well represented (Fig. 4.23: Graph A).

In view of the mica dust on the surface of both fabrics, these differences are unlikely to be significant, and the overall similarities must indicate the use of the same raw materials for each type, if not manufacture at the same place.

Visual similarity of the Canterbury types to contemporary sand-tempered wares from Dover is confirmed by textural analysis of samples from both the town and castle (Thriepland & Steer 1951, 143-7; Cook et al. 1969, 89). These are also indistinguishable from a sherd stratified in the body of the upper rampart at Caesar's Camp, Folkestone (Pitt-Rivers 1883, 456-60), and the results of three analyses have been grouped for comparison with the Aula Nova material (Fig. 4.22: Graph C). It seems therefore that this area of the Kent

coast was being supplied with at least some of its pottery from the same source as Canterbury. The assemblage at Caesar's Camp, however, also contains flint-/shell-tempered wares which are akin to types found further west but which have not so far been recognised in north-east Kent.

The possibility that a different kiln might produce wares with a similar quartz grain-size frequency cannot be ruled out, and comparisons based upon textural analysis necessarily become more tentative over greater distances. At Rochester Castle, a sherd of sand-tempered ware from a late eleventh-century context (Flight & Harrison 1978, 41) appears similar in thin-section to the Canterbury material. Although the fine quartz groundmass is not so pronounced, this sample is quite different from a spouted pitcher in fine sandy ware found at another site in Rochester (Fig. 4.23: Graph D). However, one of the sherds associated with Kiln A attributed to c.1100-1150 (Harrison 1972, 144) at the East Gate is split, but not fractured, and may conceivably be a waster (Sample no. 508). If loom-weights were being manufactured on the site, it is quite possible that pottery might also have been made in the vicinity, perhaps on a domestic scale. Visually the texture of this sherd from Rochester is barely distinguishable from fabrics found in Canterbury, but some of the quartz grains seen in thin-section are larger and the groundmass noted on the Aula Nova material is absent (Fig. 4.23: Graph E). The implication must be that while some pottery was probably being supplied to Rochester from the same source as Canterbury, other vessels may have been produced locally.

The shell-tempered wares are less easily characterised by this technique, and, although thin-sections have been prepared, graphs have not been plotted for the west Kent samples. Some sherds from Rochester have mica dust on their surfaces (Sample no. 528), and may therefore be made from the same type of clay as the Canterbury vessels, but mica has not been found on any of the material from Eynsford Castle (Rigold 1971), which implies a different centre of production (Sample no. 193). The interpretation based on the sandy wares seems to be confirmed by the shell-tempered types: some of the vessels are in the same fabric as those from east Kent, while other - probably nearer - centres of production were evidently competing for the west Kent market. Rochester seems to lie on the fringe of the two areas.

Fig. 4.22 Canterbury. Textural analysis: 12th-century and earlier sand-tempered wares

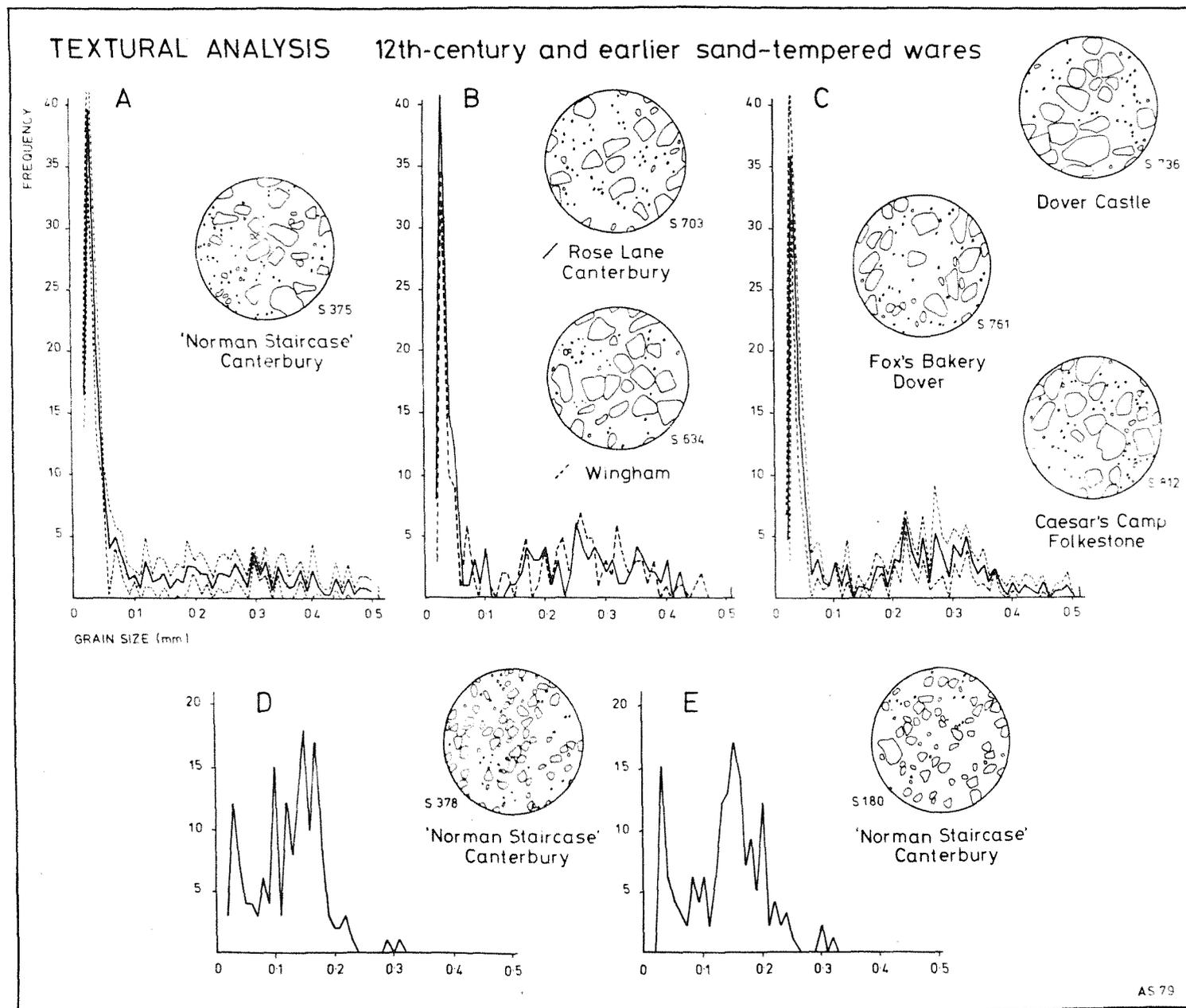
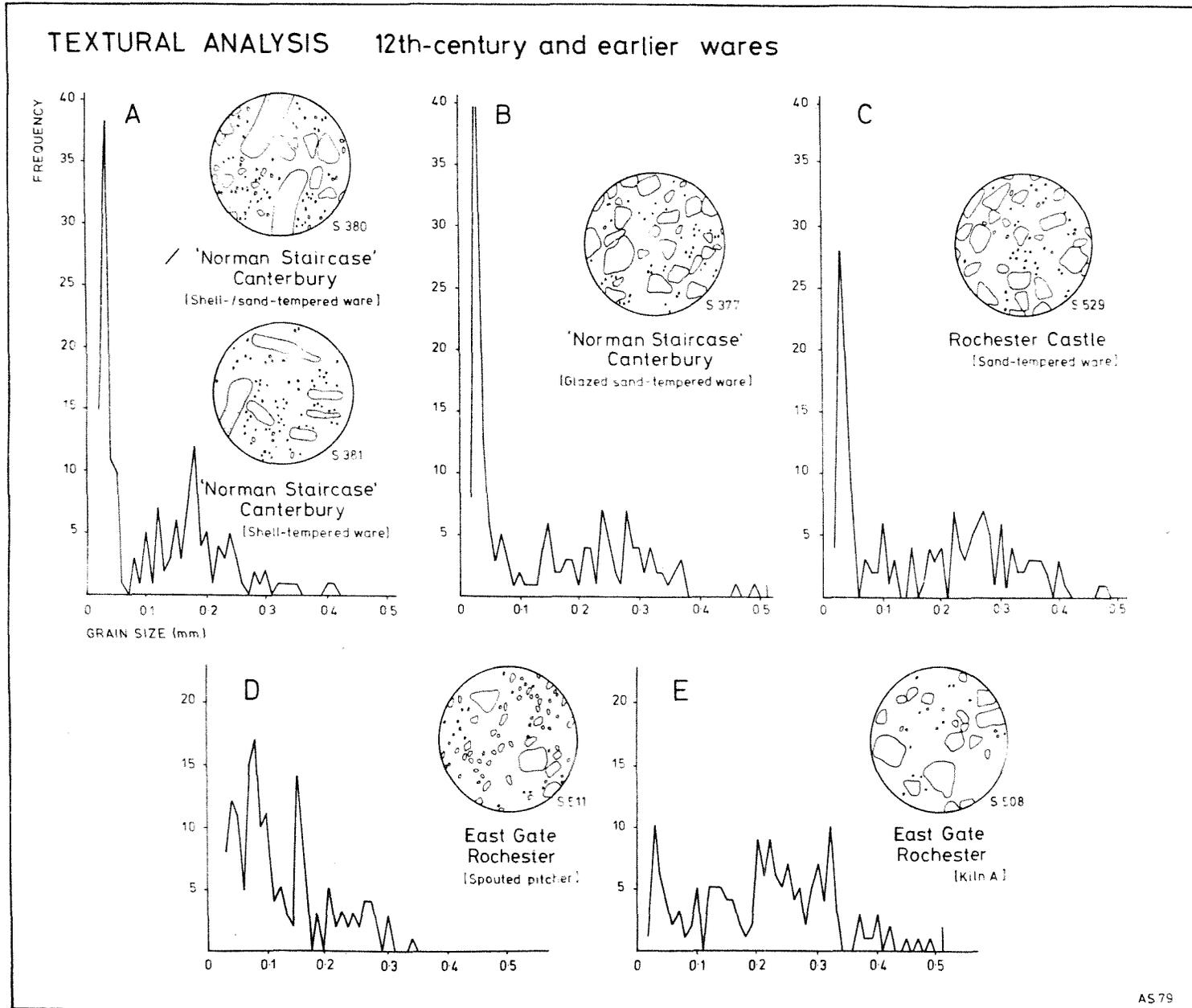


Fig. 4.23 Canterbury. Textural analysis: 12th-century and earlier wares



Late twelfth/thirteenth to fourteenth century (Periods VIA, VIIA and VIIIA)

Later sand-tempered wares

The fabric of both cooking pots and jugs is very similar. Although most of the sherds have a grey core and red-brown surfaces, sometimes with a red margin, a few are wholly oxidised. The texture is hard and generally harsher than the earlier wares. Surfaces are sometimes pitted when eroded, and all sherds have a rough fracture. Abundant coarse quartz and mica dust on some sherds is visible to the naked eye (from Period VIB: Sample no 426 - layer 100; from Period VIIA: Sample nos. 419-21 and 425 - layers 59 and 67; from Period VIIIA: Sample nos. 422 and 423 - layers 48 and 47).

Later shell-tempered wares

Full shell temper does not occur among the later wares, but one sherd (Sample no. 424 - layer 49), with shell on the surface only, has been examined. The colour and texture is similar to the early sand-tempered wares, with sparse fine shell and mica dust on the surfaces.

The origin of the pottery industry at Tyler Hill north-east of Canterbury is not known. A wide range of ceramics was produced throughout the medieval and later period, but until recently neither kilns nor wasters dated earlier than the thirteenth /fourteenth century have so far been located. Glazed sherds from the sealed Period IV deposits at the Aula Nova site are therefore particularly instructive (Sample no. 377 - layer 284). The sand-tempered fabric of a glazed jug is similar to the early cooking pots (Fig. 4.23: Graph B) but, more significantly, the range of grain sizes in this sample is the same as later sand-tempered wares from the site.

Five thin-sections (Sample nos. 419-21 - layer 59 and 425-6 - layers 59 and 100 respectively) have been prepared from thirteenth-/fourteenth-century jugs, and the results are plotted to show variation in the range of quartz grain sizes (Fig. 4.24: Graph A). Two contemporary cooking pots (Sample nos. 422 and 423 - layers 48 and 47 respectively) demonstrate the similarity between different types of vessel (Fig. 4.24: Graph B), and visual comparison of another thin-section (Sample no. 424 - layer 49) points to the same origin for a

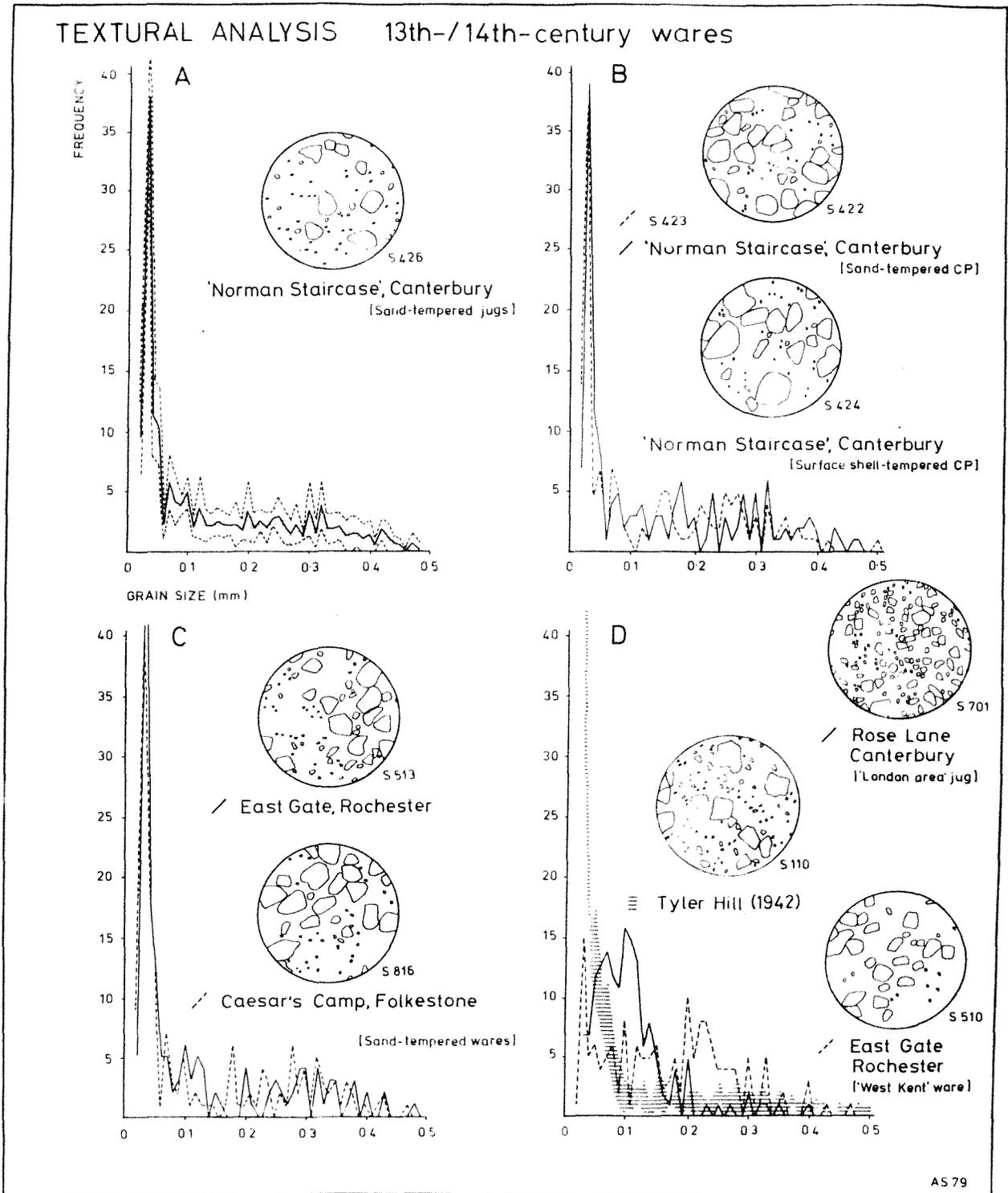


Fig. 4.24 Canterbury. Textural analysis: 13th- & 14th-century wares

cooking pot dusted with shell on the surface only.

These sand-tempered wares from Canterbury form part of a wider distribution first summarised by Dunning (Rix & Dunning 1955, 145-50) and amplified by more recent discoveries. Sherds from both Rochester (Sample no. 513) and Caesar's Camp, Folkestone (Sample no. 816) have been analysed for comparison with the Aula Nova material, and the results indicate a common source (Fig. 4.24: Graph C). The Rochester sample comes from the excavator's Group VI, ascribed to the period after 1225 (Harrison 1972, 149), and that from Caesar's Camp is marked as coming from the internal slope of the upper rampart, presumably therefore later than material stratified in the body of the rampart itself.

The distinctive range of quartz grain sizes in all these sherds is demonstrated by comparison with the kiln at Potter's Corner, Ashford (Grove & Warhurst 1952) and is illustrated here by contrasting samples from Rochester (Sample no. 510) and Rose Lane, Canterbury (Sample no. 710) (Fig. 4.24: Graph D). The cooking pot from Rochester, belonging to Group V (Harrison 1972, 149), has grey surfaces akin to many vessels in a reduced fabric found throughout west Kent, while the jug from Canterbury (Frere 1954, 135, fig. 20 no. 44) is paralleled by vessels found extensively in west Kent and attributed to the London area (Streeten 1982a, 93).

The majority of east Kent wares, however, are typical of the Tyler Hill industry, and visual identifications are confirmed by textural analysis. Sherds from the kiln first discovered in 1942 (Spillett et al. 1942) are similar to samples from the Aula Nova, Caesar's Camp and Rochester (Fig. 4.24: Graph D). Comparison with other kilns at Tyler Hill demonstrates that this profile of grain sizes is characteristic of the industry as a whole rather than of a specific kiln. More detailed results from analysis of Tyler Hill ware and marketed vessels appear in Section 12.1.11.

Conclusions

Results of thin-section analysis show that certain sand- and shell-tempered wares in Canterbury were probably manufactured from the same raw materials, and the similarity of these early types to later forms indicates that the same fabrics remained in use. The implication is that the same raw materials known to have been used at Tyler Hill in the thirteenth /fourteenth-century were also used for

certain twelfth-century and earlier products. Indeed, this inference has been substantiated by the discovery of twelfth-century wasters at Tyler Hill (see Section 9.1.8, no. 649).

Textural analysis has demonstrated the general validity of visual identifications which can now be made with greater confidence. Further rigorous sampling is still required, however, to distinguish the early sand-tempered wares of east Kent from their counterparts in the western part of the county. Irrespective of texture, the mica dust observed on the surface of the sherds from Canterbury appears to be diagnostic; it occurs on a sample of London Clay from Tyler Hill, but is found neither on sherds from Eynsford nor on a sample of Gault Clay from the extensive medieval tilery at Nackholt near Wye. There are, however, other outcrops of London Clay along the north Kent coast, which, although not sampled, may also contain mica (see Section 12.1.3).

Preliminary conclusions indicate that, by the twelfth century, pottery produced in the vicinity of Canterbury was marketed in Dover and Rochester as well as being supplied to nearer consumers at Wingham. However, different fabrics found at Caesar's Camp, Folkestone and at Rochester indicate competition at the fringes of the distribution. A similar pattern is represented by the later wares which were supplied from Tyler Hill both to Canterbury and to areas of the north and south Kent coast. Other thirteenth-/fourteenth-century wares from Rochester once again point to local competition further afield.

4.3.5 Eynsford Castle, Kent

Introduction

Section-excavation by the late S.E. Rigold on behalf of the Ministry of Public Buildings and Works from 1953 to 1961 and again in 1966-7 has identified ten medieval phases. Three are tentatively dated from historical sources and others can be placed in the sequence. The castle is not mentioned in Domesday Book, but at that time Eynsford was already the caput of a barony, and occupation on the castle site can be inferred. With the exception of some post-medieval occupation, groups of pottery range in date between deposits associated with the tenure of William de Eynsford I in the late 1080s and the early fourteenth-century levels which accumulated when the castle was dismantled.

The stratigraphic sequence and its associated ceramics have been published in full (Rigold 1971; Rigold & Fleming 1973). The excavator's arguments, however, are summarised here as a guide to the detailed information contained in the excavation report. Eynsford Castle has one of the few dated ceramic sequences in west Kent and numerous assemblages have been dated by typological analogy with the Eynsford material. The structural and stratigraphic sequence from which the pottery dates are derived is summarised on a simplified plan and section drawings (Figs. 4.25-26). Events in this sequence are included on the matrix illustrating structural and stratigraphic relationships (Fig. 4.27).

Discussion of each phase is accompanied by a brief synopsis of the associated ceramics. The occurrence of each type appears in tabulated form on Fig. 4.28. Shaded portions of the chart indicate the presence in each phase of the ceramic types shown in vertical columns. Broken shading represents uncertainty about the longevity of certain types. For convenience of labelling, the phases are identified in the summary and on the drawings by a continuous sequence of Roman numerals. The excavator's phase designations are also included in the text, and these codes are used elsewhere for citing parallels to the dated material from Eynsford.

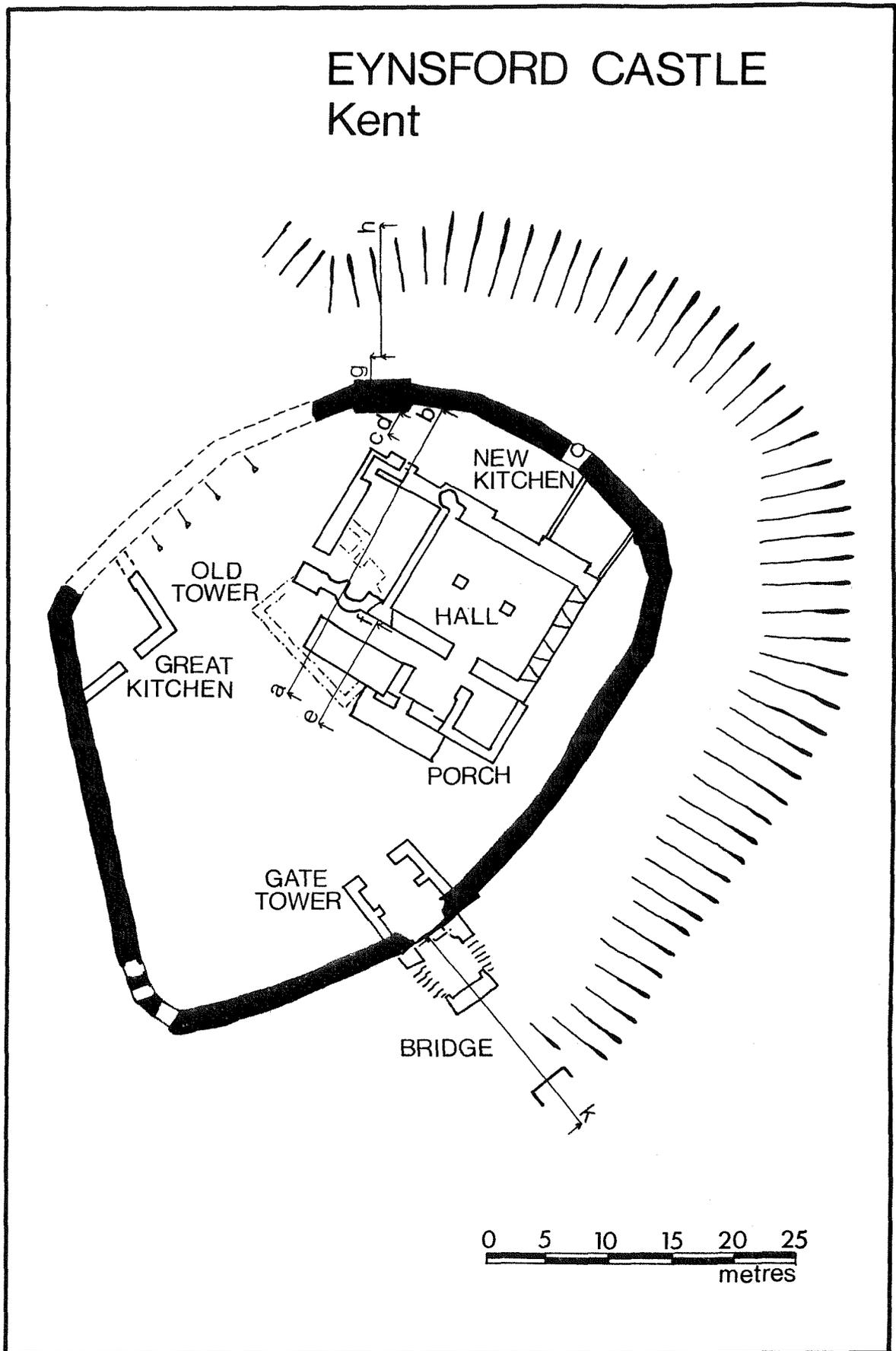


Fig. 4.25 Eynsford Castle. Plan showing excavated areas (1953-1967), after Rigold (1971)

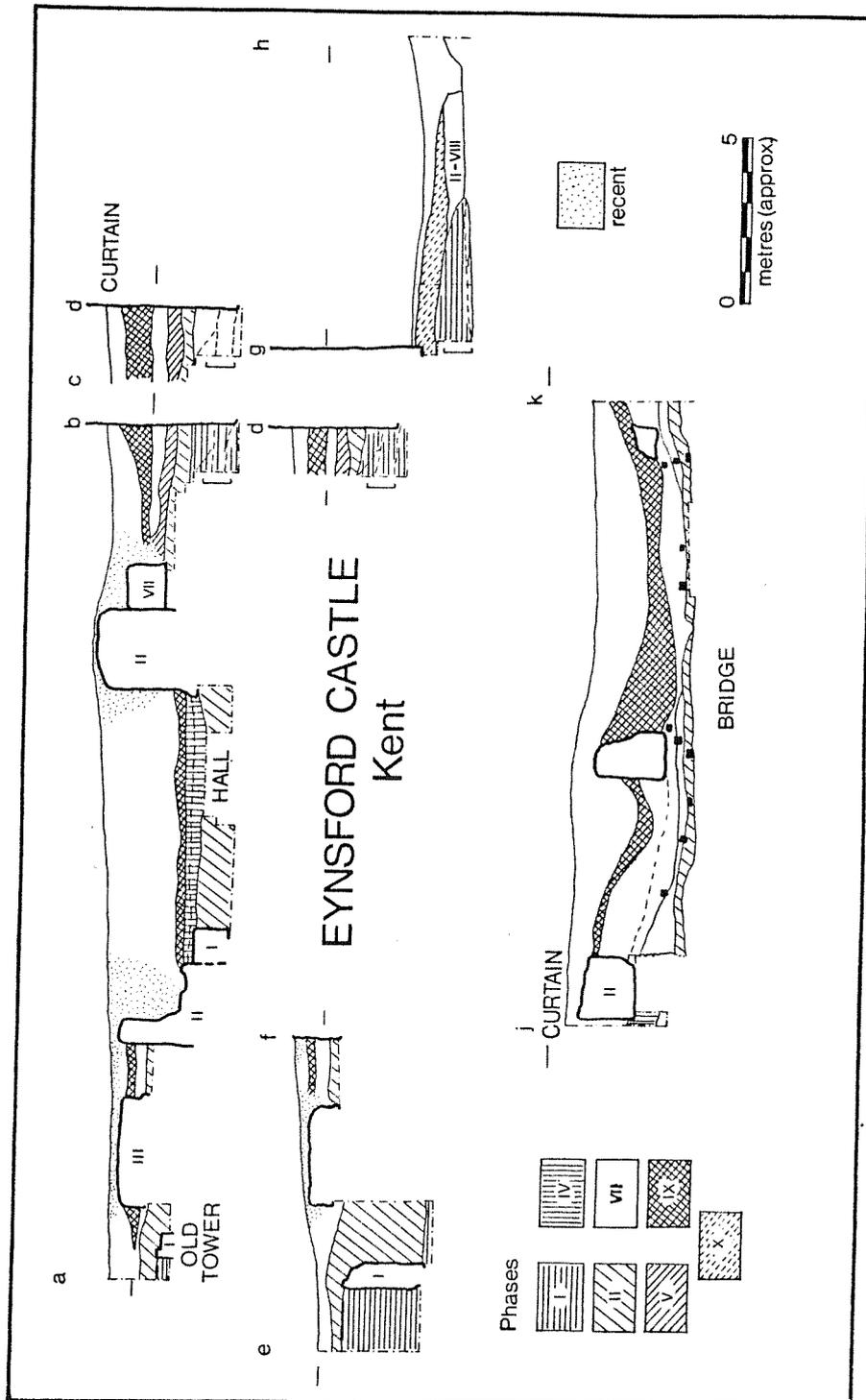


Fig. 4.26 Eynsford Castle. Simplified stratigraphic sections, after Rigold (1971) and Rigold and Fleming (1973)

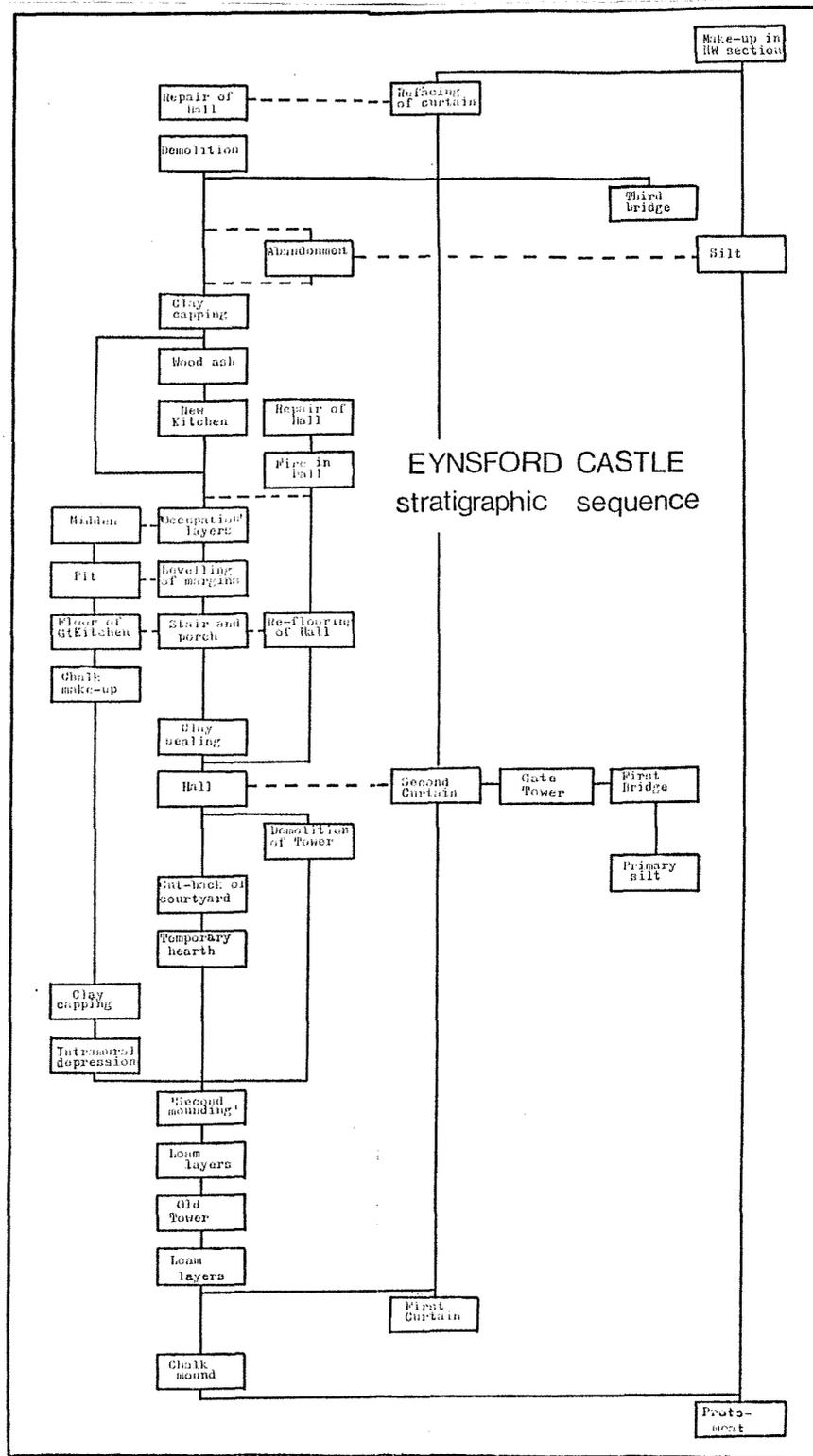


Fig. 4.27 Eynsford Castle. Stratigraphic sequence

I [Excavator's phase W; primary phase of fairly long duration]

A shallow flat-bottomed 'proto-moat' represents the earliest known occupation on the site. Both the first stage of the curtain wall and the so-called Old Tower were built on an artificial bed of chalk, which overlay the silt of this primary ditch. The stone base of the wooden tower was constructed after level strata had begun to accumulate against the curtain, and was subsequently enveloped on its south side by the 'second mounding' which sealed a loam layer piled against both curtain and tower. This 'second mounding' was evidently no more than a ring of make-up: it abutted the south wall of the tower, but was held back to form a sunken courtyard on the other sides. Its outer fringes sloped down to leave a depression around the curtain.

The fill of the 'proto-moat' contained a hand-made shell-tempered bowl fragment. Both shell- and early sand-tempered wares were found in the loam layer sealed by the 'second mounding'. Rim profiles are typically everted at this period.

II [Excavator's phase X; construction of the Hall]

Construction of the Hall provides a terminus ante quem for the earlier occupation.

The Hall occupied a slightly enlarged area within the former sunken courtyard, and debris from cutting back the 'second mounding' sealed a temporary hearth (with pottery) representing the transition from occupation of the Old Tower to construction of the new building. Outside the completed Hall, early deposits were sealed by levelling layers after construction. On the west side, however, the brown clay capping did not extend as far as the curtain. Inside, destruction of the Old Tower [incorrectly labelled 'Y 103' on the published sections (Rigold 1971, figs. 4 and 5)] was sealed beneath the primary mortar floor of the Hall.

Judging by the architectural evidence, heightening of the curtain is also thought to be contemporary. Although not directly linked with a soil horizon, this heightening is probably of the same build as the reconstructed curtain and internal gate-tower in the south-east part of the site. It can therefore be related to the stratified sequence of timber bridges. A layer of riverine silt into which the earliest timbers were set, had already been deposited before construction of the first bridge (assumed to be contemporary with the

gate tower). It would, however, have remained open to contamination until sealed by the layers associated with the second bridge phase.

Absolute dating for this radical alteration of the castle is not certain, but it probably took place during the tenure of William de Eynsford II in the late 1130s.

Contexts at the bridge are not clearly dated, and the primary silt layer in the south-east sector of the moat contained a fairly wide range of fabrics. These can be related to the sequence established inside the curtain. Pottery associated with this phase is more common from destruction debris of the Old Tower than from foundation trenches of the new building. Debris from beneath the Hall floor contained much shell-tempered pottery and a sherd with rouletted decoration.

III [Excavator's phase Y; the building of the Great Kitchen]

Construction of the Old, or Great, Kitchen post-dates the levelling layers deposited after construction of the Hall. It therefore comes in the same stratigraphic phase as the stair and porch turret, which are probably slightly earlier than the Kitchen itself. A dump of chalk make-up beneath the Kitchen sealed a deposit of pottery in the intramural depression, and further groups were stratified in an early context above the original floor surface of the Kitchen.

Shell-tempered wares remain predominant at this period, accompanied by sand-tempered fabrics with isolated shell inclusions.

IV [Excavator's phase Z; levelling of the margins]

Structural associations are tenuous and interpretation remains tentative in this phase. However, the excavator has identified a characteristic group of pottery coming from contexts which are probably later than the Great Kitchen and stair turret. The stratigraphic sequence is not precisely defined, but the upper fill of the intramural depression, including a sealed pit south of the Old Kitchen, and the numerous patches of re-flooring within the Hall, are assigned to this phase.

The pottery assemblage is noted for the earliest known appearance of glazed wares within the Curtain, although one sherd, possibly related to Stamford Ware, is sealed beneath the first bridge.

V [Excavator's phase A; further accumulation and industrial activity]

Like the preceding phase, the stratigraphic sequence is not clearly defined, and there are no structural associations. Material which presumably represents a fairly long time span, comes from occupation layers north of the Hall. These are sealed by a layer of clay attributed to the excavator's phase C.

Although not related directly with the area north of the Hall a sealed midden is also attributed to this period because it overlapped the pit (assigned to the previous phase) south of the Old Kitchen.

Pottery from the midden is typical of other contemporary deposits, and sees the emergence of the characteristic 'soapy' surface texture of the later shell-tempered wares. Other types attributed to this phase include a sherd of Andenne-type pottery and a stabbed and grooved jug handle, possibly from mid-Surrey.

VI [Excavator's phase BB; fire in the Hall]

A fire in the Hall, which seems to have extended to all three cells of the building including the porch undercroft, was followed by thirteenth-century reconstruction. No deposits associated with this phase were found outside the building, but the floor level was raised by up to 1.0m inside the undercroft.

Construction of the New Kitchen probably took place at the same time. This provides a useful point of reference for subsequent phases.

VII [Excavator's phase B+C; ash deposits and subsequent sealing]

The wood-ash deposits north of the Hall are different in character from the destruction debris in the undercrofts, suggesting that the two are not associated. Furthermore, the charcoal outside the building is later than the New Kitchen. Interpreted as exhausted fuel from the New Kitchen, this layer contained large quantities of pottery and provides a well-stratified group sealed by an extensive capping of clay in the area between the Curtain and north wall of the Hall.

The majority of the shell-tempered fabrics associated with this phase have the characteristic 'soapy' surface texture. About half the cooking pots have flat bases, contrasting with the earlier

sagging profiles. A few abraded sherds of imitation Rouen pottery are the only regional imports represented in this phase. These are accompanied by increasing quantities of local sand-tempered and glazed wares. A very few sherds might be products of the Tyler Hill kilns.

VIII [Excavator's notional phase C; abandonment]

Occupation debris above the clay sealing north of the Hall was minimal, and the impression of abandonment is confirmed elsewhere on the site. As the excavator comments, the phase B layers were the first sealed deposits encountered as the excavation proceeded.

Historical sources suggest circumstances which might be equated with desertion of the reconstructed Hall. William de Eynsford VI is recorded as tenant in 1254, but is known to have died young leaving an infant son, William de Eynsford VII, who was also dead by 1261. In the words of the excavator,

'It is difficult not to associate this newly and finely refurbished house, so suddenly deserted, with the premature death of Willam VI, while his infant son passed into the Archbishop's wardship, himself to die in 1261' (Rigold 1971, 137).

If these arguments are accepted, then occupation of the Hall [excavator's phases Y, Z, A, BB, B and C] is confined to the period between construction in the late 1130s and the mid-thirteenth-century abandonment.

Moat sequences

Apart from the earliest phases, the only deposit identified both inside and outside the Curtain was the debris associated with dismantling in the early fourteenth century (see below). Intermediate stages at the Bridge and in other moat sections cannot therefore be related to the structural sequence established within the Curtain. Dating of deposits in the moat therefore relies on comparative study of the pottery. Nevertheless, a sequence - if not an internally dated one - can be established from the stratigraphy. This could be dated independently from the awaited results of dendrochronological tests on the bridge timbers. For the present purpose, therefore, the evidence should be considered in isolation without prejudice to pottery typology.

In the north-west ditch section the only intermediate deposit was silt within the moat, possibly accumulated owing to lack of maintenance during the period of abandonment.

At the bridge, however, there are at least two structural phases between construction of the gate tower (with first bridge) and the dismantling debris. The second bridge - or more correctly second phase 'reinforcements' - and the associated deposits overlie the primary silt layer. These layers may date, therefore, from shortly after the first structure. The third, and final, bridge with stone abutment walls, built on the demolition material from the preceding phase, is evidently much later. It is non-defensive in character and could even relate to a suggested period of royal custody during so-called 'abandonment' in the late thirteenth century. Dating at present relies on subjective judgements such as the rate of weathering of the abutment walls and comparison of the pottery: all that can be established for certain is that pottery associated with construction and use of the third bridge is sealed by early fourteenth-century demolition debris (see below).

IX [Excavator's phase D; demolition]

Historical sources show that on the death of William de Eynsford VII, the inheritance was divided between two co-heiresses of William de Eynsford V. By 1265 the castle had passed into royal custody as a result of baronial unrest. This equates with the archaeological evidence for abandonment.

The castle was ultimately sold to William Inge in 1307. His tenure, or that of Ralph de Sandwich from 1292, suggests a short period of re-occupation, abruptly terminated by demolition in 1312. This event is well documented: it is recorded that certain of William Inge's political opponents had broken down the doors and windows of his manor of Eynsford (among others), committed damage, and let loose his stock.

There can be little doubt that this is represented by the ubiquitous demolition debris found during the excavation. It therefore provides a valuable terminus ante quem for associated groups of pottery. Some of the material was probably brought to the site at the time of destruction, but historical sources suggest that finds attributed to this phase are likely to cover a maximum range of two decades before 1312.

A wide range of pottery types is represented, but in contrast to the earlier phases, the full shell-tempered sherds are badly eroded and are therefore presumably residual. The value of the group, however, lies primarily in the associated wares from a clearly

defined and internally dated context (Fig. 4.28). These include local reduced sand-tempered and 'shelly-sandy' wares; a few ?Tyler Hill jug sherds; mid- and west Surrey products; Saintonge polychrome ware; and a small baluster jug from the Low Countries.

X [Excavator's phase E; the 'patching up']

Limited structural repairs were evidently undertaken after the damage of 1312, but no related archaeological deposits were found within the Curtain.

In the north-west moat section, however, a compacted layer of flint and tile debris was found beneath refacing of the Curtain. Much of the material is evidently residual and is therefore indistinguishable from the preceding phase.

XI [Excavator's phase K; eighteenth-century hunting kennels]

An earlier account of the site records that this phase involved much building. Some traces were found in S.E. Rigold's excavations, including repairs to the Hall and Curtain.

Complete vessel profiles could not be reconstructed from pottery attributed to this phase.

5. POTTERS AND KILNS

5 POTTERS AND KILNS

5.1 INTRODUCTION

The location of medieval pottery manufacturing sites can probably be attributed to a wider range of factors than almost any other contemporary craft. Extractive and processing industries were linked with their raw materials, while craftsmen such as the village blacksmith were dependent on proximity to their customers. The potter on the other hand required a very specific combination of raw materials, but the fragility and low value of his products also necessitated cheap and efficient communication for the sale of his wares. Thus, the scale and organisation of production were determined principally by the level of demand and by the availability of resources.

Technological innovations such as the use of kilns or the introduction of the potters' wheel also represent a response to demand and the need for efficient use of labour. Diffusion of these innovations depends upon competition between potters to meet potential demand for finished products. Innovation also implies both the availability of capital - albeit small - for investment, and confidence that the demand is sufficient to justify this investment. Thus, the potter's decision to use an updraught kiln in preference to bonfire firing implies that the more rigorous requirements for selecting fuel and the limited capacity of the kiln are outweighed by the less intensive use of labour and by the better quality of the finished products.

The scale and organisation of pottery manufacture in medieval England are determined, in part at least, by regional and chronological variations in the settlement pattern (see Section 1.4). In Yorkshire, for example, Le Patourel (1965, fig 40) has distinguished between small scale production and the larger potteries with several kilns. Moorhouse (1978a, 4), however, reminds us of the complex factors, including the availability of land and tenurial history, which affect the size and location of potters' workshops. It is the task of the ceramic archaeologist, therefore, to define and explain the different modes of production within a social and economic framework.

Models or hypothetical production patterns can be used to assess the archaeological evidence. Redman and Myers (1981, 289-90)

have identified four patterns which would be applicable to different levels of medieval ceramic production at Qsar es-Seghir, Morocco:

- i) Unintensified household industry
- ii) Unintensified but specialist production
- iii) Moderately intensified (e.g. urban) production
- iv) Highly intensified (e.g. urban) industrialised production geared to export

The scheme proposed by Peacock (1981, 188-192; 1982, 8-10) for pottery manufacture in the Roman world, however, is of more general application. He, too, has identified four principal patterns:-

- i) Household production
- ii) Household industry
- iii) Workshop industry, embracing a wide range of both dispersed and nucleated workshops
- iv) Manufactory

Each of these modes of ceramic production can be identified with varying degrees of certainty in England during the post-Roman period. As in the Roman period, however, there are significant distinctions both in scale and location among the 'workshop industries' (see Section 5.5.2).

Evidence for the organisation of ceramic production is derived both from known workshops and from the examination of traded vessels. Ethnoarchaeology and studies of ceramic technology drawing on the technical expertise of practising potters provide significant insights into the organisation of production (Peacock 1982, 46-7; Nuttgens 1980; Bosworth 1982). Assessment of medieval ceramic production in South-East England begins, therefore, with the scale and organisation of the workshops and is followed by a consideration of the effects of raw materials and demand on the location of production. Evaluation of regional and chronological trends in repertoire and organisation concludes with a case study of the relationship between rural production and distribution in an area of the High Weald.

5.2 STATUS OF THE MEDIEVAL POTTER AND THE EVIDENCE FOR
SPECIALIST PRODUCTION

5.2.1 Household manufacture

It would be unusual in a market economy, when vessels of reasonable quality could be obtained cheaply from specialist producers, to find instances where pottery was made for individual household requirements. Indeed, ceramic research in towns such as Canterbury suggests that presumed household production within the city itself had been displaced by specialist craftsmen by the beginning of the late Saxon period (Mainman 1982, 99). In more remote areas such as the Weald, however, production on a domestic scale may have persisted among the scattered farming communities. Evidence is elusive, however, owing to the lack of late Saxon and early medieval pottery finds from the High Weald.

As we have seen (Section 1.4.1) the few sherds of middle Saxon pottery found at Millbrook, Maresfield suggest that vessels were probably carried into the area by pioneer Wealden ironworkers. On the other hand vegetable-tempered wares found at Buriton, Hants. were evidently made from a micaceous clay similar to that exploited by the medieval and post-medieval potters at Graffham and East Lavington, West Sussex. Although the clay has not been identified conclusively, the distinctive micaceous fabric does suggest that Wealden clay deposits were exploited for pottery-making during the Saxon period. This is an area where detailed comparison of Saxon pottery fabrics with clay samples, using methods similar to those adopted by Mainman at Canterbury, might provide a useful insight into the production of Saxon ceramics on the fringes of the Weald.

Among the pottery found in the High Weald, the few sherds probably of the twelfth century contain flint, which points to a distant and probably specialist production centre. Nevertheless, evidence from Rochester suggests that domestic manufacture was not unknown at this period. The presence of a possible cooking pot waster associated with the simple kiln used to fire loom weights suggests that a small quantity of pottery may also have been included among the firings (see Section 9.1.4, no. 233). It is impossible to ascertain whether the loom weights and pottery were intended for sale or for use on the tenement, but fabric analysis shows that at least some of the pottery used in Rochester at this time probably came from the same

source as the sandy wares represented at Canterbury (see Section 4.3.4). Thus the Rochester kiln is likely to be an example of small scale domestic production intended to supplement regular supplies from another source.

Casual needs may have been met in this way even in the thirteenth/fourteenth century and later, especially in remote areas. A crude miniature jug found at Church Farm, Smarden, Kent (see Section 10.2.3, no. 510), for example, does not reveal the craftsmanship expected of a professional potter. Likewise, the spindle whorl from Wanborough Manor, Surrey (see Section 10.2.4, no. 1727); the plumb-bob from Ansty near Cuckfield, West Sussex (see Section 10.2.6, no. 585); and the clay gaming piece(?) found at Bury, West Sussex (see Section 10.2.6, no. 31) all suggest casual rather than specialist manufacture.

Nevertheless, it can be misleading to draw conclusions from subjective judgements on the quality of the ceramics themselves rather than from the more reliable evidence of production sites. Small clay pellets found at Old Sarum, Wiltshire for example are assigned to the twelfth/thirteenth century and have splashes of green glaze (Salisbury Museum). Were it not for the specks of glaze these pellets might be attributed to casual manufacture, but the presence of glaze must surely place them among the products of a specialist centre. Likewise, pottery found in association with the post-medieval kiln at High Lankhurst, Westfield, East Sussex (see Section 9.1.6, no. 528) included a coarse hand-made handled vessel with a rough grass-marked surface. This vessel is definitely a waster because its fabric is similar to that of the other wares, yet had it been found in a different context this would probably have been identified as a casual and perhaps domestic product. Instead, it might have been made in an idle moment, or perhaps it represents the immortalised play of the potter's son or daughter.

In the absence of distinctively decorated wares, it may be difficult to distinguish between 'household production' and 'household industry' (Peacock 1981, 188; 1982, 13-23) reflected in the archaeological record. Indeed, neither of these modes of production is to be found on any scale in medieval England. Nevertheless, practical necessity or human enthusiasm are sometimes manifested among the curiosities of ceramic assemblages.

5.2.2 Specialist production

It is clear from documentary evidence, dating mainly from the thirteenth century onwards, that most medieval potters were specialist craftsmen who derived their living either from full-time potting or by combining pottery manufacture with agricultural or other activities. Assessments of craft specialisation before the thirteenth century, however, must rely primarily upon the archaeological evidence. Barton (1979, 9) has concluded from the variety of forms sizes and decorative motifs that early medieval wares ...

'... were not produced by potters seated unendingly at a wheel making pots as the whole source of their livelihood, but by potters, itinerant or resident, making vessels seasonally or as occasion demanded'.

The quantity of early medieval wares found at large towns such as Chichester, Canterbury and London, however, implies that the industries supplying urban demand were organised on a larger scale than Barton would lead us to believe.

There can be little doubt that by the eleventh century some towns in South-East England had specialist potters operating within what Peacock (1981, 189-191; 1982, 8-9; 31-43) describes as a 'workshop industry'. In many cases it is not clear, owing to imprecise stratigraphy and the problems of typological dating, whether excavated Saxo-Norman assemblages should be attributed to the period before or after the Conquest. Unlike East Anglia or parts of the West Midlands, groups of wasters are sparse in the region, and only at Chichester do archaeomagnetic dates for the late Saxon clamp kilns offer a means of calibrating the typological sequence (see Section 9.1.7, nos. 556 & 557). The number of pottery clamps now found at Chichester, combined with the technical competence of the wares, suggests that ceramic production in the town was on a commercial rather than domestic scale before the Conquest.

Similar characteristics are to be seen among the ceramics from other towns which have not yet yielded direct evidence for Saxo-Norman pottery manufacture. Rouletted decoration relying upon the use of a wheel once again implies specialist production, and, although the possibility of specialist rural workshops cannot be ruled out it is reasonable to infer that other Sussex towns such as Lewes and possibly Steyning supported their own potteries during the eleventh century, whether or not the craftsmen worked as full- or part-time potters. At Canterbury, too, technological uniformity attested by pottery found on excavations within the city implies the existence of a workshop to

meet demand from the urban population.

The generally mottled surface colours of Saxo-Norman pottery found in South-East England indicate that, as in the case of Chichester, most of these wares were fired in clamp kilns. It is not known, however, whether updraught kilns superseded the simple clamps at the same workshops or whether technological innovation accompanied the emergence of new production centres. Barton (1979, 9) has attributed technological change to immigrant craftsmen:

'It seems fairly certain that it was not until the second half of the thirteenth century that potters who lived solely by the craft moved into Sussex and settled in profitable, more heavily populated areas'

Le Patourel (1976, 173), however, has drawn attention to the chronological bias of the documentary evidence which perhaps gives a misleading impression of change in organisation during the thirteenth century, yet she also comments on the apparent absence of twelfth-century wares at many known kiln sites, which implies that these potteries were newly established. Certainly, few of the names or documentary sources can be traced earlier than the thirteenth century, and this might be due to circumstances other than mere survival of the records. The technological innovation of updraught kilns in South-East England, possibly during the late twelfth or thirteenth century, implies specialisation and at least seasonal investment of labour; this could account for the emergence of rural craft names.

On the other hand, archaeological evidence is accumulating to suggest that some production centres whose origins have been ascribed to the thirteenth century probably emerged somewhat earlier. This is crucial to an understanding of the shift from an apparently urban-based industry in the eleventh century to the predominantly rural workshops of specialist craftsmen in the thirteenth century (see Section 5.4). At Canterbury, for example, fabric analysis (see Section 4.3.4), accompanied by the subsequent discovery of wasters at Tyler Hill (Macpherson-Grant 1983), shows that pottery had been obtained from the same source in the mid-twelfth century as it was during the thirteenth and fourteenth centuries. Likewise, despite the difficulties of interpreting the data, it can be inferred from the radiocarbon dates for the kiln at Barnett's Mead, Ringmer that production may have begun in the twelfth rather than thirteenth century (see Section 9.1.6, no. 483). Moreover, the fabric of twelfth-century coarsewares found at Reigate appears similar to later products

of the Earlswood kiln, suggesting that here, too, production may have commenced before the thirteenth century (see Section 9.1.5, no. 366). An early origin for the production of London-type ware can also be inferred from the white-slipped redwares found in late twelfth-century contexts at Seal House on the Thames waterfront (Vince 1983, 333).

Independent evidence from several different areas in South-East England therefore demonstrates an earlier origin for production centres which were once thought to attest the emergence of specialist pottery manufacture in the thirteenth century. Thus, if there was a change during this period, it was a change of scale rather than of organisation. Indeed, the emergence of nucleated workshop industries in potting villages does appear to be an innovation of the thirteenth and fourteenth centuries. Ekwall (1933, 79), for example, stressed the implied specialisation of occupations at villages bearing craft place-names, and, as Le Patourel (1968, 124) has shown, many of the Potter- prefixes were acquired during this period.

5.2.3 Status of the potter in medieval and later society

Although he possessed the skills of a specialist craftsman, the potter was among the humblest members of medieval society. Practising potters who appear on the Lay Subsidy rolls were seldom taxed at more than 2s or 3s; many paid less than 1s; and there were probably others whom the assessors deemed too poor for liability to taxation (see Section 2.4.4). At Colchester, for example, the potter appears in the bottom 11% of taxpayers (Le Patourel 1968, 113) and therefore falls at the lower end of the industrial hierarchy (ibid. 1976, 173).

Seventeenth-century potters at Wrotham evidently possessed a degree of literacy because they inscribed initials in white slip on their wares (see Section 9.1.4, no. 272). Indeed, some English slipwares dating from before 1700 have simple inscriptions. It is doubtful, however, whether the medieval potter would have been capable of writing. Medieval jugs occasionally bear what are usually interpreted as batch marks - some inscribed before firing, others after - while there are also examples, such as a sherd from the Westgate Centre, Oxford (Oxford County Museum), which bear stamped letters. None of these marks, however, necessarily implies that the potter was literate.

Certain tile-makers on the other hand exhibit a superior degree of accomplishment on their products. Notable examples include

the fragments from inscribed tiles found at South Mimms Castle, Herts. which are attributed to the mid-twelfth century or earlier and which bear illegible yet recognisable lettering (Kent 1968). Other significant examples of the tiler's expertise are the arabic numerals and latin abbreviations used as assembly marks on the tile mosaic found at Warden Abbey, Bedfordshire (Drury 1981, 134). Both of these sites therefore attest the apparently superior intellect of the tile-maker compared with the potter.

Combined enterprises engaged in the production of both pottery and floor tiles are known in several parts of South-East England (see Section 9.4). It is unlikely in these instances, therefore, that there were significant contrasts in the social status of the potter and tile-maker. Indeed, the literate tile-maker was probably the exception rather than the rule. Moreover, it is important to distinguish between the commercial tileries of the fourteenth century and the work of probably itinerant tilers working under monastic patronage during the thirteenth century.

Nevertheless, the career of Thomas le Tighele in Surrey demonstrates how a man who was probably an entrepreneur could achieve the distinction of becoming one of the first two members of parliament for Farnham in 1309. Harvey (1975, 139) describes him as a 'man of considerable standing as carpenter, miller and contractor' and he believes that Thomas's surname can be attributed to ownership of the tilery near Farnham. Although he himself was no longer engaged in the craft, Thomas le Tighele may have inherited both his surname and the workshop from an ancestor who had made tiles. Thus, as in the case of hereditary 'potter' surnames, descendants of relatively humble craftsmen sometimes achieved higher social standing a generation or so later. As we have seen (Section 2.4.4), however, some of the urban 'potters' may have been metalworkers rather than earthenware makers.

There was certainly a significant difference between the status of a rural medieval potter and the immigrant craftsmen engaged in the production of exotic tin-glazed earthenwares and stonewares during the late sixteenth and seventeenth centuries. Indeed, it is during the post-medieval period that a fundamental distinction must be made between the urban manufactories and the rural workshops. Although often a freeholder, the status of a country potter during the seventeenth and eighteenth centuries was not unlike that of his medieval counterpart. Both tended to be engaged in pottery manufacture as a seasonal activity combined with farming.

5.2.4 Potter-farmers and other part-time potters in the medieval and post-medieval period

Few medieval rural craftsmen derived their livelihood from pursuit of specialist occupations alone. Most were engaged in farming as well. In woodland areas, activities such as charcoal burning were confined to specific seasons while on the marshlands sand-washing for salt making was a part-time summer occupation. Documentary sources attest the existence of medieval potter-farmers, and analogies with post-medieval practice offer more precise details of the relationship between potting and farming.

During the thirteenth century, the average landholding of a potter was between 1.5 and 5 acres (Le Patourel 1968, 106). The manufacture of earthenwares would be undertaken during slack periods in the agricultural cycle (Dyer 1982, 37) and potters generally owed light labour services leaving them free for either part- or full-time potting (Le Patourel 1968, 106). Indeed, the balance of time devoted to agriculture and to pottery manufacture may have been determined by the level of agricultural prices (*ibid.*, 115).

The precise boundaries of potters holdings have seldom been identified on the ground even at centres such as Tyler Hill, Kent (see Section 9.1.4, nos. 189-199) and Ringmer, East Sussex (see Section 9.1.6, nos. 483-501) where several kiln sites have been identified. Nevertheless, in the case of agglomerated workshops, agricultural holdings may have been situated some distance away from the kilns. As discussion of the methodology for interpreting documentary sources has shown (Section 2.4.3), the evidence from Kingsley, Hants. provides an unusual insight into the holdings of one Peter the Crockere whose barn and meadow were evidently situated on a small plot of land at Mowlands Farm, Frithend (see Section 9.1.3, no. 134). Judging from the description of his property, Peter was undoubtedly a potter-farmer, and in 1334 one Stephen the Crockere - probably another potter working in the same area - had pannage for four swine in the Alice Holt Forest (Lyne & Jefferies 1974, 46).

Further evidence for seasonal pottery manufacture during the medieval period can perhaps be deduced from fluctuations in the level of pottery imports. These may be related to seasonal production cycles on the Continent (Le Patourel 1983, 29). Consumer demand, however, could be met at any season either from stocks held by middlemen or, in the case of larger English production centres such as Kingston-upon-Thames, by stocks probably maintained at the workshop

(Le Patourel 1968, 119-20).

The likelihood of seasonal production should be taken into account when interpreting the archaeological evidence, especially for estimates concerning the life of a kiln or the output of a particular workshop. Small deposits of silt between layers of fired clay were noted during excavation of the Ship Lane kiln at Farnborough Hill, Hants. (see Section 9.1.3, no. 124). These certainly represent several different firings, possibly with a lapse of several months between each. On the other hand, as anyone who has excavated postholes on clay subsoils will confirm, a deposit of fine silt can result from a single downpour of rain. Estimates for the duration of production based on this type of stratigraphic evidence should therefore be treated with caution.

Orton (1982a, 81) has postulated a notional weekly firing for twenty weeks during each summer as a basis of his calculations for the output and fuel requirements of the late medieval kiln found at 15-23 High Street, Cheam (see Section 9.1.2, no. 84). Post-medieval documentation can be helpful in defining estimates such as these, and Baines (n.d., 3) records that clay for the High Halden potteries in Kent was dug in winter and then left to weather until May or June. 'Stomping' of the clay was undertaken at the end of September after the harvest had been gathered. Comparable details recorded by Sturt (1919) also provide a useful insight into the relationship between the potting and farming activities of William Smith who worked at Farnborough, Hants. during the first half of the nineteenth century. However, not all post-medieval craftsmen described as a 'potter' were necessarily makers of earthenware. William Becket of Manthorpe, near Grantham, Lincs. for example made a living principally from farming, but in the inventory of his goods dated 1722 he was also described as a 'potter' because he had a shop containing a stock of 'potts and glasses' worth £2 (White 1979, 290).

There is little direct documentary evidence from which to identify the seasonal activities of medieval potters, but details of kiln construction and firing are sometimes recorded in the accounts relating to estate tileries. At Boxley, Kent, for example, tile-makers were employed from 8th August to 1st November (VCH Kent 1932, 393). Tile manufacture would probably have been coordinated with specific building operations, but, as with pottery production, the winter would certainly have been a time for digging clay rather than for making or firing the tiles.

In addition to the evidence for potter-farmers during the medieval and post-medieval period it seems that pottery manufacture was associated with ironworking on at least one sixteenth-century site in the High Weald. The evidence from Lower Parrock, Hartfield, East Sussex is particularly convincing because the pottery bears stylistic marks attributable to the same region from which immigrant ironworkers are believed to have originated (see Section 9.1.6, no. 443). It is not clear, however, whether the ironworkers themselves made pottery or whether one of the other immigrants was a potter who set up his workshop in the same area.

There are few instances in England where pottery production has been recorded in such close proximity to other industrial sites (see Section 9.2.2). Pottery production and glass manufacture took place on the same site at Newent, Glos. during the seventeenth century, but analysis of the finds demonstrates that there was a gap of about thirty years between use of the glasshouse in the late sixteenth/early seventeenth century and the beginning of the pottery in the last quarter of the seventeenth century (Vince 1977b, 28). At Lower Parrock, however, the ironworking and pottery production both appear to have taken place during the early sixteenth century. There may be a similar relationship between potters and ironworkers at Worth, West Sussex (see Section 9.1.7, no. 532) and possible wasters have been identified at Little Forge, Buxted (see Section 9.1.6, no. 397). It would be premature to describe the apparent connection between potters and ironworkers as a Wealden phenomenon but ceramics from post-medieval ironworking sites in the Weald should certainly be scrutinised carefully in future for the identification of similar wasters.

5.3 RAW MATERIALS AND THE LOCATION OF PRODUCTION

5.3.1 Land and the availability of resources

Although the position selected for a kiln is unlikely to have resulted from entirely rational decisions, the medieval potter would undoubtedly have had an extensive knowledge of potential raw materials and prospective customers. Availability of fuel, clay and water would have been the most important requirements, but the precise position of a kiln must have been determined by the availability of land.

Potters needed only small plots for their workshops and it may be significant, therefore, that Little Potmans near Crock Kiln Wood at Waldron, East Sussex, was described in 1675 as 'half an acre of assart land' (ESRO: 8AS RF 2/11: see Section 9.1.6, no. 522). As we have seen (Section 2.4.5), pot- and crock- place-names are more likely to be associated with pottery manufacture when they occur in conjunction with the words 'End' or 'Green' which often denote medieval encroachments on waste land (Roberts 1977, 171). Potters frequently established themselves on small pieces of assart land.

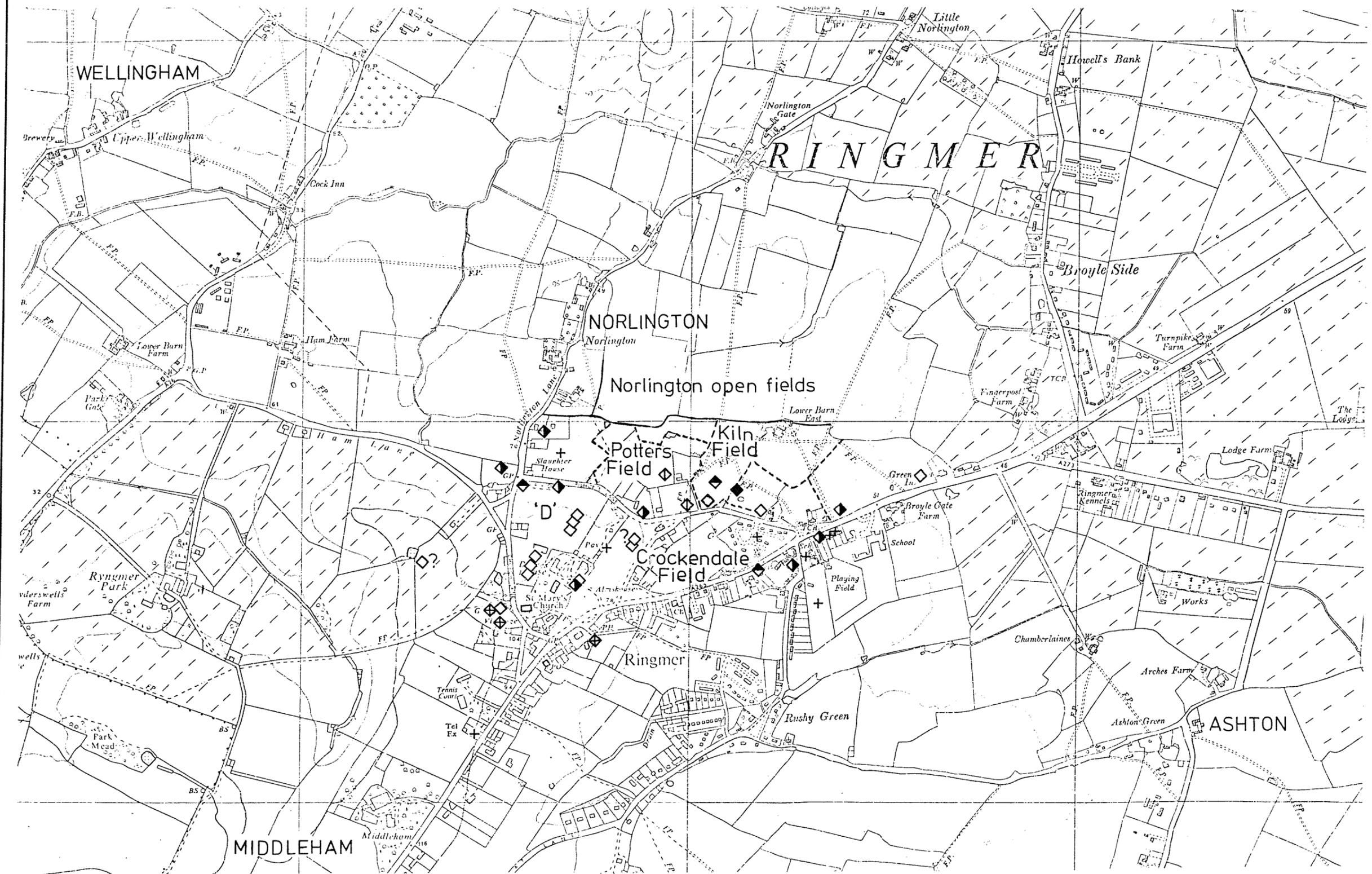
The holdings of a potter by the name of Alexander of Navestock in Essex were described in the thirteenth century as 'de vetero assarto' (Le Patourel 1968, 106). In the light of evidence suggesting an early origin for medieval pottery manufacture at Ringmer, it can be inferred that here, too, the potters may have been active in primary colonisation on the fringes of the waste at Norlington, Middleham and Ashton (Fig. 5.1; see Section 9.1.6, nos. 483-501). This emphasizes the problems of dating kilns in relation to medieval land use: if production had begun at Ringmer in the mid-thirteenth century it is unlikely that the potters would have been engaged in assarting, but if pottery manufacture commenced in the twelfth century then the land may have been cleared partly for this purpose.

Potters were not alone among craftsmen occupying assart land. The thirteenth-century Customal of Drungewick Manor in Sussex, for example, records that:

'Isabel, widow of John Pays ... holds a certain plot of land on which the smithy formerly stood, which plot was formerly taken out of the lord's wood there' (Peckham 1925, 70).

In addition to plots for their workshops, potters also needed access

POTTERS, TILERS AND THE MEDIEVAL LANDSCAPE AT RINGMER, East Sussex



- | | | | | |
|-----------------------|------------------------|---|-----------------------|------------------------------------|
| POTTERY KILNS: | ◆ Dense waster scatter | ◆ Possible kilns identified by C.E. Knight-Farr | TILE KILNS: | ◆ Probable and possible tile kilns |
| ◆ Excavated structure | ◆ Probable kiln sites | + Possible wasters (as above) | ◆ Excavated structure | |
| 'D': Delves Field | | | | |

Fig. 5.1 Potters, tilers and the medieval landscape at Ringmer, East Sussex

to land for digging clay and gathering fuel. Field-names such as Potterscroft or Wellcroft often indicate the sources of clay used for pottery manufacture (Le Patourel 1968, 114), but it is sometimes difficult to distinguish these names from those which denote the site of a workshop (see Section 2.4.5). Extraction of clay and the collection of fuel would have been regulated by the lord of the manor, and it is therefore significant that the few documentary references to medieval potters are frequently associated either with those who had taken raw materials unlawfully, or with the payment of rents for legitimate use of clay or fuel (Le Patourel 1968, 113).

Clay pits, like the workshops, were often situated on assart land. In 1650, for example, holdings at Duddleswell, East Sussex included

'peeces of assart lands called Clay-pitts of six acres'
(Hills 1906, 119).

The clay was not necessarily used for making pottery, but this does emphasize that clay pits were usually dug on the least valuable land. A lease for Sharneden Manor at Mayfield, East Sussex, however, contained a more specific reference to potting clay in the surrender dated 1681. The lease included:

'Right to cut down trees, dig, mine iron ore, take loads of marl and earth and make bricks, tiles and earthenwares'
(ESRO: DYK 683)

Likewise, right was claimed at Alciston in 1577:

'... to dig clay, earth and chalk as other farmers have done for making brick, tile and lime' (ESRO: G16/14).

These post-medieval examples are equivalent to the rents paid by medieval potters for rights to obtain fuel and raw materials on the lord's land.

The agglomeration of workshops at centres such as Ringmer, East Sussex (see Section 9.1.6, nos. 483-501), Limpsfield, Surrey (see Section 9.1.5, nos. 338-346) and Tyler Hill at Hackington, Kent (see Section 9.1.4, nos. 189-199) invites speculation about the extent to which these industries grew spontaneously or whether they resulted from seigneurial initiative. Few potting villages in South-East England have been examined intensively enough to identify spatial trends in the location of medieval kilns. At Ringmer, however, pottery has been found at a number of sites in the village, but there is an apparent concentration near the southern boundary of the former Norlington open fields (Fig. 5.1). This might imply a degree of

manorial regulation, but an alternative geological explanation of the pattern could be sought in the outcrops of Weald Clay at this point.

Clearly a larger sample of waster distributions is needed from several different centres before it would be possible to ascertain whether the plots occupied by medieval potters were determined by the underlying geology or whether they exhibit signs of overall planning. Production centres at Tyler Hill and Ringmer are particularly interesting in this respect not only because of the number of sites which are known already but also because - in theory at least - there is scope for identifying spatial trends within a chronological framework spanning a period of three centuries or more. Fieldwalking and topographical research of the kind now being undertaken at Tyler Hill (Tatton-Brown 1983) offers some hope of being able to answer these important questions concerning the location of potters' holdings.

In addition to the availability of fuel and raw materials, competition for land would have determined regional patterns of ceramic production as well as the microtopography of potting settlements. An explanation for the concentration of known and inferred medieval potteries on the fringes of the Weald should therefore be sought not only in the underlying geology but also in the availability of low value land and supplies of fuel. In purely economic terms it would be more efficient to transport clay rather than completed pots, yet the traditional waste-edge location of many rural medieval potteries reflects the low value of the potter's wares and hence his inability to compete for land and for fuel supplies near the more prosperous markets which he served.

The highest levels of medieval wealth in South-East England were in east Kent and south-west Sussex (Glasscock 1965, fig 2). These areas were served by potters whose activities were linked closely with the urban markets at Canterbury and Chichester (see Section 5.4.2). Elsewhere in the region, however, few rural medieval potteries have been identified in areas of good agricultural land. Light fertile soils do not of course coincide with outcrops of potting clay and woodland fuel resources, but potters exploiting the narrow Reading Beds deposits in south-west Sussex would have been well placed to serve consumers living on the fertile coastal plain. For other craftsmen, however, the three principal requirements for rural pottery manufacture - clay, fuel and low-value land - would have been fulfilled by the clay subsoils on the fringes of the Weald.

5.3.2 Clay sources

Economic geology and sources of potting clay are considered elsewhere in their regional context (see Sections 1.3.2 and 5.3.6). In some areas, however, there is more specific evidence concerning the location and duration of particular clay pits. Many of these small seams have been worked out long ago (Moorhouse 1981, 96).

Post-medieval documentation is especially instructive. At Hastings, for example, clay for making redwares at the Silverhill pottery was obtained from a field on the site of Vale Road, while white clay for chimney pots was brought from Forty Acre Field on St. Helen's Down (Baines 1980, 76). These beds may also have been the source of the white-firing clay used for making some of the High Lankhurst wares in the late sixteenth or early seventeenth century (see Section 9.1.6, nos. 449 and 528). Clearly, in this instance, the clay had not been worked out, but several cases are recorded in the nineteenth and early twentieth century when potteries either closed or moved away owing to exhaustion of their clay pits. Closure of the High Halden potteries in Kent is attributed to a lack of suitable potting clay (see Section 9.1.4, nos 206-209), and similar unrecorded circumstances may account for the demise of some medieval production centres.

Specific references to medieval clay sources are infrequent. Hurst (1961, 220-1), however, cites details of an enquiry into the activities of one Alice Fraunceys in 1370 who committed acts of waste and destruction at Northolt including digging up and selling two acres of land and pottery clay. At Ringmer, too, clay rents attest a specific source of potting clay in the Broyle (Fig. 5.1; see Section 9.1.6, no. 496). Recorded clay rents at Graffham, West Sussex, however, do not indicate the source of the clay (see Section 9.1.7, no. 579), and in the majority of cases the location of medieval clay pits can only be deduced from archaeological and topographical evidence. Excavations at Ringmer, however, demonstrate the difficulties of dating clay pits even when they are found in close proximity to medieval workshops: some may relate to subsequent use of the area for post-medieval brick- and tile-making.

A combination of archaeological and documentary evidence offers a useful insight into the use of raw materials obtained from the Reading Beds and London Clay in Surrey and on the Hampshire/Surrey border. Like the other white-ware industries in the area, clay for the late medieval Cheam wares was undoubtedly obtained from the

Reading Beds. It cannot be assumed, however, that red-firing clay for the later wares definitely came from the London Clay. As Orton (1982a, 78) has pointed out, seams of red clay occur in the Reading Beds about 2-300 metres away, compared with outcrops of the London Clay some 500 metres from the kiln. The potters may have preferred the nearer of these two sources.

Conclusions such as this can only be drawn from the detailed investigation of individual industries. Specific raw materials likely to have been used by medieval potters in South-East England are therefore discussed in the gazetteer of production centres (Section 9.1). Documentary evidence, however, attests a regional rather than local significance for the clay pits at Farnham Park in both the medieval and post-medieval periods.

Sales of potting clay from the park are first mentioned in the Bishop of Winchester's accounts during the episcopacy of Aylmer Valence (Robo 1935, 217). Receipts for clay fluctuated from year to year but the account rolls ascribe the loss of revenue in 1349 and subsequent years to a lack of buyers. Nevertheless, the claypits were still being used in the sixteenth century, and in 1603, the park keeper, Robert Aston, paid 20s for 120 cart loads of white clay (Holling 1969a, 19). A change to the manufacture of red earthenwares in the area during the eighteenth century, however, implies that extraction of the diminishing resources of white clay had probably become uneconomic. Even in the 1890s, however, small quantities of white clay were obtained from the park for the manufacture of Farnham wares at the Wrecclesham Pottery.

5.3.3 Transport of raw materials

There is no evidence so far that clay, rather than the finished vessels, was transported on to the chalk lands, but white-firing clay from the Reading Beds in Surrey does seem to have been used by potters from some distance away, both in the medieval and later periods. Supplies of fuel were probably more important than close proximity to clay pits in determining the location of kilns in the Hampshire/Surrey border industry. There were pockets of clay on Cove Common, but in the nineteenth century, William Smith obtained most of his requirements from Farnham (Sturt 1919, 56; see Section 9.1.3, no. 126). At this period the clay would have been used for making redwares, but the white clay used by earlier potters at Farnborough was probably obtained from the same place.

Medieval potters at Kingston-upon-Thames also produced distinctive white wares, but the nearest outcrop of suitable clay would have been at least 9 km. (5 miles) away at Cheam (Hinton 1980, 380). Thus, the Kingston potters probably found it more convenient to fetch clay from a distance rather than to carry their finished products to the urban market. The potteries at Cheam, however, may represent an off-shoot of the Kingston industry, in which case the potter(s) might have moved nearer to the source of their clay in the fourteenth century (see Section 9.1.2, nos. 25-32 and nos. 82-87).

Other post-medieval potters whose workshops were situated away from the source of their raw materials included those at Ash (see Section 9.1.5, nos. 277-280), Cove (see Section 9.1.2, nos. 107-109), Hawley (see Section 9.1.2, no. 130) and Pirbright (see Section 9.1.5, nos. 357-8), while in the medieval period, Farnham would have been the nearest source of white-firing clay for the jugs represented among products of the Binsted (Bentley) pottery in Hampshire (see Section 9.1.2, no. 103).

Sturt (1919, 70) records that William Smith of Farnborough transported his clay by cart, and the name 'Claycart Road' at Aldershot attests the regular journeys made by potters in the area (Holling 1971a, 57). Red clay for the Frensham wares was obtained from the estate of Mr Payne at Tongham (Manning & Bray 1815, iii, 167). Indeed, 'Potters Lane' at Send, Surrey, leads southwards for a distance of some 3 km. from 'Cartbridge' towards the outcrop of Reading Beds at West Clandon (see Section 9.1.5, no. 373). Carts were used for carrying clay to the Battle Abbey tilery during the fifteenth century (Searle & Ross 1967, 130; 136) and place-names such as 'Crokkerwey' at Pirbright, also recorded in the fifteenth century, imply that potters probably travelled regularly along specific routes.

White clay used for decoration as opposed to potting was sometimes transported over even greater distances than those inferred for the Hampshire/Surrey border potteries. Several of the medieval redware jugs from the kiln at Earlswood, Surrey are covered with white slip. In the absence of local outcrops of white-firing clay, the material seems to have been obtained from the Reading Beds some 15 km. (10 miles) further north and was probably carried along a trackway known in places as Potters Lane (Turner 1974a, 51; see Section 9.1.5, nos. 366 and 284). Reading Beds clay might also have been used for the white slip decoration on the distinctive type of medieval jug apparently made in the London area. Nevertheless, the potters could

have obtained sufficient clay for decorating their wares from other minor and now unknown sources, even if these would have been inadequate for making the pots themselves. It may be significant, therefore, that a small plaque made of pipe clay was found with the late fifteenth-/ early sixteenth-century redware wasters from Kingston (Nelson 1981, 101; see Section 9.1.2, no. 27). This was possibly made from the same materials as those used to decorate some of the vessels.

On at least one occasion in the fourteenth century, the tile-makers at Otterbourne, Hants are known to have transported clay over a distance of 60 km. (36 miles) from Farnham to their kilns (see Section 9.4.3, no. 27). Presumably this was white clay used to decorate the tiles. Journeys such as these were probably the exception rather than the rule during the middle ages. Nevertheless, white clay used for decorating the distinctive white-banded chimney pots made at Fareham, Hants. during the nineteenth century was obtained from Farnham Park until c.1840; thereafter pipe clay was probably carried by sea from Poole (Brears 1971a, 186).

Unlike the medieval potteries and country workshops of the post-medieval period, the manufacture of tin-glazed earthenwares starting in the late sixteenth century relied upon non-local clays. In addition to their proximity to a major urban market, the London potters probably occupied sites near the Thames so that their raw materials could be carried by boat (see Section 9.1.2). Two other possible centres of tin-glazed earthenware manufacture in the region at Maidstone and Sandwich were also situated near navigable water (see Section 9.1.4, nos. 216 and 237).

Fuel, as well as clay, would have been imported for these manufactories and, even in rural areas, the transport of fuel would have required a substantial investment of labour. Lead would also be needed for glazed earthenwares, and in the nineteenth century this was brought from London in loads of two tons at a time to William Smith's pottery at Farnborough, Hants. (Sturt 1919, 73). Medieval potters used glazes more sparingly than those on lustrous nineteenth-century earthenwares. Nevertheless, like the gathering of fuel, even small supplies of lead would have had to be collected, perhaps from craftsmen associated with the building industry.

5.3.4 Fuel supplies

Estimates based on the capacity of the late medieval kiln found at 15-23 High Street, Cheam indicate that between 3.5 and 4.5

tons of wood fuel were probably consumed during each firing (Orton 1982a, M13). Smaller medieval kilns would have required considerably less, but these figures show that, even compared with clay and the finished product, fuel would have been the most bulky item requiring transport. Thus, the sites of certain medieval kilns at Limpsfield, Surrey, which are situated on sandy clays unsuitable for pottery making, may have been chosen because they were close to supplies of underwood, rather than on account of the subsoil (see Section 9.1.5, no. 340).

Wood was the principal fuel used in medieval updraught kilns in South-East England, but few excavations have yielded precise information about the proportion of different species represented among charcoal deposits. Bryant and Steane (1971, 38) identified oak, hawthorn, hazel and maple at Lyveden, Northants., and oak followed by beech were the predominant species in samples from Barnett's Mead, Ringmer, East Sussex (see Section 9.1.6, no. 483).

Turves were probably used in construction of the Roman kilns at Alice Holt (Lyne & Jefferies 1979, 12) and they were burned on small fires in the drying sheds of William Smith's pottery at Farnborough, Hants. (Sturt 1919, 73). A fuel such as peat would have burned more slowly than wood, and both experimental firings and documented post-medieval practices (Baines n.d. 9) suggest that brushwood offered the most effective means of rapidly attaining the firing temperatures necessary for the production of medieval and later earthenwares. Nevertheless, in a region such as the Surrey heathlands, it is possible that turves would have been used to supplement underwood as a means of maintaining an even temperature. In the nineteenth century, turves were ready for cutting after 5 or 6 years and Commoners at places such as Frimley and Cove obtained turves in midsummer for use on their winter fires.

It would be difficult to determine from archaeological evidence alone whether turf was ever used as a fuel for pottery kilns in the Hampshire/Surrey border area or elsewhere in South-East England, especially since even if it were possible to identify traces of turf it might have been used for covering the kiln rather than in firing. The absence of debris from wood-burning on an excavated kiln site does not necessarily imply the use of an alternative fuel, because - as Lyne and Jefferies (1979, 13) have suggested - the charcoal may have been sold off as a by-product of pottery manufacture. Nevertheless, Le Patourel (1968, 117-9) cites convincing

documentary evidence for the use of turves as a fuel for pottery kilns in parts of Eastern England, and in view of the costs of transport, it is reasonable to infer that potters would have exploited local resources wherever possible. Turves probably achieved greater significance as a fuel when there was a shortage of underwood.

5.3.5 Regional variations in the choice of temper

Like the choice of fuel, the selection of temper for addition to the clay used by medieval potters was determined by local resources. Sand-tempered wares predominate throughout South-East England after c.1300, but there are marked regional variations among the early medieval fabrics. Groups identified here are defined more precisely in Section 12.1 using the results of thin-section analysis.

Chalk-tempered fabrics (Group Ai) occur among the late Saxon and early medieval wares at Chichester (Down 1978, 341-352) and in parts of West Sussex as far east as Steyning (Freke 1979g, 141-2 no. 6). Fabrics containing flint and a small amount of shell are predominant in the coastal region of Sussex before the mid-thirteenth century (Group Gi), but, unlike the shell-tempered wares of Kent and Surrey, shell occurring in the Sussex fabrics was probably introduced as a constituent of beach material rather than as a deliberately selected temper. Further inland, some sherds from the motte at Lodsworth, West Sussex, contain fragments of siltstone (Holden 1967) and a Saxo-Norman sherd from Peppering, Burpham, West Sussex has similar inclusions (Group Ji).

In the heart of the High Weald around Ashdown Forest, however, isolated sherds of pottery dating from earlier than the mid-thirteenth century generally contain flint which indicates an origin outside the area (Streeten 1979a, 117). Coarse flint-tempered fabrics are well represented among the twelfth- and early thirteenth-century wares from Glottenham, at Mountfield, East Sussex (Martin 1972, 13), and flint-filled fabrics have been found at Huggetts Farm, High Hurstwood, Buxted, also in East Sussex. Unlike pottery from towns in the coastal region, however, flint-tempered fabrics found in the Weald do not contain the specks of shell which are diagnostic of beach material. Indeed, only isolated sherds of this ware are represented among the finds from Battle Abbey (Streeten forthcoming a).

Thus, early medieval wares in Sussex reflect the potters' selection of local raw materials. In the absence of wasters from production centres in the High Weald, however, it is not known how far

inland the flint was carried as a raw material rather than as the temper in a traded vessel. Sites in the Kent/Sussex border area would have been furthest from potteries situated near sources of flint on the fringes of the Weald. Flint-tempered wares have not been found at Bayham Abbey (Streeten 1983a, 94), but the monastic community was established on this site at just the time when flint-tempered fabrics were being superseded by sandy wares. It remains uncertain, therefore, whether the evidence from Bayham is of geographical or chronological significance.

Despite the underlying geological similarities between areas on the north and south sides of the Weald, these are not reflected in ceramic uniformity. Flint-tempered fabrics do occur early in the ceramic sequence at Croydon (Drewett 1974), but shelly wares are predominant in Kent and most parts of Surrey before c.1300, and these types persisted later in some areas. A small number of medieval flint-tempered sherds are represented among the pottery from Pitt-Rivers's excavations at Caesar's Camp, Folkestone, but these fabrics seldom occur in east Kent where pottery of the eleventh and twelfth centuries belongs generally to the shell- or sand-tempered traditions.

A distinction between the micaceous shelly wares of east Kent and their non-micaceous counterparts in the western half of the county and in Surrey (Streeten forthcoming c) implies that at least two clay sources were exploited, doubtless at several different locations. Marine shells - as opposed to fossil shell beds which do not seem to have been exploited for pottery making on a large scale in South-East England - would probably have been obtained from the north Kent coast, but they may have been transported to production centres inland. The thirteenth-century wasters from Potters Corner, Ashford on the eastern edge of the Weald, for example, include shell-/sand-tempered wares similar to those which were traded quite extensively in this part of the region. Likewise, the earlier shell-tempered wares occur over such a wide area that these, too, must have been made at several different potteries using shell obtained from further afield.

Of all the potter's raw materials, including clay, fuel and even perhaps the lead and copper used for glazes, the temper could be transported most easily. Thus, the inclusions in pottery fabrics do not themselves offer conclusive evidence for the source of particular wares. Nevertheless, it is clear that the potters favoured different fillers in different areas. During the period before the fourteenth

century when sand-tempered wares became ubiquitous, these regional contrasts were related to the availability of resources but not exclusively to solid geology.

5.3.6 Raw materials and the location of production: a regional perspective

When assessing the relationship between the availability of raw materials and the location of potters' workshops, it is instructive to compare the evidence for medieval pottery production in south-east Surrey and south-west Sussex, on the north and south sides of the Weald respectively. Figs. 5.2 and 5.3 show archaeological and documentary evidence for medieval pottery manufacture in these areas, together with a selection of the personal names and place-names which are likely to be associated with pottery production. The information included on the maps is reviewed in detail in the gazetteers of production sites (Sections 9.1.5 and 9.1.7).

These two areas illustrate the 'mirror image' of solid geology on the north and south sides of the Wealden anticline. In each case there are known medieval potteries on the clay subsoils of the Low Weald. Interpretation of certain personal names and place-names in Surrey remains uncertain, but they occur repeatedly in areas where the geology is favourable for pottery production. Likewise, geology attests the significance of pot- and crook- surnames noted at Coldwaltham, West Sussex during the thirteenth century.

As one would expect pot- and crook- place-names have not been found on the chalk lands. However, they do occur on the outcrops of tertiary clay which are known to have been exploited by medieval potters in both Surrey and Sussex. The Surrey white ware industries situated on or near the Reading Beds have their counterparts in West Sussex where the Binsted potters made vessels in a pale-coloured fabric and where the London Clay at Chichester was exploited for pottery manufacture during the Saxo-Norman, medieval and post-medieval periods.

These two sample areas in Surrey and West Sussex illustrate wider trends within the region and beyond. Several potteries and tileries in Kent and East Sussex attest the influence of geology on the location of ceramic production in the Low Weald. Workshops situated on the Reading Beds and London Clay also form part of a series of sites at which these raw materials were exploited in a zone extending through Hampshire as far west as Laverstock in Wiltshire.

Fig. 5.2 Surrey. Clay sources and medieval pottery production

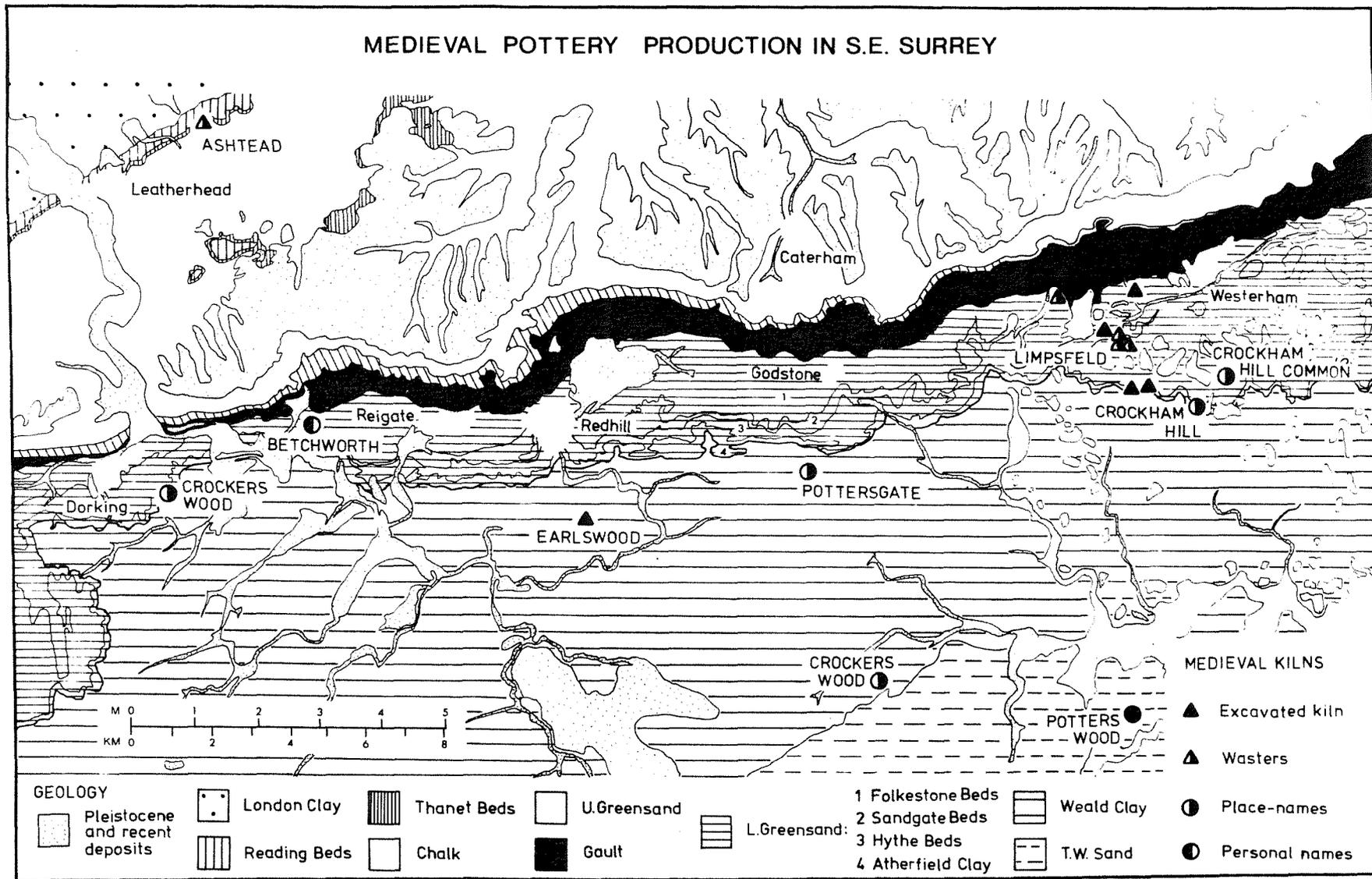
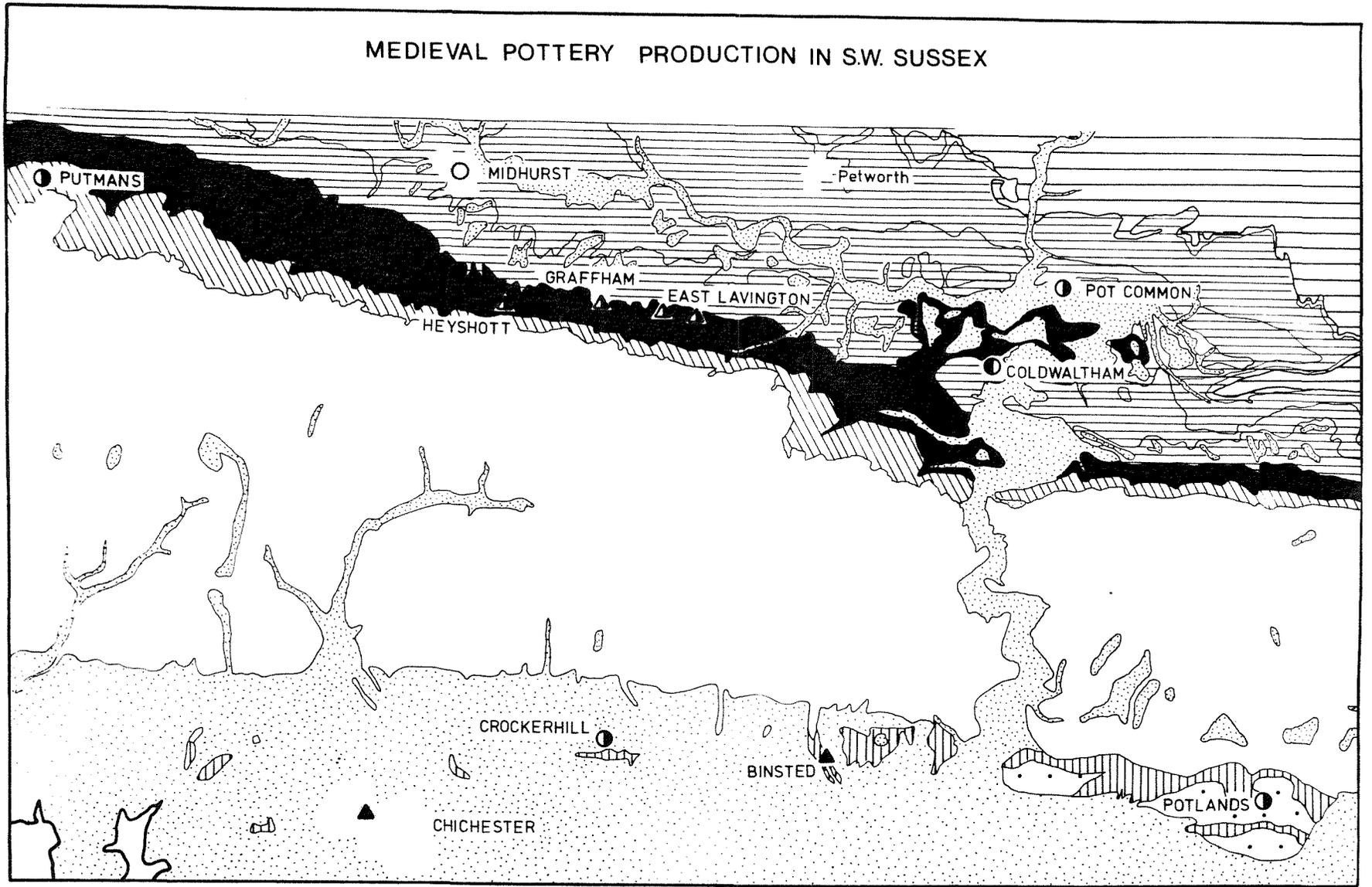


Fig. 5.3 Sussex. Clay sources and medieval pottery production



5.4 CONSUMERS AND THE LOCATION OF PRODUCTION

5.4.1 Kilns and settlement

As well as the requirements of fuel and clay, both the location and scale of pottery manufacture would have been related to the customers served by the industry. Some medieval potters in the region, such as those at Chichester and Kingston-upon-Thames, had their workshops on the fringes of a town; others like those at Ringmer were centred on a village, while a few workshops such as the Abbot's Wood kiln occupied remote rural positions. By c.1350, however, none of the known kilns would have been further than 10 km (6 miles) from a market.

The spatial relationship between kilns and markets can be classified in a variety of ways:

- i) Proximity of the workshop to settlements or markets of a certain size.
- ii) Distance over which the potter would need to travel in order to sell his wares at a given number of different markets.
- iii) Number of markets within a specified distance of the kiln.
- iv) Shape and size of the theoretical market area which could be supplied by a potter travelling to weekly markets within a specified distance of the kiln.

Methods of marketing will be discussed in Section 6.2, but the distance between a kiln and the nearest surviving medieval church provides a convenient means of showing whether a potter worked near a settlement or in a more remote part of the countryside. When this figure is plotted on a graph against the distance between the kiln and the nearest contemporary market, it is possible to identify those workshops which had probably been established to serve a particular market (Fig. 5.4). Kilns which are less than 2 km (1½ miles) from a neighbouring kiln of similar date have been grouped together as an 'industry' and in this case mean distances have been plotted on the graph (Fig. 5.4: A). Thus the Limpsfield kilns in Surrey are regarded as a group but the potteries at Binsted and Kingsley in Hampshire are treated as separate enterprises.

Despite these somewhat arbitrary definitions, a significant pattern emerges, and there is a striking contrast between the thirteenth-/fourteenth-century industries and those of the sixteenth

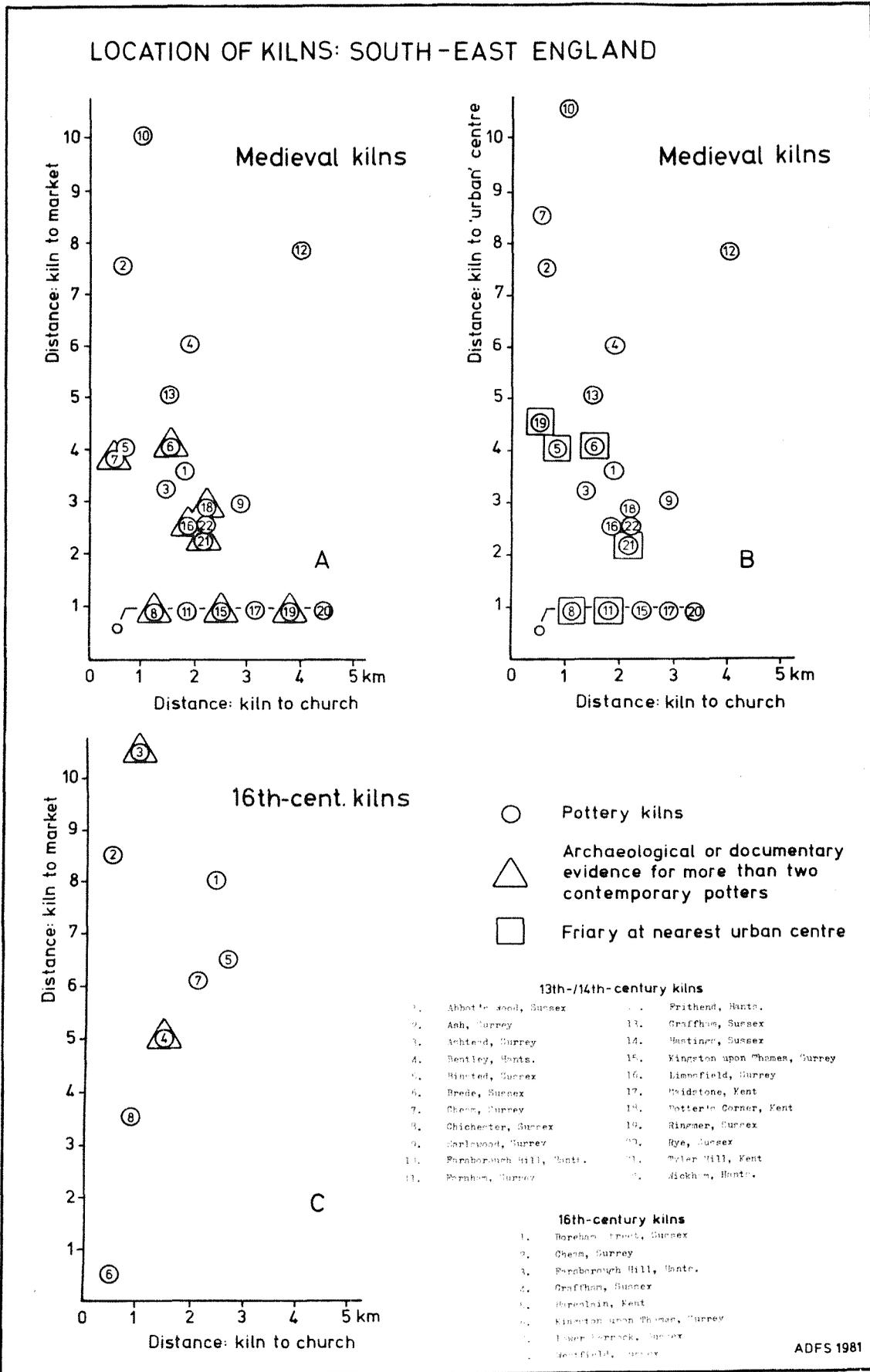


Fig. 5.4 South-East England. Spatial relationship of medieval and early post-medieval kilns to contemporary markets and settlements

century (Fig. 5.4: A & C). A clearly defined group of medieval kilns was sited within 0.5 km ($\frac{1}{4}$ mile) of a market; apart from Ringmer, these were all urban markets. The majority of thirteenth-/fourteenth-century kilns, however, cluster at 2-5 km ($1\frac{1}{4}$ - 3 miles) from the nearest market and at 1 - 3 km ($\frac{1}{2}$ - 2 miles) from the nearest church (Fig. 5.4: A). The pattern is little altered even when village and 'failed' markets are excluded from the analysis because in most cases kilns were within 5 km (3 miles) of an urban centre (see Section 1.5.1) which was sometimes large enough to possess a friary (Fig. 5.4: B).

In the Hampshire/Surrey border area, however, there are significantly fewer recorded medieval markets than in some other parts of the region, and distances from the rural kilns are correspondingly greater. The contrasting geographical relationship between kilns and weekly markets here compared with elsewhere in South-East England may reflect different methods of marketing intended to supply more than purely local needs. Surrey white wares certainly form a significant part of the medieval ceramic assemblages found in London (Orton 1982b).

5.4.2 Potters and the major urban markets

Among the potters' workshops situated in close proximity to a medieval market there are some whose location implies a significant connection with the major urban centres. As we have seen (Section 5.2.2) urban-based pottery manufacture is attested at Chichester during the eleventh century and there is evidence for urban potteries both at Chichester and elsewhere during the thirteenth and fourteenth centuries (see Section 5.4.3). Rural locations with access to land, fuel and raw materials, however, were sometimes chosen within the immediate hinterland of a large town. Archaeological discoveries at Ringmer near Lewes and at Tyler Hill near Canterbury show that the scale of production was evidently affected by the size of the potential market. Customers would include not only the population of the town itself but also those living within the rural hinterland.

A similar, yet less clear, connection can be inferred between the medieval potter(s) at Earlswood and the urban market at Reigate. Moreover, it may be significant that production was already established by the twelfth century, certainly at Tyler Hill, probably at Ringmer and possibly at Earlswood. These old-established industries were probably established closer to urban markets than the

newly-founded workshops of the thirteenth and fourteenth centuries, such as those of the Hampshire/Surrey border area and those at places such as Brede and Streat, East Sussex or Limpsfield, Surrey. The range of London area wares (Vince 1983, 333) also implies an old-established industry serving a major urban market and its hinterland.

5.4.3 Urban potteries

Eleventh-century clamp kilns have been found within the walled area of the former Roman town at Chichester, and excavations at Rochester have shown that there was a twelfth-century kiln used for firing loom weights and possibly pottery within the town. These two early examples, however, are exceptions to the general rule that most of the medieval and later potteries situated within towns in South-East England occupied suburban locations.

Owing to the disagreeable fumes from their kilns, medieval potters and other similar craftsmen often shared industrial zones away from the residential areas. The 1291 rent roll at Winchelsea, for example, records that the tanneries lay outside the walls of the town (Homan 1940, 66-68). Elsewhere, crafts which carried the risk of fire were confined to a specific industrial quarter. At Gloucester, for instance, waste from pottery manufacture and glass-making has been found on the same site (Vince 1981, 318). The Saxo-Norman potters at Ipswich and Norwich congregated in a specific part of the town, but at Thetford and Stamford the known kilns occupied more scattered locations (Kilmurry 1980, 151). This contrast may reflect a greater demand for land in those towns where the craftsmen were confined to their own industrial areas.

Fig. 5.5 shows the position of medieval and later potteries in relation to the topography of three towns in South-East England. Medieval wasters have also been found at Southwark, but the precise location of the kiln is not known (see Section 9.1.2, no. 67). Unlike the Saxo-Norman kilns, most of the thirteenth-century workshops at Chichester were situated on the edge of the town. As with some of the urban potteries in the Low Countries (Janssen 1983, 127), craftsmen working adjacent to the city walls would have had to move when the defensive circuit was expanded. Thus the Chichester potters may have been among those whose houses would have been cleared back from the new line of the city ditch in 1378, although the forms represented at the Orchard Street kiln suggest that production in this part of the town is likely to have ceased before then (see Section 9.1.7, no. 551).

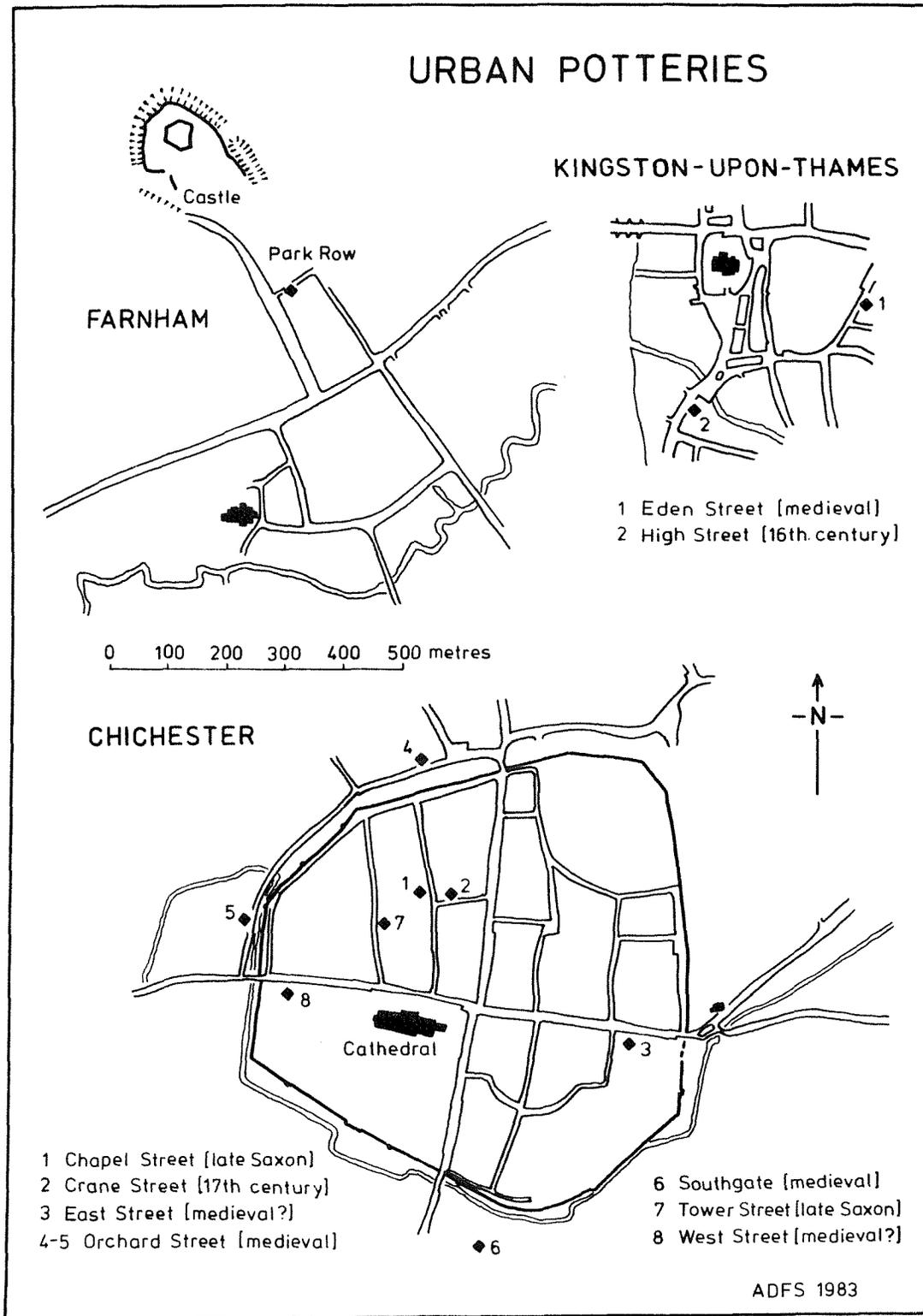


Fig. 5.5 South-East England. Urban potteries. Maps showing the location of kilns in relation to medieval town plans

Neither Farnham nor Kingston-upon-Thames possessed urban defences, but here, too, the potteries were situated on the edge of the town (Fig. 5.5). The land occupied by medieval potters at Kingston was isolated from the market place by an area of marshy ground to the west of Heathen Street (Hinton 1980, 377). Moreover, workshops emitting disagreeable fumes may have been encouraged to occupy land on the east side of the town in view of the prevailing westerly winds. Potters and metalworkers at Salisbury were also confined to an industrial quarter on the east side of the new town (Hinton 1977a, 155), but at Chichester the Orchard Street kilns are to the west. Nuisance from fumes and the risk of fire would have been minimal when the potters' workshops were situated well away from the town as at Rye (Fig. 5.6).

Street names are not necessarily a reliable guide to the location of pottery manufacture in relation to urban topography, because - unless there is specific archaeological or documentary evidence - there is seldom a clear distinction between the names of streets occupied by the makers and sellers of earthenware (see Section 2.4.5). Harvey (1975, 137) has stressed the rarity of urban potteries during the medieval period, but, while they certainly remain the exception rather than the rule, there is evidence for late medieval pottery manufacture at a growing number of towns (Hinton 1977a, 204). These include Carlisle, Chester, York (Dyer 1982, 37) and Warwick (Wilson & Hurst 1968, 210) together with Northampton where the sunken area known as Potters Field, which was possibly exploited as a source of clay, might indicate late medieval pottery manufacture comparable with the industries at Doncaster and Nottingham (McCarthy & Williams 1978). Likewise, the occupation of 'pottery payntour' recorded at Canterbury in 1430 implies the probable existence of a specialist workshop in the town (see Section 9.1.4, no. 171).

The emergence of fine-textured red earthenwares in the London area during the late fifteenth century was accompanied by an apparent change in the location of potters' workshops. The only conclusive evidence for continuity of production is at Cheam which had been an important centre of white ware manufacture during the fourteenth and fifteenth centuries. The medieval Kingston white wares, however, are appreciably earlier than the redware wasters found in the High Street, and discoveries so far do not indicate continuity of the industry. Indeed, the urban location chosen by the late medieval potters at Kingston-upon-Thames is typical of the riverside

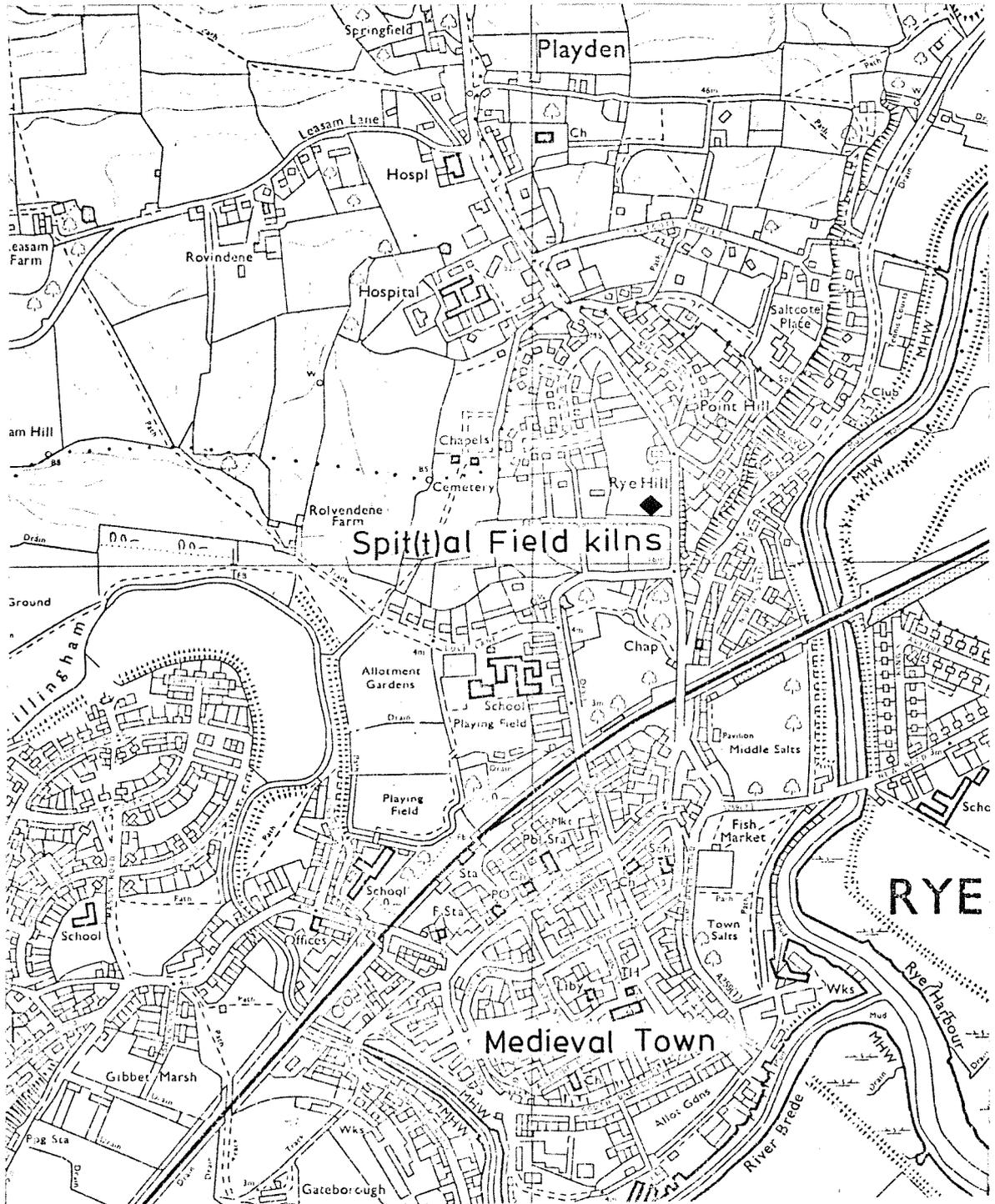


Fig. 5.6 Rye. Map showing the location of the kilns in relation to the medieval town

sites from which red earthenwares were supplied for the London area market until the seventeenth century.

The manufacture of tin-glazed earthenware from the sixteenth century onwards also took place in the towns, notably at Southwark and Lambeth but also apparently at Sandwich and possibly at Maidstone, too. As in the medieval period, however, post-medieval earthenwares were generally supplied from country workshops, although urban potters are known at Chichester in the seventeenth century and at Dorking in the eighteenth century.

Fire remained a hazard in the seventeenth century, and the parish registers at Bourne, Lincolnshire, describe the damage caused by a fire started by careless potters in 1637 (Brears 1971a, 193). Fumes, too, were a perennial problem and in 1749 complaint was made about foul odours in the market place at Bolsover, Derbyshire arising from the nearby pottery kilns (ibid., 173). Indeed, even in the twentieth century, the demise of pottery manufacture at Uckfield, East Sussex came only with the introduction of smoke abatement legislation (Baines 1980, 172).

Urban potteries have benefitted from intensive demand for the products and from the potential interest of middlemen in marketing the wares. Nevertheless, potters and townsfolk have seldom made good neighbours!

5.4.4 Rural workshops

The expansion of rural potteries from the twelfth century onwards, and especially during the thirteenth and fourteenth centuries, represents a response to the increased demand within a prosperous market economy (Le Patourel 1968, 122). As we have seen (Section 1.5.2), the proliferation of rural workshops is part of a more general expansion in rural marketing during this period.

Among the medieval potteries in South-East England, rural industries appear to have emerged during the thirteenth/fourteenth century in the Hampshire/Surrey border area; at Potters Corner, Ashford, Kent; at Limpsfield, Surrey; at Brede and Streat in East Sussex, and at Binsted in West Sussex. Neither historical sources nor the archaeological evidence offers information to provide a definitive interpretation of the chronology, but so far these centres have certainly not yielded any evidence of twelfth-century or earlier production. At Graffham, West Sussex, however, a possible early origin for the industry in this area might be inferred from the

archaic terminology 'pottersgavel' (see Section 2.4.3). Thus, it will be apparent that, in order to identify general trends in the organisation of medieval pottery production, it is necessary to investigate thoroughly the evidence for the duration of known ceramic industries in the region (see Section 9.1).

With the exception of the urban workshops described in Section 5.4.3, demand for earthenwares during the sixteenth and seventeenth centuries was met principally from rural potteries. Indeed, Fig. 5.4 shows that several of the sixteenth-century workshops were even situated some distance away from the nearest village. Owing to the decline of many former rural markets, distances to the nearest market were also appreciably greater during the sixteenth century than they had been during the medieval period.

Despite similar rural locations, however, it is clear that there were different scales and methods of specialist production during both the medieval and post-medieval periods. These will be considered in the next section.

5.5 THE ORGANISATION OF SPECIALIST PRODUCTION

5.5.1 Itinerant craftsmen

Some rural Saxo-Norman kilns in East Anglia have been interpreted as evidence of temporary workshops possibly set up by itinerant potters (Wade 1976, 115; Rogerson & Adams 1978, 43). Unlike the distinctive stamps used by a medieval tile-maker, however, the traits of manufacture found on utilitarian earthenwares are seldom sufficiently distinctive to enable the identification of vessels made by an individual itinerant potter. Archaeological evidence for this mode of production is therefore more likely to be derived from the discovery of isolated groups of wasters than from detailed examination of pottery forms.

Rural demand for pottery in parts of South-East England during the twelfth century and earlier may have been met by itinerant craftsmen, but examples of their kilns have yet to be identified. With the expansion of rural potteries during the thirteenth and fourteenth centuries, however, the presence of itinerant craftsmen seems less likely. Moreover, to judge from post-medieval analogy, craftsmen may have migrated between permanent workshops, often taking their tools (and their styles?) with them (Sturt 1919, 73). In these cases, it would surely be difficult, using ceramic traits alone, to distinguish between an itinerant craftsman and one who had merely moved to a different workshop. For these reasons, therefore, the evidence for itinerant potters in South-East England during the medieval period remains elusive.

By the sixteenth and seventeenth centuries, however, it is clear that some craftsmen were engaged in the construction and repair of iron furnaces. Like the man who repaired the potters' kilns in north-east Hampshire during the nineteenth century (Sturt 1919, 91-2), these craftsmen must have moved on from job to job. In 1566, for example, one Collman was paid

'... for worke done by him at Robertsbridge in tillinge and daubinge' (Crossley 1975b, 208).

At the Conster ironworks in the 1680s, however, the craftsmen employed for daubing were identified specifically as potters (ESRO: Frewin MSS; ex. inf. C.Whittick), but even these may have been local men who were not always employed away from their workshop.

5.5.2 Workshop industries

Most medieval potters - whether working full- or part-time - would have derived a substantial part of their income from ceramic production. The majority of medieval potteries in South-East England can therefore be classified within the range of dispersed and nucleated workshop industries described by Peacock (1982, 9).

There are few cases where medieval pottery kilns have been found in complete isolation. Fieldwork following the initial discovery of a kiln or wasters has usually yielded evidence of additional production sites in the area. Examples of this include Potters Corner, Ashford, Kent; Brede, East Sussex; and Binsted and East Lavington in West Sussex. Field-names, too, can help with identifying other workshops in a village (see Section 2.4.5) and the evidence from Playden, East Sussex may therefore indicate that the kilns found at Spittal Field, Rye belong to a larger complex of workshops outside the town. Unless there is firm documentary evidence or unless a good range of datable forms is represented among the wasters, however, it is seldom possible to prove conclusively that the known production sites are contemporary. Indeed a single workshop moved to a new site each generation might be indistinguishable in the archaeological record from the evidence left by a community of contemporary potters.

In a few instances, however, fieldwork has confirmed the likely identification of isolated workshops, notably at Binsted and Kingsley in Hampshire. The latter can be equated with the holdings of a potter-farmer, from which it is perhaps reasonable to make a more general assumption that isolated workshops found on small parcels of agricultural land are likely to represent this mode of production. It cannot be assumed, however, that all isolated finds represent small production sites. At Abbot's Wood, Arlington, for example, wasters found in the mid-1960s may belong to an isolated workshop, but the fieldwork needed to establish the case conclusively cannot yet be undertaken owing to dense coniferous plantations in the area. Likewise, interpretation of the workshop found at Streat, East Sussex must await further fieldwork in the area around Marchant's Farm.

During the sixteenth century, however, the evidence from Lower Parrock, Boreham Street, and Hareplain suggests that small, possibly short-lived, enterprises were established in the Weald. It is tempting to equate the coincidence of distinctive rim-forms and types of handle noted at Lower Parrock with the work of two different

craftsmen, but statistical analysis shows that treatment of the handles was related to the form of the pot (Freke & Craddock 1980, 17). The range and quality of the wares, which includes items of distilling apparatus (Freke & Craddock 1979, 106 fig. 17 no. 115; S.Moorhouse, pers. comm.) implies that the workshop at Lower Parrock represents what may be an unusual type of small-scale workshop industry from which inhabitants of the surrounding rural area could have obtained not only their everyday household utensils but also certain more specialised and highly decorated wares.

5.5.3 Potting villages

While some medieval potters may have worked either singly or in pairs, there is clear evidence that production was undertaken on a much larger scale in certain places. Nevertheless, the extent to which this represents an 'industrial' organisation, as opposed to a conglomeration of individual enterprises, remains uncertain. The presence of a manufactory would imply that the potters shared their responsibilities at each stage of production, ranging from preparation of the raw materials to distribution of the finished commodity. Even if documentary references to clay rents or specific orders for earthenware vessels can be linked with a particular potter, there is seldom a direct indication to determine whether he was working on his own or in conjunction with other potters at the same place.

A combination of historical and archaeological evidence can help to identify those centres where the scale and perhaps organisation of medieval pottery manufacture was different from that found among the smaller workshop industries. Criteria for the identification of larger centres can be summarised as follows:

- i Personal names or specific documentary references indicating that more than two potters were active at one place during the same period.
- ii Potter- prefix added to the name of a village in contemporary documents.
- iii Documentary references to specific orders sent to the potter himself (rather than to a middleman) for a larger number of vessels than could be produced by a single potter working on his own.
- iv Archaeological evidence for the existence of several contemporary kilns or workshops in close proximity to one another.

- v Standardised forms and fabrics associated with different kilns at the same place. Production might sometimes include ceramic building materials as well as pottery vessels.
- vi Monopoly over local markets, reflected in the archaeological record by ubiquitous distribution of a particular ware over a specified area. This may be linked with the hinterland of a nearby town.
- vii Middlemen possibly involved in marketing. Archaeological evidence might include extended distributions, and 'peaks' in the decreasing quantity of pottery sold at greater distances from the kiln.
- viii Continuous pottery manufacture at a particular place lasting over several generations and sometimes for many centuries.

None of these characteristics need necessarily imply a centralised organisation and more than one interpretation can be placed upon much of the archaeological evidence. In practice, for example, it would be difficult to distinguish the effects of deliberate standardisation of forms and fabrics from stylistic influences and methods passed between the potters, and from requirements dictated by the raw materials. Establishing the existence and precise contemporaneity of different enterprises from the archaeological evidence alone would also require very extensive excavation, and it would be necessary to obtain a range of absolute dates from scientific analysis of several kilns. Despite these limitations, however, the combination of historical and archaeological evidence does provide a basis for distinguishing larger potting communities from isolated craftsmen and domestic manufacture.

Several of the criteria for identification of potting villages are fulfilled by medieval ceramic industries at Tyler Hill, Limpsfield, Ringmer, Brede and perhaps Cheam and Graffham/East Lavington. To these can be added the urban production centres at Kingston-upon-Thames and Chichester where several broadly contemporary kilns have been identified. The organisation of production at these places, however, is less clear. Nevertheless, the extensive market area served by the Tyler Hill potteries might imply a co-operative distribution network possibly served by middlemen.

Post-medieval documentation, however, serves as a caution against placing undue economic emphasis on the geographical nucleation

of potters' workshops. As Peacock (1982, 38) has observed, William Smith's pottery at Farnborough in the nineteenth century formed part of a nucleated industry, yet the account of his business (Sturt 1919) shows little evidence of contact with other potters apart from specialist craftsmen such as kiln repairers. Indeed, far from forming part of a co-operative organisation, potteries set up in close proximity to one another could become bitter rivals (Baines 1980, 104-117; 1981, 81-88). Even in the case of the High Halden potteries, where there were family connections between the two workshops, each appears to have operated independently. Thus, Vince (1977, 18) sees the seventeenth-century Newent potters working individually in their cottages, probably in much the same way that the makers' initials on Wrotham slipwares imply the potters' desire to retain their individual identities if only possibly for the mundane purpose of separating their wares in co-operative firings. Nucleated rural workshops were therefore quite different from the manufactories in the London area which were engaged in the mass production of tin-glazed earthenwares and stonewares.

5.5.4 Entrepreneurs

Viability of these sixteenth- and seventeenth-century manufactories depended upon the investment of an entrepreneur. In the medieval period, however, it is difficult to assess from the scattered archaeological and documentary sources the extent to which nucleated workshop industries owed their stimulus to entrepreneurial intervention.

Lyne and Jefferies (1974, 44) have suggested that a landowner named John Drokensford may have encouraged potters to work on his property during the early fourteenth century, but unfortunately this interpretation must be discounted because of the doubtful place-name evidence upon which it is based (see Section 9.1.3, no. 104). A more likely indication of entrepreneurial activity can be deduced at Woodstock, Oxon. where in 1279 one Agnes Simber rented a kiln for 1d per annum (Le Patourel 1968, 109). The scale of the rent suggests that this may simply refer to normal manorial dues, but it could be inferred that the lord of the manor possessed pottery kilns which he rented out to his tenants. Such arrangements could offer a partial explanation for the emergence of potting villages.

The intervention of entrepreneurs may also account for kiln sites in unexpected locations such as Crane Street, Chichester. This

urban site is certainly unusual in the region during the seventeenth century and Down (1981a, 211) has suggested that potting may have been a short-lived enterprise encouraged by the landowner.

5.5.5 Contracts

Although the majority of medieval earthenwares would have been made and then sold either at the workshop itself, through markets or by itinerant salesmen, it is clear that seigneurial households and religious houses might also commission craftsmen to meet their specific requirements.

At Battle Abbey, for example, the Cellarers' Accounts record payments in 1275 for 'making dishes and cups' and in 1278-9 for 'making and mending pots' (Searle & Ross 1967; 42; 45). These were probably metal vessels, but the phrase 'making', as opposed to 'buying' which was used in connection with the purchase of 50 dishes in 1275 (*ibid.*, 42), implies that the craftsmen were working to order. Even more convincing evidence comes from Leeds Priory where medieval craftsmen were commissioned for turning (wooden) platters, cups and salt cellars (Dalton 1957, 404).

Such commissions would usually have been met by nearby workshops, and in the nineteenth century William Smith would mark his vessels for the waggoner to deliver the right pots to those in London who had ordered them (Sturt 1919, 80). Nevertheless, the case of a pot-maker (not necessarily an earthenware potter) at Canterbury in 1276, who received food as remuneration for his work (Urry 1967, 157), implies a somewhat different mode of production. It is important, therefore, that evidence for ceramic production within the precinct of a religious house should be scrutinised carefully. At Rochester, however, contrary to the excavator's interpretation, the kiln in which loom weights were fired evidently belongs in an urban rather than monastic context. Assessment of the supposed evidence for pottery manufacture at Lewes Priory must await publication of the excavation report.

The manufacture of purpose-made accoustic jars, such as those at Leeds Church in Kent (Morris 1878), may also have been undertaken to order. Like the domestic requirements of a religious house, these commissions would probably have been met by a nearby potter. Nevertheless, the possibility that accoustic jars would have been fired in a temporary kiln at the church cannot be ruled out. Although accoustic jars have not been found at Heyshott in West

Sussex, this might conceivably offer an explanation for the anomalous location of a pottery kiln under the west tower of the church (see Section 9.1.7, no. 587).

Sometimes, therefore, the unusual location of a kiln or a distinctive product such as an armorial jug can offer exceptions to the rule that medieval ceramics were normally produced for a general market.

5.6 POTTERY MANUFACTURE: THE WORKSHOP, KILN AND CERAMIC TECHNOLOGY

5.6.1 Potters' workshops

There is little evidence from excavation to indicate the layout of medieval potters' workshops in South-East England. The only sites in the region where systematic excavation has extended appreciably beyond the kilns themselves are at Vicars Haw, Limpsfield and Lower Parrock, Hartfield (see Sections 9.1.6, no. 443 and 9.1.5, no. 344).

Bryant and Steane (1971, 29) have demonstrated from their work at Lyveden, Northants. that different areas of a potter's toft would be used for specific functions. Indeed the allocation of land at Lyveden remained the same throughout the life of the industry. Principal requirements in the workshop would be an area for storage and preparation of the raw materials including both the clay and fuel; a shelter for the wheel and for subsequent stages in manufacture of the vessels such as decoration and glazing; space for drying the completed vessels; a site for the kiln; a store for the output awaiting sale, and space for dumping the wasters.

The position of the kiln would have determined the location of certain other parts of the workshop. The waster heap, for example, might be near the kiln to avoid the burden of carrying the waste material away. Conversely the drying sheds would not be situated too close to the intense heat of the kiln in case the vessels dried out too quickly from their leather-hard state. Moreover, it would also be necessary to ensure that ash from the kiln did not contaminate the potting clay which had been prepared. It would have been important to keep the fuel and pots dry. Thus, Bosworth (1982, 43) has questioned the identification of drains found on so many kiln sites, including Lower Parrock and Tyler Hill. Nevertheless, it is difficult to envisage other possible functions for these features and, even in summer, potters' workshops situated on clay subsoils must have become awash after a sudden downpour of rain.

The logical requirements of a potter's workshop cast doubt upon certain aspects of the suggested reconstruction of the Vicar's Haw complex at Limpsfield (see Section 9.1.6, no. 344). Clearly, there is a need for more extensive excavations than have been undertaken hitherto. One of the most significant questions to which an answer should be sought is the location of potters' accommodation.

Moorhouse (1981, 105) has commented on the lack of domestic buildings associated with production sites, implying that medieval potters may have lived away from their workshops. These comments are echoed by Peacock (1982, 74) for the Roman period. At Kingsley, Hants., however, there can be little doubt that the Frithend potter lived close to his farm and kiln. While excavation of a complex of nucleated workshops such as those at Ringmer or Tyler Hill would help to elucidate the relationship between different craftsmen in a potting village, there would be much to commend investigation of a smaller rural site such as Kingsley where there might be a better chance of identifying different elements in the layout of the workshop.

5.6.2 Kiln technology

Apart from the late Saxon clamp kilns at Tower Street, Chichester and the twelfth century kiln containing loom weights at Eastgate, Rochester, known medieval pottery kilns in South-East England are of updraught type with one or more flues. Plans of published examples are reproduced at a uniform scale on Figs. 5.7 - 5.9.

Early examples tend to be smaller than the later ones. Judging from the associated tripod and spouted pitchers, the Southgate kiln at Chichester is unlikely to be later than the first half of the thirteenth century. This and the probable twelfth-century kiln at Barnett's Mead, Ringmer are among the smallest kilns recorded in the region. The Southgate structure had one flue, but the Barnett's Mead kiln was of the more usual double-flue type without a central pedestal (Fig. 5.7). The latter is similar to the slightly larger structures inferred from antiquarian descriptions of the kilns discovered at Moorhouse and Lakestreet Green in Limpsfield. The Scearn Bank kiln at Limpsfield, however, appears to have had only one flue, and its size is comparable with that at Southgate, Chichester (Fig. 5.8).

A variant on the double-flue pottery kiln was the addition of a central pedestal intended to support a raised floor. Pedestals were either solid or split by one or more air channels. Solid pedestals occur at Limpsfield (Fig. 5.8), Cheam and Farnborough Hill as well as in the late sixteenth-/early seventeenth-century kiln at High Lankhurst, Westfield (Fig. 5.9). Examples of double-flue kilns with split pedestals occur in the thirteenth century at Orchard Street, Chichester (Fig. 5.7) and in the fifteenth century at 15-23 High Street, Cheam (Fig. 5.9).

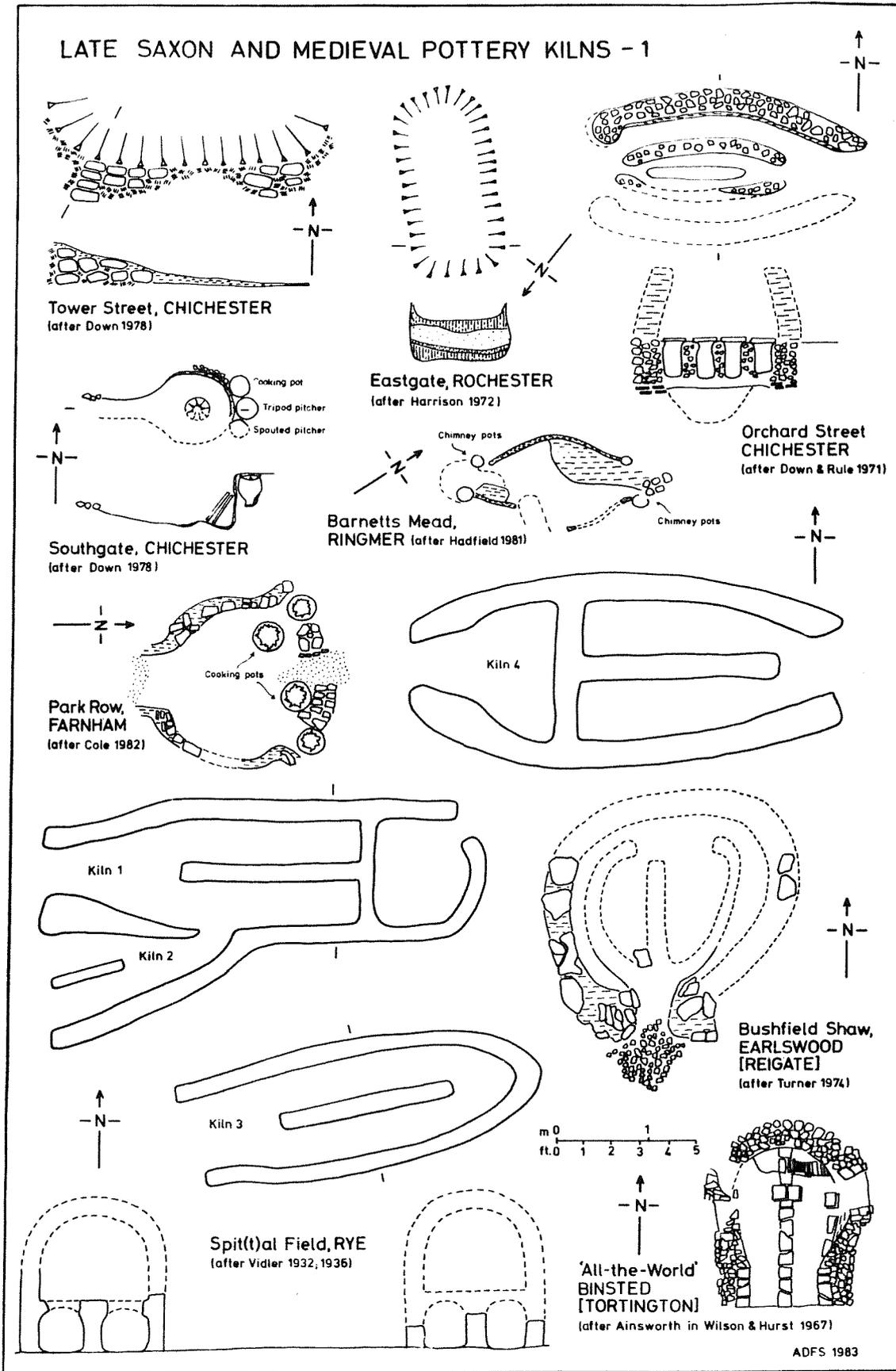
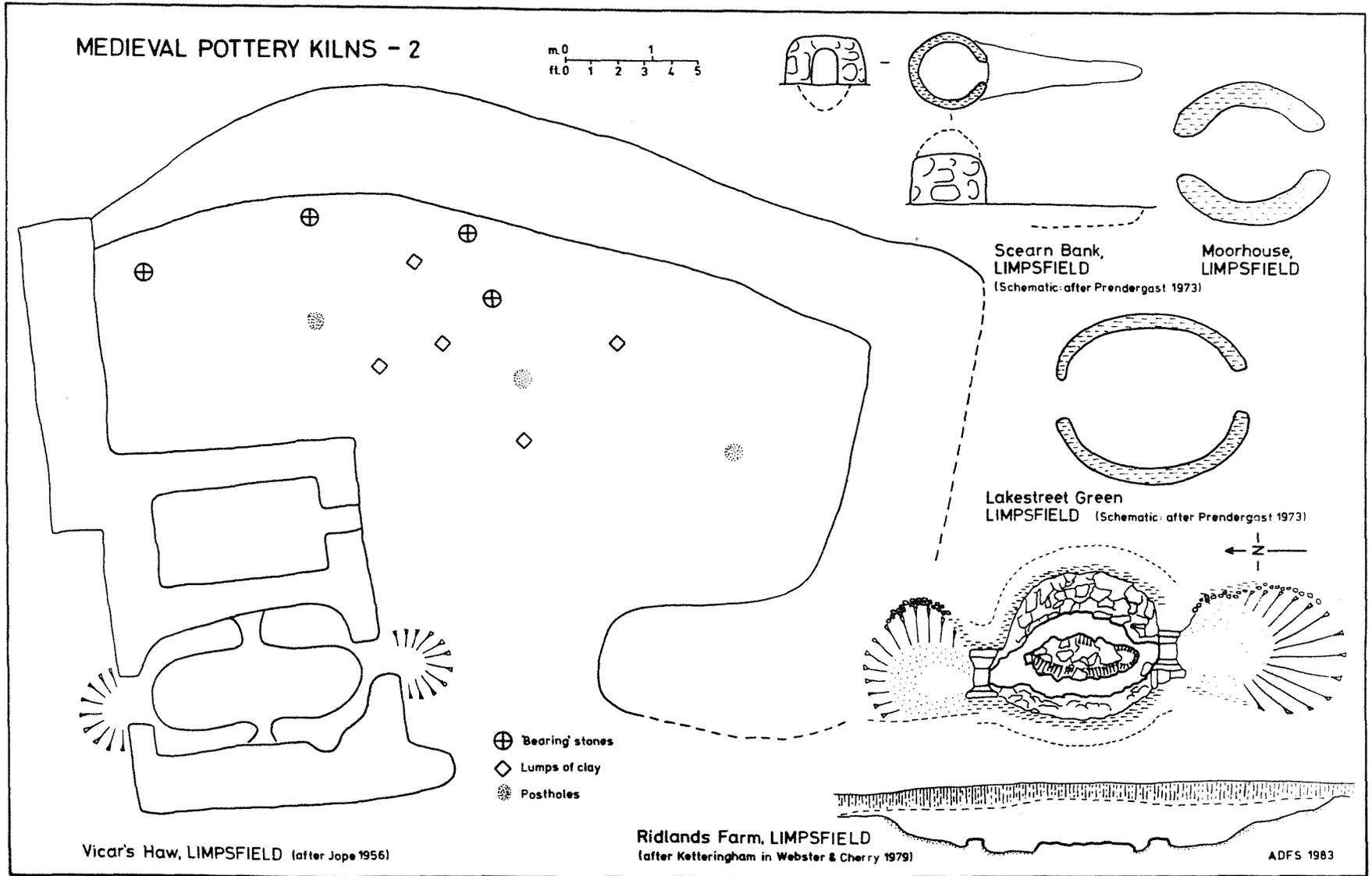


Fig. 5.7 Late Saxon and medieval pottery kilns in South-East England (1)



Fig. 5.8 Medieval pottery kilns in South-East England (2)



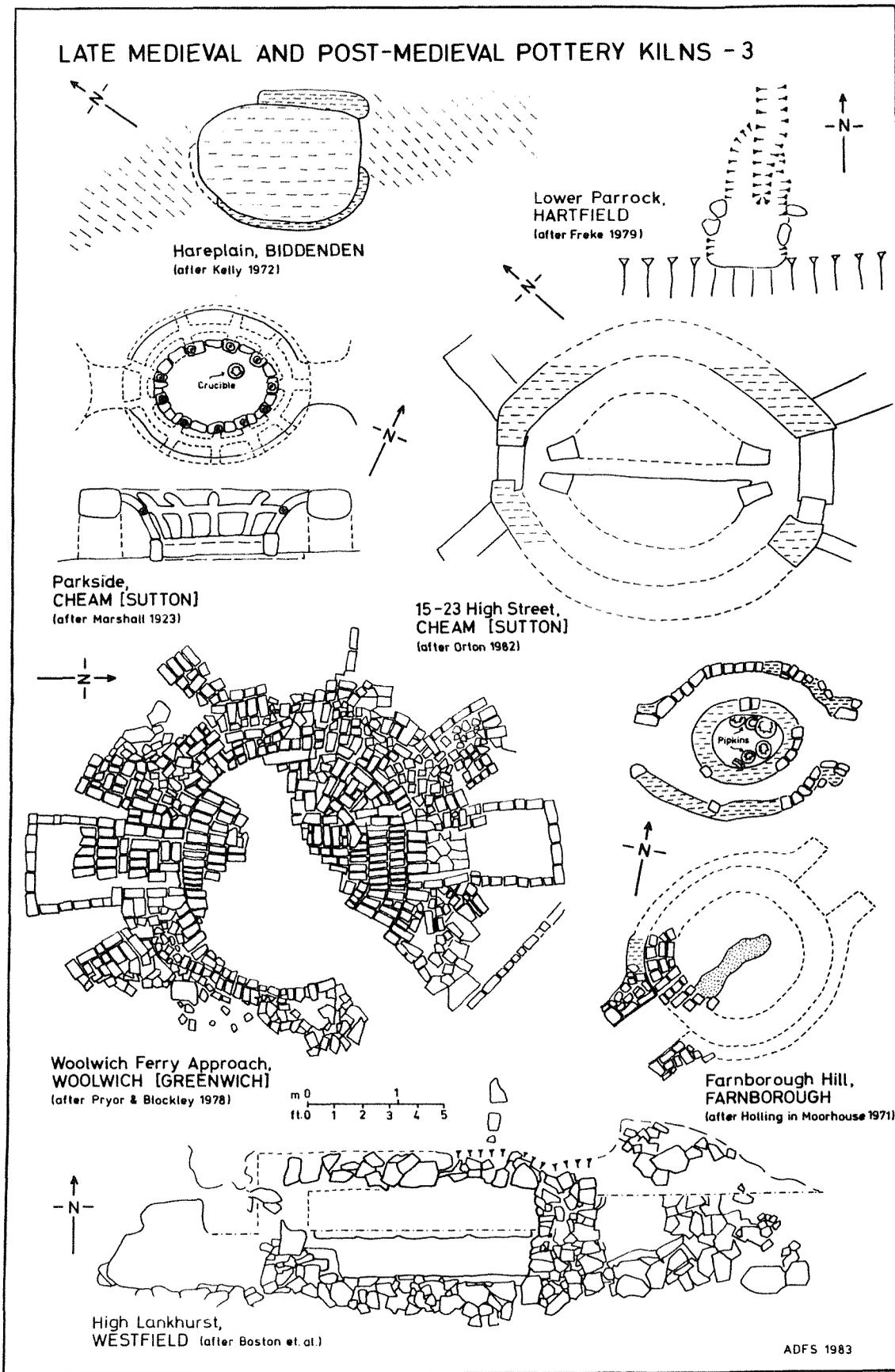


Fig. 5.9 Late medieval and post-medieval pottery kilns in South-East England (3)

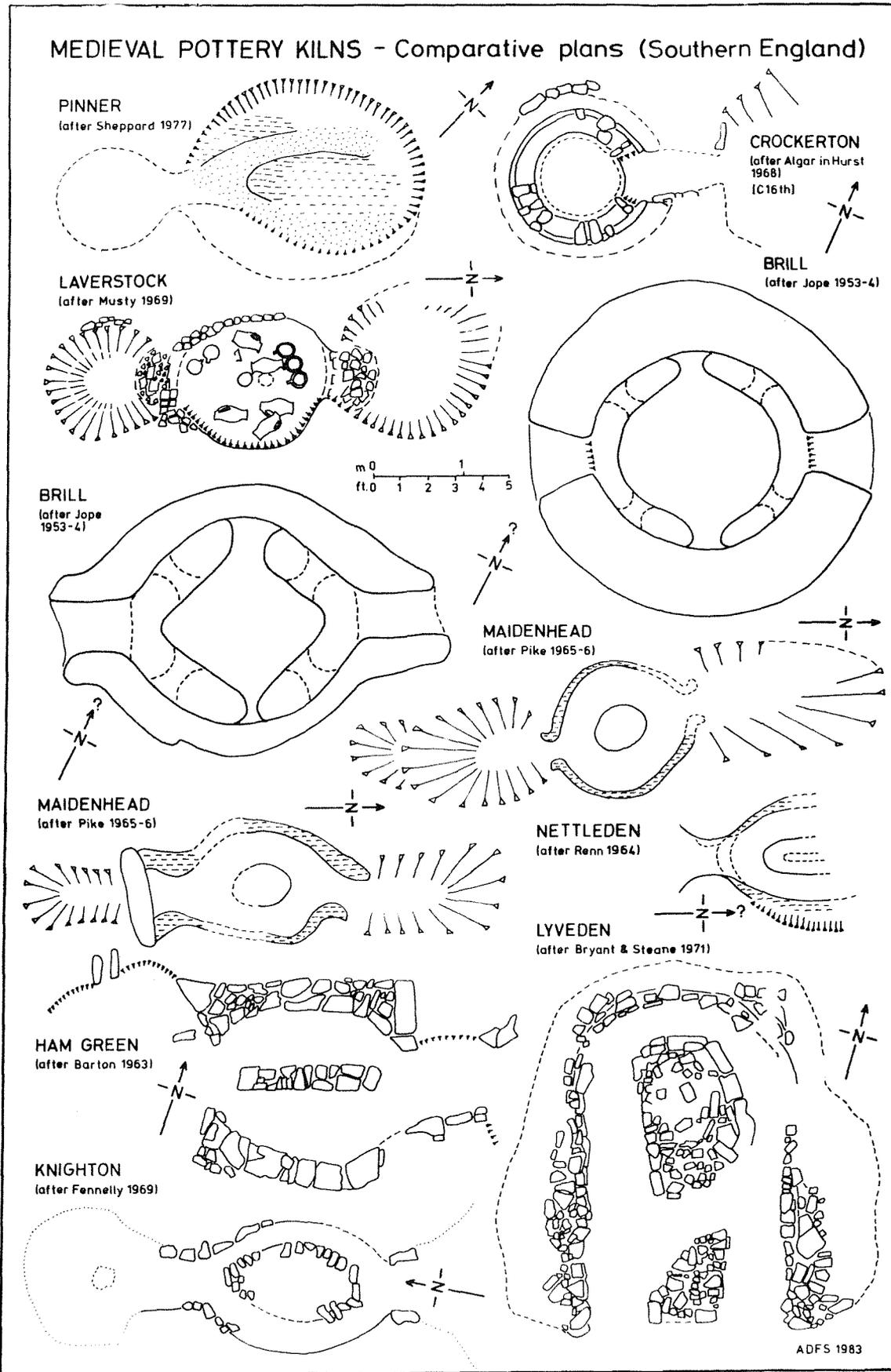


Fig. 5.10 Medieval pottery kilns: comparative examples from Southern England

All these structures conform to the typology for medieval pottery kilns proposed by Musty (1974). Other examples in the region represent hybrids with significant variations in detail. The Earlswood kiln (Fig. 5.7) is of an unusual design with a single flue and split pedestal. Owing to signs of deliberate destruction, the excavator has suggested that the potter may have slighted the structure to protect the secret of his innovation (Turner 1974, 49).

The kiln used by the Binsted potters in West Sussex was also fired from one end only, but there are signs of modification to the plan with additional flues or vents in the side walls. An analogous arrangement occurs in the double-flue kiln found at Park Row, Farnham, where the side vents appear to have been blocked by cooking pots (Fig. 5.7). Neither of these two kilns can be described as a multi-flue type, and the twin stokeholes of the conventional double-flue arrangement at Farnham are clearly indicated by deposits of ash at the mouth of each flue. The function of the side vents is unclear, but they may have been intended for regulating the flow of air. Firing temperatures are more critical for white wares than for other types of clay fired under oxidising or reducing conditions. It may be significant therefore that pale fabrics were produced at both Farnham and Binsted, yet other whiteware kilns at Cheam and Farnborough Hill belong to more conventional types.

The discovery of what is now known to be a later brick or tile kiln at Ringmer led Salzman (1913, 116) to believe that the normal type of medieval pottery kiln had two parallel flues. Indeed, the kilns found by Vidler (1932; 1936) at Rye were of this type, but these, too, were evidently used for firing tiles, possibly with separate chambers for the pottery (Fig. 5.7). Interpretation of the structures is discussed in Section 9.1.6 and the form of medieval and later tile kilns is considered in Section 7.5.

The orientation of a medieval pottery kiln would have been determined by microtopography and there does not appear to have been a strong preference for any particular alignment. Nevertheless, orientation would have been a significant factor in ensuring that there was an adequate circulation of air within the kiln. The structures at Ridlands Farm, Limpsfield and Barnett's Mead, Ringmer are exceptions to the generally east-west alignment of double-flue kilns in the region. It is also interesting to note that the single-flue kiln at Earlswood and the hybrid types at Farnham and Binsted (West Sussex) were constructed on a north-south axis. The Southgate

kiln at Chichester, however, was aligned east-west.

Comparative examples from elsewhere in Southern England (Fig. 5.10) show that medieval double-flue kilns occur extensively in the neighbouring counties. Sizes are generally comparable with those in South-East England, although the kilns at Brill compare with the large late medieval kiln at Cheam rather than with the smaller examples of the thirteenth and fourteenth centuries. Possible generalisations concerning the east-west alignment of double-flue kilns, however, are not borne out by orientation of the structures at Knighton, Maidenhead and Laverstock.

The internal dimensions of medieval and post-medieval kilns demonstrate the general increase in size among later examples. The length (defined as a flue-to-flue measurement where appropriate) and width of pottery kilns in South-East England has been plotted on graphs to illustrate this trend. Examples shown on Fig. 5.11 are identified as follows:

- 1: All-the-World, Binsted; 2: Orchard Street, Chichester;
- 3: Southgate, Chichester; 4: Park Row, Farnham; 5: Lakestreet Green, Limpsfield; 6: Moorhouse, Limpsfield; 7: Ridlands Farm, Limpsfield; 8: Scearn Bank, Limpsfield; 9: Vicar's Haw, Limpsfield; 10: Barnett's Mead, Ringmer; 11: Hareplain, Biddenden; 12: High Street, Cheam; 13: Parkside; Cheam; 14: Farnborough Hill, Farnborough; 15: Lower Parrock, Hartfield; 16: Woolwich Ferry Approach, Woolwich; 17: High Lankhurst, Westfield.

Sixteenth-century kilns display significant variations in both size and form. Examples at Hareplain and Westfield attest persistence of the medieval double-flue arrangement, but the small Lower Parrock kiln, apparently used by an immigrant craftsman, had only one flue. It would seem, therefore, that alien traits can be detected not only in the vessel forms but also in kiln technology. The High Lankhurst kiln is also unusual for its rectangular shape which is not unlike the mid-sixteenth-century structure illustrated by Picolpasso (see Section 9.1.6, no. 528).

Although the plans of medieval and later kilns can usually be established from excavation, evidence for the superstructure is often elusive. Kiln walls would be made of any suitable materials which were to hand: sometimes they were entirely of clay; otherwise clay was used to bond pieces of stone, tile, brick or even wasters. The use of a wattle framework daubed with clay for the Parkside kiln

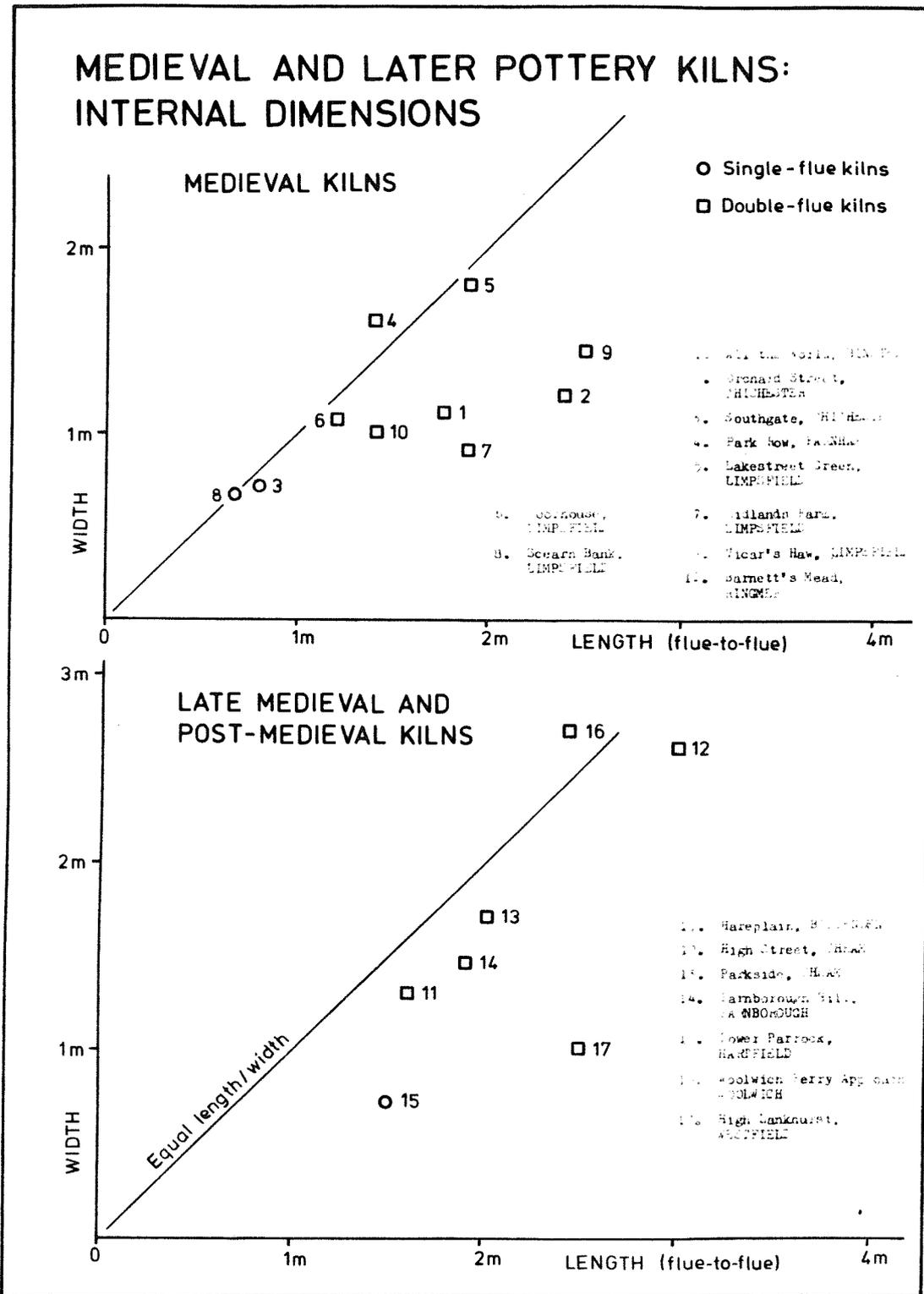


Fig. 5.11 Medieval and later pottery kilns: graphs showing comparative internal dimensions

at Cheam is unique in the region.

The High Lankhurst kiln at Westfield and the High Street kiln at Cheam were both constructed of stone, the latter with an outer cladding of brick. Tooling on the stones at Cheam implies a significant investment of effort in construction, unless the materials were re-used (Orton 1982a, M4). Likewise, the solid sandstone structure at High Lankhurst implies that the kiln was intended to last for several seasons. At both Cheam and Westfield, the central pedestal would have supported a raised floor for the firing chamber; indeed the side walls of the High Lankhurst kiln also had a ledge to support such a structure. Neither site, however, has yielded examples of fire bars. These may have been removed with the last load of pottery. Elsewhere, as at Maidstone (Grove 1967) and Ashted (Frere 1941, 65 no. 27), earthenware kiln props were sometimes used to support the load.

Descriptions of the kilns at Searn Bank, Limpsfield and Week Street, Maidstone offer the only evidence of a surviving superstructure in the region. Ethnographic and post-medieval analogies combined with the results of experimental reconstructions, however, suggest that most medieval kilns were open-topped structures, perhaps covered with turf during firing. An open top would provide easier access for loading the kiln than in a closed structure which would have to be entered either through the stokehole or through a temporary opening in the side.

Judging from the description of William Smith's pottery at Farnborough in the nineteenth century, the skilled task of stacking the kiln was probably undertaken by the potter himself (Sturt 1919, 75). Various items of kiln furniture would be used to ensure that the load was stable and that the vessels did not fuse together. Evidence for the methods of stacking in medieval kilns can also be deduced from dribbles of glaze and from scars on the vessels themselves. Jugs, for example, were often fired upside down, and scars show that seventeenth century red and whitewares were fired in the same load at Cove, Hants. (Haslam 1975, 170).

Tiles were among the items most commonly used to separate layers within medieval and later kiln loads. Examples with spots of glaze and the marks of pottery vessels are recorded among the wasters at both the Parkside and High Street kilns at Cheam (Marshall 1924, 82; Orton 1982a, M43) and in association with the Phase I wasters at Woolwich (Pryor & Blockley 1978, 51). Moreover this practice was also

followed at the post-medieval High Halden potteries in Kent (Baines n.d., 8). A wide range of clay pads was used in loading the late seventeenth-century stoneware kiln at Woolwich and specific functions for each type of kiln furniture can be identified from examples fused to the wasters (Pryor & Blockley 1978, 56). Ring props are another distinctive device used by the early seventeenth-century potters working in the Hampshire/Surrey border area. Examples have also been noted at Graffham, West Sussex.

Biscuit firing of Tudor Green ware can be inferred from the unglazed wasters found at Farnborough Hill, but spots of glaze on some rims demonstrate that unlike Cistercian wares, the Tudor Green vessels were not fired in saggars. Regional contrasts in technology such as these are helpful for discriminating ceramic traditions. Moreover, the unusual form of the kiln at Lower Parrock shows that, in theory at least, it is possible to identify the introduction of an alien technology (see Section 9.1.6, no. 443). Barton (1979, 165), for example, has drawn attention to the different technical traditions which can be identified from the contrasting plan form of the kilns at Binsted and Chichester in West Sussex. Nevertheless, similarities between the double-flued kiln at Chichester and the early example discovered more recently at Ringmer cast doubt upon the regional development of a distinctive 'Sussex' kiln. Innovation is more likely to have arisen from the individual requirements of particular fuels, raw materials and repertoires. Le Patourel (1968, 118), for example, has noted the apparent correlation between multi-flue kilns and the documented use of peat for fuel. It is significant, too, that anomalous kiln plans at Binsted (West Sussex) and Rye are associated with centres producing both pottery and slip-decorated floor tiles. Nevertheless, the introduction of ring props by the early seventeenth-century potters at Graffham as well as in the Hampshire/Surrey border area implies a regional rather than individual innovation. Once the ceramic chronology has been refined, and when more kiln sites have been excavated thoroughly it may indeed be possible to detect significant trends in technological change.

5.6.3 Experimental reconstructions and firings

The contribution of experiment to ceramic archaeology can be defined in two ways: both as a means of testing the hypothetical reconstruction of incomplete structures found in excavation and as a clue to the understanding of ceramic and kiln technology.

Experimental archaeology has generally been more successful in achieving the former than the latter.

Doubt was cast upon the assumption that medieval pottery kilns had permanent domes when a replica of the Lyveden kiln was erected at Kettering Grammar School (Steane et al. 1971, 88). Indeed, the results of this experiment and others have indicated that it would have been difficult to load small enclosed kilns, and the effort involved in replacing a temporary dome seems unnecessary (see Section 5.6.2). Reconstructed kilns are also useful for testing estimates of capacity - an important factor when trying to assess the output of a medieval workshop. An optimum of 750 tiles per load, for example, has been estimated from construction of a replica tile kiln at Norton Priory. Assuming that this approximates to the output achieved by the medieval tile-makers, a total of 54 firings would have been required to pave all known tiled floors at the Priory (Green & Johnson 1978, 39).

Estimates for the consumption of fuel and the simulation of firing conditions are useful, but, owing to intangible factors such as the experience and expertise of the craftsmen, the results are generally less reliable than those for reconstruction of the kiln structure itself. Recurrent experience from experimental firings has been the need for large quantities of fuel. With greater skill in regulating the kiln, however, consumption has often been reduced significantly in subsequent experiments. Nevertheless, the lessons are valid as an indication of the importance which must be attached to supplies of fuel in determining the location of a workshop. A bonfire-firing experiment undertaken in 1976 by students in the Department of Archaeology at the University of Newcastle-upon-Tyne for example showed that it took over 5 man-hours to collect sufficient underwood even from the immediate vicinity of the site chosen for the firing.

Experiments intended to offer an insight into ceramic technology, however, often teach the archaeologist more about his own inexperience than about the methods used by medieval craftsmen! Problems with the Newcastle experiment were similar to those described by Hodges (1975, 17-19; pl.iv) at Southampton where cracks in many vessels were caused either by the use of unsuitable clay or by taking the pots out of the clamp kiln before they had attained the correct temperature. Nevertheless, controlled experiment does offer a valuable means of testing inferences from archaeological evidence, and quantified results such as those published by Bryant (1971; 1977)

offer a significant contribution to the study of ceramic technology.

5.6.4 Clay technology

Assumptions concerning the use of raw materials can also be tested by experiment and analysis. Indeed, Howard (1982, 146) has stressed the need for a data bank of clay samples to facilitate informed petrological comparisons between ancient ceramics and specific raw materials. In areas of sedimentary geology, however, where textural parameters are used for fabric characterisation, the comparison of raw materials with pottery fabrics made from prepared clay is of limited value. Nevertheless, petrological and neutron activation analysis has been applied successfully by Kilmurry (1982, 106-10) to the identification of chronological trends in the use of different raw materials within the Stamford ware industry. Case studies have also been undertaken in South-East England in order to evaluate the potential application of textural analysis to the identification of ceramic raw materials.

Output of the Binsted workshop at Tortington, West Sussex included a wide range of pottery and ceramic building materials. The workshop is situated to the west of Arundel on an outcrop of Reading Beds clay exposed beneath drift deposits of coombe rock (Fig. 5.12). Exposed seams include pockets of both red and pale coloured clay, each containing fragments of flint. Small 'bricks' were made from clay in these two deposits and thin-sections were cut from the samples after they had been fired in an electric kiln. Textural analysis shows that the seams are characterised by distinctive grain-size frequencies: the red clay contains a prominent groundmass of fine quartz but the seam of pale grey has a more even distribution of grain sizes < 0.15 mm, with a scatter of coarser quartzes between 0.2 and 0.5 mm in diameter (Fig. 5.13: Graphs 4 & 5).

Comparison of these grain-size frequency graphs with the results of textural analysis undertaken on examples of the floor tiles and pottery illustrates the extent to which the raw materials had been prepared for ceramic production. Sand appears to have been added deliberately to the fabric of both the floor tiles and the pottery (Fig. 5.13: Graphs 1 & 3). The former has the distinctive groundmass of fine quartz which is characteristic of the red clay seams, yet the proportion of grains between 0.1 mm and 0.2 mm is higher in the floor tiles than in the raw clay sample. Likewise, the buff sand-tempered wares were probably made from pale-coloured clay, but these, too, have

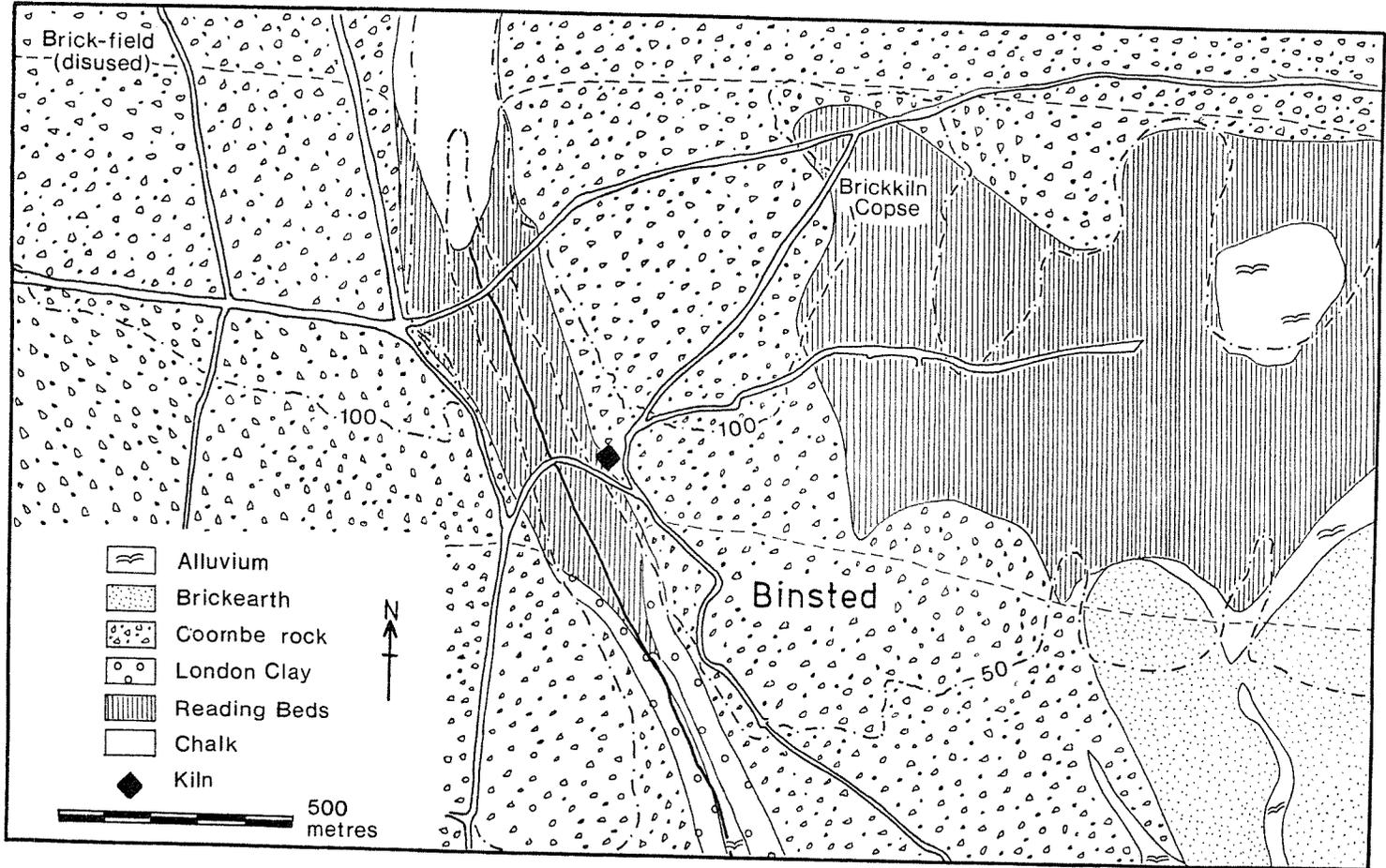
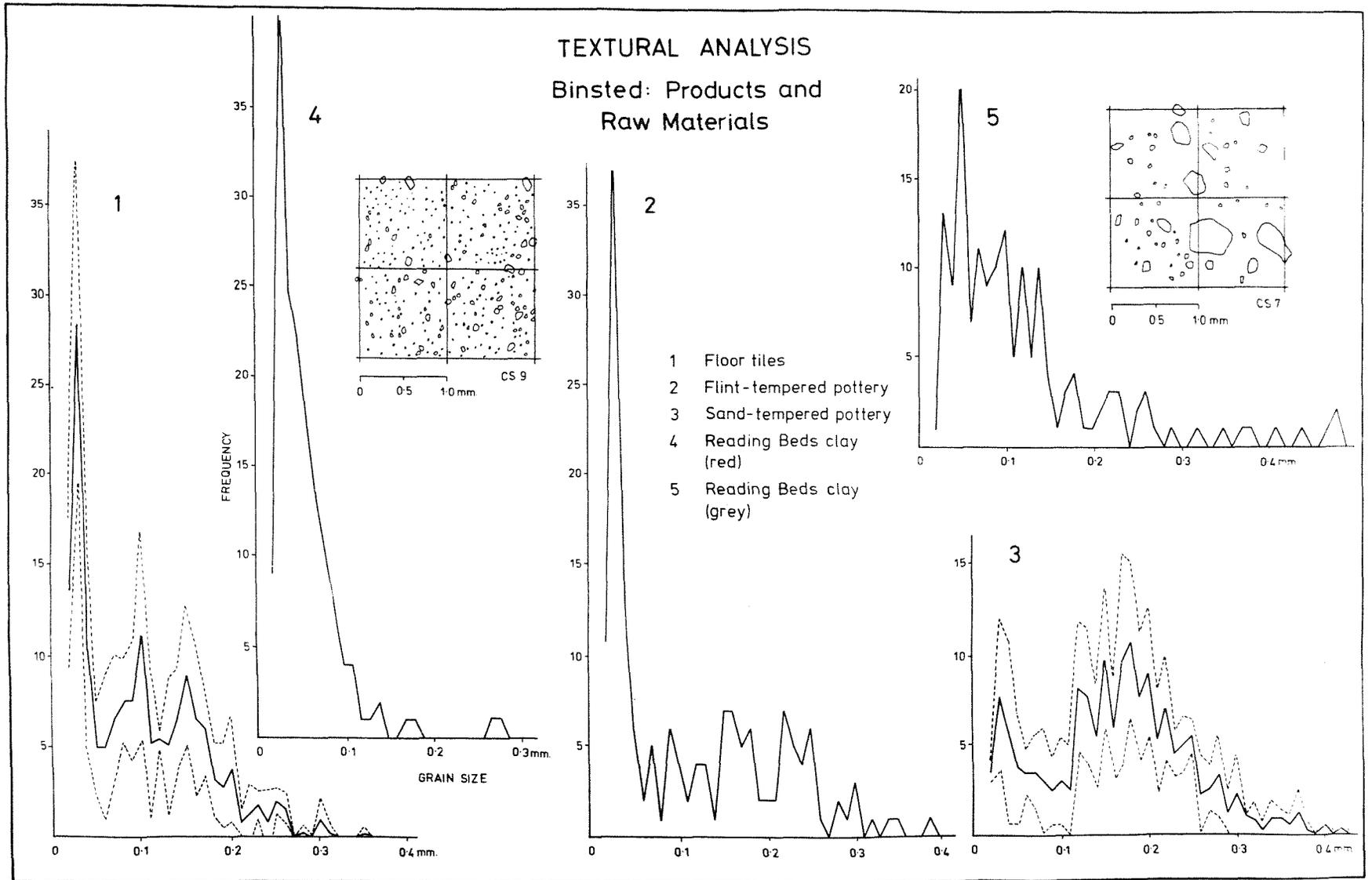


Fig. 5.12 Binsted. Surface geology

Fig. 5.13 Binsted. Textural analysis: products and raw materials



a peak in the grain-size frequency curve between 0.1 and 0.25 mm which is not found in the clay sample. There is a clear distinction in texture between the floor tiles and the buff sand-tempered pottery. Another vessel in a flint-tempered fabric, however, has the groundmass of fine quartz which is akin to the texture of the floor tiles (Fig. 5.13: Graphs 1 & 2).

Similar preparation of the clay for ceramic production can be inferred at Tyler Hill in the parish of Hackington, Kent. The industry is situated on an extensive outcrop of London Clay masked by superficial deposits of brickearth and head gravel (Fig. 5.14). Samples of both the raw materials and pottery fabrics have been thin-sectioned using the same methods as those described above for the work at Binsted. The London Clay itself does not contain the prominent groundmass of fine quartz grains which occurs in samples of the wasters found in 1967 (Fig. 5.15: Graphs 1 & 3). Likewise, the texture of the head gravel is quite unlike that of the pottery fabrics (Fig. 5.15: Graph 4). The addition of brickearth to the London Clay, however, simulates the pottery fabrics quite well (Fig. 5.15: Graph 2). Thus, there can be little doubt that the Tyler Hill potters adopted a similar recipe when preparing their raw materials.

The third case study concerned with clay technology is intended to illustrate chronological changes in the fabric of medieval and later pottery manufactured at Farnborough Hill, Hants. (Fig. 5.16). Wasters associated with the fourteenth-century kiln at Ship Lane, Farnborough Hill are typical of the coarse white sand-tempered wares produced in the Hampshire/Surrey border area (Fig. 5.17: Sample no. 921). Textural analysis shows that the fabric of the Ship Lane wasters is similar to the white sandy ware found among pottery waste on the Farnborough Hill Convent site. Even thin-walled vessels were made in this fairly coarse fabric (Fig. 5.17: Sample no. 919).

The typical late medieval fine sandy ware represented among wasters labelled 'Kiln V' is identical to samples from a different context ('A9-10'). Thin-sections prepared from these fairly thick-walled vessels illustrate the technological change from coarse medieval wares to a finer fabric characterised by a higher proportion of fine quartz < 0.2 mm with correspondingly fewer grains between 0.2 and 0.5 mm in diameter. The same fabric was also used for thin-walled vessels (Fig. 5.16).

The innovation of Tudor Green forms was accompanied by even greater refinement of the fabric. Textural analysis highlights the

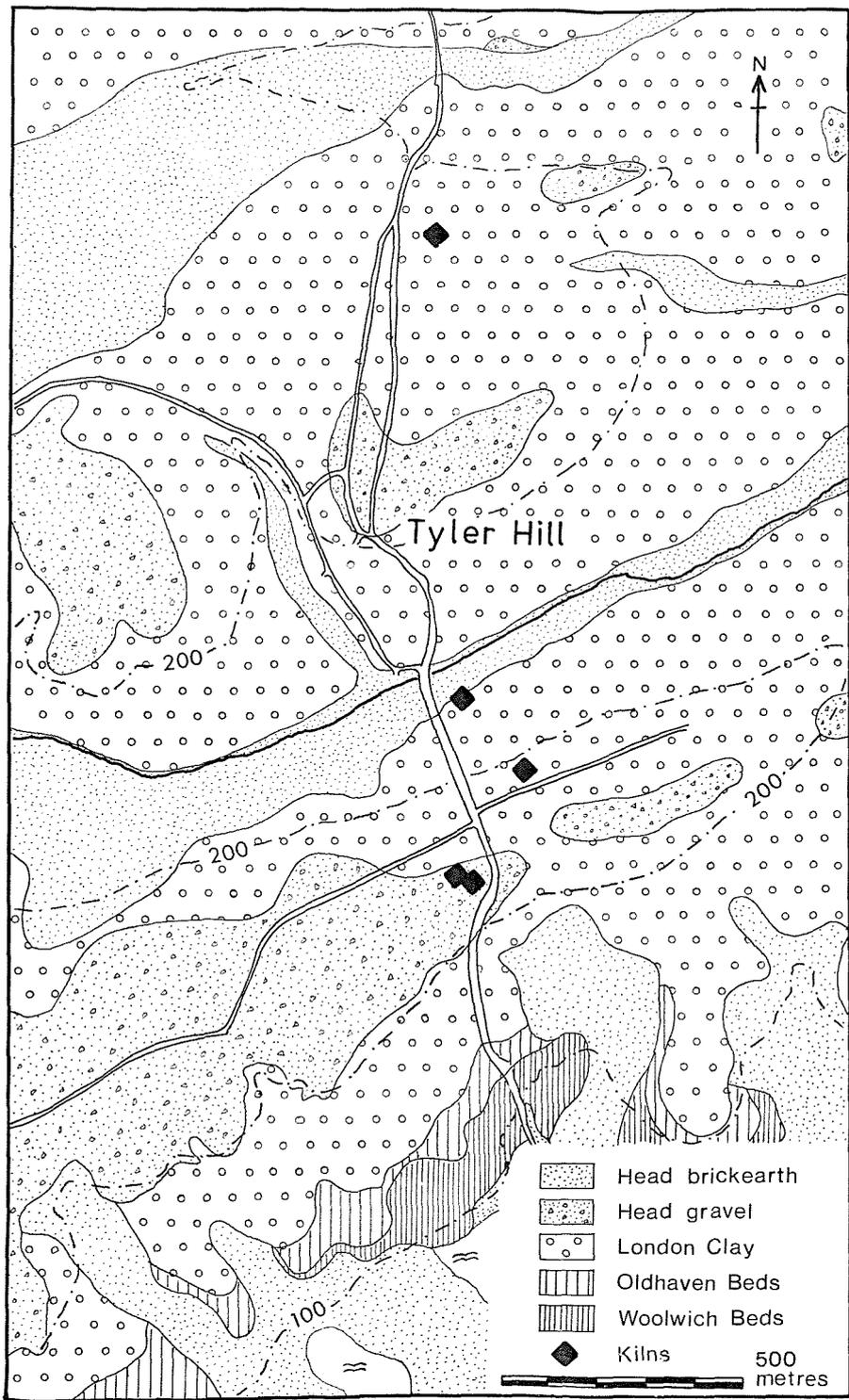


Fig. 5.14 Tyler Hill. Surface geology

Fig. 5.15 Tyler Hill. Textural analysis: products and raw materials

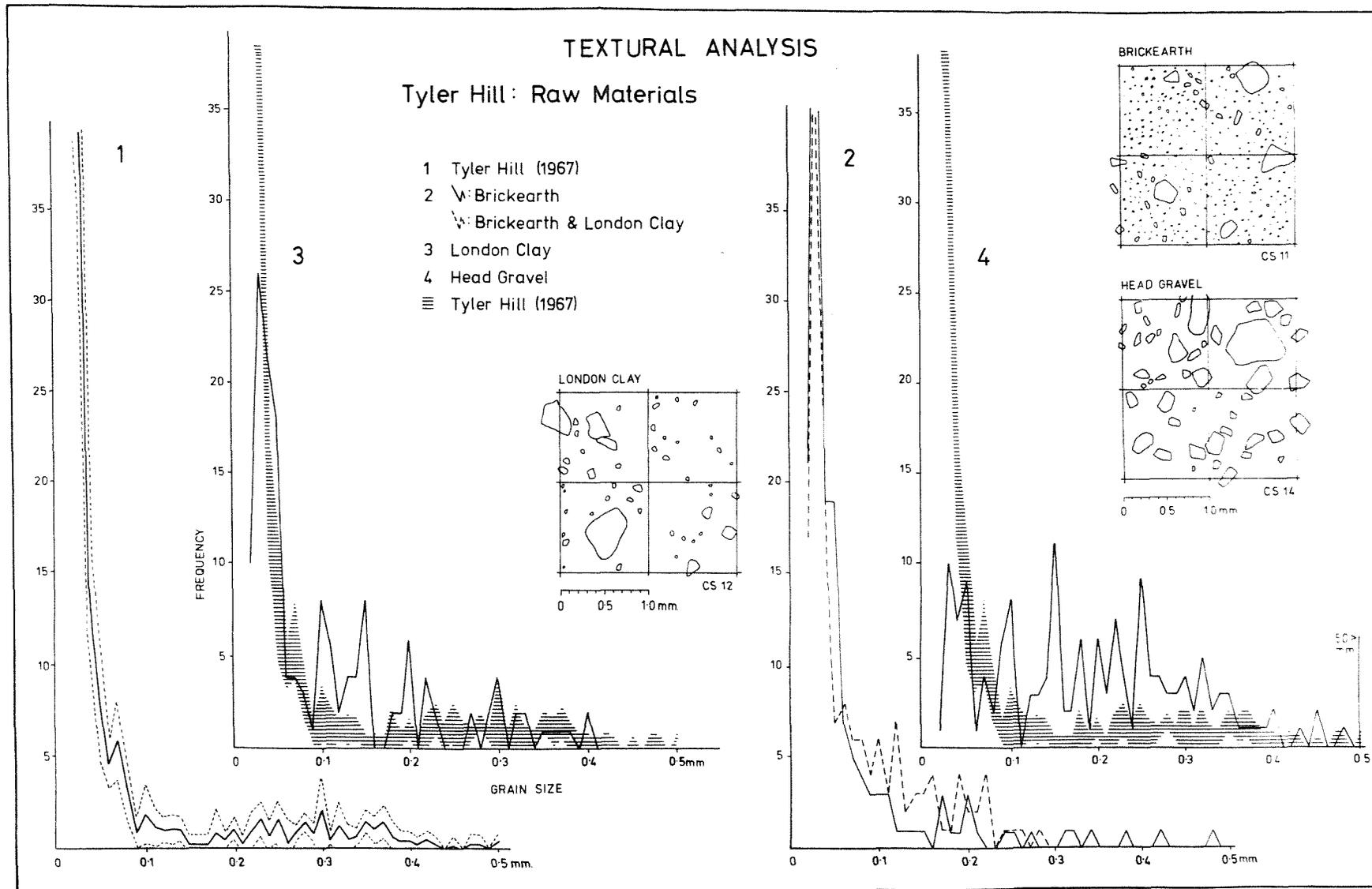
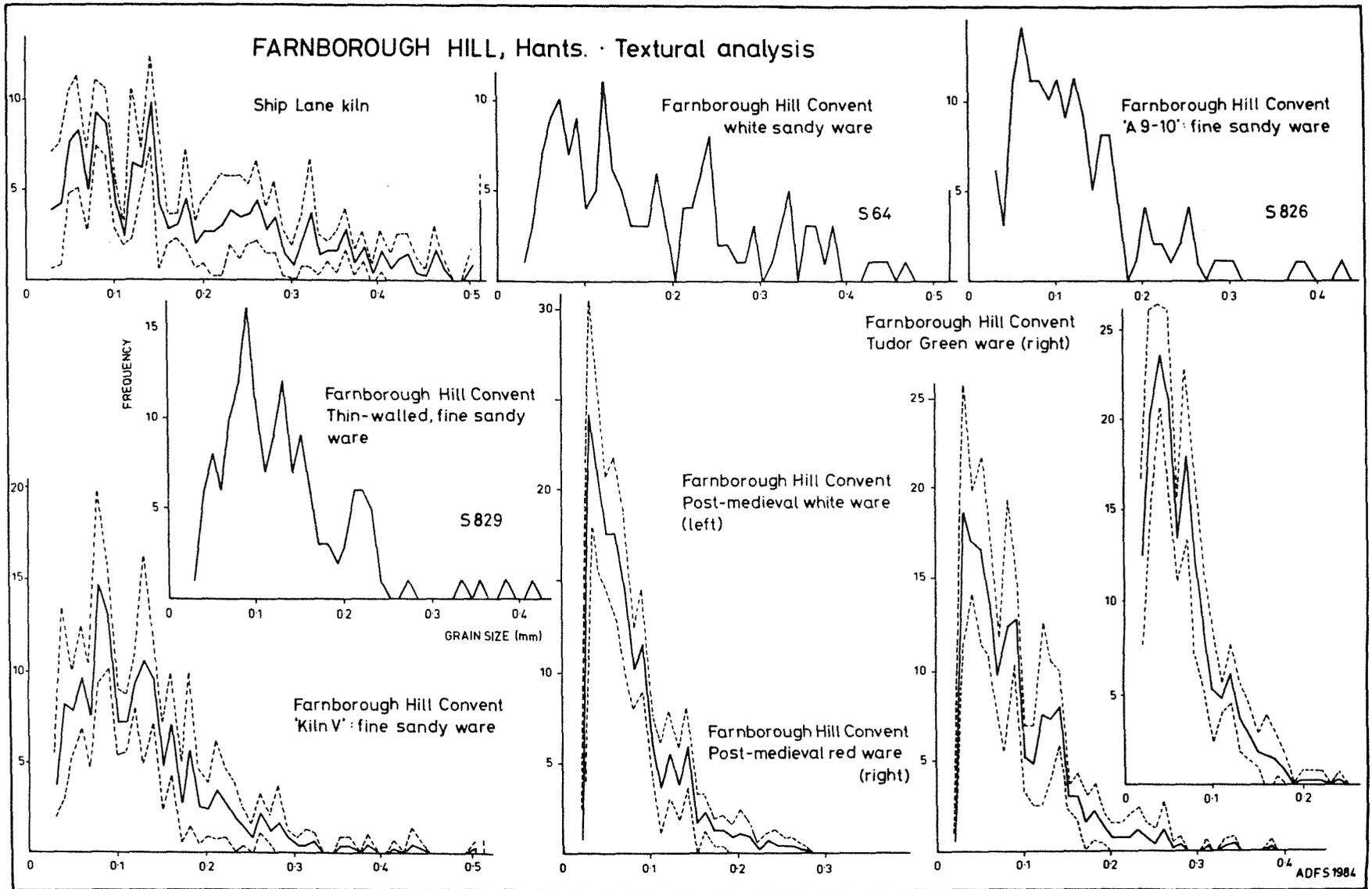


Fig. 5.16 Farnborough Hill. Textural analysis of medieval and post-medieval wasters



contrast between the fine sandy wares and the Tudor Green types (Fig. 5.16). Indeed, this fabric is akin to the smooth post-medieval white wares.

Compared with the white fabrics, the post-medieval red wares have a slightly higher proportion of medium-sized quartz grains between 0.1 mm and 0.15 mm in diameter. However, it is difficult to identify these subtle differences in texture without undertaking detailed grain-size analysis (Fig. 5.16). A few examples of pale pink wares containing mica may represent mixture of the red and white clays (Fig. 5.17: Sample nos. 839 and 842), while some of the post-medieval red wares occur in a slightly coarser fabric than the main output (Sample no. 848).

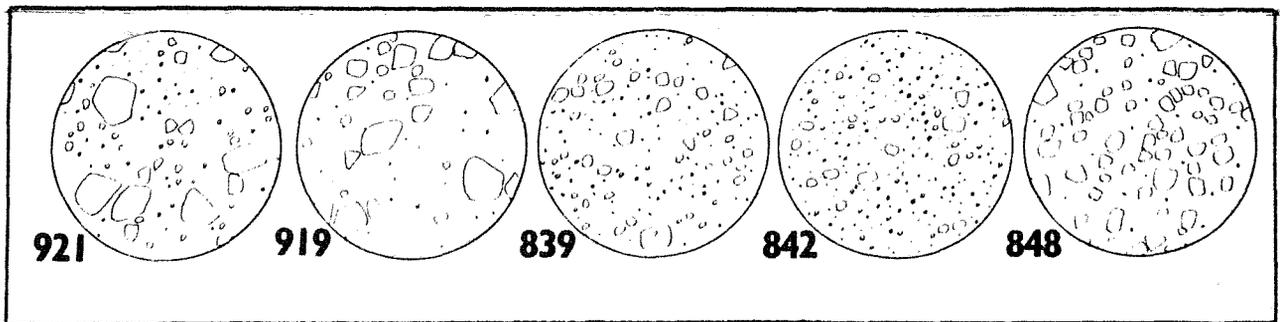


Fig. 5.17 Farnborough Hill. Textural analysis (thin-section sketches): medieval and post-medieval wasters

It can be concluded from the changes in clay technology which have been identified among medieval and later wasters at Farnborough Hill that the emergence of new forms was sometimes accompanied by a change of fabric, yet there was evidently a gradual transition from the medieval coarse sand-tempered fabric to the fine late medieval sandy wares. Examples of both thick- and thin-walled vessels occur in each fabric.

The grain-size frequency curve derived from analysis of the post-medieval red wares at Farnborough Hill is similar to that of samples from similar wasters found at other kiln sites in the Hampshire/Surrey border area. Examples from The Lime, Ash and Minley Road, Cove are shown on Fig. 5.18. These can be distinguished from the graphs representing wasters found at Crane Street, Chichester and at Ochre Pits Copse, Graffham in West Sussex. Results from analysis of the Crane Street wares are particularly interesting because comparison between the wasters and a fired clay sample suggests that the dump of potting clay from which the sample was taken had not been finally prepared. As at Lower Parrock, Hartfield, the texture of clay

dumped on the kiln site is finer than that of the pottery fabric, which implies that fine sand was probably added before the vessels were thrown. Thus, the technique of textural analysis is applicable to studies of ceramic technology as well as to the characterisation of pottery fabrics (see Section 3.4.5.).

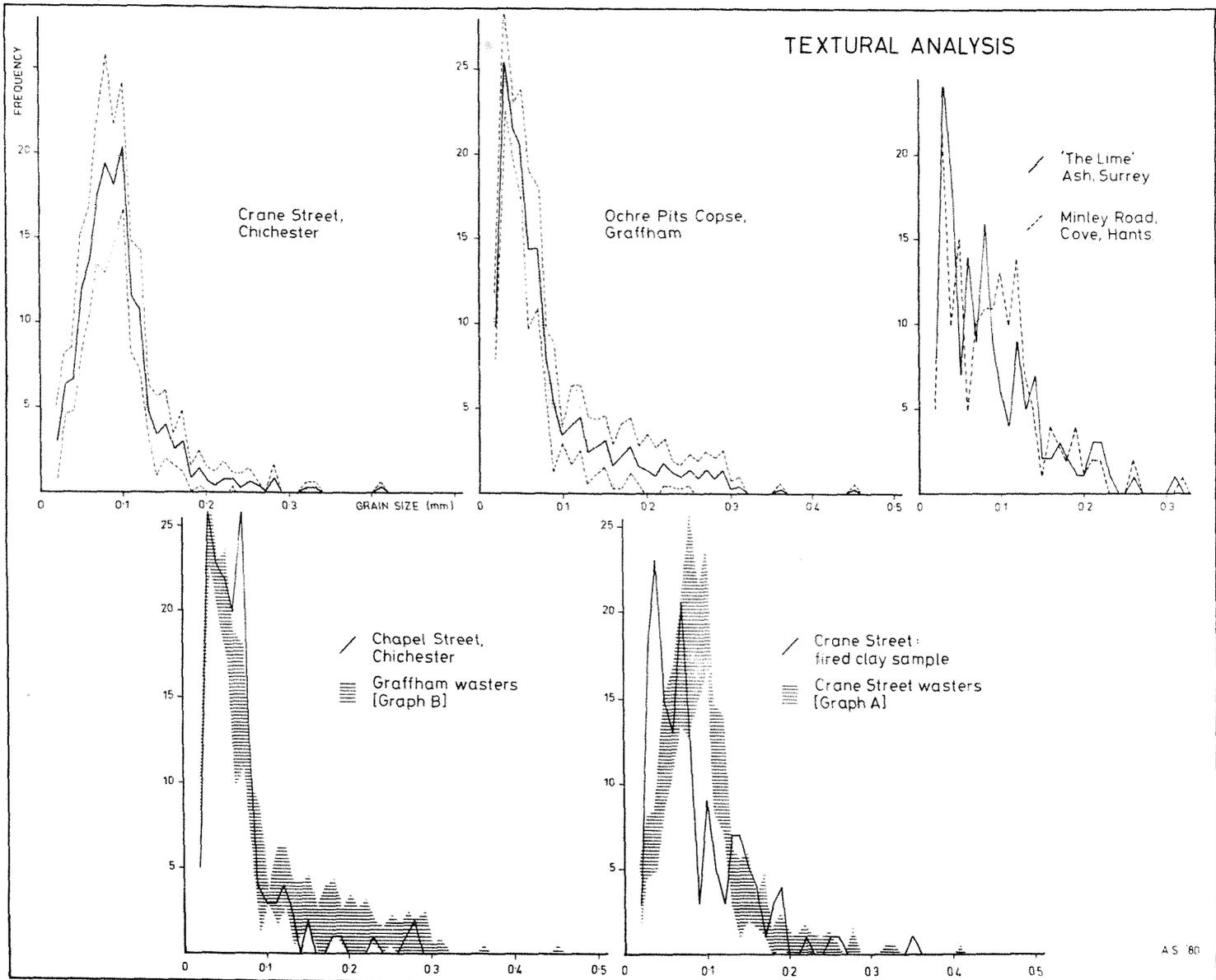
Recorded traditions illustrate the methods of preparing clay at the High Halden potteries in Kent (Baines n.d., 3-6), and post-medieval documentation of the potteries at Plumpton, Northants. indicates that different types of clay were sometimes used for different varieties of pottery (Brears 1971a, 195). Archaeological evidence, however, confirms there was no rigid relationship between form and fabric during the medieval period. Different fabrics noted among the medieval Rye wares, for example, occur in a variety of forms, although the texture of medieval jugs in the region as a whole is generally finer than that of the culinary wares.

A jug from one of the thirteenth-century kilns at Chichester, however, shows that the flint- and sand-tempered fabrics were contemporary, and to a certain extent interchangeable: this vessel was made with a sand-tempered body and a flint-tempered spout (see Section 12.2.3, Sample no. 243). Like the redware cistern with a white bunghole at Cheam (Orton 1982a, M29) these anomalies can yield significant evidence for contemporary technologies. It can be inferred for example from the white slip on just one sherd of shell-/sand-tempered ware found at Dartford, that grey coarsewares were probably made at the same centre as some of the white-slipped jugs which are found in west Kent and the London area. In the absence of known production centres, and in view of contrasting fabrics used for jugs and coarsewares in this part of the region, it would be difficult to prove a connection between the culinary wares and decorated jugs on the basis of fabric texture alone. Moreover, recognition of a correlation in patterns of marketing for these two wares would be inhibited by similarities among the grey coarsewares which occur in west Kent. Nevertheless, the Dartford sherd provides a strong indication that grey coarsewares were made by potters whose repertoire also included the use of white slip.

5.6.5 Traits of manufacture

The study of ceramic technology is significant both for the characterisation of products attributed to a particular industry and for the identification of ceramic regions in which distinctive traits

Fig. 5.18 Crane Street, Chichester. Textural analysis: products and raw materials



of manufacture were adopted by several different workshops.

During the medieval period, jugs generally display more technical variation than utilitarian coarsewares. Distinctive West Sussex ware jugs, however, are accompanied in ceramic assemblages of the fourteenth and fifteenth centuries by bowls with broad splayed rims which are not typical of the region as a whole. The jugs and their associated coarsewares were probably made at several different centres but a coherent ceramic region can be identified from similarities in form and decoration among marketed wares from the various known and inferred workshops. Specific sources are only identifiable by analysis of the pottery fabrics (see Section 12.1.11, Groups Kxlii-Kxliv).

Methods of forming jug handles are often diagnostic of particular workshops. Marshall (1924, 88) identified a distinctive type of handle attachment among some of the Cheam wares for which the clay was pushed through 'skewered' holes in the body of the vessel. Dawson (1976b, 137) has commented on the various methods of attaching handles noted among medieval Surrey wares, and examination of material found at the Kingston kilns shows that the potters there adopted a different method from that used at Cheam. Contrasting techniques which are characteristic of particular workshops - if not the hand of an individual potter - have been reviewed recently by Pearce (1984) who has studied material found in London.

Decoration is also a diagnostic trait, especially among medieval jugs for which stamps were applied using the repoussé technique. Both the method of application and the designs themselves, which include motifs such as the raspberry stamp, have been noted among the output of medieval potteries at Rye, Laverstock and Kingston to name but a few in Southern England. Indeed, there are also continental analogies and the Rye wares share many decorative features in common with the stamped Aardenberg type jugs (Dunning 1976). The repoussé technique is quite different from the predominantly incised decoration represented for example, among the wasters found at Earlswood, Surrey.

If minor technical variations among the material from a known kiln site could be attributed to the hand of different craftsmen, this would provide an insight into organisation of potters' workshops. In practice, however, it is difficult to distinguish the idiosyncrasies of an individual's work from traits related to vessel form. As with the handle types identified at Lower Parrock (see

Section 5.5.4), a contrast between the strap handles and simple rims of the cisterns and the rod handles and more developed rims of the pitchers has been noted among the redware wasters found at Kingston-upon-Thames (Nelson 1981, fig 2). It is difficult to determine, however, whether this is merely a functional distinction or whether it is possible to detect the hands of different craftsmen.

Other traits of manufacture appear to be of chronological significance. Distinctive mould marks on the rims of late medieval Cheam jugs imply the use of templates - a device which does not seem to have been used extensively by potters of the thirteenth and fourteenth centuries or earlier. Knife-trimming is another distinctive feature of late medieval and early post-medieval wares throughout the region. Barton (1979, 122-127) has noted this technique on the later West Sussex ware jugs and on the white-painted wares now known to have been made at Graffham/East Lavington. Many of the hard-fired earthenwares found in Kent and East Sussex also have knife-trimmed bases.

Thus, distinctive traits of manufacture are significant for the study of medieval and later ceramics not only as a means of characterisation to be used in conjunction with examination of the fabrics but also as a chronological indicator and as evidence for organisation of the workshops. The repertoire of forms produced by medieval and later potters will be considered in the following sections.

5.7 REPERTOIRE OF THE MEDIEVAL POTTER

5.7.1 Domestic utensils

Over 50 medieval vessel types have been identified and uses can be suggested for some two-thirds of them (Moorhouse 1981, 116). Documentary evidence, however, shows that it would be unwise to assume a strict correlation between form and function (see Section 1.1.3).

Medieval vessel forms cannot therefore be classified neatly into fine table wares and coarsewares. Instead, two broad functional groups have been identified: the first comprises cooking utensils and containers; the second includes a range of forms used for the storage and consumption of liquids. Within these categories, some forms would have been confined to the preparation of food and drink, while others were intended for its consumption.

A selection of the more common medieval ceramic types is shown on Figs. 5.19A-C, and the presence of these forms among the repertoire of known production centres in South-East England is indicated by an asterisk. Cooking pots and jugs are ubiquitous, while bowls and skillets also occur frequently. Many of the vessels can be related to a restricted repertoire of shapes (see Section 1.1.3), and there is considerable standardisation within the output of different workshops even among the less common forms such as costrels and the typical cresset and double-shelled lamps (Streeten 1979).

For the purposes of classification, kilns dating from the thirteenth to fifteenth century have been grouped together in the tables, with the addition of the two Saxo-Norman kilns found at Tower Street and Chapel Street, Chichester. Nevertheless, there are chronological trends within this broad time-span. Spouted pitchers are confined to the early kilns at Chichester and at Brittoncourt Farm, Tyler Hill, while tripod pitchers occur only at Chichester and Binsted (Hants.). This reflects the chronological bias of known production centres in the region, and the tabulation is undoubtedly incomplete owing to the different standards among the publications from which the information has been drawn.

The widest range of forms is represented at Rye and at Cheam. Small drinking jugs which occur there are characteristic of the late medieval output. Lids, too, are an innovation apparently during the mid-fifteenth century (Orton 1982a, M39) reflected in the appearance of more sophisticated rim profiles to accommodate them.

Fig. 5.19A Repertoire of the medieval potter. Medieval kilns in Greater London (south of Thames), east Hampshire and Kent: 13th to mid 15th century

MIEVEAL KILNS IN SOUTH-EAST ENGLAND: 13th to mid 15th century																																				
Key to columns																																				
A	B	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33							
		Oval dish/dripping dish	Skillet/pan	Skillet/ladle	Lid	Liquid containers etc	Liquid containers etc	Slip-decorated jug	Bunghole pitcher/cistern	Small 'drinking jug'	Lobed cup	Aquamanile	Barrel-shaped costrel	Cylindrical costrel	Miscellaneous forms	Urinal	Money box	Cresset lamp	Double-shelled lamp	Curfew	Mortar	Crucible	Roof furniture etc	Ridge tile	Water pipe	Knob finial	Ventilator finial/louwer	Anthropomorphic/zoomorphic finial	Chimney pot	Other forms	Miscellaneous types					
	<u>Greater London</u>																																			
25	70-72 Egen Street KINGSTON UPON THAMES (LB)	*	*	*	*		*	*		*																								sprinkler		
67	5-15 Bankside SOUTHWARK (LB)	*	*	*			*			*	*																							candlestick		
84	15-23 High St, Cheam SUTTON (LB)	*		*	*		*	*	*	*																								cup; saucepan; chafing dish		
85	Parkside, Cheam SUTTON (LB)	*	*	*	*		*	*	*	*							*																	distilling apparatus		
89	Sutton, SUTTON (LB)						(*)																													
	<u>Hampshire</u>																																			
94	131 Newport Road ALDERSHOT	*		*			*			*																										
103	Station Road BINSTED	*	*	*	*		*			*									*																	
105	Jack-O-Toole's Row BOARHUNT	*		*			*			*									*													*				
122	Farnborough Hill Convent FARNBOROUGH	*	*	*			*	*	*	*																							*			
124	Ship Lane FARNBOROUGH	*	*	*			*			*																										
134	Mowlands Farm KINGSLEY	*	*	*			*	*		*	*														*											
	<u>Kent</u>																																			
147	Potters Corner ASHFORD	*	*				*			*																										
189-90	Honey Wood HACKINGTON	*	*	*			*	*		*	*																									
192	Eliot College, UKC HACKINGTON	*	*				*			*																										
198	Cane Wood HACKINGTON	*	*				*	*		*	*																									

Fig. 5.19B Repertoire of the medieval potter. Medieval kilns in Kent, Surrey, East Sussex and West Sussex: 13th to 15th century

A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33			
649	Brittoncourt Farm HACKINGTON <u>Surrey</u>	*										*																									
277	The Lime ASH	*		*		*						*	*	*																							
283	14-15 Newton Wood Road ASHTEAD	*	*	*		*						*	*											*			*							*			
319	Park Row FARNHAM	*		*		*						*		*																							
338	Lakestreet Green LIMPSFIELD				*																																
339	Loampit Field LIMPSFIELD	*										*																									
340	Moorhouse Sandpit LIMPSFIELD	*		*								*																									
342	Ridlands Farm LIMPSFIELD	*		*								*																									
343	Scearn Bank LIMPSFIELD	*		*								*																									
344	Vicars Haw LIMPSFIELD	*	?	*		*						*																									
345	Watts Hill I LIMPSFIELD	*		*								*		*																							
366	Bushfield Shaw Earlswood REIGATE <u>East Sussex</u>	*	*	*	*		*	?					*											*				*						?			
381	Abbots Wood ARLINGTON	*		*		*						*																							*		
386	Broadland Wood BREDE	*		*								*																									
444	Bohemia HASTINGS	*		*		*						*	*																							*	
446	Royal East Sussex Hospital HASTINGS				*																																
483	Barnetts Mead RINGMER	*		*		*						*																								*	
484	Delves Field RINGMER	*		*		*						*																									
493	Potters Field RINGMER	*		*								*	*	*																							
502	Spittal Field RYE	*	*	*	*	*	*	*	*	*		*	*	*	?					*			*		*		*		?	*		*	*	*	*		
514	Marchant's Farm STREAT	*				*						*	*				?																		*		
529	Abbots Wood WILMINGTON <u>West Sussex</u>	*				*						*																								*	
551	Orchard Street CHICHESTER	*		*	*				*	*		*													*		*									*	
553	41-42 Southgate CHICHESTER	*																																			
554	New Magistrates Court, Southgate CHICHESTER	*		*						*	*	*															*									*	
555	Adcocks, Eastgate CHICHESTER	*										*																									

A		B																																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
556	Tower Street, Area 7 CHICHESTER	*	*								*																								
557	Chapel Street, Area 8 CHICHESTER	*	*							*																									
571	Lavington Common EAST LAVINGTON	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
572	Upper Norwood EAST LAVINGTON	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
623	Binsted TORTINGTON	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Fig. 5.19C Repertoire of the medieval potter. Medieval kilns in West Sussex: 13th to mid 15th century

5.7.2 Skeuomorphs

Several medieval pottery forms evidently copied metal prototypes. Typical among these are the skeuomorphic jugs in the repertoire of thirteenth- and fourteenth-century Surrey ware potters. Both baluster and straight-sided metal vessels were copied in clay during the medieval period (Haslam 1975, 51; Ashmolean Museum 1937-861). The typical form of copper alloy cauldrons and skillets (Goodall 1981, 165) also demonstrates similarities with pottery vessels. Cauldron skeuomorphs occur in London during the second quarter of the fourteenth century (Orton 1982, M39), and vessels with the characteristic rim profile, square handles and often with tripod feet are represented at several kiln sites in the region, including Tyler Hill, Ashtead, Earlswood and Rye (Fig. 5.19A-B). A comparable vessel, probably of metal, is illustrated in the Luttrell Psalter (Rokewode 1885, pl. xxi no. 2).

Copies of metal prototypes may have emerged earlier than the fourteenth century in some parts of southern England, because a scratch-marked tripod cauldron with round handles found at Salisbury has been dated typologically to the thirteenth century (Salisbury Museum 74/1963). This implies regional variations in both form and date compared with the angled handles of the fourteenth-century examples found in South-East England.

Other forms, too, probably imitated metal prototypes. The splayed-rim bowls found in West Sussex, for example, may be skeuomorphs (Hurst & Hurst 1964, 121), while pottery chafing dishes are also likely to have been derived from their metal predecessors (Moorhouse 1970, 66). There are few examples of pottery utensils imitating stone prototypes, although a pottery mortar made at Laverstock, Wilts. represents an unusual form copying the Caen stone mortars imported from Normandy (Musty et. al. 1969, 135-6). With the exception of an example from Orchard Street, Chichester, mortars have not been recognised among medieval wasters in South-East England, although a traded vessel in a local fabric has been found at Gravesend (Tilley 1963). While the function of this and the Orchard Street vessel would have been similar to a stone mortar, these cannot be said to copy their stone counterparts in precisely the same way that metal ewers and cauldrons were imitated in clay.

5.7.3 'Industrial' vessels

As well as supplying household requirements, the medieval potter would also be called upon to meet demand for certain

specialised vessels used in other industries. It is important, however, to distinguish between the use of conventional vessel types by other craftsmen and those forms which were manufactured by the potter for a specific purpose. Thus, although cooking pots found on salt-making sites in the Ouse valley in West Sussex are known from chemical analysis to have been used for boiling brine (Holden & Hudson 1981, 138), these pots were not necessarily manufactured for industrial use. Crucibles, however, would have been made specifically for customers engaged in industry.

Fig. 5.19A shows that crucibles have been found among the wasters and some of the known medieval kiln sites in the region, principally at those centres producing Surrey white wares. Examples from Kingston-upon-Thames are fairly tall vessels (Hinton 1980, 379 fig. 3 no. 25) made in the same fabric as the domestic wares (see Section 12.1.7, Sample no. 902). Crucibles found at St. George's Street, Canterbury, however, are probably of non-local origin because the close-textured grey fabric is quite unlike the Tyler Hill coarsewares supplied to the city (see Section 12.1.7, Sample no. 700). Unlike vessels from the Marlowe Theatre excavation, which have been reported by Macpherson-Grant (1984) and for which a kitchen use has been tentatively proposed, the quantity of crucibles found at St. George's Street must preclude a domestic function. Moreover the fabric of the Canterbury vessels (Maidstone Museum: Med. 23; Canterbury Museum: 6749-50; 8568.2) is similar to another crucible from Dartford (Dartford Museum: display) implying a common but so far unknown source for these specialised wares.

Post-medieval documentation attests the presence of suitable clay sources for making crucibles in Surrey (see Section 1.3.2), but although these vessels are generally in a pale grey or buff fabric - as in the case of a crucible found at Bersted, West Sussex (Chichester Museum 1104) - this does not necessarily imply that they were manufactured in Surrey. Indeed, the Marlowe Theatre finds at Canterbury have been dated to the late twelfth century, a hundred years or so earlier than the emergence of Surrey white wares (Macpherson-Grant 1984, 138).

Some small crucibles are thought to have been used by craftsmen working with precious metals. This is likely to have been the function of miniature vessels found on the site of the Old Star Inn, Lewes (Salzman 1942-3, 92). Even tile-makers, however, used earthenware vessels for their glazes. The recipe for glaze appearing

in Diversarum Artium Scedula of Theophilus Presbyter began as follows:

' Set down three large earthenware pots within the walls of the kiln and place in them 100lbs of lead, more or less, as required ...' (Gardner & Eames 1956, 28).

These pots would not have required the refractory properties of a crucible, but the high temperatures of around 1200°C attained in glass-furnaces certainly did necessitate the use of good quality fire-clay for the crucibles found at late medieval glass-making sites. Suitable raw materials were not available in the Weald, and, even if clay was imported, there is no evidence that glass-making crucibles were made by local potters. The manufacture of such vessels would have required the skills of a specialist (Kenyon 1967, 53).

5.7.4 Ceramic building materials

Even when the workshop was not engaged in the manufacture of roof tiles and floor tiles, wheel-thrown ceramic building materials such as chimney pots and drain pipes often appear in the repertoire of the medieval potter (Figs. 5.19A-C).

The national distribution of medieval chimney pots attests the significant output of potteries in Sussex (Dunning 1961b, 87-90; 1970, 89-90). Few known kiln sites in the county have failed to yield fragments of chimney pots among their wasters. Early examples were set within the kiln at Barnett's Mead, Ringmer (Hadfield 1981, 101-2). The occurrence of chimney pots at Sussex kilns, however, is in marked contrast to the Surrey potteries where there are few known examples from production sites, even where the range of forms has been published thoroughly. The identification of a chimney pot at Ashtead is the exception rather than the rule in this area (Renn 1968b).

Chimney pots were also made at Tyler Hill in Kent where output of the industry encompassed a wide range of hollow wares and ceramic building materials. Discoveries at Canterbury also attest the presence of drain pipes among the locally-produced forms (MacPherson-Grant 1978, 182-5). Both chimney pots and drain pipes appear to have been part of the regular output at these workshops, but evidence for the supply of accoustic jars which were built into the walls of medieval churches is less clear. None of these vessels can be attributed to the Tyler Hill industry, but purpose-made jars may sometimes have been commissioned from nearby potters (see Section 5.5.5). It would seem, however, that ordinary domestic jugs may have fulfilled the same function at Bexley Church (Tester 1956, 260).

As in the case of industrial wares, a significant distinction should be made between purpose-made vessels and the variety of different uses to which standard forms could be put.

5.8 EXPANDED REPERTOIRE OF THE POST-MEDIEVAL POTTER

The greater diversity of post-medieval earthenware forms compared with the medieval period reflects both the introduction of new vessel types in response to changes in cooking and eating habits and the manufacture in pottery of utensils which had formerly been made of wood or other materials including leather.

The range of principal forms manufactured by potters in South-East England between the late fifteenth and the seventeenth century is shown on Figs. 5.20A-B. Notable among the innovations of the post-medieval period is the handled and footed pipkin which is represented among wasters from several sixteenth-century kilns, including Woolwich, Kingston and Cheam, and is common in seventeenth-century assemblages such as those at Cove and Hawley in the Hampshire/Surrey border area. The size of pipkins implies cooking in smaller quantities compared with the medieval cooking pots whose capacity would often have amounted to several gallons.

Medieval platters were generally of wood, but ceramic flatwares are attested among sixteenth-century wasters at Farnborough Hill and Lower Parrock. At the latter, however, these amount to a mere 3% of the assemblage (Freke & Craddock 1979, 99), although the proportion is higher among seventeenth-century wasters in the Hampshire/Surrey border area. Orton (1982a, 80-1; M31) has discussed the identification of late medieval drinking jugs, but a wider range of drinking vessels occurs among the post-medieval assemblages. Again, this reflects the emergence in pottery of vessel types which had formerly been made predominantly by craftsmen working in different materials (Matthews & Green 1969, 1).

Various less common vessel forms are also represented among the output of post-medieval kilns in the region, including watering pots and cans, fuming pots, chicken feeders, distilling apparatus and sugar cones. As in the late medieval period, however, glass-making crucibles do not appear to have been made by ordinary potters. Documentary evidence for the supply of clay at Knowle, Kent implies that crucibles were made in the Weald (Kenyon 1967, 53), and specialists were doubtless employed to serve the multiplicity of furnaces which were in operation during the sixteenth century.

5.9 CERAMIC REGIONS: THE SIGNIFICANCE OF STYLE AND MANUFACTURE

5.9.1 The ingredients of a ceramic region

Regionalism is one of the salient characteristics of pre-industrial pottery manufacture (Le Patourel 1976, 122). Geographical variations can usually be recognised in form, fabric and decoration, but the spatial pattern fossilised in the archaeological record is the product of two contrasting factors, namely production and distribution. It is important therefore to distinguish between a ceramic region defined by the ubiquitous occurrence of traded products from one workshop and the recognition of similarities among the output of several different potteries.

Salzman (1913, 116) identified regional variations in the style and decoration of medieval ceramics, and Le Patourel (1968, 108) has stressed that, while few motifs are confined to one area, it is the combination of traits which is diagnostic of a regional type. One of the most intractable problems facing the ceramic archaeologist, however, is to determine which traits are significant. It was thought in the early 1960s, for example, that jugs with bases thumbed underneath represented a distinctive ceramic type confined to the Carlisle area. This was subsequently shown to be a northern feature, yet examples are now known from many different parts of the country including South-East England (Hurst 1962-3b, 298). The significance of this trait cannot therefore be assessed in isolation; it is just one of the features contributing to the identification of ceramic types defined by a combination of form, fabric and decoration.

While form and decoration may display regional features, characterisation of pottery fabrics often enables the identification of products from specific workshops. Three relevant case studies are included in the fabric classification based upon the results of textural analysis in South-East England (see Section 12.1).

Firstly, a small number of scratch-marked wares has been thin-sectioned. This distinctive ceramic trait is found extensively on twelfth-century wares in Southern England, and it persisted into the thirteenth century. Examples from South-East England lie at the eastern fringe of the distribution. Results of textural analysis show that the fabric of two samples from West Sussex is different from an isolated scratch-marked sherd found at Canterbury. Even limited sampling shows, therefore, that similar ceramic traits were adopted by different workshops (see Section 12.1.11, Group Ki). Further analysis

would certainly be worthwhile in order to compare the scratch-marked wares from Abinger and Reigate in Surrey with the fabric represented at the two sites in West Sussex (Dunning 1950b; Turner 1974b).

Scratch-marked wares - like the so-called West Country cooking pots (Dunning 1949e, 38-44) and M40 ware (Hinton 1973a) - are exceptions to the general uniformity of culinary wares which seldom display sufficiently distinctive traits to enable the identification of regional types. Regionalism is therefore manifested more clearly among decorated jugs such as the West Sussex wares discussed by Barton (1967b, 8-11). Distinctive forms can also be identified among plain jugs such as the Hertfordshire greywares (Biddle 1961a, 68). West Sussex wares therefore comprise the second case study relevant to the definition of ceramic regions (see Section 12.1.11, Group Kxl).

A larger number of examples of West Sussex ware has been thin-sectioned than for the scratch-marked vessels, yet the results demonstrate fabric uniformity over a wide area. The main group of West Sussex wares can therefore be attributed to a single unknown source with variants identified and named respectively after the type-sites at Binsted, Horsham and Middleton-on-Sea (Barton 1979, 93-98).

Textural analysis enables similar discrimination of late medieval white-painted wares selected as the third case study (see Section 12.1.12, Group Lvi). This type of decoration occurs extensively in areas bordering the south coast (Cunliffe 1973b, 46), with a known production centre as far west as St. German's in Cornwall (Wilson & Hurst 1957, 170). Differences in fabric, however, enable the white-painted wares from Graffham/East Lavington to be distinguished from other types with similar decoration found elsewhere in the region (see Section 12.1.12, Group Lvii). The late fifteenth-/early sixteenth-century white-painted vessels found in West Sussex comprise a wide range of forms including jugs, bunghole pitchers and cooking pots, implying a coherent ceramic region in which a variety of vessel types was supplied from a single source.

During the thirteenth/fourteenth century, however, white-slipped decoration was generally confined to jugs which were often traded further than coarsewares made at the same centre (Jope 1952a; 1954). Ceramic regions defined by the occurrence of decorated medieval jugs therefore represent a somewhat different pattern of production and distribution from that which can be inferred when similarities are apparent in the composition of entire ceramic assemblages within a region. Thus, while it is instructive to

identify the isolated appearance of London area and Mill Green jugs in Kent and Surrey (Pearce et al. 1982; Vince 1983) or the presence of West Sussex ware as far afield as Guildford and Southampton (Barton 1979, 101), the contemporary coarsewares offer greater potential evidence for elucidating local patterns of inland trade. It is for this reason that emphasis has been placed upon the analysis of coarsewares in the classification of medieval fabrics within South-East England (see Section 12.1).

The interest of regional variations in style and technology lies in establishing the degree to which the output of known workshops was influenced by their competitors. Indeed, different traditions can be inferred from the use of white slip for decoration at some centres such as the London area workshop and the potteries at Earlswood and Tyler Hill, compared with other contemporary industries where white-slipped vessels are unknown. Similarities of technology and style can be explained by movement of the craftsmen themselves, by the diffusion of ceramic traits through contact between workshops, and by the direct copying of rival products. These themes will be considered in the following sections.

5.9.2 Style and technology as an indication of migrant craftsmen

Post-medieval documentation attests the movement of potters between different workshops. In the nineteenth century, for example, one Joseph Johnson (or Johnston) had worked at Brede and Rye before coming to the High Halden potteries in Kent (Baines n.d., 3). At an earlier date, too, family names suggest that potters may have migrated from Toynton to Old Bolingbroke in Lincolnshire (Brears 1971a, 194), while on the continent sixteenth-century Rhineland potters from Siegburg and Raeren moved to the Westerwald area to join native craftsmen from Grenzhausen and Hohn (Clark 1979, 38). Relating to the medieval period, however, Blake and Davey (1983, 8) comment that:

'Little is yet known about possible movement of potters whether within the country or as settlers from overseas, although it probably took place'.

The identification of such movements relies upon the careful examination of ceramic traits occurring in the archaeological record. The potential of this approach is demonstrated by similarities between the seventeenth-century wasters at Ash, Surrey and those found at Stanford Farm, Pirbright. Documentary evidence confirms that a potting family by the name of Watts at Ash also held

land on the site of what is now Stanford Farm. It seems probable, therefore, that similarities among the ceramics can be attributed to this family connection (Holling 1969a, 19).

The same principles can be applied to the interpretation of ceramic evidence derived from poorly documented periods. Orton (1982a, 81), for example, has inferred a connection between the medieval potteries at Kingston and Cheam. A double horizontal groove noted on biconical jugs found at High Street, Cheam also occurs on the earlier squat jugs at Kingston-upon-Thames. Judging from the ceramic sequence established in London, it is possible, therefore, that potters from Kingston moved to Cheam during the third quarter of the fourteenth century.

Both ceramic styles and documentary evidence attest the migration of continental potters to the British Isles during the post-Roman period. Kilmurry (1980, 194-5), for instance, has compared North French wares with products of the late Saxon Stamford kilns and concludes that the industry was probably started by immigrant craftsmen. It is not possible to draw such definitive conclusions from the decorative motifs at medieval kiln sites such as Rye which resemble continental types, but the parrot-beaked spouts of some Rye jugs do suggest continental influence if not the presence of foreign craftsmen (Barton 1979, 221).

As we have seen (Section 5.2.4), the repertoire of an immigrant craftsman can be demonstrated convincingly at Lower Parrock, and Nelson (1981, 101-2) has commented on the occurrence of new forms resembling Dutch types among the early sixteenth-century wasters found at Kingston-upon-Thames. The sgraffito decoration on one of the bowls in particular is unusual in England, but there are continental analogies. At Woolwich, too, the general range of early sixteenth-century forms and certain distinctive traits such as the pulled feet possibly suggest the hand of an immigrant craftsman (Pryor & Blockley 1978, 83-4). Indeed, there is a notable contrast with the redwares found at Cheam which do not reflect the same Dutch influence inferred at Woolwich (Orton 1982a, M37). Nevertheless, it is difficult to distinguish conclusively between the repertoire of an immigrant craftsman and the copying of imported types by indigenous potters (see Section 5.9.4).

5.9.3 Ceramic traits and the diffusion of style

Topographical surnames provide an index of mobility within the population of medieval England. Indeed, emigration from medieval villages is attested by chevage payments for licences granting permission for a man to live outside his native manor (Miller & Hatcher 1978, 41). Such movements would be one way in which the demand for certain styles of pottery might influence the repertoire of a medieval potter. Changes in form and fabric during the late middle ages are also likely to reflect the wider horizons and greater geographical mobility of the English population at this period.

Nevertheless, Bellamy and Le Patourel (1970, 114 fig. 43) have argued that even within a restricted region such as Yorkshire, the regular contact between medieval craftsmen selling their wares at local markets would offer considerable opportunities for the transmission of ceramic traits from one workshop to another. Thus, in seeking to understand European ceramic regions such as those defined by Barton (1968), similarities of style can be explained more plausibly by diffusion than by extensive migration among the craftsmen themselves. Returning for instance to the repertoire of the medieval potters at Rye, it is clear that the so-called South-West French form of the parrot-beak pouring lip on the jugs also occurs in the Low Countries in conjunction with stamped decoration which is similar to the Rye wares. While there is undoubtedly a French influence, this may have come via the Low Countries or vice-versa. International transmission of ceramic styles does not necessarily imply movement of the craftsmen themselves.

There may have been movements at local level, but even here the appearance of similar motifs among contemporary products could have resulted from contacts between craftsmen, rather than from migration. Stamped wares, for example, appear among some of the seventeenth-century wasters at Cove, Hants. (Haslam 1975, 177 fig. 7 no. 62) and they are also a distinctive feature of the earthenwares made at Graffham in West Sussex (Wilson & Hurst 1960, 164). This confirms the assumption derived from identification of distinctive ring kiln-props both that the Hampshire/Surrey border potteries belong to the same ceramic tradition as those at Graffham and that there was probably contact between the two communities of potters. Conclusive evidence for migration, however, would depend upon closer dating of the Graffham wares than has been attempted so far; indeed preliminary examination of the wasters found at Graffham suggests continuity from

the earlier output as opposed to the introduction of new styles. As in the case of medieval knight jugs, which Farmer (1979, 57) believes to have originated at Scarborough, the identification of an innovation depends upon a precise and indisputable chronology. It is salutary that these two requirements can seldom be fulfilled with confidence.

5.9.4 Locally-produced copies of imported wares

Trends in the supply of imported pottery are sometimes reflected in local copies which represent no more than the efforts of indigenous potters to meet consumer demand. There is certainly no suggestion that these vessels are the work of migrant craftsmen and the copying of distinctive continental types emphasises the extent to which styles can be influenced by imitation.

Le Patourel (1976, 178) has suggested that the stimulus for copying imported forms came initially from the urban markets. So-called Rouen jugs, for example, were copied in a local fabric which is typical of jugs made in the London area. Examples from Otford, Kent are illustrated by Haslam (1978, 49 fig. 15 nos. 1-3) and a sample of the fabric has been thin-sectioned for comparison with the London area wares (see Section 12.1.11, Group Kxv). The practice of imitation, however, soon spread to the rural potteries.

Among the most common copies of the late medieval and post-medieval period were imitations of Rhineland stoneware forms. Frilled bases similar to those on Raeren stoneware mugs and the ring bases which are characteristic of the Frechen wares were copied frequently not only in South-East England but also at kiln sites as far afield as Potterton, Yorks. (Mayes & Pine 1966, 266, no. 27) and Crockerton, Wilts. (Salisbury Museum: 17/1974). At Cheam, however, the absence of frilled Raeren-type bases among the redwares is consistent with the apparent lack of Dutch influence, in contrast to wasters from other kiln sites nearer the Thames (Orton 1982a, M38).

Copies of the stonewares were often debased forms which do not correspond with any particular type of imported pottery. Examples have been found at Basing House, Hants. (Moorhouse 1970, 63 nos. 137-8), together with what is probably a local copy of a Martincamp type 3 flask (ibid., 85 no. 300). A vessel discovered after completion of the excavation at Batsford Furnace, Herstmonceux, East Sussex was evidently intended as a copy of the typical Frechen forms. Likewise, wasters at High Lankhurst, Westfield, East Sussex suggest that the potter(s) there probably copied a stoneware vessel dated 1583 which

was found near the kiln (see Section 9.1.6, no. 528).

Distinctive early seventeenth-century encrusted wares made by potters in the Hampshire/Surrey border area were probably influenced by continental types from the Rhineland (Moorhouse 1970, 56). Haslam (1975, 183-4) has also identified an unusual copy of a bellarmine vessel at Cove, dating from some 50 years earlier than the beginning of English stoneware bellarmine manufacture at Fulham. Trends in the import of French earthenwares are reflected in the mid-sixteenth-century copy of a Saintonge chafing dish found at Lincoln (Hurst 1966, 55). Likewise, the chafing dish in an unusual white fabric among the wasters from the High Lankhurst kiln may have been influenced by French imports which occur at several sites in the immediate hinterland of the south-coast ports.

Finally, it should be stressed that in order to determine the extent to which local copies represented an immediate or deferred response to foreign imports, it is necessary that the dating of locally-produced wares should be assessed in the context of trends within the sequence of imported types (Brooks & Hodges 1983, 234).

5.10 CHRONOLOGICAL CHANGES IN THE LOCATION AND ORGANISATION OF PRODUCTION

5.10.1 Duration of production

The continuity or demise of pottery production depends to a large extent upon consumer demand defined in terms of the number and prosperity of potential customers. Independent factors such as disease or the exhaustion of raw materials can also account for the decline of an industry, but demand is a prerequisite for continuity.

Although many of the thirteenth-/fourteenth-century potteries had ceased production by the fifteenth century a national summary prepared by Le Patourel (1968, 124 table vi) shows that a significant number of medieval industries continued into the sixteenth century and later. The pattern of decline and continuity in South-East England is shown on Figs. 5.21-22, and the duration of principal medieval and post-medieval potteries in adjoining regions is indicated by the tabulated synthesis in Section 9.2.

Owing to deficiencies in the archaeological and documentary evidence, it is sometimes impossible to substantiate the apparent continuity of pottery manufacture in a particular area. Individual sites are discussed in the gazetteer of production centres (see Section 9.1). At Brede, East Sussex, for example, potters are recorded in both the medieval and post-medieval period, but their respective kiln sites are located in different parts of the parish and conclusive evidence for continuity is lacking (see Section 9.1.6, nos. 386-392). The documentary sources for Lindfield, West Sussex are even less satisfactory with only isolated references to potters in 1380 and 1629 (see Section 9.1.7, no. 596). In the post-medieval period, too, it is difficult to assess whether or not there was continuity of production at Uckfield, East Sussex between 1613 and 1770 (see Section 9.1.6, nos. 518-519). Indeed, the career of Absalom Harris and his pottery at Charles Hill, Elstead, Surrey in the mid-nineteenth century demonstrates that some workshops were fairly short-lived (see Section 9.1.3, no. 312). The duration of known post-medieval potteries is shown on Fig. 5.22.

In addition to social and economic factors which would affect the longevity of a workshop at any period, the effects of plague during the middle ages could result in the loss of both craftsmen and customers. At Hanley, Worcs., for example, a whole community of potters was wiped out by the Black Death (Le Patourel

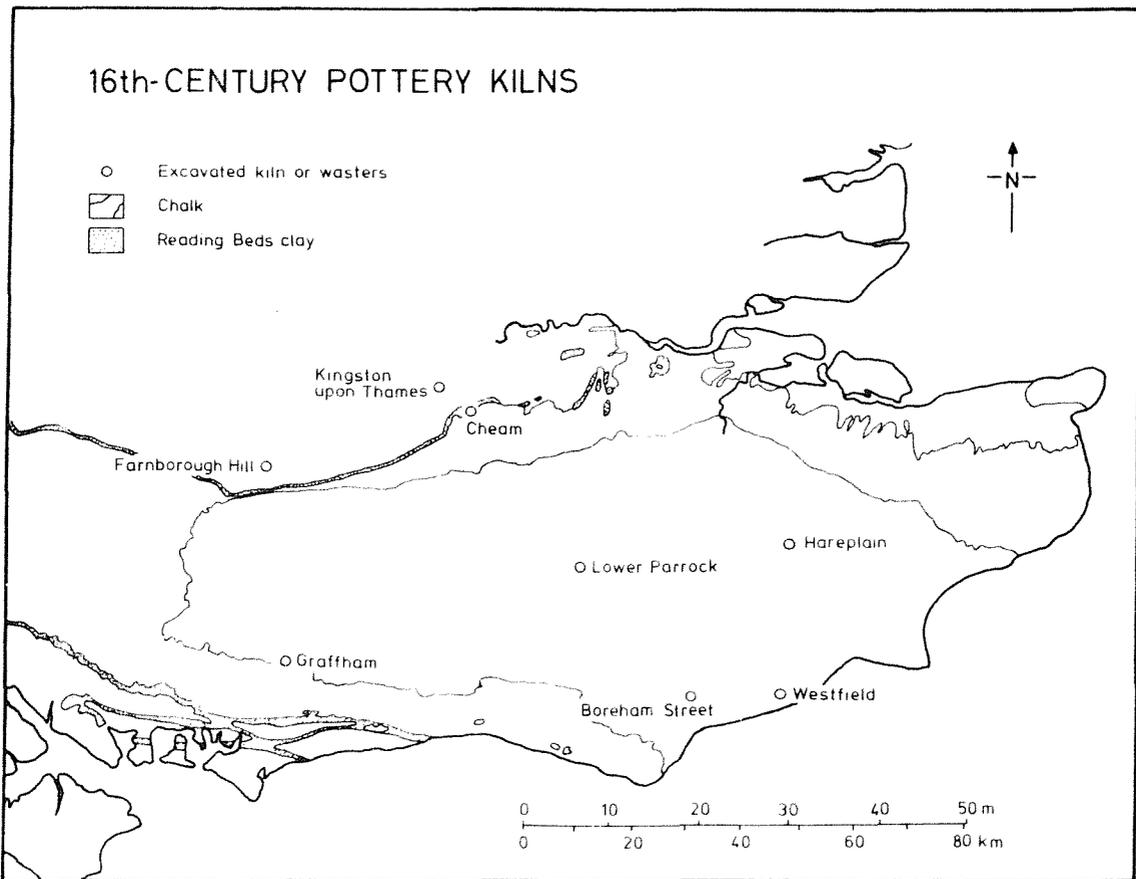
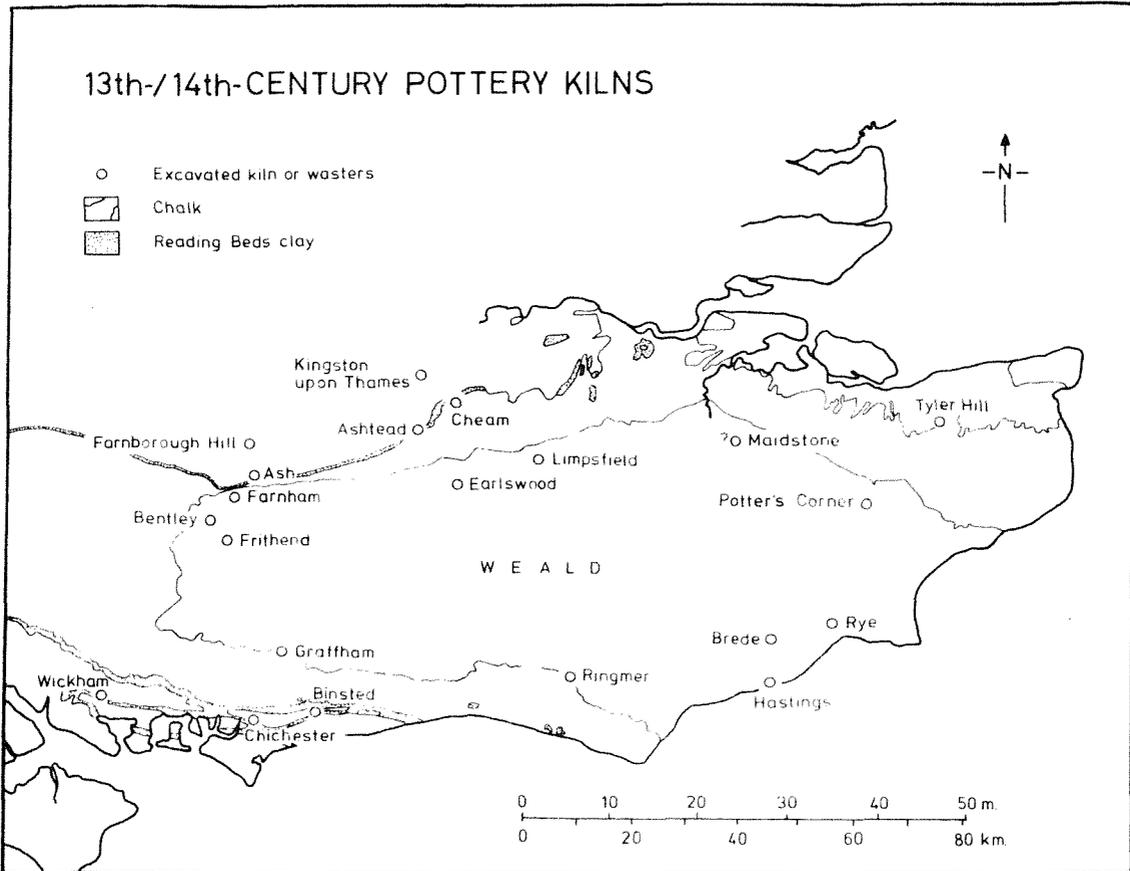


Fig. 5.21 South-East England. Principal medieval and post-medieval kilns

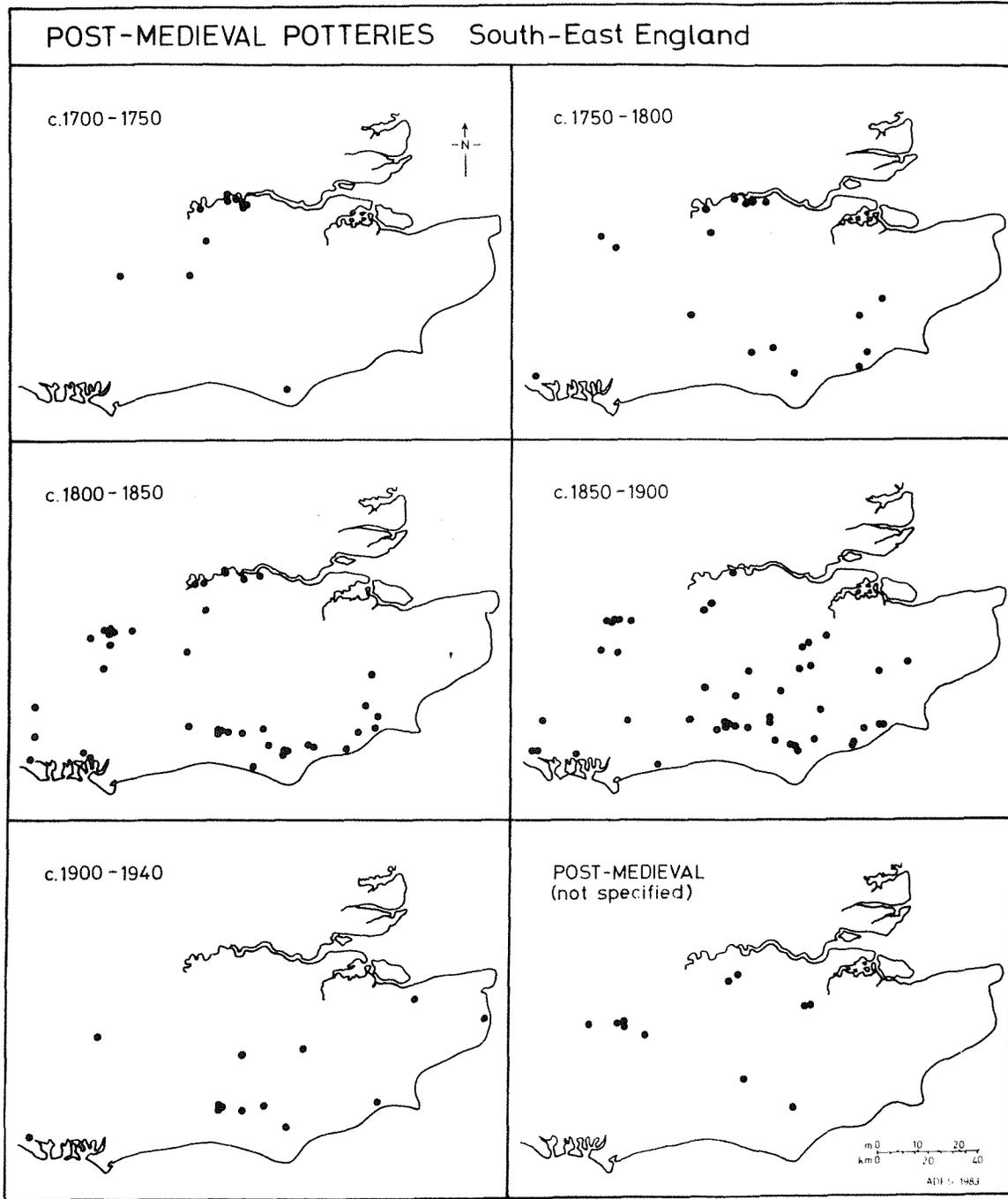


Fig. 5.22 South-East England. Post-medieval potteries

1968, 108), yet research by A.G.Vince has shown that there was no interruption in production. The effects of plague on industry in general tended to be short-lived (Hatcher 1977, 31). Thus, pottery production at Ringmer, East Sussex persisted, albeit with significant fluctuations in the number of potters recorded within the village (see Section 9.1.6, no. 496). Manorial documents indicate that all the potters at Ringmer had died in 1457 (VCH Sussex 1907, 251), but production appears to have been revived a few years later.

Smaller enterprises would have been more seriously affected if, for one reason or another, the potters' craft was not carried on by a subsequent generation. Mere size, however, did not necessarily guarantee continuity, because the extensive medieval industry at Limpsfield seems to have ceased sometime between 1398 and 1424 (Percy 1970).

Discussing the transitional ceramic types of the fifteenth century, Moorhouse (1979, 58) has maintained that:

'... many of these traditions owed little influence to those which they superseded, and suggest a complete break in the pottery industry, with new forms being introduced, new technology being used in their manufacture and different spheres and perhaps methods of distribution'.

Where it is possible to compare medieval and later vessels made at the same place, changes in form appear to have been accompanied by the refinement of the fabrics. Distinctive late fifteenth-/sixteenth-century white-painted wares made at Graffham/East Lavington have a much finer texture than the local fourteenth-century products, but when wasters of both dates were subjected to detailed textural analysis, using the methods described in Section 3.3, it was clear from the distinctive range of quartz grain sizes that the same raw materials had probably been exploited at both periods (Streeten 1980, 108-110). On the other hand, minor variations in the fabric of wasters found at Ringmer are not sufficient to identify conclusively the site of sixteenth-century workshops belonging to seven potters who were recorded in the village in 1530 (VCH Sussex 1907, 47). Despite the extensive fieldwork which has been undertaken at Ringmer, it must be concluded either that these workshops have yet to be located or that an output of conservative forms and fabrics persisted into the sixteenth century.

It will be apparent from the examples at Graffham and Ringmer and from previous discussion of the scale of ceramic

production at sixteenth-century workshops in the Weald that two distinct types of location are to be recognised among kilns of this period in South-East England:

- i) Industries operating at centres with a long tradition of pottery manufacture.
- ii) Smaller enterprises, often short-lived and established on a new site.

These contrasting production centres will be considered in the following sections.

5.10.2 Nucleated workshop industries and the continuity of potting villages

There were clearly regional variations in the organisation of pottery production during the late fifteenth and sixteenth centuries. Isolated rural workshops were accompanied by larger specialist centres often at places with a history spanning many generations of potting families.

In West Sussex, for example, it can be shown that the markets formerly served from medieval kilns at Chichester, and Binsted were captured by the Graffham potters whose late fifteenth-/sixteenth-century white-painted wares are found at distances of over 30 km (18 miles) from the kilns (see Section 6.5). Fieldwork in the parishes of Graffham and East Lavington has yielded evidence of fourteenth-century wasters at Middleheath Copse and Upper Norwood, with fifteenth-/sixteenth-century types from Lavington Common (Fig. 5.23). The presence of white-painted wares and later post-medieval types at Upper Norwood identifies this as the likely nucleus of the industry, while seventeenth-century wasters have also been found at Ochre Pits Copse (see Section 9.1.7 nos. 577-8 and nos. 571-2).

A research project under the auspices of the Chichester Excavations Committee was launched in 1976 to investigate the history of pottery manufacture in this part of West Sussex. Conclusions must therefore remain tentative until the results of this work have been published. Nevertheless, comparison with the apparent nucleation of production at Ringmer (Fig. 5.1) suggests a confederation of individual workshops at Graffham/East Lavington. Uniformity among the white-painted wares, however, combined with the extent of the market area served from this centre, implies co-ordinated marketing, possibly by middlemen.

Among the other nucleated workshop industries of the

thirteenth/fourteenth century, those at Ringmer, Tyler Hill and in the Hampshire/Surrey border area also remained significant centres of pottery manufacture in the sixteenth century and later. As we have seen, seven potters were working at Ringmer in 1530 and examination of ceramic assemblages in Canterbury confirms continuity of the Tyler Hill industry. Farnborough Hill was clearly an important specialist centre with a wide market area. However, the scale of late fifteenth-/sixteenth-century production at Cheam, Kingston-upon-Thames and other riverside sites in the London area is not known. Discoveries so far have been confined to individual groups of wasters. It is unlikely that production of redwares at Kingston represents continuity of the medieval industry, but evidence from Cheam does provide a clear indication of the transition from white to red fabrics, albeit at only one of the kiln sites which have been investigated.

Although a potter by the name of Thomas ffield is mentioned in the parish registers for Limpsfield, there is no evidence that his occupation represents continuity from the medieval industry (see Section 9.1.5, no. 347). At Wrotham, too, there is a similar gap in the evidence for pottery manufacture between the medieval period and the seventeenth century. Thus, the history of these industries is different from that at Graffham/East Lavington situated in an equivalent geological zone on the opposite side of the Weald (see Section 5.3.6). In the absence of comprehensive fieldwork in west Kent, it would be premature to identify the demise of pottery manufacture at Limpsfield and Wrotham as a regional phenomenon. Nevertheless, the evidence does appear to emphasise a marked contrast between the organisation of production in the eastern and western parts of the Weald during a significant period of ceramic history.

5.10.3 Dispersed rural workshops

The location of known kilns and the content of ceramic assemblages in west Kent and East Sussex shows that several sixteenth-century workshops were established on new sites in the Weald some distance away both from centres of population and from contemporary markets (see Section 5.4.4). Output of these potteries comprised hard-fired earthenwares distinguishable one from another only by minor variations in form and by textural analysis of the fabrics (Fig. 5.24).

An extensive programme of thin-section analysis, including both wasters and marketed vessels, has demonstrated that it is

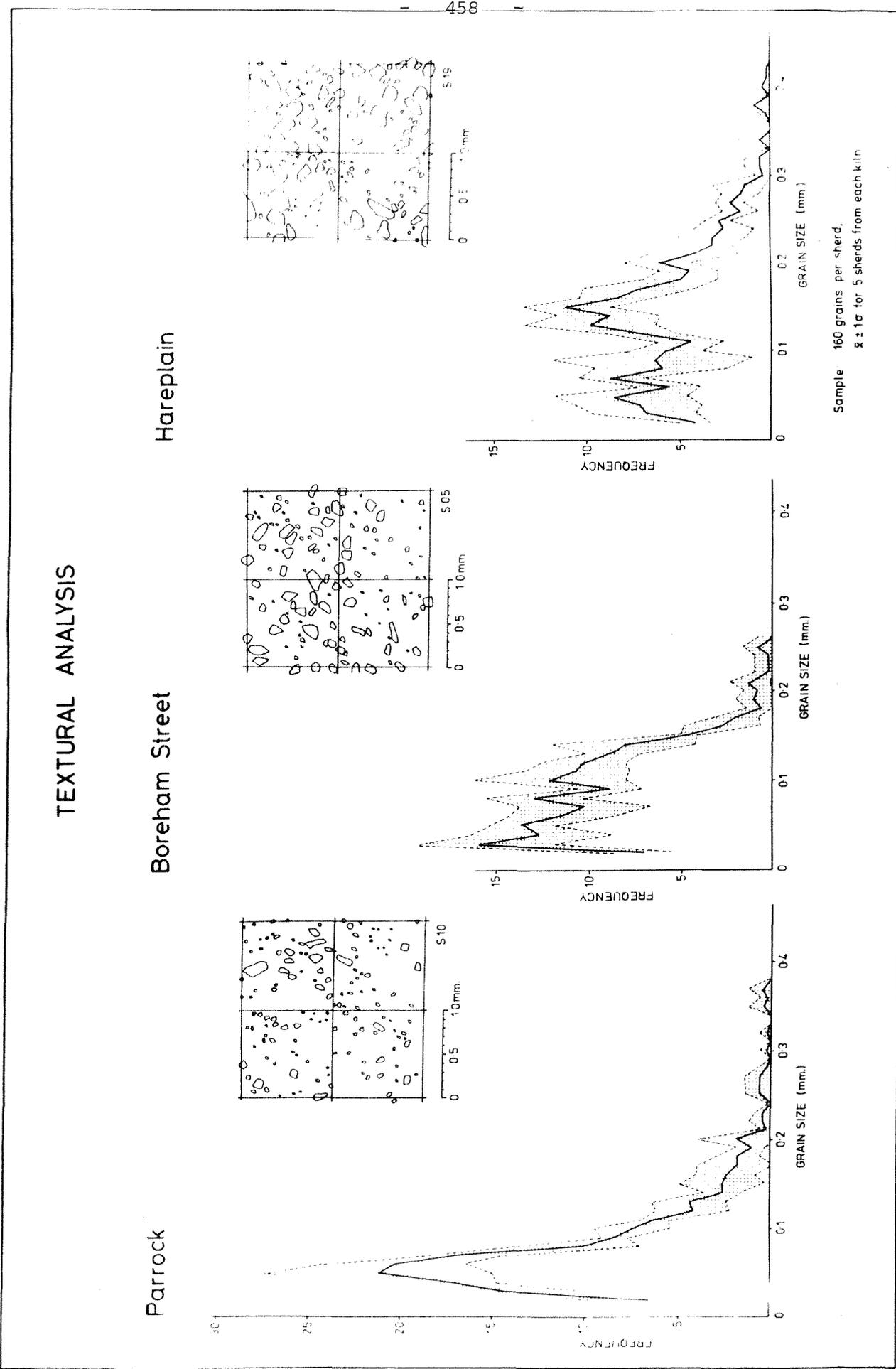


Fig. 5.24 Textural analysis. Fabric characterisation as a means of distinguishing between visually similar products of early post-medieval kilns.

possible to estimate the number of sources represented in an assemblage (see Section 3.4.1). Results from Bayham Abbey and other sites in the High Weald confirm that demand for pottery in this area was met from several different workshops (see Section 4.3.3). Some of the localised distributions reflecting the existence of the small rural potteries are illustrated in Section 12.1.12, and the kiln sites themselves are described in the gazetteer of production centres (see Section 9.1).

5.10.4 Immigrant craftsmen

One of the most significant changes of the late fifteenth and sixteenth centuries was the arrival of immigrant potters in the region. As we have seen, their existence is attested both by documentary evidence and alien ceramic traits in the archaeological record (see Section 5.9.2). This trend is comparable with other areas.

Walloon refugees settling in Hampshire during the mid-sixteenth century included textile workers and other craftsmen; indeed, Platt and Coleman-Smith (1975, 2, 27) have acknowledged the likely contribution of immigrant potters to the Dutch influence among local wares in the hinterland of Southampton. Immigration in the Weald reached a peak during the 1520s and 1530s (Awty 1981, 525; 528 fig. 1). At about this time it would seem that a potter from the Beauvaisis set up his workshop at Lower Parrock, Hartfield and another immigrant potter is recorded at Worth in 1551 (see Section 9.1.6, no. 443 and Section 9.1.7, no. 532).

Not all immigrant potters, however, settled in the countryside (see Section 5.4.3), as witnessed by the arrival in London of the tin-glazed earthenware makers in the later sixteenth century. Potters from the Low Countries are also recorded at Sandwich and Maidstone, but their products have yet to be identified. An urban location was also favoured at Exeter where local copies of Dutch forms are likely to have been made by an immigrant potter recorded in the town (Clark 1979, 45). Similar wares which appeared at Norwich after 1507 can probably be attributed to comparable circumstances (Jennings et al. 1981, 134-6).

The effects of immigration upon the production and distribution of ceramics would have been twofold. Firstly, the arrival of foreigners in significant numbers would have enhanced demand for the type of pottery with which they were familiar.

Secondly, there might be a tendency towards the establishment of workshops on new sites away from direct competition with the established potteries, although, in the absence of direct evidence, the possibility that immigrant potters joined existing workshops cannot be ruled out. Craftsmen accustomed to urban potteries would have been attracted to the towns, but for others who probably settled alongside their compatriots, the choice of location for their workshop would doubtless have been determined by social rather than purely economic factors.

5.10.5 Case study: Hartfield and Withyham, East Sussex

The introduction of pottery production at Lower Parrock, Hartfield during the second quarter of the sixteenth century would have provided a local source for a commodity which had been supplied previously from elsewhere. Ceramics from the site of a small medieval settlement at Upper Parrock some 0.5 km south-east of the pottery have therefore been examined to identify changes in the pattern of marketing which would have resulted from the arrival of an immigrant potter in the area.

The fabrics are described on the accompanying table (Figs. 5.25A-B), and the results of textural analysis undertaken to confirm the identification of sources are illustrated on Fig. 5.26. Material recovered by Mr C.F.Tebbutt from the two principal pottery scatters at Upper Parrock has been quantified by both weight and sherd count. The data are summarised in pie charts on Fig. 5.26, and the validity of these results is confirmed by consistency between the two samples.

The bulk of the pottery dates from the thirteenth to sixteenth centuries. The terminal date is reasonably certain because the quantity of post-medieval wares is negligible. During the thirteenth and fourteenth centuries pottery was supplied from east Surrey, particularly from the kiln(s) at Earlswood, Reigate. Grey coarsewares are similar but not identical to output of the Limpsfield potteries; they may have been obtained from another workshop in that area. No foreign imports have been recognised at this period, but by the sixteenth century the ubiquitous Rhineland stonewares were available at small settlements in the Weald, and the inhabitants of Upper Parrock could purchase domestic utensils nearby.

Unfortunately, there is no evidence to suggest the origin of fifteenth-century wares used in this area, but a simple geographical comparison between the medieval and early post-medieval

MEDIEVAL AND POST-MEDIEVAL POTTERY OF THE HARTFIELD AREA

FABRICS

The material from different parts of a large scatter at Upper Parrock (TQ 446 345-446 346) has been classified visually on the basis of inclusions, texture and colour. The quantity of sherds is sufficient to produce a local fabric series to which the smaller collections from other sites can be related.

DESCRIPTIONS

The fabric descriptions follow the conventions suggested by Peacock (1977^a; 21-33).

A. Shell/sand tempered fabrics

The core and surface is usually grey, although mottled pink sherds do occur. Surfaces are soft and fairly smooth, but sometimes harsh when the sand temper is abundant. A rough fracture shows common inclusions of fine rounded quartz, and moderate plate-like voids of medium-sized angular shell fragments.

Shell-tempered fabrics (A) are assumed to be earlier than the bulk of 13th-14th-century wares, but vessels containing varied quantities of shell and sand remained in use in West Kent until c. 1300 (Rigold, 1971, 164). The type occurs in small quantities at Upper Parrock I and II and has been noted at a nearby bloomery (TQ 452 341). A badly eroded everted rim sherd with abundant shell temper comes from another iron-working site at Chandlers Farm, Hartfield (TQ 471 387) (Pettitt *et al.*, 1970, 167), and may be as early as the 12th century.

B. Flint-tempered fabrics

The grey core has red internal and external surfaces. The surface is soft and harsh, with a rough fracture. Abundant medium-sized rounded quartz and rare coarse angular flint inclusions are found.

The use of flint-temper (B) implies a source outside the Weald. Sherds are extremely few, but the type has been found at Upper Parrock I and on an early hand-made rim sherd from Maresfield (TQ 469 252).

C. Red and grey sand-tempered fabrics.

Division of these sherds, particularly the grey wares is seldom satisfactory, but some distinction can be made according to colour (oxidized or reduced) and texture.

- (i) Red oxidized surfaces, occasionally with a grey core. The texture is usually smooth but sometimes harsh with a rough fracture, showing common inclusions of medium-sized quartz with moderate pellets of red iron ore. This type occurs both unglazed (a) and with a white slip, sometimes under an eroded green glaze (b).
- (ii) The red colour of this fabric is brighter than C(i), and the texture, although soft, is smoother, with a smooth fracture showing moderate inclusions of fine quartz.
- (iii) Grey core with grey-buff surfaces, soft harsh texture with rough fracture and common inclusions of medium-sized rounded quartz.
- (iv) Grey core with dark grey-black surfaces. The texture is hard and fairly smooth, with a rough fracture showing moderate inclusions of fine quartz.
- (v) Grey-buff core and surfaces. The hard fairly smooth texture is similar to C(iv), with a rough fracture and moderate inclusions of medium-fine quartz.
- (vi) Grey-buff core and surfaces. The texture is hard and harsh with a rough almost hackly fracture, showing common inclusions of fairly coarse rounded quartz.

Both oxidized and reduced sand-tempered wares occur in a variety of textures throughout West Kent and East Surrey (Crossley, 1975: 48-9), and the Parrock assemblage conforms to this pattern. Red wares (C(ii)) were being produced at Earlswood (20 km.), near Reigate (Turner, 1974a, 47-55), probably in the 14th century, and many of the cooking pot rims at Parrock have features in common (compare rims from Earlswood [Turner, 1974a, 51, fig. 3, No. 1] and Parrock [Tebbutt, 1975: 149, fig. 2, No. 5]). The decoration, white slip, and thumb-pressed bases of the jugs are also matched at Parrock, and, in addition to the stylistic evidence, textural analysis of both slipped and unslipped sherds compares favourably with the range of grain sizes at the Earlswood kiln (fig. 5.26 graph 1). The curve is not particularly distinctive but contrasts strongly with oxidized wares from Potter's Corner, near Ashford, Kent (Grove and Warhurst, 1952, 183-7). Visual identification of the Earlswood fabric from isolated finds is not always practical, but both slipped and unglazed sherds occur at Faulkners Farm, Hartfield (TQ 477 384) and oxidized coarsewares have been found in small quantities at the Lower Parrock kiln site, at Ham Farm, Withyham, at Maresfield, and at local bloomery sites.

The fine oxidized wares (C(ii)) are probably of later date, and come from a different, unknown, source (fig. 5.26 graph 3). In addition to Upper Parrock I and II, the type also occurs at Castle Field, Hartfield (TQ 482 361) (Tebbutt, 1980a.)

Fig. 5.25A Upper Parrock, Hartfield: pottery descriptions and identifications

Identification of a source for the reduced coarsewares (C(iii-vi)) is hindered by the wide range of textures, and even a few of the normally oxidized Earlswood wasters were fired grey. The range of material is similar to published groups from Reigate (Turner, 1974b, 88-94). Some vessels must have come from the extensive production centre at Limpsfield (18 km.), but textural analysis of a sample from one of the Parrock fabric groups matches neither the Watts Hill 1 nor the Scearn Bank wasters at Limpsfield (Prendergast, 1974, 57-77) (FIG.5.26 graph 2). A number of early place-names possibly associated with pottery production occur throughout S.E. Surrey in comparable geological environments; in view of the similarities between the Earlswood and Limpsfield graphs it is unlikely that textural analysis will be able to distinguish the products of individual kilns within the East Surrey 'industry'. Reduced coarsewares occur in large quantities at Upper Parrock and in smaller numbers at Ham Farm, Withyham, Walesbeech Farm, East Grinstead, Maresfield and Butcherfield Lane (TQ 470 369) and Faulkners Farm, Hartfield. Three residual sherds were found at the Lower Parrock kiln site.

D. White sand-tempered fabrics

- (i) White or off-white core and surfaces, sometimes slightly pink. Fairly soft harsh surface texture with rough fracture showing abundant inclusions of medium/coarse coloured quartz.
- (ii) Off-white core and buff surfaces. The hard smooth texture is distinctive and the fracture shows moderate/rare fine quartz inclusions.

The white and off-white sand-tempered wares (D(i-ii)), are quite distinct from the local fabrics and occur in only small quantities at Parrock. They are undoubtedly products of the industry exploiting outcrops of Reading Beds clay (Holling, 1971), and the Hartfield finds lie at the south-eastern limits of the distribution. Production of these so-called 'Surrey' white-wares had begun by the second half of the 13th century, but the coarse sand-tempered types are conventionally ascribed to the 14th century. The buff-surfaced wares are probably slightly later (Turner, 1977: 81-2).

E. Early post-medieval earthenwares.

- (i) Red core, sometimes with grey surfaces. The texture is very hard and smooth with a smooth fracture, showing sparse grains of fine quartz, small pellets of iron ore and medium-sized inclusions of light coloured siltstone.
- (ii) Red-pink core and surfaces. Soft, sometimes harsh surface texture with smooth fracture, showing common inclusions of medium/fine quartz, rounded particles or iron ore and sparse medium-sized fragments of siltstone.
- (iii) Pale grey core with red-pink internal surface and dark grey exteriors. Hard smooth surface texture with fairly smooth fracture, showing common inclusions of very fine quartz. The external surface has traces of two dull white-painted bands 25 mm. apart.
- (iv) Other hard-fired smooth surfaced earthenwares, ranging in colour from red, through purple to grey.

F. Rhineland stonewares

Products of both the Raeren and Frechen centres are represented.

G. Other post-Medieval wares

Later material includes other stonewares, brown-glazed earthenwares and Staffordshire-type combed ware.

Distinction between the late medieval and early post-medieval fabrics is seldom satisfactory, and a number of groups from Upper Parrock must remain unclassified (FIG.5.26). Two groups of wares (E(i-ii)) can, however, be attributed to the Lower Parrock kiln (FIG. 6.19), although the texture of the sand-tempered products is only slightly different from earlier oxidized fabrics (FIG.5.26 graphs 3 and 4). Division must be based on hardness of the surface.

A single sherd of white-painted ware (C(iii)) from Upper Parrock is visually similar to other isolated finds from Tonbridge (Streeten, 1976: 114) and West Malling, Kent (Maidstone Museum: med. 23). The source is not known but the fabric is distinct from the Graffham white-painted wares of West Sussex (Section 12.4.12). The products of other kilns are also represented (E(iv)) and in general the fabric of these sherds is even smoother than the Lower Parrock wasters.

Fig. 5.25B Upper Parrock, Hartfield: pottery descriptions and identifications

period illustrates the nature of the changes which had taken place (Fig. 5.27).

Pottery finds have been plotted against known elements in the medieval settlement pattern. Place-name evidence is instructive for the identification of early farms and hamlets, and it can be inferred that the Earlswood wares which have been discovered by Mr C.F.Tebbutt in the parishes of Hartfield and Withyham are probably typical of the medieval ceramics used at other settlements in the area. Doubt concerning the significance of the place-names Crockers Bank Pond and Crockers Hatch Corner (see Sections 9.1.6, no. 429 and 9.1.4, no. 244) is confirmed by the occurrence of Earlswood wares in the vicinity. Few examples of the Lower Parrock products have been found, but they were the dominant sixteenth-century type at Lines Farm, Upper Parrock, and the distinctive sandy fabric has been recognised at Ham Farm, Withyham. Comparison of the modern road network with tracks shown on a map accompanying the Buckhurst Terrier in 1597-8 (Straker 1933, maps i-xl) demonstrates continuity within the network of local communications. Routes followed by the Lower Parrock potter and his customers would have been much the same as existing lanes in the area today.

This case study illustrates the need for an integrated approach to the understanding of production and distribution. It makes a fitting overture to more detailed discussion of ceramic marketing.

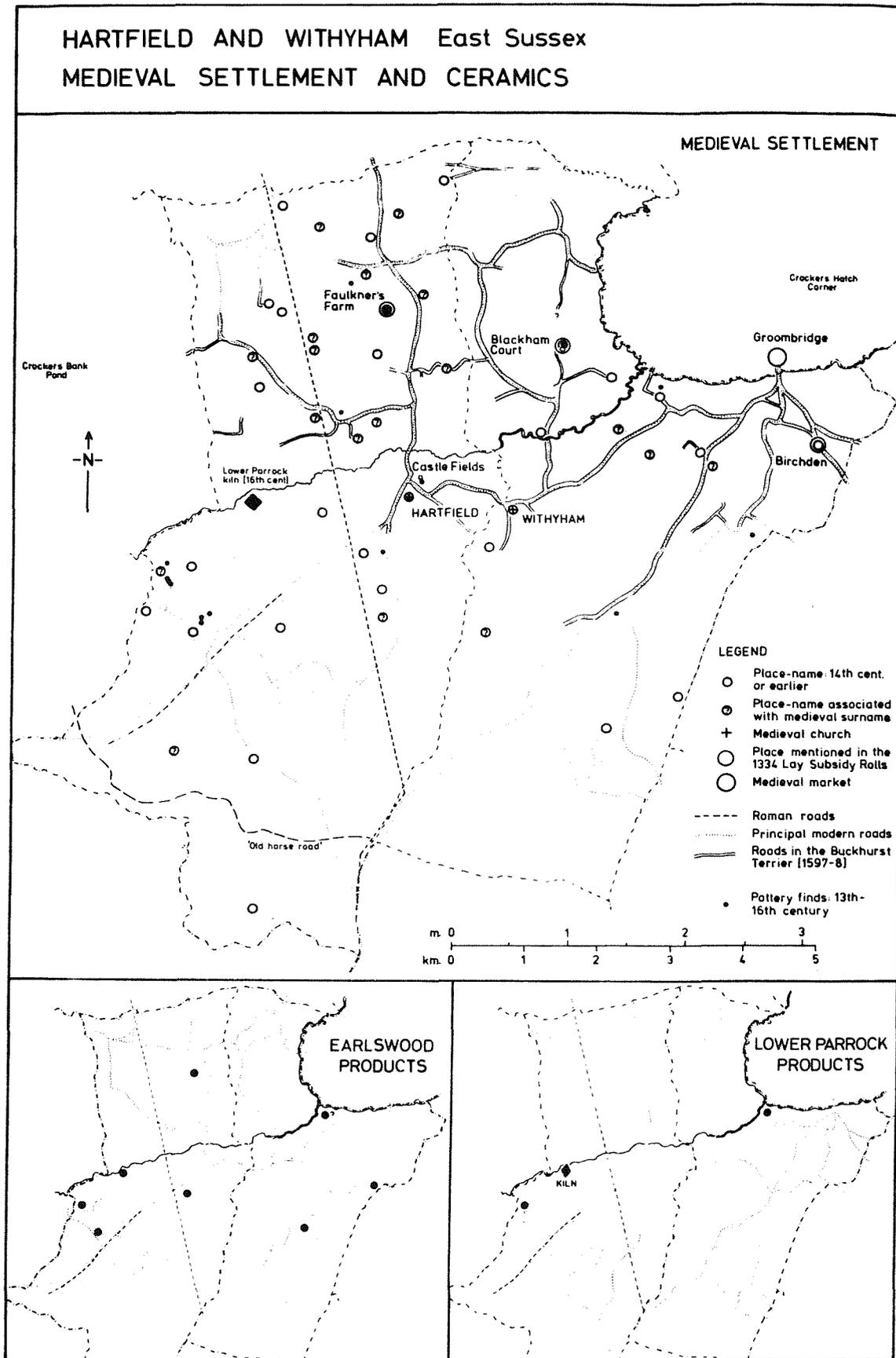


Fig. 5.27 Hartfield and Withyham. Medieval settlement, and changes in pottery production and distribution

6. POTTERS, MARKETS
AND CONSUMERS

6 POTTERS, MARKETS AND CONSUMERS

6.1 INTRODUCTION

The extent of inland trade in medieval pottery was largely governed by the relatively high cost of transport in relation to the generally low price of the products. Salzman (1926, 233-4) summarised the situation:

'The medieval community was, for its industrial wants, very largely self-supporting. Nowadays the Sussex villager buys the earthenware made in Staffordshire ... In the middle ages ... if there was not a potter in his own village he would not have to walk far to buy his crocks of Sussex clay'.

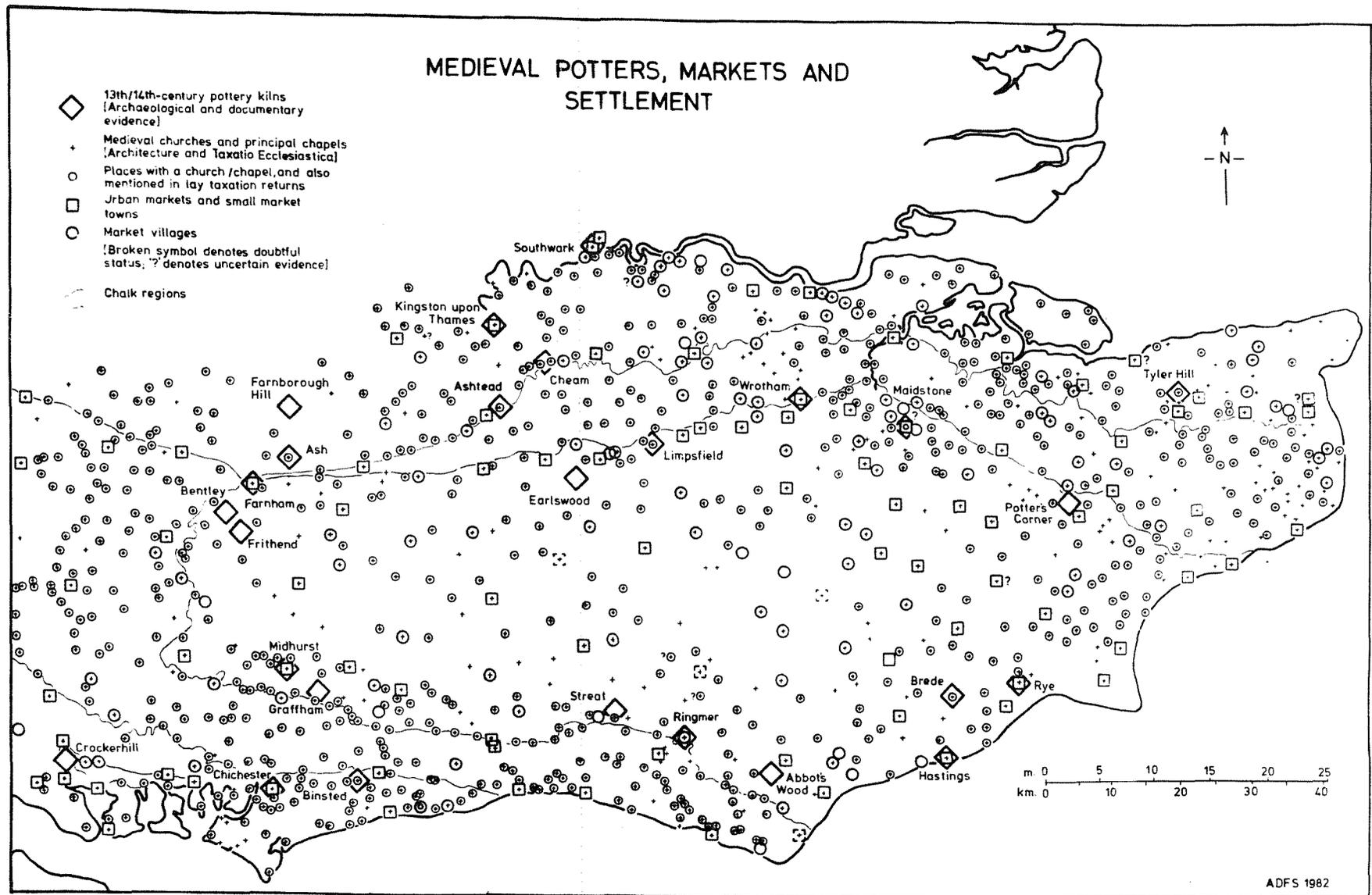
Local trade in domestic utensils such as pottery is seldom recorded in medieval documents. Interpretation of local marketing patterns therefore depends upon evidence derived from the archaeological record, yet as Peacock (1982, 92) has observed, pottery finds are often too scarce for reliable mapping of localised distributions. This emphasises the importance of recording small groups of pottery as well as the larger assemblages (see Section 10).

Blake (1980, 5) has stated the principles of ceramic marketing:

'The assumption behind all distribution studies is that the consumers wanted and were able to buy the products. Purchasing power, price, value and even the necessity to have a minimum amount of people or demand for a good in a given area have been acknowledged but not explored'.

The marketing of medieval pottery should therefore be studied in relation to contemporary settlement patterns. Indeed, owing to the extent of documentation and surviving topographical information, the pattern of medieval markets and settlements as defined in Section 1.4 and shown on Fig. 6.1 can be used as a reliable framework within which to test assumptions about pottery distribution (see Section 6.3). The Poll Tax returns of 1377, for example, show that vills in Northumberland had an average of 35 taxpayers, while in Kent the average was 108 (Beresford 1963, 24-5). It could be argued therefore that demand from the villages in east Kent would have been sufficient to sustain a nucleated workshop industry with sales through local markets, whereas ceramic production in parts of Northumberland is

Fig. 6.1 South-East England. Medieval potters, markets and settlement



likely to have been on a smaller scale, perhaps with more restricted distributions supplemented by imports from outside the region.

Various writers have summarised the possible methods by which a potter's wares might reach his customers (Renfrew 1977, 9-10; Moorhouse 1978b, 4; Blake 1980, 5; Moorhouse 1981, 108-114; Dyer 1982, 38 and Moorhouse 1983b, 109). In theory at least different methods of distribution should be identifiable in the archaeological record, but Fulford (1981, 197) has drawn attention to the problems of archaeological inference: the distribution of Malvernian wares, for example, is similar during the pre-Roman, Roman, medieval and post-medieval periods, yet there were undoubtedly changes in the methods of distribution. Vince (1981, 319) is also pessimistic about the possibility of distinguishing between similar patterns derived from entirely different methods of distribution: 'speculation on the methods of marketing', he believes, 'is not very productive'. Certainly, if progress is to be made, it is necessary to establish a framework within which inferred methods of distribution can be compared with their anticipated characteristics in the archaeological record (see Section 6.2). One such scheme which has been proposed by Toll (1981, 89) is considered below.

There is some documentary evidence for the marketing of ceramics during the post-medieval period. Sometimes, the information is of a general nature as at Ticknall, Derbs. where Philip Kinder records in his Collections towards a History of Derbyshire (c.1650) that 'earthen vessels, potts, and pancions' ... were ... 'carried all England through' (Brears 1971a, 175). Other references are more specific, and the description of William Smith's enterprise at Farnborough, Hants. during the nineteenth century is particularly instructive (see Section 6.4). A trade directory for Fareham, Hants. in 1867 also includes the interesting information that:

'The west and other parts of England, the Channel Islands, and a portion of the European Continent are supplied from this town with red pottery' (Brears 1971a, 186).

Even today, chimney pots formerly made at Fareham and which bear the distinctive white-banded decoration can be seen on houses in Hampshire and the Isle of Wight.

For the medieval period, however, it is only in exceptional cases that the few references to purchases of pottery give an insight into the methods or extent of ceramic distribution. An entry in the Cellarers' Accounts for Battle Abbey in 1306-7 is typical of the

evidence which can be expected :

'For earthenware pots, 8d' (Searle & Ross 1967, 48).

Without knowing the number of pots involved, such references are of limited value even for assessing the prices paid for medieval pottery. In this respect, if not for understanding methods of distribution, entries in the Accounts of the Steward of Chalvington are more instructive:

<u>19 Edward I (1290-91)</u>	
2 pitcheris luteis emptis	¾d
2 ollis luteis emptis	¾d
<u>22-23 Edward I (1293-95)</u>	
Et in duabus ollis luteis emptis	1d
<u>11-12 Edward III (1337-1339)</u>	
In ollis luteis emptis ad usum famulorum	1½d
<u>12-13 Edward III (1338-1340)</u>	
In ollis et patellis luteis emptis ad usum deherit	5d
<u>20-21 Edward III (1346-1348)</u>	
In ollis luteis emptis	1½d
(ESRO: SAS CH 246-250)	

The prices of around ½d paid by the Chalvington household during the 1290s are consistent with figures elsewhere before a general rise in the price of pottery and other commodities which took place during the early fourteenth century (Le Patourel 1968, 124 table v; Dyer 1982, 38). In the fifteenth century, for example, two watering pots mentioned in the Cellarers' Accounts for Battle Abbey cost 1d each (Searle & Ross 1967, 140).

Specific references to the purchase of earthenwares, such as those recorded at Chalvington, imply that the vessels were obtained for use rather than as containers. Nevertheless, archaeological evidence for some 'extended' pottery distributions can probably be explained by the use of earthenwares for transporting foodstuffs or other materials (Peacock 1982, 112). Owing to the limited range of vessel types used during the medieval period, however, it would be difficult to distinguish between pots which were carried long distances as containers and those which were transported to distant markets by middlemen. The form of a medieval vessel is unlikely to betray its function as a container.

Documentary evidence can assist with identifying likely methods of distribution but it seldom offers a direct means of interpreting the archaeological record. We do not know, for example,

whether the purchases included in the Chalvington Accounts were made at the local market at Hailsham or whether the vessels were obtained direct from a nearby potter. The nearest pottery would have been at Abbot's Wood, Arlington, but the workshops at Ringmer were situated only some 8 km (5 miles) away. Interpretation is a matter for speculation, but it is essential that inferences should be made within a clearly-defined framework of assumptions. Methods of distribution which can be inferred from the pattern of archaeological evidence will be considered in the next section.

6.2 PATTERN AND PROCESS: THE ORGANISATION OF DISTRIBUTION

6.2.1 Direct sales at the workshop

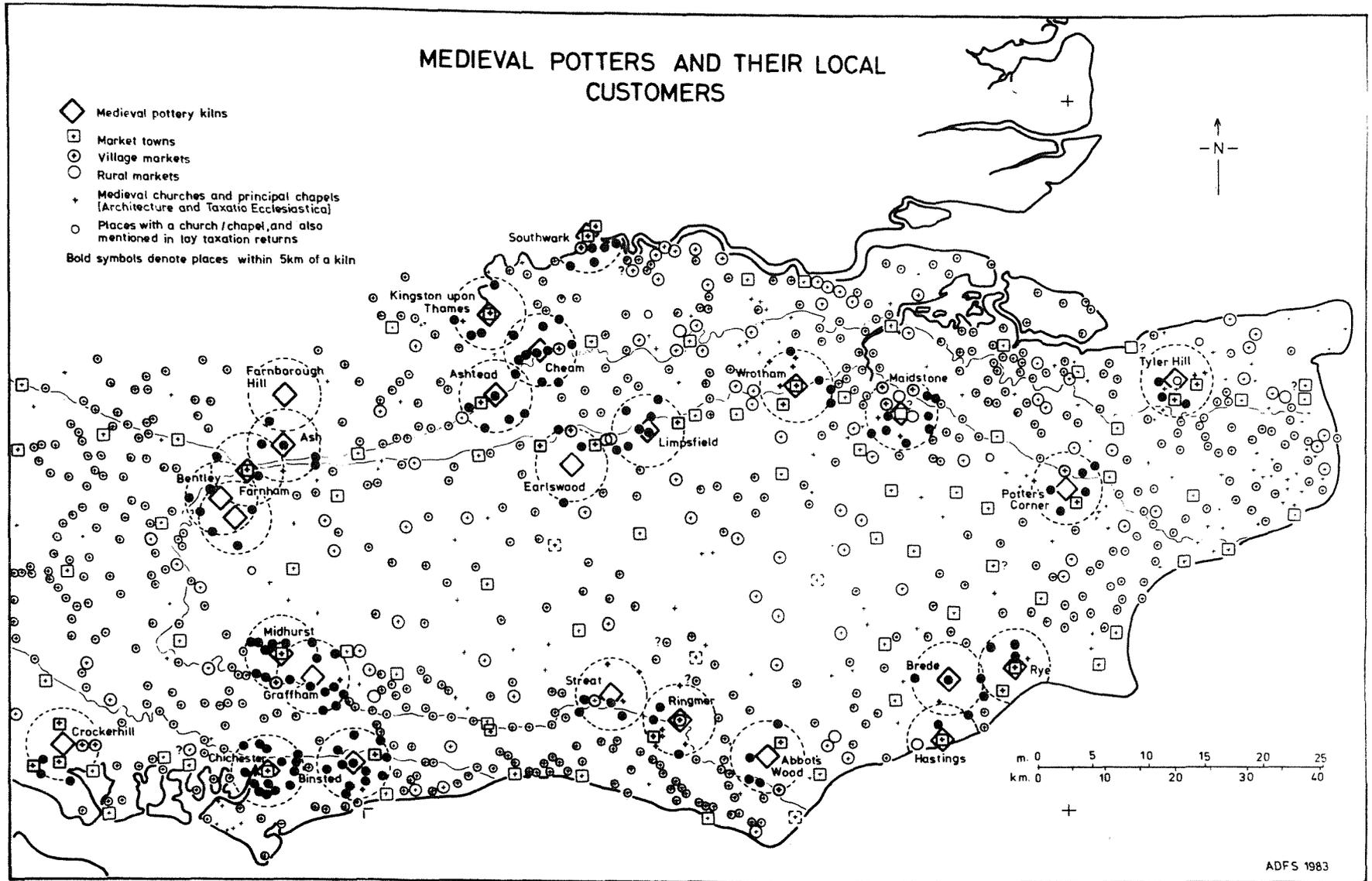
There is documentary evidence to substantiate the assumption that customers living in the vicinity of a pottery would probably have obtained their requirements direct from the workshop. At Toynton, Lincs., for example, most of the pots were sent for sale at markets, but some were left behind for the potter to sell in person at a later date (Le Patourel 1968, 119). Moreover, the buildings held by one Adam Beneyth at Woodstock in 1279 were described as a tenement with a kiln and a garden, with two stalls and a workshop all joined together (ibid., 116). The presence of stalls implies direct sales to customers who came to the workshop.

This so-called 'supply zone behaviour' (Toll 1981, 89) can be identified in the archaeological record by restricted distributions confined to the vicinity of a workshop. The extent of the area would depend upon the length of time spent on journeys which consumers were prepared to make. It is impossible to offer quantified estimates, but it is reasonable to assume that in South-East England most residents within 5 km (3 miles) of a kiln would have obtained their ceramics from that source. The geographical implications of this assumption are shown on Fig. 6.2, which demonstrate, for example, that the village of Chalvington, mentioned above, lies just outside a 5 km radius of the kilns at Abbot's Wood and Ringmer. Assuming that the workshops at Ringmer and Streat are contemporary, this map also emphasises the likely competition between these two centres.

Settlements lying within the 5 km zones can be identified by reference to the appropriate gazetteer (see Section 11.1). Moreover, the data can be used as a basis for prediction and it can be inferred that ceramic assemblages within these zones are likely to be dominated by products of the nearby kilns. In some cases, apparent competition between neighbouring industries can be discounted on grounds of chronology as at Kingston and Cheam. Elsewhere, however, the occupants of some settlements are likely to have obtained their pottery from two or more nearby kilns. The map (Fig. 6.2) can therefore be used to identify places where pottery assemblages might help to elucidate local patterns of ceramic marketing. One such example is at Udimore, East Sussex, situated mid-way between the kilns at Brede and Rye.

The anticipated pattern of archaeological evidence derived

Fig. 6.2 South-East England. Medieval potters and their local customers: direct sales at the workshop



from the supply of pottery to local customers is obscured by more complex methods of marketing which would have taken place alongside these direct sales. In practice, therefore, the archaeological record comprises superimposed tiers of evidence derived from a variety of different processes. Only when direct sales were the principal method of distribution would it be possible to identify this process from the archaeological evidence. Nevertheless, the geographical framework is useful because an explanation must be sought for any deviation from the predicted pattern in which local types are dominant in close proximity to a given kiln.

6.2.2 Itinerant salesmen

While customers probably came to the potter's workshop, it is equally likely that itinerant salesmen - perhaps the potters themselves - would have journeyed to nearby villages in order to sell their wares. In Oxfordshire during the nineteenth century, for example, a man with a pony and trap would visit parts of the county periodically selling wares from the potteries at Leafield (Stebbing et al. 1980, 24). Itinerant salesmen would also be significant for the transfer of goods from regional markets to lesser rural markets (Berry 1967, 98).

This method of ceramic distribution is attested by the well-known reference in the legend of Robin Hood and the potter and in the Gesta Herewardi (Keen 1961, 18-19). In the latter Hereward disguised himself as a potter so that he could spy in William's camp:

'As he rode he met a potter, and this gave him a new idea; he persuaded him to lend him his pots, and decided to penetrate the camp peddling his wares ...

When Hereward reached the camp he began to cry his wares, and soon some of the servants from the King's kitchen came to examine them. One of the soldiers ... however remarked on his resemblance to Hereward ... The general excitement caused by the potter's appearance encouraged the cooks to invite him round to their quarters while they prepared the King's meal ...'

The evidence is valid irrespective of discussion concerning the likely origins and connection between these two legends (ibid., 23-24).

Indeed, Moorhouse (1978b, 16) has summarised the case:

'While the events described probably never took place, ballads embody facts familiar to the listening audience.

It is therefore likely that potters did travel long distances with carts full of pottery for sale'.

When attempting to interpret the archaeological evidence for itinerant salesmen it would be difficult within the immediate hinterland of a workshop to determine whether the potter took his wares to the customers or vice-versa. It does not follow therefore that all itinerant salesmen travelled long distances but the intermittent occurrence of a potter's wares in an area might indicate this method of distribution. The practice of hawking wares from the Verwood pottery in Dorset is recorded as late as the 1920s (Fitzrandolph & Hay 1927, 148).

6.2.3 Consignments

Proof that consignments of earthenwares were supplied to royal and seigneurial households comes principally from documentary rather than archaeological evidence. Even a large batch of pottery such as the 1000 pitchers supplied in 1270 by the Laverstock potters for the King at Winchester is unlikely to be detected as a significant element in the archaeological record (Le Patourel 1968, 120), unless the conditions of rubbish disposal have been fully explored and understood. Indeed, even under favourable conditions of recovery it would be difficult to distinguish between a consignment of pottery obtained by a seigneurial household direct from the workshops and the purchase of earthenwares from a middleman at the nearest market. Interpretation would therefore depend upon identifying a different trend on a seigneurial site compared with the pattern of consumption inferred for nearby communities. Thus, without the documentary evidence which states that consignments of pottery were supplied from the kilns at Kingston-upon-Thames to the King at Westminster (see Section 9.1.2, no. 28), it would be impossible to tell that the vessels were not obtained in London where Kingston-type ware occurs in a wide range of different contexts.

As we have seen (Section 5.5.5), consignments could be of two types: either the pots were made to order (Moorhouse 1978b, 15), or, as was probably more usual, an order would be met direct from stock. The latter was almost certainly true at Kingston-upon-Thames and similar circumstances can probably be inferred for the order sent from Windsor to the Farnborough [Hill] potters in 1391 (Salzman 1952, 256). The decoration of a jug identified by Dunning (1971, 15) as probably representing scenes of prostitution in a brothel, however,

implies that this vessel was intended for a specific market and may have been made to order.

Batch marks also offer possible archaeological evidence for consignments, especially where, as in the case of a jug at Potterscrouch, Herts. (Renn 1964, 10), the mark was made after firing. Another waster with a cross incised after firing has been found at Upper Norwood, East Lavington, West Sussex.

Thus, there is a fine distinction to be made between commissions and the supply of household goods in consignments. This contrast is illustrated clearly at Ingatestone in the mid-sixteenth century. Demands from the household comprised mainly services rather than goods, but the shoemaker and the potter were exceptions to the general rule that wage-earners and contractors worked principally on materials which the owner had provided. Thus, in 1550, Prentice the potter at Stock supplied the following utensils for the household at Ingatestone:

'4 pots for flowers, 2d; a cream pot and a cheese pan, 4d; a pan, ½d; a dozen cups for the butter, 12d; 2 pots for herbs for the parlour, 4d; 3 stone pots 18d; pottle glasses, 12d; 8 quart glasses, 16d; 4 stool pots, 8d; 2 milk pans, 2d; 2 stew pots, 2d; Also a still with cups for (h)it and 2 watering pans (sic.)' (Emmison 1964, 68).

Prentice almost certainly supplied these from his stocks and the fact that he was able to provide stone pots and glassware suggests that he also acted as a middleman for other commodities as well as the earthenwares which are known to have been made at Stock (see Section 9.2.2, no. 236).

6.2.4 Market sales

There are several pieces of documentary evidence during the medieval and post-medieval periods both for the sale of pottery at markets and for the purchase of earthenwares by seigneurial households at markets and fairs.

Specialists such as the blacksmith would have had a workshop from which they could conduct their business, but craftsmen-farmers would have needed to use rural markets as an outlet for their wares (Britnell 1981b, 217). William le Botelyr - probably a leatherworker by trade - was doubtless typical of many craftsmen in small market towns. In 1338, he is recorded as having possessed a ...

'... bench (scamellum) lying in the market place of Midhurst between the bench formerly of Thomas Pope on S., the bench of Henry Isak' on N. and the bench of Walter Crochun on W ...' (Dibben 1960, 6).

Potters, too, had stalls in medieval markets. They paid rents of between 4d and 6d at Linton, Cambs. (Le Patourel 1968, 112) and at York pots were sold in the Saturday market, while at Oxford the potters were placed next to the charcoal burners (ibid., 119). Pottery was sold in the cheese market at Ipswich in c.1300 (Miller & Hatcher 1978, 75) and, as we have seen (Section 2.4.5), some of the urban street names in places such as Coventry may indicate the sites of potters' stalls rather than their workshops (Chatwin 1955, 88-9).

For the later period, Baines (1980, 71) has also noted an interesting Sessions ruling at Hastings in 1753 whereby ...

'... It was unanimously agreed by the whole Court that all Persons that bring Earthenware or other Effects or Commodities into this Town Such persons shall for the future Sell such Earthenware and Effects in the Publick Market Place of this Corporation and not elsewhere'

In Cornwall on the other hand among the stallholders at St. Neot on Good Friday 1634 was the potter who paid 1d 'for standing of clome (sic) upon the church land' (Douch 1969, 35).

Purchases, too, give a clear insight into the use of markets and fairs as a centre for trade in earthenwares. The Bishop of Swinfield's accounts, for example, record that in 1289-90 the cook purchased pottery for the household at Worcester (Webb 1853, 24, n.'c'). Likewise, post-medieval evidence from Cornwall shows that one Warwick Mohun of Luney in St. Ewe went to Probus in April 1716 and there paid 2s 'for earthen milch pans bought at St. George's Faire' (Douch 1969, 35). Thus, household requirements, as well as porcelain trinkets (Danks 1977, 368-71), could be obtained in eighteenth-century fairs. Indeed, references in the manorial accounts to the purchase of pots at Boston Fair for the medieval household at Lagenho, Essex (H.E.J. Le Patourel, lecture 1980) indicate that post-medieval documentation probably reflects a timeless tradition of exchange at regional markets and fairs.

Dunning (1948b, 243-4) was among the first to assess the likely significance of markets and fairs for interpreting the archaeological evidence of medieval pottery distributions. Writing about the similarities between medieval jugs at Leicester and Coventry

he stated:

'The explanation may be sought in the trading of pottery for sale at the fairs, and these remarks may fitly include one or two instances in which fairs are indicated as the factor in the distribution of medieval pottery between the larger towns. It should perhaps be emphasised that the identification of pottery traded by this (or any other) means is only likely to lead to useful results in the case of material with specific local characteristics or recognisable as the product of known kilns. In both these respects, the study of medieval pottery has hardly advanced sufficiently for more than a brief mention of the possibilities'

Owing to the availability of more material and the greater sophistication of characterisation techniques, distributions can now be mapped with more precision. Nevertheless, there have been few attempts to discriminate between market sales and other methods of distribution represented in the archaeological record of medieval England.

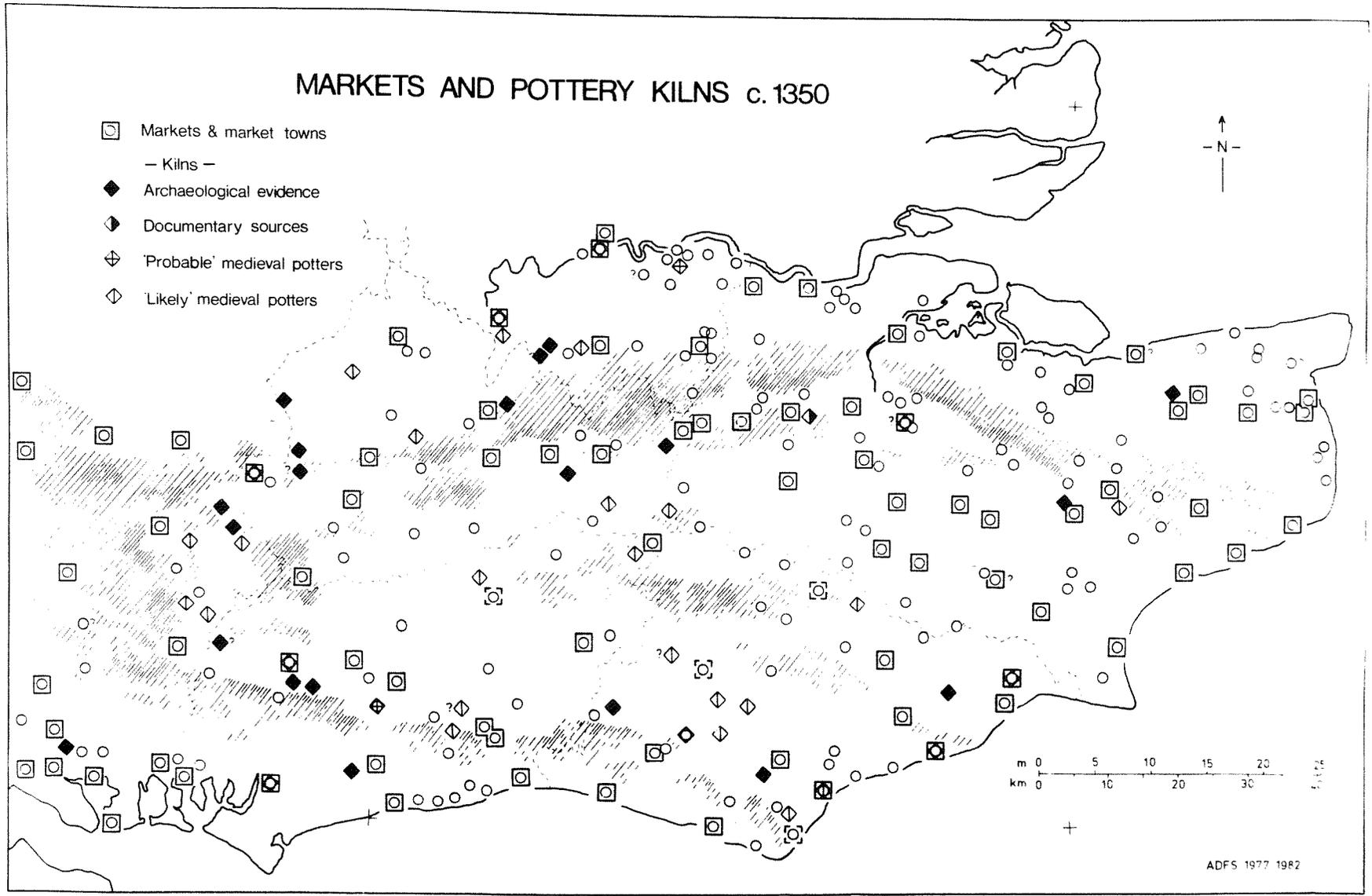
The volume of traded ceramics alone is one clear indication that regional markets were a significant factor in pottery distribution (Toll 1981, 89). As Hinton (1977a, 203) has said,

'Distribution maps of ... different types of cooking pot hint towards definitions of competing market zones ...' yet ... 'how far this is valid requires more precise definition and mapping'.

In order to understand the archaeological record it is necessary, therefore, to test the empirical evidence against the patterns predicted from certain clearly-defined assumptions. Fig. 6.3 provides a framework within which the spatial relationship between potters' workshops and medieval markets will be considered in Section 6.3.

As well as examining distributions in geographical terms, however, the content of the ceramic assemblages themselves should also be considered. Thus, a regional market centre would be characterised by pottery from a variety of different sources whereas the ceramics represented at a local market would probably have been obtained from considerably fewer production centres. Judging, for example, from distribution patterns and from the content of ceramic assemblages in the London area, Orton (1982a, M42) considers that Cheam ware was sold in markets as opposed to direct sales at the workshop. The pattern

Fig. 6.3 South-East England. Markets and kilns c. 1350



predicted for market sales would comprise the so-called 'distance decay effect' centred upon a market - in this case London - rather than on the workshop itself.

6.2.5 Middlemen

Middlemen would have been closely involved in the distribution of goods through medieval markets. Indeed, pottery is likely to have been among the range of goods traded by the chapmen who are identified in contemporary documents (Dyer 1982, 38). Kilmurry (1980, 172-3) has also made a useful distinction between the inferred role of small-scale peddlars and specialist middlemen engaged in the distribution of ceramics.

A medieval peddler is more likely to have secured a sale for his wares if he could offer a range of goods which his customers would be unable to obtain locally. Thus, owing to the uniformity of medieval cooking pots, vessels from a distant kiln would have had little to offer in preference to a local product, yet greater diversity among the decorated jugs would have appealed to a wider market. For the purposes of identifying these trends in the archaeological record, it is necessary, therefore, to examine not only geographical patterns, but also the proportion of similar forms from different sources in relation to the dominant coarseware types in an assemblage (see Section 6.4.1).

Le Patourel (1976, 174) has acknowledged the existence of middlemen as a possible explanation for the wider distribution of medieval jugs compared with coarsewares from the same source. In the hinterland of London, particularly, the occurrence of Mill Green ware (Pearce et al. 1982, fig. 2) at sites where grey coarsewares and London-area jugs predominate suggests the influence of middlemen. The possibility that producer and consumer might have met in London must be acknowledged, but it seems unlikely that pottery found on remote Wealden sites such as Moat Farm, Leigh, or Pivington, Pluckley would have been obtained in this way. The extent of the distribution along the north Kent coast implies that water transport may have been a significant factor determining the direction of trade. In this instance, therefore, the activities of middlemen offer a more plausible explanation for the discoveries at Leigh and Pluckley than the possible influence of itinerant seigneurial households on the archaeological record.

London-area wares were undoubtedly sold in the city, and

jugs found in the immediate hinterland of London were probably obtained there. Further afield in west Kent, however, the occurrence of London area wares in assemblages which also contain grey sandy jugs implies two tiers of marketing - the locally-produced vessels were perhaps obtained at nearby markets, while the decorated jugs may have been brought into the area by chapmen acting either as itinerant salesmen or plying their trade within the network of rural markets. Thus, the need to examine the distribution of decorated jugs in relation to utilitarian coarsewares from the same source reinforces the significance of textural analysis as a potential means of identifying coarsewares accompanying the output of London-area jugs (see Section 12.1.4, Group Cvii and Section 12.1.11, Group Kxi).

The predicted pattern of archaeological evidence which would be derived from the activities of a specialist middleman is different from that which has been envisaged for the medieval chapman. The specialist middleman would have been concerned with the supply of pottery in bulk, usually to areas outside the hinterland of markets which could be served from the kiln itself. This process would manifest itself as a statistical peak in the generally decreasing quantity of traded vessels found in excavations further away from the kiln site. One such example might be the dominance of Tyler Hill ware at Dover which lies outside the area likely to have been served by regular market sales at Canterbury. The wares may have been carried to Dover by the potters themselves, but a large industry with several different workshops such as those at Tyler Hill is likely to have developed a coordinated system of marketing, possibly with permanent stocks of wares being kept for sale in the nearby towns.

The activities of these lesser middlemen have generally passed unrecorded in medieval documents. Nevertheless, a potter at Toynton was sued in 1311 for his failure to deliver 100 packs of pottery (Le Patourel 1968, 111). These packs may have been similar to the consignment of pots found in a thirteenth-century rubbish pit at Aldermanbury in London, where the vessels had evidently been broken in transit before being discarded (Museum of London). The size of the order at Toynton combined with the legal implications, however, is a reasonably clear indication that the customer was probably a middleman.

The suggestion by Jope (1950-1, 84) that Kingston-upon-Thames may have acted as a centre for collecting the output of potteries in the surrounding area in order to meet demands of the

royal household at Westminster now seems unlikely in the light of fairly extensive evidence of kilns and wasters in the town itself. Nevertheless, the possibility that stocks held at larger potting centres were supplemented from the output of smaller enterprises cannot be ruled out. Indeed, as we have seen (Section 6.2.3) there is evidence that in the mid-sixteenth century the potter at Stock, Essex may have acted as a middleman for other craftsmen.

6.2.6 Estate supplies and the itinerant household

The organisation of royal, monastic and seigneurial centres would have affected the distribution of medieval ceramics in two ways: firstly, some potters may have been obliged to supply their wares to the landlord quite independently from regular commercial transactions; and secondly, the itinerant household itself may account for anomalies in the pattern of 'traded' vessels represented in the archaeological record.

Few ceramic assemblages representing consumption of pottery at the principal medieval households in South-East England have been examined in sufficient detail to identify the possible effects of estate patronage on the distribution of pottery. At Battle Abbey, however, the monastic community evidently obtained its requirements from local potteries, including Rye, rather than from the Limpsfield kilns situated on abbey lands some 50 km (30 miles) away. Nevertheless, it must be stressed that it would be difficult to identify examples of Limpsfield coarseware were they to occur among the visually similar output of certain kilns in East Sussex. At present, therefore, it is impossible to assess the effects of manorial organisation on pottery distribution in the region, but the Extent of Banstead Manor indicates the close tenurial links which would have existed between the Weald and neighbouring areas: out of a total of 105 holdings recorded in 1325, 78 were in Banstead and 27 in the Weald (Lambert 1912, 2, 15).

It is easier to appreciate from contemporary documents and illustrations the practical effects of an itinerant household on the distribution of domestic utensils such as pottery (Robo 1935, 16). The size of the royal retinue, for example, could vary from 50 to 250 or more (Stretton 1935, 77-79). All the equipment needed for cooking and storage would be carried from manor to manor, and this would be supplemented where necessary by local purchases or requisitions. On one occasion in 1289 the accounts of the Bishop of Swinfield record

that a whole cartload of kitchen gear was lost on the road (Webb 1853, 98 n.'b'). This would doubtless have contained vessels which had been obtained from a number of different sources en route.

Moorhouse (1981, 111-3) has stressed the importance of estate organisation and the itinerant household as a significant factor in the distribution of medieval ceramics. Similar trends, alongside regular commercial transactions, may have contributed to the rapid circulation of coinage. Among the coins of Stephen's reign found at Castle Acre Castle in Norfolk, over half of the ten identifiable examples were from East Anglian mints. Archibald (1982, 270-1), however, has drawn attention to the possible significance of the de Warenne connections with Sussex for the identification of a cut halfpenny of Henry I, type x, probably minted at Chichester. Nevertheless, local pottery types were predominant in the same deposit and no examples of Sussex fabrics were identified (Milligan 1982, 206-7). This emphasises that while estate organisation can account for anomalies in a ceramic assemblage, the principal contribution of pottery studies is to an understanding of the regular inland trade in a commodity produced by relatively humble members of medieval society, sold in local markets, and perhaps carried along country lanes by itinerant salesmen.

6.3 POTTERS AND THE MARKET ECONOMY

6.3.1 Kilns and the proliferation of medieval markets

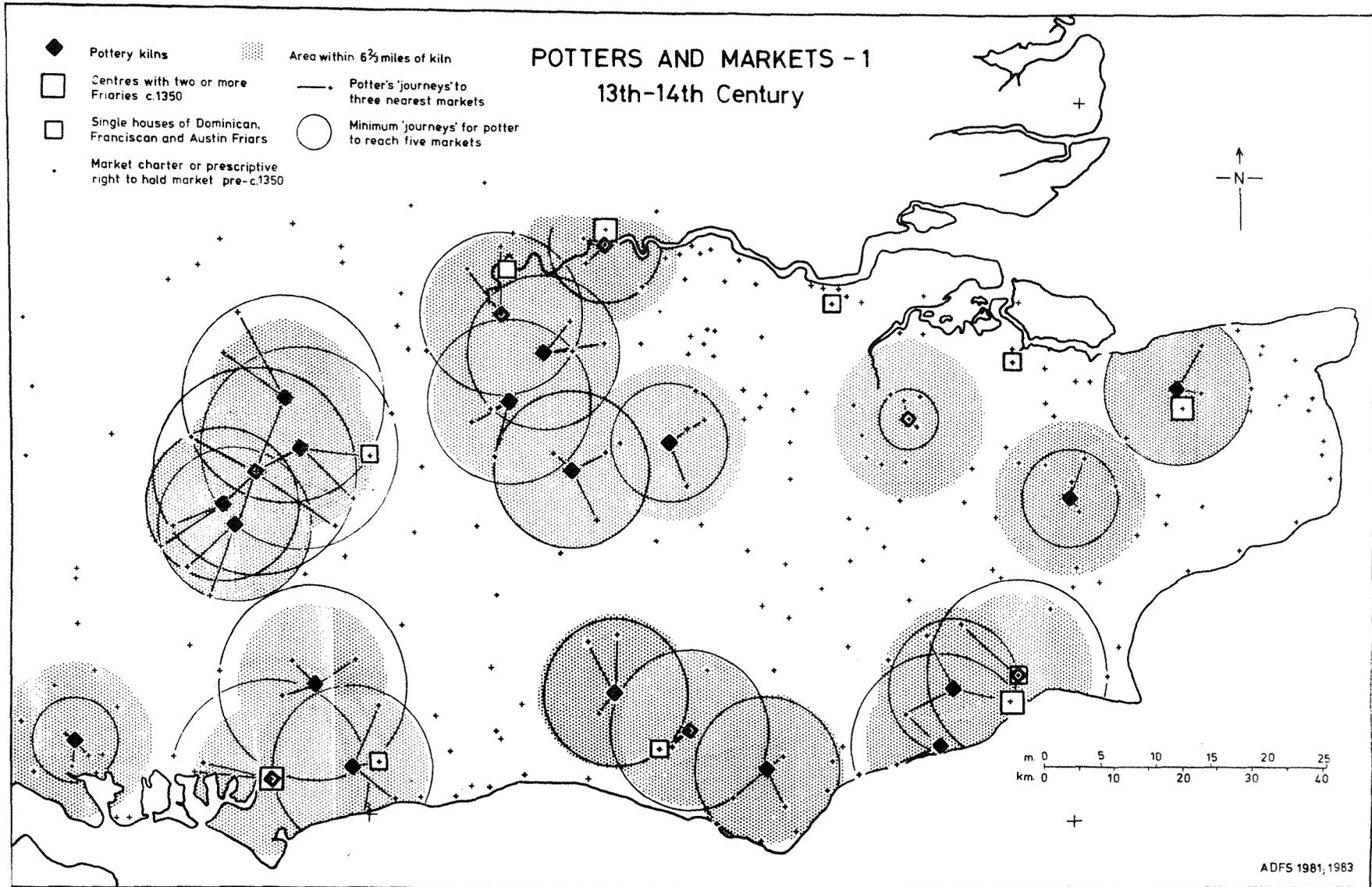
The geographical relationship between medieval kilns and their nearest contemporary market has been assessed in Section 5.4, but it cannot be assumed that the potter would always have sold his wares at just one market. While the potters at Chichester probably did not need to venture outside the city in order to find enough customers, other rural industries probably supplied several different centres among the numerous minor markets which emerged during the thirteenth and fourteenth centuries (see Section 1.5.2).

Fig. 6.4 illustrates the contrast between potters who evidently served one particular market and those who would have needed to travel further afield, or who sold their wares by other means. Shaded parts of the map show the area around selected production centres which would have been within what the thirteenth-century lawyer Henry de Bracton defined as a reasonable day's journey (six and two-thirds miles). As we have seen (Section 1.5.3), Bracton's comments were concerned with the definition of unfair competition between neighbouring markets, but the logic behind his legal argument is relevant to the organisation of inland trade in general:

'according to the sayings of the elders, every reasonable day's journey consists of twenty miles. The days journey is divided into three parts, the first part, that of the morning, is to be given to those who are going to the market, the second is to be given to buying and selling, which ought to be sufficient to all, unless they be merchants who have stalls, who have deposited their goods and exposed them for sale, to whom a longer delay in the market may be necessary. But the third part is left for those returning from the market to their own homes, and for doing all those things which must be done by day and not by night on account of the snares and attacks of robbers, that all things may be in safety' (Twiss 1880, 584-5).

The figure of six and two-thirds miles should not be taken literally (Salzman 1928, 210), and doubt remains about the exact unit of measurement used by Bracton (Reed 1980, 564). Nevertheless, there is more justification in mapping this distance which is based upon well-defined logic rather than attempting to provide other notional figures for the length of journeys to market made by the seller or consumer.

Fig. 6.4 South-East England. Medieval potters and markets (1)



ADFS 1981, 1983

It is true that the statement gives no indication of the means of transport (Coates 1965, 105) and the calculations take no account of shorter daylight hours during the winter months, but the idea that a tradesman would divide his journey into three parts is applicable not only to the definition of 'unfair' competition, but also to the location of manufacturing enterprises such as potters' workshops. Many potters undoubtedly travelled further afield, but by c.1350 there would have been at least five markets within a six and two-thirds mile radius of nearly all known kilns in South-East England. Indeed, Fig. 6.4 shows that in many cases a circle mapping the minimum distance a potter would need to travel in order to reach these five markets corresponds remarkably closely with a radius of six and two-thirds modern miles. Examples of this close correlation include Binsted and Kingsley in Hampshire; Tyler Hill in Kent; Ashtead, Cheam, Earlswood and Kingston-upon-Thames in the historic county of Surrey; Abbot's Wood, Ringmer and Streat in East Sussex; and Binsted in West Sussex.

The actual distances travelled to nearby markets would have varied considerably, as shown on Fig. 6.4 by the solid lines indicating theoretical potters' journeys to their three nearest markets. Thus the potter(s) at Streat, East Sussex would have had to travel further to secure sales at Ditchling, Cuckfield and Lindfield than the journeys needed for the Ringmer potters to reach markets at Ringmer itself, and at Lewes and South Malling. In some cases, however, variations in the distances to nearby markets probably reflect either the pattern of local communications or the methods of marketing. This is demonstrated clearly in West Sussex where the Chichester and Binsted potters were close to urban centres at Chichester and Arundel respectively, yet they would have had to go considerably further in order to reach any other markets. The Graffham/East Lavington kilns, however, were situated within roughly equal distance of the weekly markets at Harting, Midhurst and Petworth. Like the Hampshire/Surrey border kilns, the potters at Brede, East Sussex would also have had a long journey to reach a market. In the case of the former this is probably a reflection of organisation within the industry (see Section 5.4.1), but the latter is likely to imply that the Brede potters probably used the nearby river to carry their wares to Rye and Winchelsea.

6.3.2 Kilns and market areas

It would be misleading to consider markets solely in numerical terms, because the archaeological distribution of vessels sold even by this one method will have resulted from at least two separate movements: the potter's journey from his kiln to the market and the consumer's journey from his home. For the purposes of discussion it is convenient to assume that all potential customers used their nearest market. Hypothetical areas served by a particular market can therefore be defined using elementary central place theory based upon Theissen polygons drawn around places known to have received a market charter. Fig. 6.5 shows the pattern derived from plotting all markets recorded before c.1350, while Fig. 6.6 represents only the urban markets defined using criteria set out in Section 1.5.5. These two maps emphasise the significance of lesser rural centres in reducing the length of journeys which both producer and consumer would need to make in order to reach a market.

This simplified abstraction from reality ignores both topography and transport routes, but examples have been selected to illustrate the way in which the length of journeys made by the potter could affect the distribution of his wares in the hinterland of the markets to which he travelled. Shaded areas of the map on Fig. 6.7 represent the zone - defined by Theissen polygons - which would be served by all markets within a notional distance of six and two-thirds miles of the kilns which have been examined (see Section 6.3.1). Thus, for example, the zone around the medieval kiln at Farnham comprises the market area of the town itself together with that of Odiham 11 km (6½ miles) away to the west.

Using the available topographical information such as surviving medieval churches and the shrunken or deserted medieval villages, combined with the documentary evidence of taxation returns, it is possible to obtain a reasonably comprehensive picture of the smaller settlements which are likely to have been served by each kiln (see Section 1.4.1). Those places identified in the gazetteer of medieval settlements (Section 11.3) which lie upon a shaded area of the map (Fig. 6.7) could therefore have been supplied from one of these kilns if the potters travelled to all the markets within six and two-thirds miles of their workshops.

For the sake of clarity, only those places which appear in the Nomina Villarum of 1316 have been selected to illustrate the movement of potential customers to the markets. As a list of

Fig. 6.5 South-East England. Potters and market areas c.1350

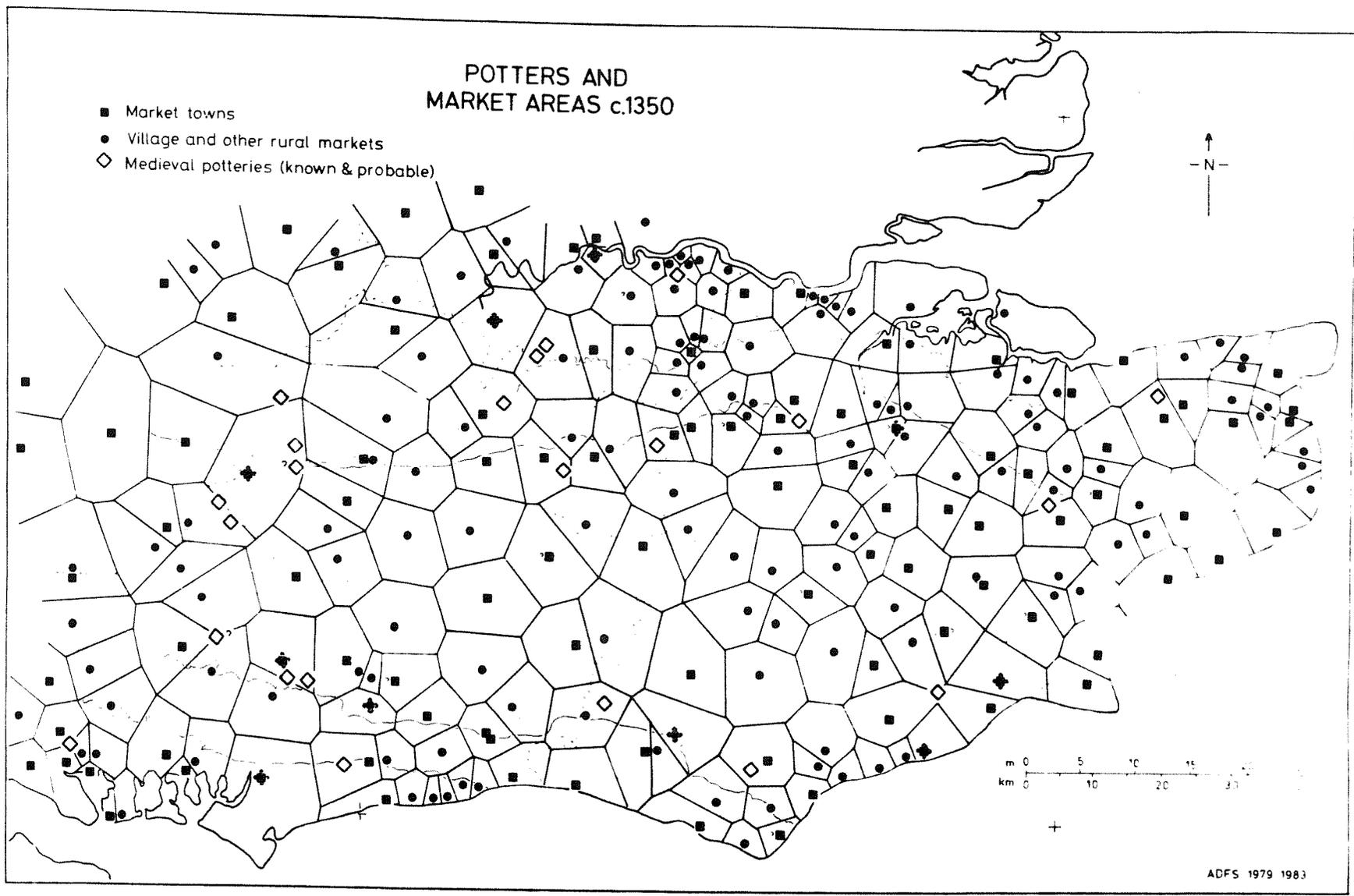
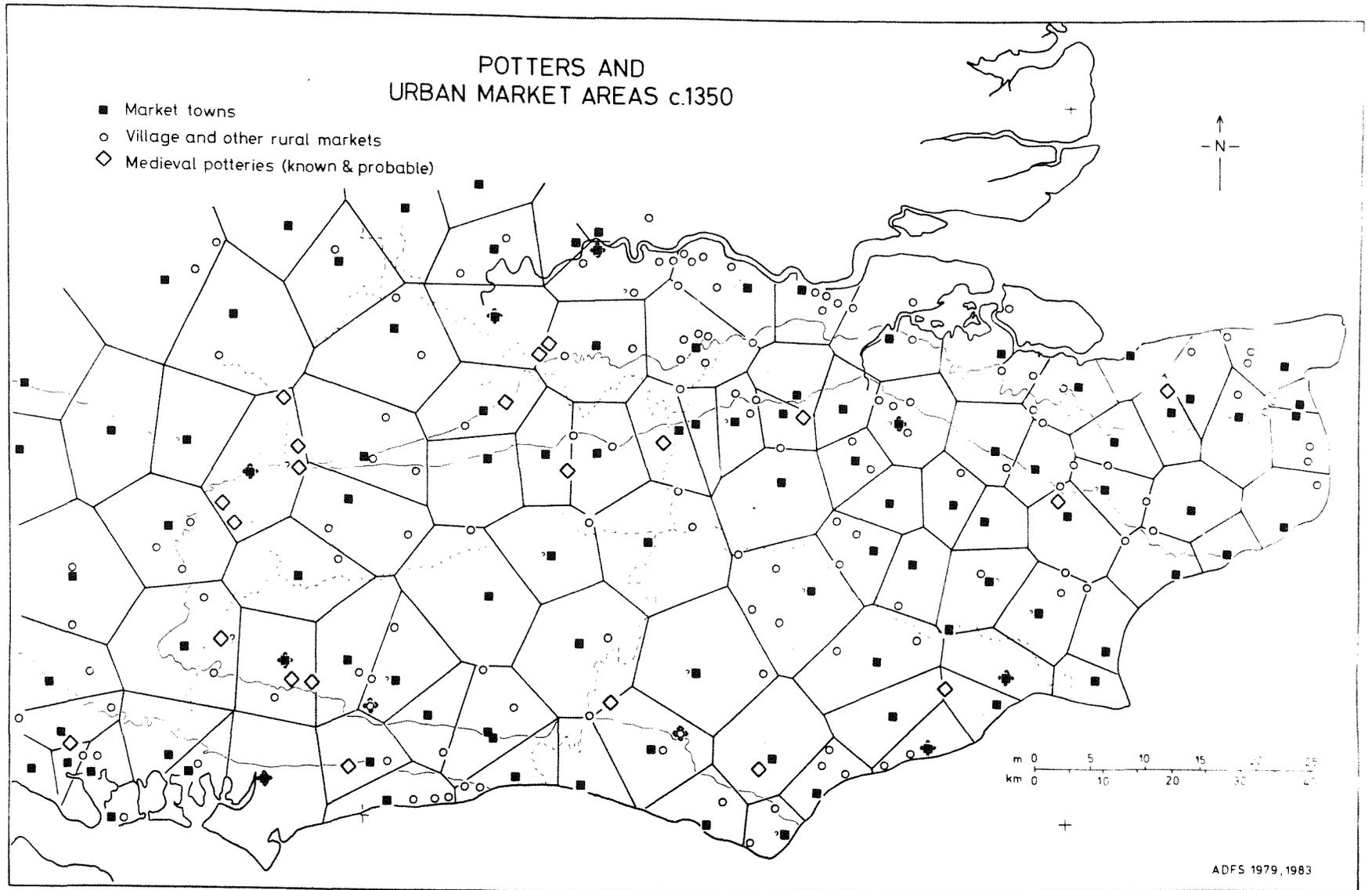


Fig. 6.6 South-East England. Potters and urban market areas c.1350



settlements it is not exhaustive, but the Nomina Villarum did form the basis for provision of one man-at-arms from all villages in the realm, excluding cities, boroughs and the royal demesne (see Section 11.3.1). Other places mentioned in the Nomina Villarum are also shown on Fig. 6.7 where they lie within the hinterland of markets which could be reached by potters who extended their journeys to 16 km (10 miles). These hypothetical journeys are indicated by broken lines and show the extent to which access could be gained to a wider range of customers.

For the purposes of this analysis it has been assumed that potters attended rural markets as well as the principal urban centres. Omission of the village and 'failed' markets, however, produces a slightly different pattern because the Theissen polygons are larger when plotted around the towns alone (Fig. 6.6). No attempt has been made to identify which villages could be supplied from a particular kiln if the potter only sold his wares in a town, but the hypothetical market areas served under these conditions by journeys of six and two-thirds and ten miles have been defined using solid and broken lines respectively (Fig. 6.7).

It is not possible to determine precisely what proportion of medieval ceramics would have been sold at weekly markets compared with direct purchases at the workshop, distribution by itinerant salesmen or specific orders from a large household. Simple spatial analysis, however, does provide a valuable means of assessing the geographical relationship between the potter and his potential customers. In some cases, even a 'reasonable day's journey' as defined by Bracton would probably have brought some potters into competition with other contemporary workshops. Although there must have been other kilns - as yet unknown - a journey of 10 miles from most of the manufacturing centres which have so far been discovered in South-East England would take the potters to at least one market which was closer to another kiln (Fig. 6.7).

In seeking to understand the processes by which localised pottery distributions have been formed, it is necessary, therefore, to consider not only the journeys made by the potters and salesmen themselves, but also the regular contact between consumers and their nearest markets. Moreover, the potter's choice of market at which to sell his wares would have been determined by factors such as communications and competition. Thus, while the examples illustrated on Fig. 6.7 help to identify the nature of the contacts between potters and their customers, the pattern outlined on Fig. 6.8 is

Fig. 6.7 South-East England. Medieval potters and markets (2)

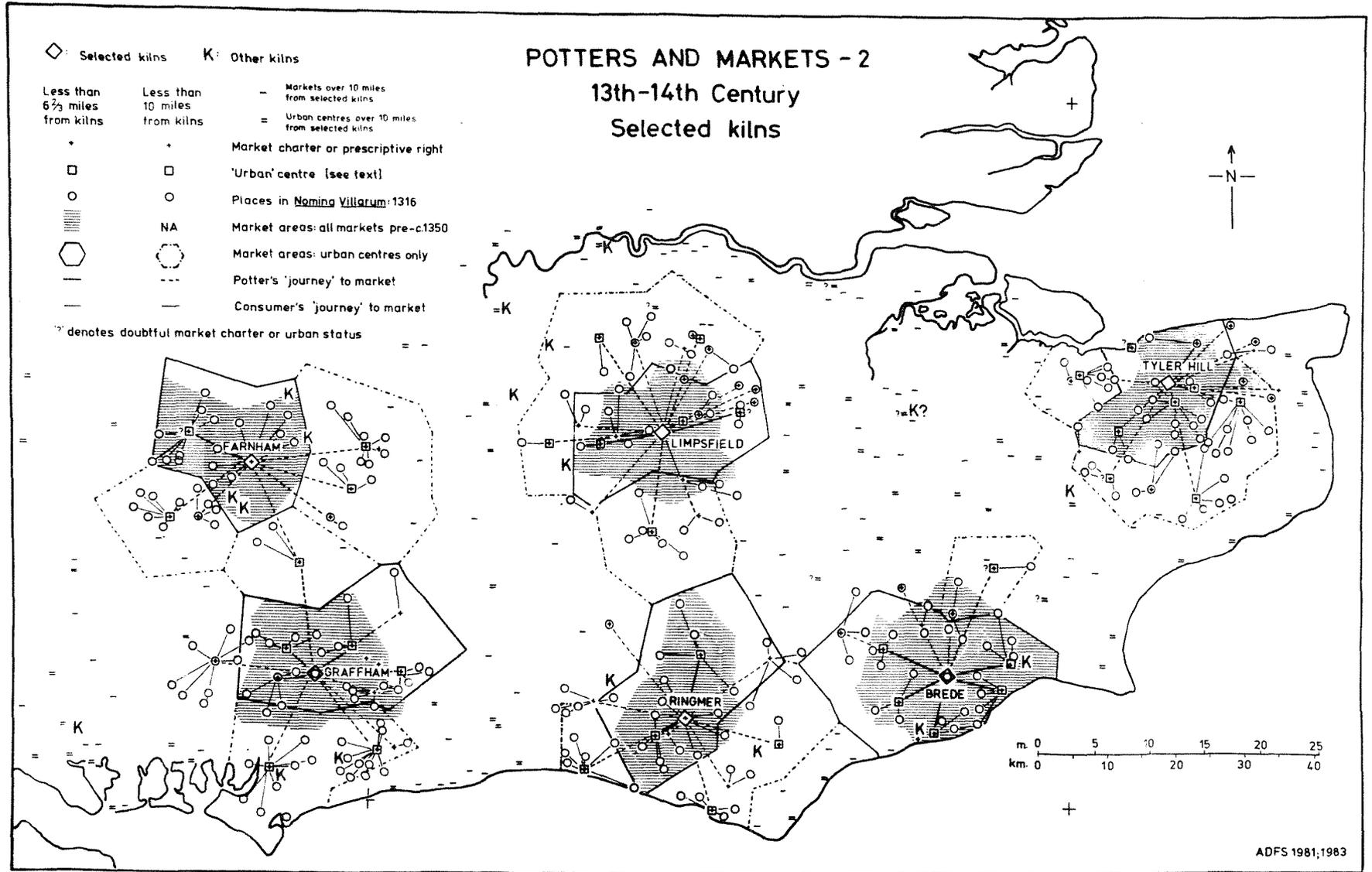
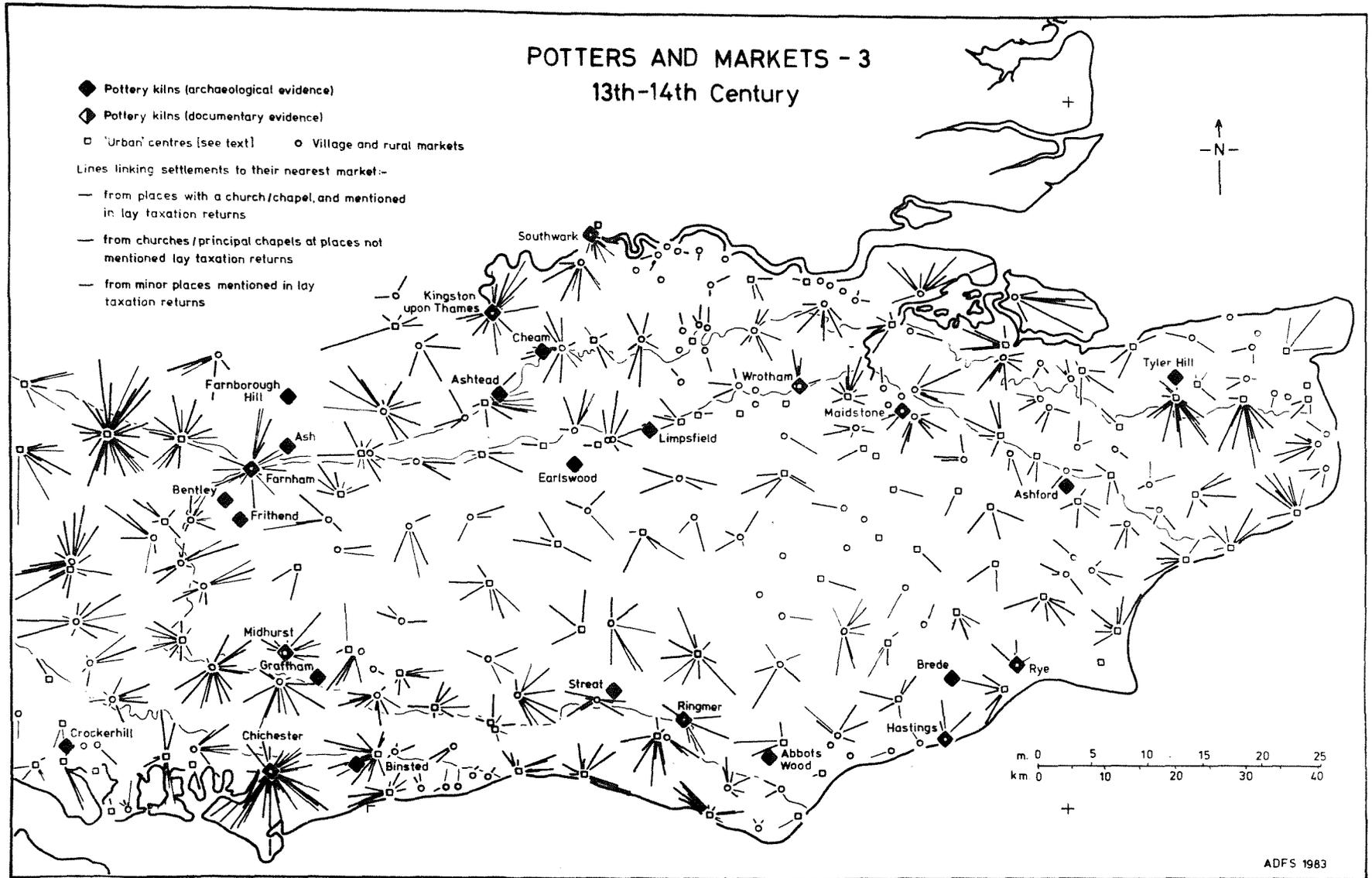


Fig. 6.8 South-East England. Medieval potters and markets (3)



intended as a more flexible framework for simulation. It is based on similar assumptions, namely that consumers would probably have attended their nearest market, but it does not presuppose that the potter's choice of market was determined by distance alone. Within this framework it is possible to simulate the geographical implications of different decisions likely to have been made by the medieval potter. Returning, for example, to the potteries at Ringmer and Streat, East Sussex (see Section 6.3.1), the area served by markets at Ditchling, Cuckfield and Lindfield clearly extended northwards into the Weald, whereas the Ringmer wares are more likely to have been distributed in a southerly direction owing to contact with the market area of Lewes. Moreover, archaeological evidence attests the probable influence of water transport in carrying Ringmer wares to settlements in the lower reaches of the River Ouse. Faced with the possibility of journeys to more distant markets, the potter(s) at Streat would probably have favoured contact with Henfield rather than Uckfield, because Uckfield, although more or less equidistant from Streat, would have been more accessible to the potters at Ringmer.

Similar assumptions can be tested for other kilns in the region, and many potters would no doubt have travelled between several markets held on different days of the week. In some - but by no means all - areas of medieval England a possible cycle of weekly markets has been identified (Reed 1978, 572). The framework outlined on Fig. 6.8 is therefore particularly useful as a means of testing the geographical implications of a potter's periodic visits to specific markets. Nevertheless, the difficulties of carrying a large number of finished vessels must always have necessitated frequent return journeys to the workshop unless a stock could be kept at the markets.

Within the scope of the data derived from the survey of medieval markets described in Section 11.1.1, the market days shown on Fig. 6.9 suggest that tradesmen in some parts of the region might well have attended weekly markets in rotation. In north-west Kent, for example, there were markets at several different places on Mondays, Tuesdays and Wednesdays, while in the Kent/East Sussex border area there was at least one market on each day of the week.

Simulation such as this not only creates an objective - if simplified - standard against which archaeological distributions can be compared, but it also provides an index for measuring the density of pottery production which is more meaningful than unreliable

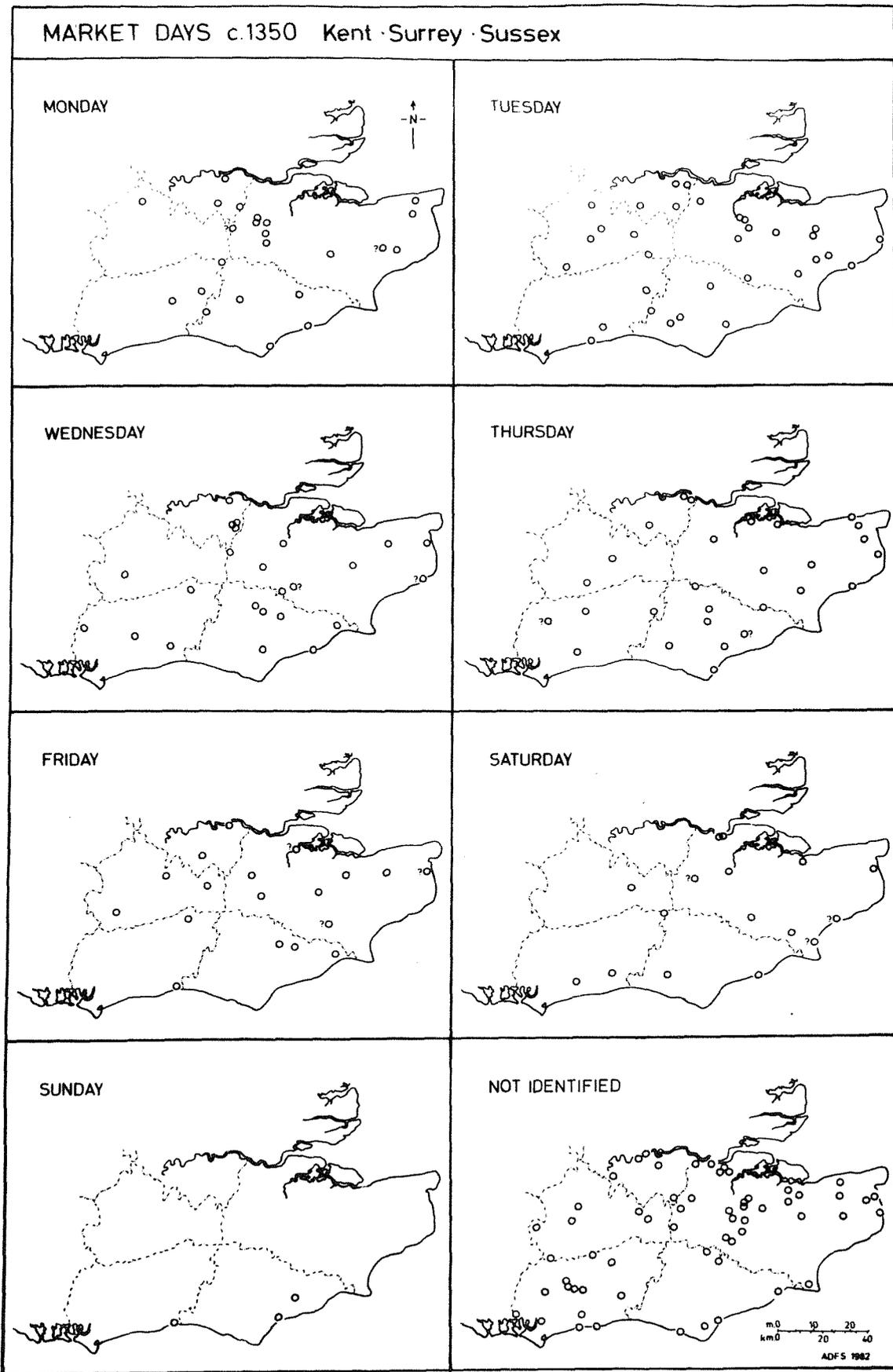


Fig. 6.9 South-East England. Market days c.1350

'nearest neighbour' statistics. Many of the assumptions, however, rest upon an ill-defined chronology, and only the most general comparisons can be made. Much of the data would be suitable for more sophisticated computer simulation to evaluate the pattern produced at earlier periods when there were fewer markets, and to examine the effects of varying the length and direction of theoretical potters' journeys. This type of analysis, however, would require closer dating of the kilns than can yet be attempted in most cases. The evidence is better suited, therefore, to the identification of broader trends than detailed assessment of changes taking place within a short period. One of the most significant spatial trends to emerge from the geographical analysis of medieval markets in South-East England is the pronounced 'watershed' reflected in the pattern of market areas in the centre of the High Weald. This coincides appropriately with the evidence of contrasting sand- and flint-tempered pottery distributions (see Section 5.3.5).

6.3.3 Permanent shops and the sale of pottery

It seems unlikely during the thirteenth/fourteenth century or earlier that potters would have been able to afford permanent shops in the principal towns. Greater diversity of forms and sources among ceramic assemblages of the later middle ages, however, may reflect a shift of emphasis towards the general dealer trading from a shop where he would be able to offer a wider range of goods than the local potter attending a weekly market (see Section 4.3.2).

The evidence for medieval and later shops is discussed in Section 1.5.6 and it is clear from post-medieval documentation that pottery was sold in permanent shops. Douch (1969, 35) has noted examples of retail sales in Cornwall and during the mid-sixteenth century purchases of pottery and glassware were made at London and Chelmsford for the household at Ingatestone, Essex (Emmison 1964, 68). Even in the eighteenth century, terminology used to describe occupations is sometimes imprecise (see Section 5.2.4). Thus, while the inventory of goods belonging to one Richard Hargrave of Stamford in 1720 describes him as a 'potter' he was probably a seller rather than maker of earthenwares (White 1979). Some practising potters, however, may also have acted as general dealers (see Section 6.2.5).

Another outlet for pottery during the eighteenth century was the sale of tankards at public houses in London. Some of these wares were inscribed with the names of landlords such as Thomas Hussey

in Woolwich. It is interesting to note that a tankard bearing his name and the date 1735 has been found as far away as Winchester (Pryor & Blockley 1978, 75; 84).

Like the discovery of scattered documentary evidence for the occupation of earthenware potter, the recognition of casual references to the use and sale of post-medieval earthenwares depends to a large extent upon co-operation with historians and archivists engaged in more general documentary research. T.P.Hudson (pers. comm. 1979), for example, has drawn attention to an interesting reference in the probate inventory of Robert de Hurst, tallow chandler, of Horsham in 1668 (WSRO: EpI/29 Horsham 108). His assets included:

'in the shop... some Graffham crocks worth [9]s.'

Chandlers were among those recorded as sellers of pottery in Oxfordshire during the seventeenth century (Stebbing et al. 1980,7), but there can be no proof that the pots mentioned in the inventory were intended for sale in the shop. Nevertheless, the identification of Graffham crocks at Horsham provides valuable corroboration for the archaeological evidence used to define the extent of the area served by the Graffham potters (see Section 6.7).

6.4 TRADE, TRANSPORT AND COMPETITION

6.4.1 Competition for customers

In seeking to find a market for their wares, medieval potters would have found themselves in competition not only with one another but also with craftsmen engaged in the manufacture of similar vessels in different materials. Thus, as we have seen (Sections 5.7.2 and 5.8) potters imitated metal vessels, and during the later middle ages their repertoire was expanded to include vessel types which had previously been made in different materials.

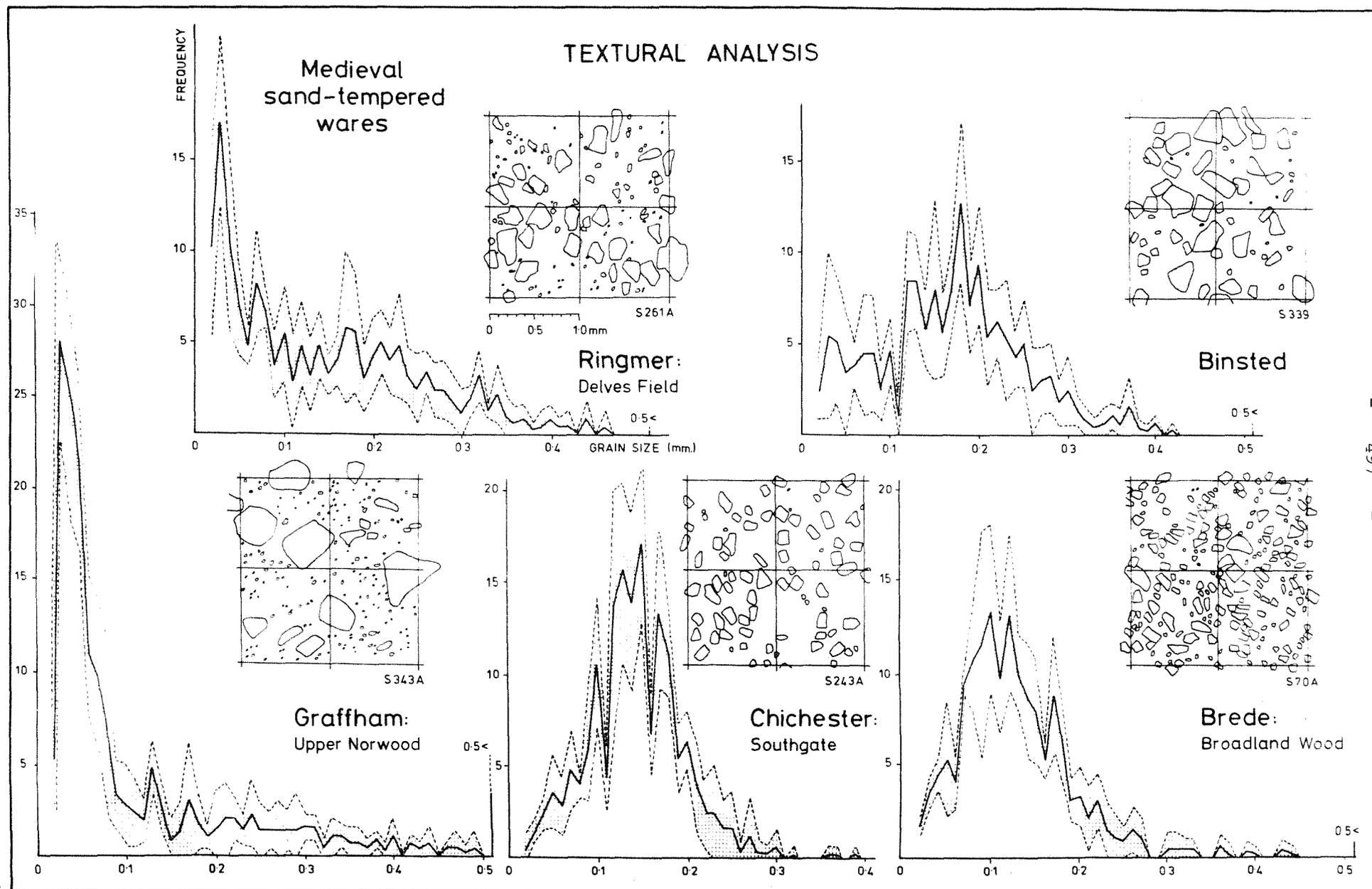
Blake (1980, 5) has summarised the economic forces which determined the extent of competition:

'Only distinctive products could have been sold in a market already supplied by local potters. They would need to have been technically different, or to have been sold in small quantities, or to have benefitted from economies of scale in order to have discouraged local imitation'

Geographical trends in competition between different workshops can therefore be defined both in terms of the total extent of the market area and the proportion of sales secured within a specified region. Taking as an example the well-studied ceramic assemblage from Area 6 at Wharram Percy, N.Yorks., thirteenth-century Staxton ware cooking pots derived from some 30 km (18 miles) away, comprise 90% of the contemporary coarsewares (Le Patourel 1979, 102-7). Clearly, therefore, Wharram lies within an area dominated by the Staxton potters, yet the presence of York and Scarborough ware jugs shows that the total extent of these distributions, consisting of more distinctive types, overlapped with that of the dominant local industry.

Similar trends are repeated among the ceramics from numerous excavations throughout the country, and the extent of competition between neighbouring potteries reflects the methods of distribution outlined in Section 6.2. In areas where workshops producing visually similar wares are known to have been situated in close proximity to one another, fabric analysis is needed in order to define local distributions. Fig. 6.10 shows the results of textural analysis undertaken on medieval wasters in Sussex. These graphs are intended as a means of identifying marketed vessels, using the methods described in Section 3.3. The length of potters' journeys would have varied according to the methods of sale (Balfet 1981, 264), yet the

Fig. 6.10 Textural analysis. Medieval kilns in Sussex



extent and direction of pottery distributions would also be influenced strongly by local communications. It is important, therefore, to distinguish between potential road and water transport (Peacock 1982, 168-9).

6.4.2 Road transport and pottery distribution

The fact that potters such as the craftsmen at Cowick, Thorner and Toynton owned carts is a sure indication that much medieval pottery was transported by road (Le Patourel 1968, 119). Indeed, deeply rutted tracks occasionally uncovered during the excavation of kiln sites such as Woolwich (Pryor & Blockley 1978, 36) attest the significance of wheeled traffic. Nevertheless, tubs of pottery might also have been carried by pack animals.

Road names such as Pottersweye (Ashwell Street) and Potterstrete (Ermine Street) in Hertfordshire imply the frequent passage of medieval potters (Renn 1964, 4). The location of similar examples in South-East England, however, suggests that several of these routes were probably associated with the transport of raw materials rather than with distribution of the finished product (see Section 5.3.3). Nevertheless, the description of William Smith's pottery business at Farnborough during the nineteenth century demonstrates the importance of carts for transporting pottery at that period. It is interesting to note that the skilled task of loading the waggon was entrusted to none but the potter himself (Sturt 1919, 79). The pots were packed in straw, and on one occasion a prisoner escaped buried beneath the straw after a delivery of pots had been made to Whitechapel prison (ibid., 86).

In areas such as the High Weald, there would have been no effective alternative to road transport. Thus, Freke (1979a, 79) has inferred that products from the Lower Parrock kiln were more likely to have been carried by cratemmen along the network of local trackways (Fig. 5.27), than they were to have been transported by water in the upper reaches of the River Medway. Attempts to define the medieval road network (see Section 1.4.4) therefore provide a framework within which to interpret local distribution patterns. Sometimes, however, it is clear that principal through routes had a significant effect on the distribution of medieval pottery.

Rye wares found at Bayham Abbey (see Section 4.3.3) and at Chingley forge (Crossley 1975c, 46), for example, were probably carried along the nearby 'Kings Highway' from London to Rye (see

Section 1.4.4). Thus, the presence of a significant land route enabled decorated jugs to be carried into an area where most consumers obtained their coarsewares from a different, and presumably nearer, source. Lyne and Jefferies (1974, 27) have also drawn attention to the contrasting locations of kilns at Binsted and Kingsley, Hants. in relation to the medieval road network. Proximity to an important through route from London to the South-West may therefore account for the fairly widespread distribution of Binsted wares to places such as Alton and elsewhere in Hampshire (Barton & Bears 1976, 71-2). The kiln at Kingsley, on the other hand, is likely to have served a more restricted local market.

A similar influence on pottery distribution can be inferred for the Tyler Hill wares which occur extensively in east Kent (Fig. 6.4). While pots found at sites along the north Kent coast may have been carried by sea, they are more likely to have reached their customers by road along the major through route from London to Canterbury. Owing to the difficulties of trans-shipment involved in water transport, it seems equally probable that consignments of Tyler Hill ware also reached Dover by road (see Section 1.4.5). Moreover, it is easy to envisage the regular passage of potters' carts along a muddy road downhill from Hackington to the market at Canterbury (Fig. 5.14).

Interpretations such as these should be based upon statistical analysis of ceramic assemblages, but in order to envisage the details it is necessary to draw upon knowledge of local topography and upon analogous post-medieval practices. Judging from the location of the kiln at Binsted, West Sussex, there can be little doubt that the potter sold his wares in the market at Arundel. It takes but a small element of imagination to envisage the regular journeys likely to have been made along the green lane which still exists today and which runs past the kiln site towards Arundel (Fig. 5.12).

6.4.3 Water transport and pottery distribution

Transport by water is acknowledged as a significant factor in the widespread distribution of Romano-British coarsewares from kilns in the Alice Holt area near Farnham (Lyne & Jefferies 1979, 17) and Millett (1979b, 133) has classified finds of Alice Holt ware according to the likelihood that they reached their destination by water: for some river transport is probable, for some possible, while for others transport by road is more likely. Owing to the

difficulties of defining the navigable limits of inland waterways during the medieval period, however, it is not possible to make a reliable estimate of the extent to which medieval pottery from inland kilns in South-East England was carried by water. Moreover, the account of William Smith's pottery at Farnborough in the nineteenth century illustrates the need for double-handling if a cargo was sent by water (Sturt 1919, 65). Thus, when consignments of pottery were carried via the Basingstoke Canal, the pots would have to be carted some two miles to the canal, loaded on to a barge, and then re-loaded for distribution when they had reached their destination. It should not be assumed, therefore, that transport of pottery by river was always cheaper and more efficient than carriage by road. Indeed, despite proximity to the sea, there is evidence of considerable short-distance inland traffic in coastal areas of Sussex during the middle ages (see Section 1.4.6).

Regardless of these qualifications, however, the nature of several medieval pottery distributions implies that the wares were carried either by sea or on inland waterways. It is logical to infer, for example, that the consignments of earthenware supplied from Kingston-upon-Thames to the royal household at Westminster would probably have been sent via the River Thames. Indeed, the ease of water transport to the west of London is likely to have been a significant factor in determining the ascendancy of Surrey wares in the London market between the late thirteenth and fifteenth century. Even the Cheam wares may have been carried via the Hogsmill river to London (Orton 1982a, 79).

Rye wares also were evidently traded as part of the coastal traffic between Sussex ports (Fig. 6.13). Examples have been found at Hastings, Pevensey and Seaford and as far west in the county as the Worthing area. Rye jugs are also represented at St. Augustine's Abbey, Canterbury (L. Blackmore, pers. comm. 1980). With the exception of Hastings, carriage by sea is the most likely method by which these vessels reached their destinations. More distant contacts by sea are also attested by the discovery of residual shell-tempered wares from South-East England in a thirteenth-/fourteenth-century context at Caen (M. Leenhardt, pers. comm. 1980) and by the occurrence of London-area sandy and shell-tempered wares at Bergen (J.G. Hurst, pers. comm. 1980). Coastal trade in copies of Rouen jugs made in the London area also reached Exeter and as far north as the east coast of Scotland.

6.4.4 Regional and continental imports

The distribution by sea of pottery from kilns in South-East England represents only one aspect of coastal trade in medieval ceramics. Regional and continental imports have also been found at south-coast ports and in their hinterlands. Davey and Hodges (1983, 10) have identified four principal factors which might account for the presence of imports in ceramic assemblages:

- i) Pots traded either as a commodity in their own right or as containers would have been distributed widely but probably in decreasing quantities away from the ports.
- ii) Pottery brought by traders for their own use would tend to be confined to merchant communities in the principal ports of entry.
- iii) Ceramic vessels forming an accoutrement of another trade such as the import of wine would probably have been concentrated in houses of the merchants and their clients.
- iv) Souvenir pots would again be found in areas frequented by merchants although some inland trade might be envisaged.

The extent of trade in imported ceramics would be affected by the strength of local competition. Thus, an extensive inland distribution or the dominance of imported wares in an assemblage might indicate the inability of indigenous industries to meet the demand. In Scandinavia, however, the dominance of imports in towns contrasts with predominantly small-scale domestic production in the rural hinterlands (Hulthen 1981, 63-4).

The principal sources of European imports are summarised in Section 9.3, where the major industries involved in international trade are identified. In the Netherlands, for example, Janssen (1983, 127) has distinguished between three general classes of production centres:

- i) Specialist industries such as the Limburg kilns which secured an international market for their output.
- ii) Urban potteries such as Utrecht and Haarlem involved in limited exports as a by-product of regular trade connections.
- iii) Smaller rural industries such as Winterswijk which met local demand.

Involvement in international trade, however, could affect the nature of the output as well as the scale of production. Glazed wares from South-West France and the distinctive Saintonge polychrome jugs, for example, are among the most common medieval imports found along the south coast of England. Consignments lost in shipwrecks west of the Saintonge, however, attest that high quality wares were produced for export whereas unglazed types found on the kiln sites were presumably intended for local markets (Chapelot 1983, 52).

The proportion of medieval imports found at lesser south-coast ports is generally small. At Seaford, for example, imports amount to less than 1% of the assemblages which have been recovered (Freke 1977-78c, 212), and even in London the proportion is seldom above 10-15% (Brooks & Hodges 1983, 234). Quantities of less than 5% or so indicate that medieval imports were probably redistributed by coastal traffic from major ports such as Southampton (Allan 1983b, 196). Coasting traffic and foreign imports are not differentiated in the Customs Accounts of the Cinque Ports until 1549 (Pelham 1930a, 129). Nevertheless, alien trade at Winchelsea in 1323 included 'earthenware, 8s; bricks, £1; wooden cups, £1; and 9 copper cups, £1' (Pelham 1929, 107). Other references to the import of earthenware occur in the last decade of the fourteenth century (Pelham 1930b, 194-5). Pottery from excavations at Winchelsea conducted by the Sussex Archaeological Field Unit has been studied by C.R. Orton who has identified a considerably higher proportion of imported wares than, for example, at Seaford. Documentary evidence for the occurrence of earthenwares among the alien trade, combined with the archaeological evidence, suggests therefore that this was a port of entry for pottery from continental sources.

Comparison between ceramic assemblages at Canterbury and Stonar emphasises that medieval imports did not penetrate far inland (Allen 1983b, 196). There is a similar contrast in Sussex between the assemblages at Winchelsea and inland sites such as Battle Abbey or Glottenham at Mountfield. Late fifteenth-/sixteenth-century imports from the Low Countries and the Rhineland amount to 40% of the ceramics attributed to this period at Winchelsea, compared with Battle Abbey, where all imports amount to only 10% of the pottery discarded at the Dissolution. Most of the earthenwares found at Battle Abbey are considered to be local products, and, although a small number of Low Countries' imports might pass unnoticed among the local redwares, the range of forms does not include vessels with pulled feet which are

characteristic both of the imports themselves and of the forms reflecting Dutch influence at potteries in the London area (see Section 5.9.2). Thus, while wine for the monastic community at Battle was sometimes obtained at Winchelsea during the middle ages (see Section 1.4.6), demand for imported pottery during the years preceding the Dissolution was confined to the limited number of types which could not be obtained locally.

Groups of sixteenth-century pottery at Camber Castle, on the other hand include both stonewares and Low Countries' earthenwares, the former alone amounting to 33% (by weight) of the pottery dumped as part of the make-up in the north bastion, probably during the 1570s (see Section 4.3.2). The ratio of imports to local wares is akin to that at Winchelsea less than 2km (1 mile) away. Although the content of a ceramic assemblage might vary according to the type of site, the proportion of continental wares - and hence the degree of competition with local potters - is clearly related to distance from the ports. Few quantitative data are available for Wealden sites, but the figure of under 5% of stonewares represented among the Dissolution debris at Bayham Abbey is typical of many assemblages (see Section 4.3.3). As in the moorland areas of South-West England, thirteenth-/fourteenth-century imports in the Weald are generally confined to seigneurial sites and religious houses. Even in the hinterland of London, imported medieval pottery at Croydon comprises less than 1% of the assemblage described by Drewett (1974, 8-24; 27-42).

Owing to the lack of quantified data for more than a handful of sites, it would be premature to attempt definitive regional mapping of geographical and chronological trends in the distribution of imported pottery (see Section 6.7). Nevertheless, the gazetteer of consumer sites (see Section 10), used in conjunction with published summaries indicating the distribution of medieval imports (Dunning, Hurst & Barton 1968; Hurst 1980; Allan 1983b), provides a means of assessing the extent of inland trade in these ceramics. As the quantities of imported pottery are often so small, there is a need to evaluate carefully the significance of assemblages in which imports are not represented. The criteria outlined in Section 2.5.5 form the basis for such assessments.

It will be apparent from imports found at inland sites such as Stretham, Henfield, West Sussex and Guildford, Surrey that the distribution pattern has been influenced by water transport as well as

by the status of the sites which have been excavated. Nevertheless, there is a repeated absence of medieval imports among small assemblages in the High Weald and it is instructive to compare published distribution maps with the simplified pattern of market hinterlands served by navigable waterways (see Section 1.4.6 and Fig. 1.18). Unlike the high percentages of locally-produced wares, greater significance should be attached to minor variations in the quantity of imported pottery. To summarise, therefore, the difference between 5% and less than 1%, for example, may help to differentiate between a small but regular trade and the incidental evidence of souvenirs or the visit of an itinerant household.

Pottery found at ports such as Stonar and Pevensey attests a modest trade in regional imports from other parts of the English mainland. As in the case of continental imports, some potteries seem to have engaged in long-distance trade while others did not. Notable among the English imports occurring in South-East England are the highly decorated Scarborough wares which follow a coastal distribution including among other sites, Dartford (Dale 1959; Mynard 1973), Stonar (Dunning 1968), Dover (Willson 1978; Farmer & Farmer 1981), Hastings (Ross 1860; Barton 1979, 30-35), Seaford (Lower 1869, 218), and Stretham, West Sussex (Henfield Museum).

Few regional imports have been found inland, although Alexander (1961, 47) has offered an ingenious explanation for the discovery of a jug with a rope-decorated handle at Addington, Kent. He believed that the vessel, which was found with other pieces of medieval pottery during excavation of the Chestnuts Megalithic tomb, probably came either from the Southampton or Oxford area. Furthermore, he advanced the theory that it might have been carried by medieval tomb-robbers from one or other of these areas. Rope-decorated handles are certainly a distinctive feature of ceramics in the Oxford area but there are other examples in west Kent (Maidstone Museum, med. 53) and at Reigate (D. Williams, pers. comm. 1983) as well as the one from Addington. Because this is not an isolated find, the rope decoration appears to be a minor local trait rather than convincing evidence for the journeys of medieval tomb-robbers. Nevertheless, the discovery of a tubular-spouted jug at Rochester does offer evidence for the occurrence of Oxford area types in west Kent, presumably traded down the Thames valley via London (Tester in Harrison 1972, 149).

Finally, the activities of one Simon le Pichermakere should

be mentioned. He is recorded as having sent his wares from Cornwall to Sussex during the fourteenth century (Salzman 1923, 170). No Cornish wares have so far been recognised in Sussex, and the West Country origin formerly proposed for the dish found at Snargate Street, Dover (Rix & Dunning 1955, 150-52) has now been disproved with the identification of this as an example of ceramique onctueuse from western France (Hodges 1978). Although this is a rare and unusually specific piece of documentary evidence, it seems unlikely that Simon's contact with Sussex constituted a significant element in ceramic trade. Nevertheless, it does indicate the extent to which local potters faced competition from coastal traffic.

6.4.5 Wood, leather and metal vessels

The status of pottery within the medieval and later household has been considered in Section 1.1.3 and the copying in earthenware of metal vessel types has been discussed in Section 5.7.3. It remains here, however, to assess the extent to which medieval potters and craftsmen working in other materials competed with one another to meet demand for certain types of vessel.

Although there was a continuing demand for cooking pots, the increasing use of metal cauldrons during the fourteenth century (see Section 1.1.3) would have deprived the potter of a significant outlet for his wares. As we have seen (Section 5.7.3), one response was to copy the metal forms in pottery. Growing demand for drinking vessels, however, would have enabled the potter to expand his repertoire and retain his share of the market, possibly at the expense of the wood-worker and leather-worker (Dyer 1982, 39).

Documentary references to mazers occurring between the fourteenth and mid-sixteenth century attest the popularity of these wooden drinking vessels. At Canterbury, for example, 182 mazers are recorded in 1382 (Evan-Thomas 1932, 1). Wooden cups were also used extensively by the royal household during the fifteenth century:

'The Buttler for the month delyverythe nyghtly at the buttery barre, for the Kynge all nyght with ale in new asshen cuppes' (Baker 1921, 127).

Leather was generally confined to larger vessels for which other materials were unsuitable. Nevertheless, an early fifteenth-century inventory attached to the will of Thomas Morton, master of Brackley Hospital, Northants. included leather pots holding two quarts each and one leather cup (ibid., 125). Generally, however, inventories show

that large leather drinking jacks were not plentiful in ordinary dwellings, although they did become more numerous from the late fifteenth century onwards. Leather vessels appear in the accounts and inventories of religious houses. In 1381, for example, the Abbey of Durham paid 15s for ten pots of leather and a pair of great bottles for the Lord Prior (*ibid.*, 167). Likewise, at the College of Lingfield, Surrey there were two butteries each containing leather vessels (*ibid.*, 169), while there were a number of old leather jacks in the refectory at Battle Abbey (*ibid.*, 70). Leather bottles are also recorded in the accounts of Winchester College, and purchases appear in the Eton College records from 1414 until the seventeenth century (*ibid.*, 71-73).

Whereas the potter and the wood-worker may have competed to meet local demand for small drinking vessels, the evidence from Durham in 1495 (*ibid.*, 180) and from the accounts of Winchester College (*ibid.*, 71) suggests that large leather jacks were obtained from specialist suppliers in London. Competition between craftsmen was perhaps more likely at fairs which were another source of supply for leather drinking vessels (*ibid.*, 186-7). Given similar capacities, however, personal preference must also have influenced a customer's choice of products. Thus, requirements for the Earl of Northumberland's castles of Wresil and Leginfield in 1512 included, as part of the 'provision for my lordis hous', an instruction for amendment '... yerely from hens furth...':

'Whereas Erthyn Potts be bought, that Ledder Potts be bought for them, for servyng for Lyveries and Mealis in my Lord's hous' (*ibid.*, 91).

In this instance the potter had lost custom to the leatherworker, but by 1569 it is claimed that there was only one skilled maker of leather vessels in the City of London. This may reflect decay of the guild system rather than the craft itself, and the appeal for relief from taxation in 1562 was doubtless prepared for expediency rather than as an impartial statement of fact:

'Itm the peticion of the Bottle-Makers and Horners red and the contents of the same plainly declaring their small nu'ber and pou-ty yf they nowe be of, charetably considerid by the Court it was granted and agreed by the same yf they from hensfurth shall be considerid and esid of the taxe and charge that they and their predecissors have heretofore visually beyn chargid...' (*ibid.*, 27).

Nevertheless, it is clear that competition with glass-makers and Dutch craftsmen engaged in the manufacture of tin-glazed earthenwares during the late sixteenth century constituted a significant challenge to the old-established craft of bottle-making.

While there is unlikely to have been competition between mediéval craftsmen engaged in the manufacture of leather jacks, earthenware jugs and metal ewers which would each have fulfilled different needs, potters would have competed with leather-workers for the supply of costrels, and earthenware aquamaniles would have offered a cheaper alternative to their metal counterparts. It is often difficult to determine the material of vessels depicted in contemporary illustrations, but what is probably a wooden drinking vessel appears on a fifteenth-century misericord at the Church of St. Laurence, Ludlow, Salop. (Remnant 1969, 134). At Inkberrow church, Worcs., however, a figure on the north-east corner of the restored fifteenth-century porch is clearly holding a ribbed leather costrel (Baker 1921, 55). The form of this vessel is similar to the barrel-shaped pottery costrels described by Dunning (1964b). Another similar, but decorated, example has been found at Hull in a context dated to the second half of the fourteenth century (Armstrong 1980, 68; 97 pl.4a). As with the aquamaniles, there can be little doubt that pottery costrels represented cheaper alternatives to the leather vessels.

6.5 SELECTED MEDIEVAL POTTERIES AND THEIR CUSTOMERS

6.5.1 Binsted, West Sussex

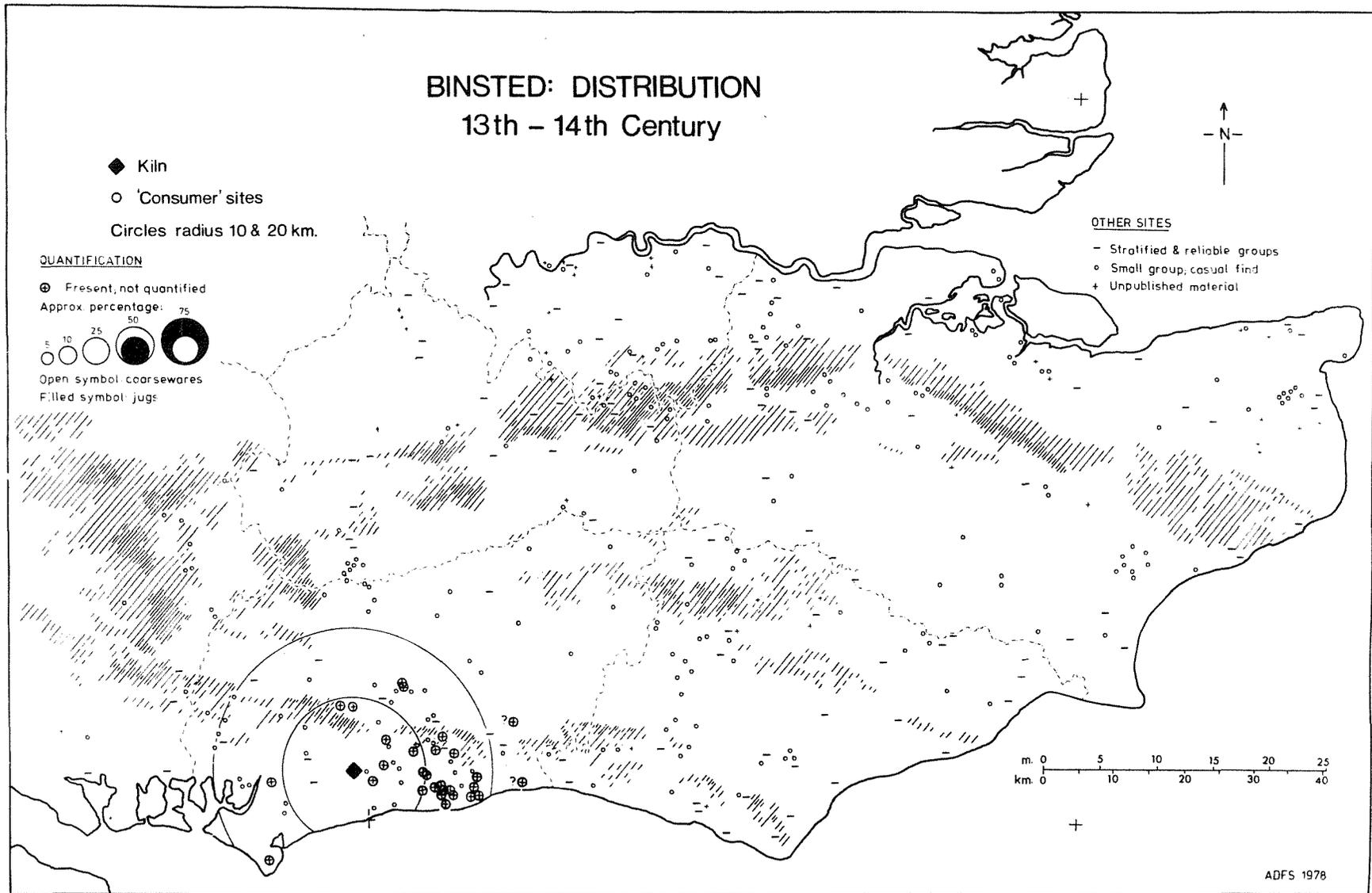
Binsted wares occur among the numerous small collections of medieval pottery in Worthing Museum, which have been found in the Worthing area. The strong eastward bias of the distribution plotted on Fig. 6.11 undoubtedly reflects the extent of fieldwork, and few 'reliable' groups of pottery have been recovered from the area west of Binsted. Nevertheless, this concentration of finds to the east may also confirm the significance of the market at Arundel as an outlet for Binsted wares. Examples of the Binsted fabrics have been noted among the finds from Maison Dieu, Arundel (Evans 1969). The potter(s) may also have served lesser markets at places such as Goring, but the mid-fifteenth-century market at West Tarring would have been founded after production at Binsted had ceased.

Although the medieval kilns discovered so far in Chichester are dated to the thirteenth century, production may have continued at other sites into the fourteenth century. The recovery, in the area between Chichester and Binsted, of ceramic assemblages attributable to this period would therefore be crucial to assessment of the probable competition between these two centres of pottery manufacture. Examples of Binsted ware have been found at Chichester (Barton 1979, 96) and the fabrics have been recognised at Pagham (Gregory 1976, 216), but quantified data are not available. Identifications at Pagham and Middleton-on-Sea have been confirmed by textural analysis (see Section 12.1.11, Group Kxlii) but results from Portslade and Stretham over 20km (12 miles) away to the east suggest the presence of other production centres (see Section 12.1.11, Group Kxlili). There is only a subtle distinction between these fabrics. More extensive sampling is required to determine whether the contrast is sufficient to identify the output of another workshop or whether they might represent variations within the range of Binsted wares. For the time being, however, a separate source is inferred.

6.5.2 Brede: East Sussex

Textural analysis has indicated the similarities between medieval coarsewares at Brede and Rye (see Section 12.1.11). Indeed, despite proximity to the kilns, no examples of the Brede fabric could be identified conclusively at Battle Abbey (see Section 4.3.2). The presence of ironstone in the wasters from Brede may be a

Fig. 6.11 Binsted. Distribution of marketed vessels



distinguishing feature, and visually similar sherds have been noted among the pottery from the Bodiam moated homestead excavation. This site lies within the area likely to have been served by the potters at Brede (Fig. 6.7). In a part of the region where grey coarsewares predominate, reliable identifications can only be made by direct comparisons, preferably confirmed by thin-section analysis.

6.5.3 Cheam, Sutton, Greater London

The distribution of Cheam white ware has been summarised by Orton (1982a, 72), who notes that the trade seems greatest to the north-west of London, perhaps owing to the collapse of earlier local industries in that area (*ibid.*, M41). Significant quantities of Cheam ware are also present at Bayham Abbey in the Weald (see Section 4.3.3) and Cheam may also be the source of some biconical jugs found at Bodiam Castle (Myres 1935). Orton (*ibid.*, M41) records the identification of Cheam wares at Eastbourne, but textural analysis of samples from Battle Abbey suggests that biconical jugs may also have been produced elsewhere (see Section 4.3.2).

The discovery of wasters in what appears to be a similar fabric at Bankside, Southwark may necessitate reassessment of the 'Cheam' wares found in London (Orton 1982a, 85), and this emphasises the need for textural analysis to confirm identifications (see Section 12.1.11, Group Kxlvii). The apparent absence of Cheam wares to the south-east of London, for example, can be redressed by the identification of a sample from Woodbine Cottage, Bexley, while the Bredgar hoard pot with its diagnostic method of handle attachment described by Dunning (1948a) can also be attributed to the kilns at Cheam.

6.5.4 Chichester, West Sussex

Although products of the Chichester kilns have been recognised in the city itself, the extent to which these wares were marketed outside the city remains ill-defined. Examples have been recognised at Pagham (Gregory 1976, 216), but vessels found further afield at Portchester Castle are more likely to have come from the kilns at Boarhunt. Similarities between both the sand- and flint-tempered fabrics produced at Chichester and Boarhunt inhibit the identification of these products near the border between West Sussex and south-east Hampshire (see Section 12.1.11, Group Kxxiv and Section 12.1.6, Group Eiii).

6.5.5 Earlswood, Reigate, Surrey

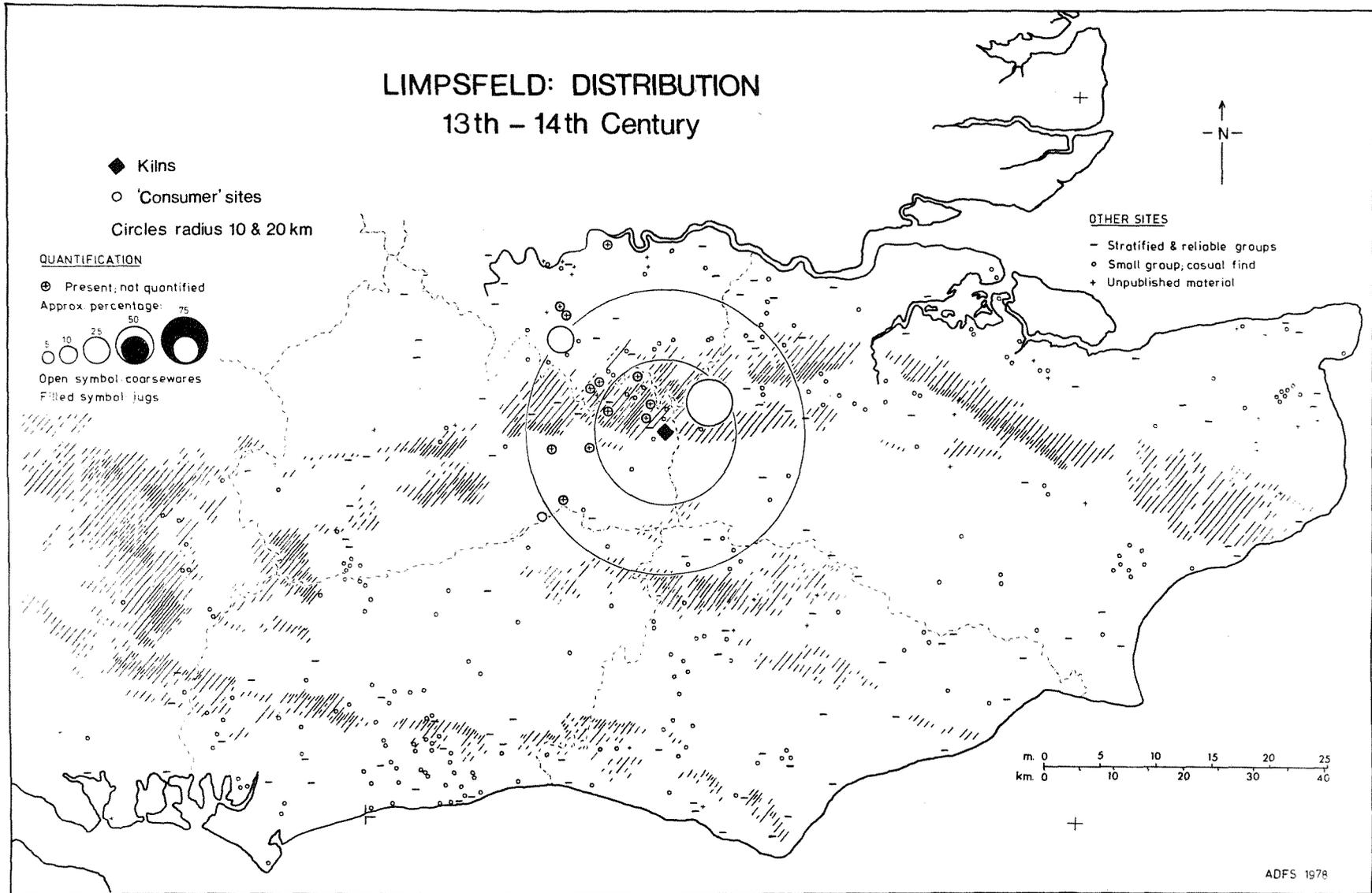
Earlswood ware was supplied to the nearby market at Reigate (Turner 1974b, 92) and thin-section analysis attests its presence at Croydon. The approximate southern limit of the distribution is marked by finds from Sedgwick and Hartfield in Sussex (see Section 12.1.11, Group Kx). The Earlswood wares at Hartfield included both plain coarsewares and slip-decorated jugs implying a regular trade to this part of the Weald (see Section 5.10.5). Assuming that these utensils were purchased in a market rather than obtained direct from the potter, then the market at East Grinstead could have been a likely source, being easily accessible from Hartfield and almost certainly within reach of the potters at Earlswood. The Earlswood industry is also likely to have met demand from the numerous seigneurial moated sites in south-east Surrey (see Section 11.4.3).

6.5.6 Graffham and East Lavington, West Sussex

There have been fewer finds of medieval pottery in the West Sussex Weald than in the area around Worthing (see Section 6.5.1). The distribution of medieval Graffham wares is therefore less clearly defined than that of the Binsted products (Fig. 6.20). Nevertheless, it is interesting to note that presumed Binsted wares have been found close to the area served by the Graffham potters. Water transport probably accounts for the occurrence of Binsted wares at sites some distance upstream in the Arun valley, but the flint-tempered Binsted fabric represented at Barlavington Down (Worthing Museum) is a notable example of competition close to the kilns at Graffham/East Lavington.

The distribution of Graffham wares to the east of the production centre, especially in the Pulborough area, implies that water transport along the West Sussex Rother may have been a significant factor in marketing. Likewise, routes linking the scarp-foot villages would probably have encouraged east-west distribution in the vicinity of the kilns (see Section 1.4.4; Fig. 1.17). The material so far examined is insufficient to determine the westward and northward extent of the distribution, but it is clear from the discovery of Surrey white wares on glass-making sites in the Sussex border area that Graffham potters journeying as far as the market at Haslemere would have found themselves in competition with the Surrey industries such as Farnham.

Fig. 6.12 Limpsfield. Distribution of marketed vessels



6.5.7 Limpsfield, Surrey

The marketing of medieval coarsewares made at Limpsfield has been discussed by Prendergast (1973, 18-19). Find-spots which he identified can now be supplemented by several other sites listed in Section 10. Conversely, textural analysis suggests that pottery formerly identified as Limpsfield ware found in parts of west Kent probably came from a different source. Places such as Farleigh and Sundridge (Philp 1973, 219) situated close to the Kent/Surrey border would have been supplied from Limpsfield but the grey wares found as far away as Eynsford Castle, Lesnes Abbey and Rochester belong to different fabric groups restricted to west Kent (see Section 12.1.11, Groups xxxiii-xxxv). Indeed, the medieval potters at Wrotham were working some 20 km. (12 miles) to the east of Limpsfield. Although their wasters have yet to be identified, local ceramic assemblages suggest that they, too, were probably engaged in the production of reduced coarsewares.

Limits of the Limpsfield ware distribution to the south and south-east of the potteries are indicated by the presence at Moat Farm, Leigh, at Bayham Abbey, and in the Hartfield area of similar wares attributed to different sources (Fig. 6.12). As in the case of the Binsted wares in central Sussex (see Section 6.5.1), identifications depend upon subtle differences in fabric (see Section 12.1.11, Group Kxxxii). More extensive sampling is therefore required for closer definition of the fabric groups. Nevertheless, even in the light of present knowledge, it would appear that Limpsfield ware was traded further to the north-west than to the south and east. In this respect, the trend is similar to that for Cheam ware in the late fourteenth and fifteenth centuries (see Section 6.5.3). Although Limpsfield ware reached Southwark (Turner 1971a, 97-101), it is difficult to determine the extent to which it was marketed in London owing to the close scrutiny of the fabrics needed for the identification of these vessels among grey coarsewares obtained principally from the Hertfordshire potteries (Renn 1964).

6.5.8 Potters Corner, Ashford, Kent

There is no independent dating evidence for the output of the kiln(s) at Potters Corner, but the shell-/sand-tempered fabric indicates a date in the thirteenth rather than the fourteenth century.

Irrespective of precise chronology, these potteries would have competed with the long-lived Tyler Hill industry in east Kent. This.

is reflected in the distribution of Potters Corner ware.

Unlike the Limpsfield kilns which were situated in a similar position on the edge of the Weald, products from Potters Corner were generally traded in a south-easterly direction into the Weald and Romney Marsh, rather than northwards and eastwards into the area served by the Tyler Hill potters. Vessels identified by Rigold (1964, 61) at New Romney represent the southern limit of the known distribution but there are few pottery finds in the Low Weald to indicate the extent to which Potters Corner ware penetrated westwards.

The distribution of Potters Corner products is similar to that of the pink East Wealden wares from an as yet unknown source. A few samples of these two wares have been thin-sectioned to illustrate geographical trends in the competition with Tyler Hill ware (see Section 12.1.4, Group Cv and Section 12.1.11, Group Kvii; Fig. 12.15). As in south-east Surrey, Potters Corner ware would probably have found a market among the many moated sites in this part of the Weald.

6.5.9 Ringmer, East Sussex

Textural analysis has enabled the identification of sand- and flint-tempered wares within a radius of some 20 km. (12 miles) from the kilns (see Section 12.1.11, Group Kxxxviii; Fig. 12.27, and Section 12.1.6, Group Ev; Fig. 12.8). Finds from Hangleton so far represent the western limit of the known distribution and the examples from Battle Abbey lie outside the area in which Ringmer ware constitutes the dominant element in ceramic assemblages. Nevertheless, the quantities are sufficient to cast doubt upon the suggestion by Bleach (1982, 46) that these finds represent goods carried by visitors to the abbey.

Several face-masks from medieval jugs have been recognised among the wasters at Ringmer (Barton 1979, 181) but no attempt has yet been made to trace the distribution of similar vessels attributable to this source. It would be instructive to compare the marketing of decorated jugs with that of the coarsewares, but so far there is no evidence to suggest that this trade was on a scale comparable with that of the West Sussex wares.

As we have seen (Section 5.4.2) the principal market for Ringmer products would have been in Lewes. Vessels found at settlements flanking the River Ouse may have been obtained at Lewes, but it is likely that some would have been carried by water, perhaps to the market at Seaford (see Section 6.4.3). This is therefore a

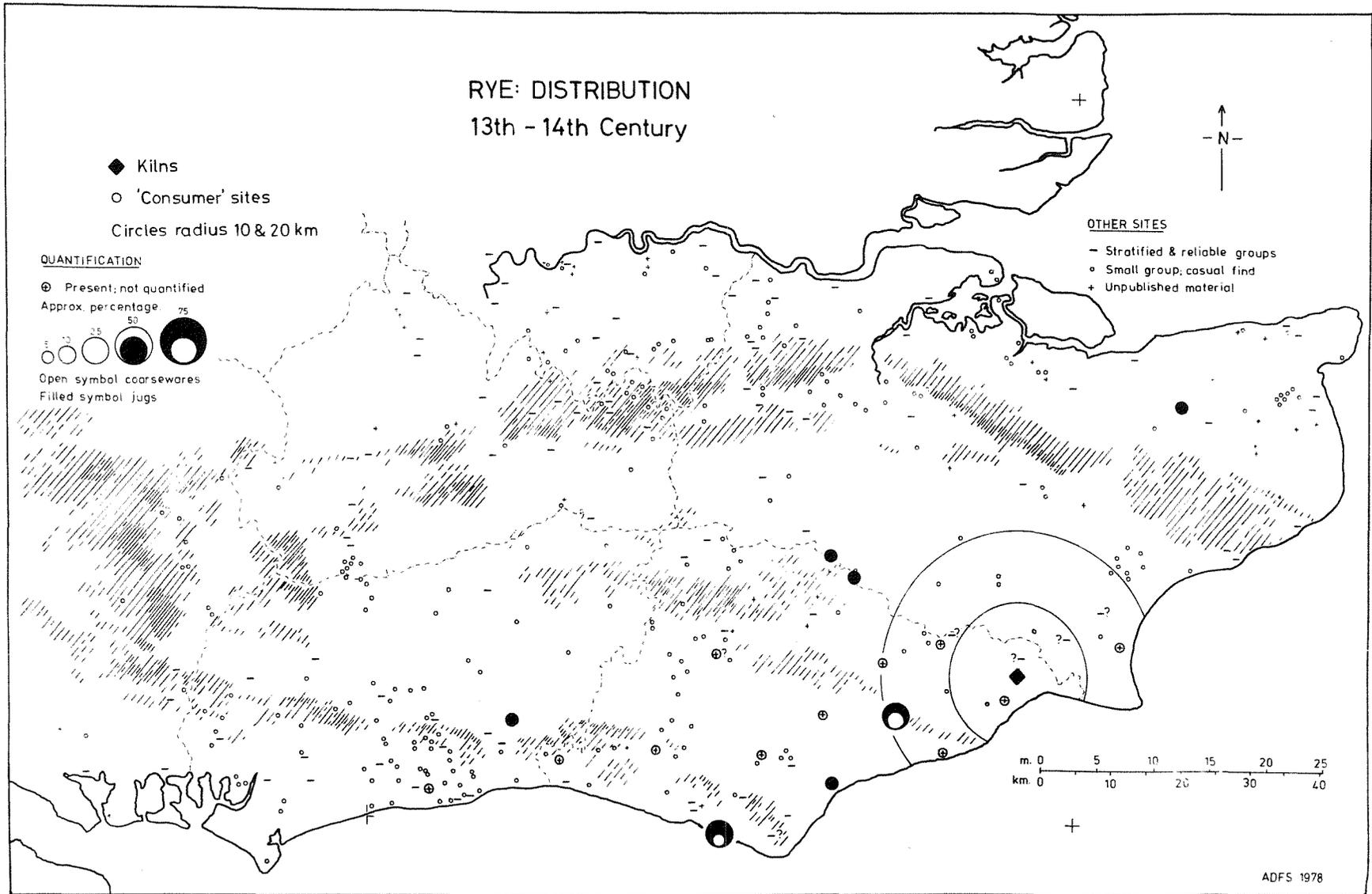
case where water transport combined with closely-spaced settlements might account for a more extensive linear distribution than that predicted from the spatial pattern of market areas (Fig. 6.7). Demand from Lewes and from the villages in its hinterland clearly encouraged production on a large scale.

6.5.10 Rye, East Sussex

The significance of road and water transport for the distribution of medieval pottery from Rye has been assessed in Sections 6.4.2 and 6.4.3 respectively. Rye wares have been identified on the basis of both their distinctive decoration and fabrics (see Section 12.1.4, Group Cvi and Section 12.1.11, Groups Kxvi & Kxvii). The presence of characteristic repousse stamped motifs among pottery from the Bodiam moated homestead site, for example, confirms the identification of other vessels in the assemblage which have similar fabrics. Attribution is less certain, however, for a raspberry-stamped sherd found as far afield as the Old Rectory at Buriton, Hants. This small and abraded sherd does, however, appear similar to the Rye wares. If the identification is correct, then, like other finds of Rye ware in West Sussex, the jug may have been part of a cargo carried as part of the coasting traffic which entered medieval ports in Hampshire and Sussex (see Section 1.4.6).

Rye wares found at these distant sites seldom represent more than one or two vessels. Even in the hinterland of the kilns, few quantitative data are available. Nevertheless, the assemblage at Battle Abbey (see Section 4.3.2) contains a higher proportion of Rye coarse wares than the Seaford well group (Freke 1977-78, 212). Quantities are depicted using conventional symbols on Fig. 6.13. Rye wares as a whole comprise some 25% of the contemporary pottery at both of these sites, but at Battle Abbey the culinary vessels account for around 10% of this total whereas at Seaford the proportion is under 5%. It would be premature to assume that these differences are due to distance alone, because the range of pottery found in wells often reflects the accidental loss of jugs. Nevertheless, quantities such as these would be consistent with decreasing amounts of coarse ware traded to areas which could probably be supplied more cheaply from nearer kilns. This trend is apparent from recent analysis of the late medieval pottery found at Winchelsea. Rye wares there amount to 47% of the total among which 28% comprises vessels in a grey fabric which is typical of the culinary wares (D.Rudling, pers. comm. 1984). Thus

Fig. 6.13 Rye. Distribution of marketed vessels



the proportion of Rye wares at Winchelsea is over twice that at Battle Abbey.

6.5.11 Streat, East Sussex

Although demand for pottery at Lewes seems to have been met principally from the kilns at Ringmer (see Section 5.4.2), analysis undertaken by Williams and Tomber (1982, 117 no. 69), shows that the aquamanile found during the construction of the Lewes railway tunnel in 1846 (Figg 1848, 44-5) was probably made at Streat. As we have seen (Section 6.3.2), Streat wares would probably have been marketed chiefly in the Weald and in the area west of the kiln(s) where the scarp-foot villages were linked by east-west communications.

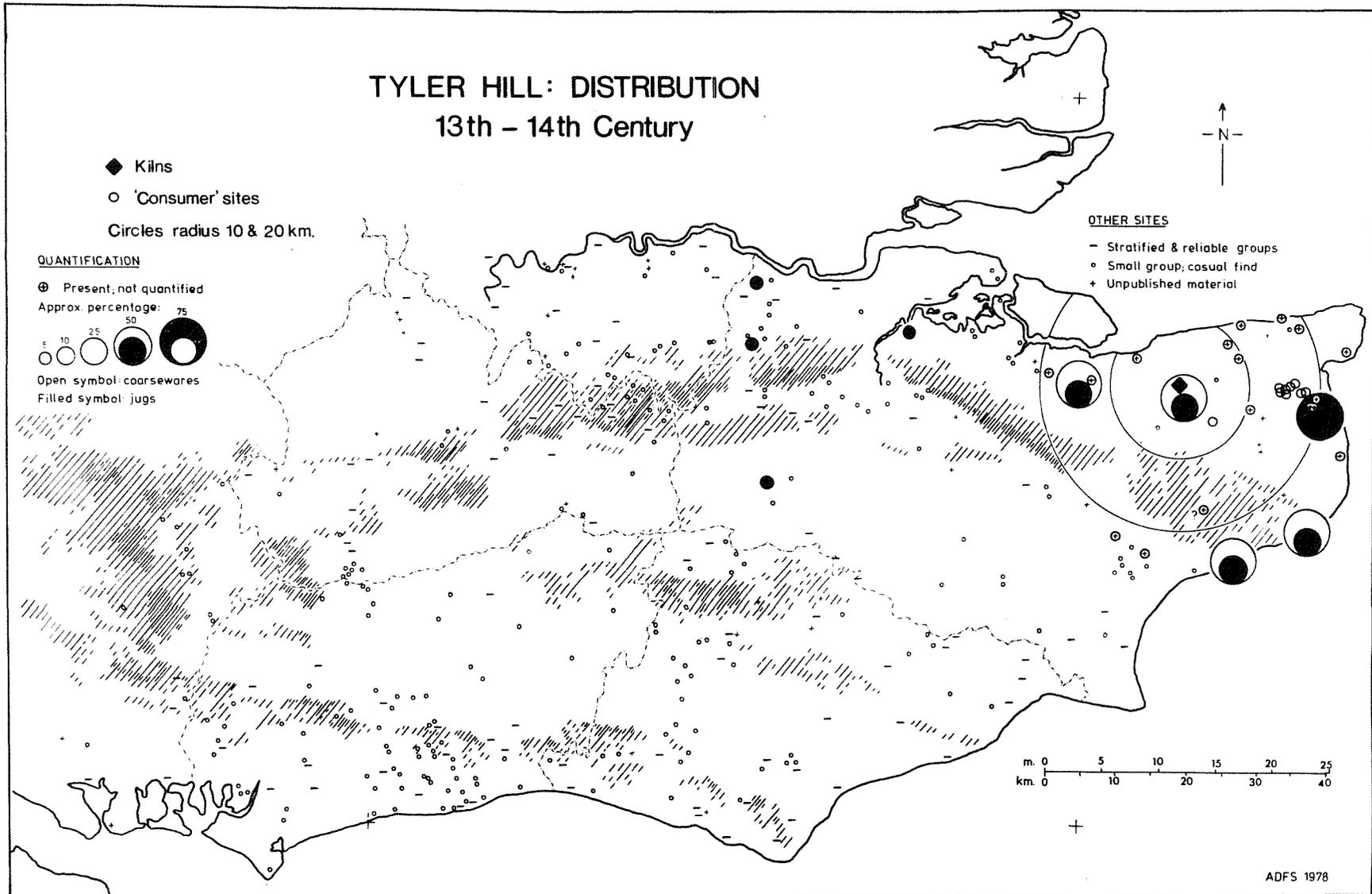
The occurrence of Streat ware in assemblages from 'consumer' sites in the area has not yet been studied in detail. It is possible, however, that some of the oxidised sandy fabrics found on the southern side of the Weald may be from this source. A sherd of white-slipped ware at Buxted, for example, is unlike the Earlswood wares in the Hartfield area, which probably implies a nearer origin, possibly in the Low Weald of East Sussex. Streat might also be the source of an unprovenanced aquamanile attributed to the Maresfield area (Victoria & Albert Museum C343 1919). This vessel has not been analysed for comparison, but the oxidised sandy fabric resembles that of the Streat wasters. Assuming that the vessel was indeed found at Maresfield, only some 13 km. (8 miles) from the kiln, this must be regarded as a possible source.

6.5.12 Tyler Hill, Kent

It has been shown both from the study of twelfth-century pottery in Canterbury and from the analysis of analogous material found in the hinterland of the city that by the third quarter of the twelfth century consumers in east Kent were already obtaining their pottery from the Tyler Hill area.

The distribution of thirteenth-/fourteenth-century Tyler Hill ware, as plotted by Rix and Dunning (1955, 150), can be supplemented by more recent discoveries (Fig. 6.14). Where quantified data are available, the content of ceramic assemblages in this part of the region shows that the east Kent market was dominated by the potters at Tyler Hill. At Maison Dieu, Ospringe, for example, over 75% of the medieval pottery can be attributed to the Tyler Hill industry (Thorn 1979a, 155), and similar figures are derived from

Fig. 6.14 Tyler Hill. Distribution of marketed vessels



excavations in Canterbury and Dover.

Like the Rye wares (see Section 6.5.10), finds of Tyler Hill ware in west Kent indicate that decorated jugs travelled further than the contemporary culinary wares. The dominance of jugs among pottery from a well excavated at Worth (Gaunt 1976, 95-8), however, reflects the content of the assemblage rather than a significant trend in marketing. Jugs are also numerous among the finds from eroded wells on the foreshore at Minnis Bay, Birchington (Powell Cotton Museum).

Competition with the Potters Corner wares and east Wealden types is attested by the smaller quantities of Tyler Hill ware found on sites in the Aldington area, compared with assemblages from east Kent. Although only slightly over 20 km. (16 miles) from the kilns, it is clear that dominance of the Tyler Hill industry did not extend to sites in the Low Weald.

6.5.13 The Hampshire/Surrey potteries

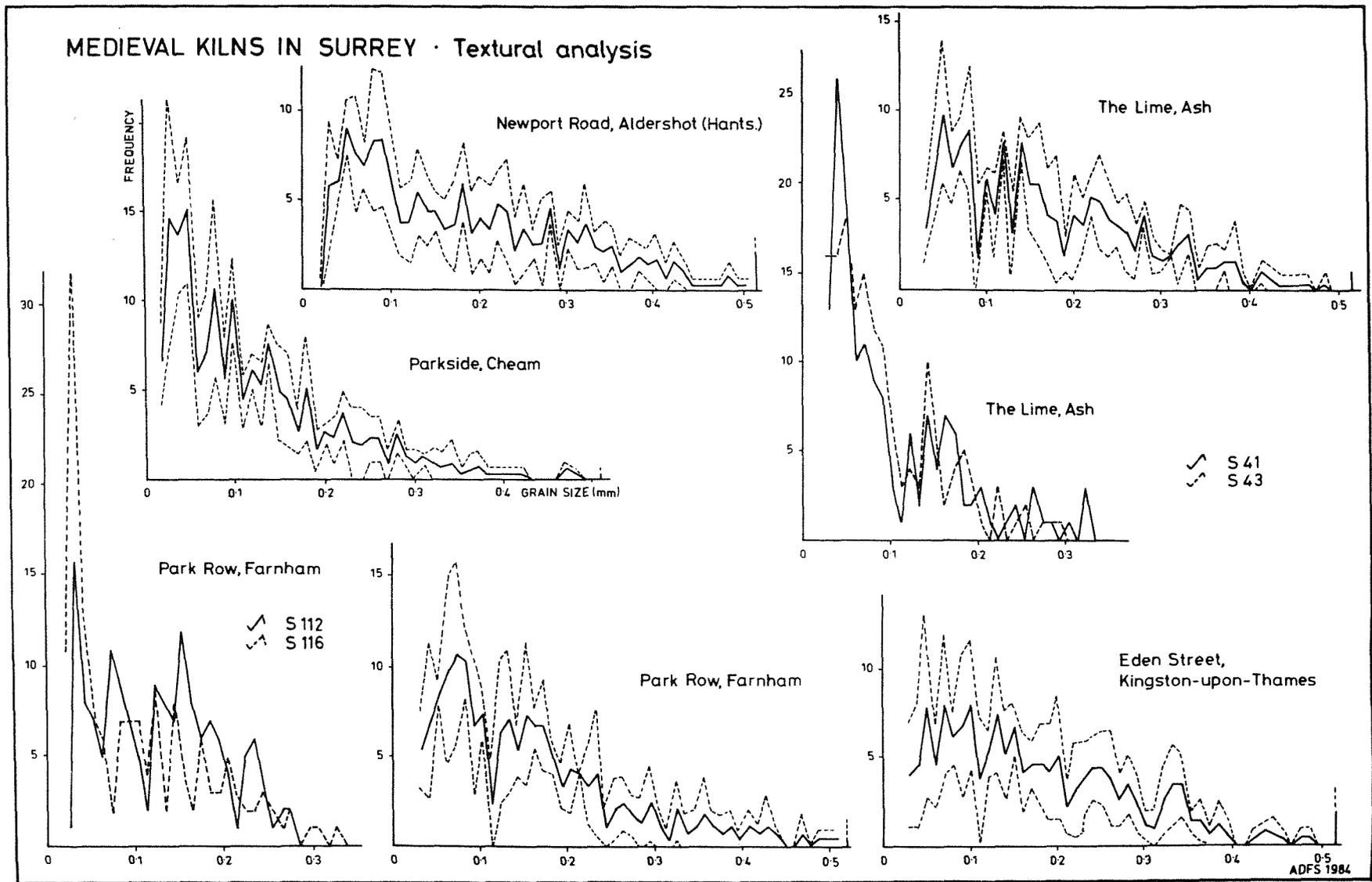
Surrey has long been acknowledged as a significant source of the ceramics found in London (Medieval Catalogue 1940, 211; Dunning 1950a, 154). Cheam was the only known production centre until the discovery of white-ware kilns at Kingston-upon-Thames and in the Hampshire/Surrey border area during the 1960s. Dated groups from waterfront sites such as Trig Lane, however, enable the output of principal sources to be recognised and the chronological trends can now be quantified (Orton 1982b, 94, fig 60). In outline, it seems that Kingston wares appear in London from c.1250 and they occur in increasing quantities until the mid-fourteenth century when they are superseded by new types made at Farnborough and Cheam. These forms persist until they, too, are superseded probably during the last quarter of the fifteenth century by red earthenwares manufactured in the London area itself. Tudor Green forms continued to reach London during the late fifteenth and sixteenth centuries, but other late medieval forms made in the Hampshire/Surrey border area were confined to more local markets. As Orton (1982b, 97) has pointed out, it would be unwise to extrapolate chronological trends in London throughout the entire hinterland of the kilns because the extent to which vessels were traded at a given period would depend to a large degree upon the strength of competition from local potteries.

Textural analysis demonstrates the difficulties of distinguishing between the fabrics produced at different workshops in

Surrey and north-east Hampshire (see Section 12.1.11, Fig. 12.31). There are general similarities between the grain-size frequency curves derived from the analysis of samples from Aldershot, Ash, Farnham and Kingston-upon-Thames, with finer fabrics also represented at two of these sites (Fig. 6.15). Moreover, samples from the group of wasters found at Bankside, Southwark have not been examined. It is possible that pottery from all these kilns reached London, but the range of forms found on excavations in the City suggests that only the industries at Cheam, Farnborough Hill and Kingston-upon-Thames were active in supplying the London market.

A more extensive programme of textural analysis attempting to relate traded vessels to the graphs shown on Fig. 6.15 might help to determine the number of sources represented among the Surrey wares found in London. At present, however, it would also appear that output of the other workshops was confined to local markets. Nevertheless, the attribution of marketed vessels to specific kilns must remain tentative in view of the evidence from Southwark and especially owing to the unknown output of other probable potteries indicated by medieval place-names and surnames, as at East Clandon, Surrey where the evidence coincides with an outcrop of the Reading Beds clay (see Section 9.1.5, nos. 305-6).

Fig. 6.15 Textural analysis. White ware wasters from medieval kilns in Surrey



6.6 SELECTED POST-MEDIEVAL POTTERIES AND THEIR CUSTOMERS

6.6.1 Boreham Street, Wartling, East Sussex

The generally restricted distribution of products from early sixteenth-century kilns in East Sussex is confirmed by the distribution of Boreham Street ware. Marketed vessels have been recognised at Lullington Church and Michelham Priory (see Section 3.4.1) and at Panningridge Furnace (Crossley 1972, 65). Despite careful examination of the sixteenth-century earthenwares at Battle Abbey, however, none of the fabrics there can be attributed to the Boreham Street kiln (see Section 4.3.3), situated only some 10 km. (6 miles) away along a significant through route (Hindle 1982b, 19).

In the absence of a published type-series for this workshop, the comparison of vessels found at Bodiam Castle with the Boreham Street wasters should be treated with caution (Barton 1979, 156). Textural analysis has not been undertaken to confirm the identification, and, in view of the absence of Boreham Street ware at Battle, the possibility of other small workshops nearer the castle cannot be ruled out.

6.6.2 Chichester, West Sussex

Products of the Crane Street kiln have not so far been recognised outside Chichester. Moreover, if it is correct to assume that the Crane Street potter(s) were active for only a short period (Down 1981a, 211), then the likelihood of recognising one of these vessels among the large amounts of post-medieval material from the city is remote. Thus, while it is possible using textural analysis to distinguish the Crane Street fabric both from post-medieval Graffham wares and from red wares made in the Hampshire/Surrey border area (Fig. 5.18), quantification of marketed vessels from the Crane Street workshop is hampered by visual similarities with the output of other kilns (see Section 12.1.13). Crane Street wares would certainly have been in competition with the widespread market for contemporary earthenwares made at Graffham (see Section 6.6.3). The identification of Crane Street products outside the city would therefore help to plot the general geographical limits of the distribution. This might give some insight into the hinterland of Chichester at this period, but practical difficulties of visual classification are likely to remain a barrier to reliable quantification.

6.6.3 Graffham/East Lavington

Textural analysis has confirmed that the distinctive white-painted wares of the late fifteenth and sixteenth centuries found in West Sussex can be attributed to potteries in the parishes of Graffham and East Lavington. Thus, they represent extensive distribution from a single source as opposed to restricted marketing in the vicinity of several different workshops.

Analysis has been undertaken using the methods described in Section 3.4.2 and the results are summarised in Section 12.1.12 (Group Lvi). White-painted wares from a wide geographical area conform to the quartz grain-size frequency curve derived from analysis of wasters found at Graffham (Fig. 6.16: Graphs A & B). Taking the samples in smaller groups, the analyses confirm identifications at Chichester, Pulborough and in the Worthing area (Fig. 6.16: Graphs C, D & E). West of Graffham, products have been recognised at Harting and Idsworth, Hants., while sherds from Chalton, Hants., hitherto suspected to be from a different source, also have a grain-size frequency curve similar to that of the Graffham wasters (Fig. 6.16: Graph G). Further afield in Hampshire, examples of the characteristic bunghole pitchers made at Graffham have been found at Wolv^esey Palace, Winchester and at Oyster Street, Portsmouth. Quantities at these sites, however are small, and the finds may therefore represent the activities of middlemen carrying the wares to distant markets, rather than the regular trade which can be inferred at Chichester, where much larger quantities of white-painted ware have been found (Down & Rule 1971, 31; Down 1974, 21; 52; 85-98; 140; *ibid.* 1978, 51; 86; 99; 173). Moreover, the sample of a roof tile with white-painted decoration found at All Saints, Chichester (Fig. 6.16: Graph F) shows that contact with the Graffham potters may also have included trade in ceramic building materials (Down 1974, 92 fig 7.12 no.45). Other examples of white-painted roof tiles have been found at Downpark, Harting (Barbican House Museum, Lewes: 53/64/2) and the Post Office site at Tarring (Barton 1963c, 32), both in West Sussex. A list summarising finds of Graffham white-ware recorded before 1979 has been published elsewhere (Streeten 1980a, 116-7) and the distribution is plotted here on Figs. 6.21 and 12.36.

Post-medieval lead-glazed earthenwares made at Graffham were also marketed extensively in West Sussex. These products can be recognised both by their distinctive glaze and fabric and by the characteristic stamped decoration on some vessels (Wilson & Hurst

TEXTURAL ANALYSIS

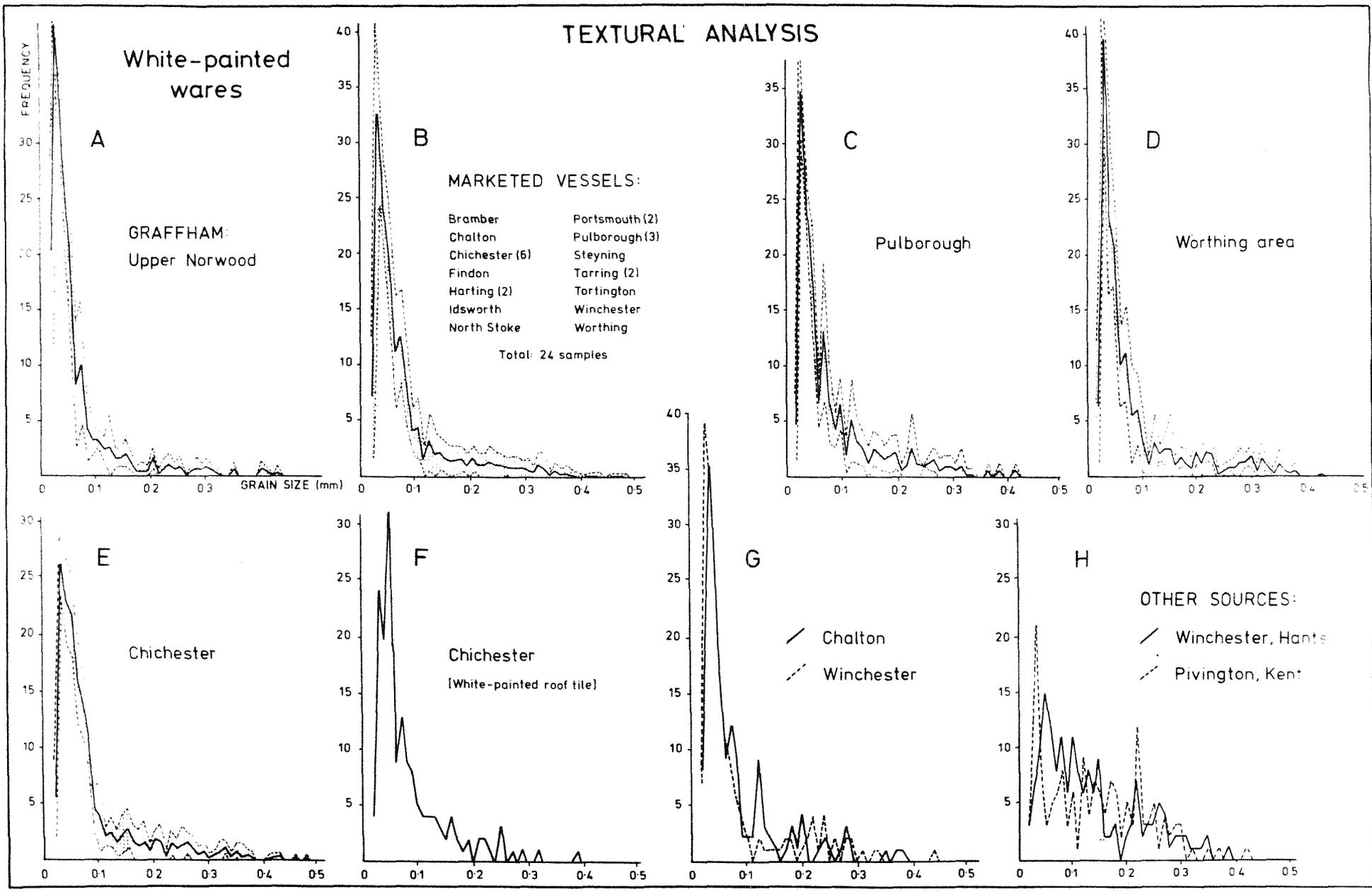
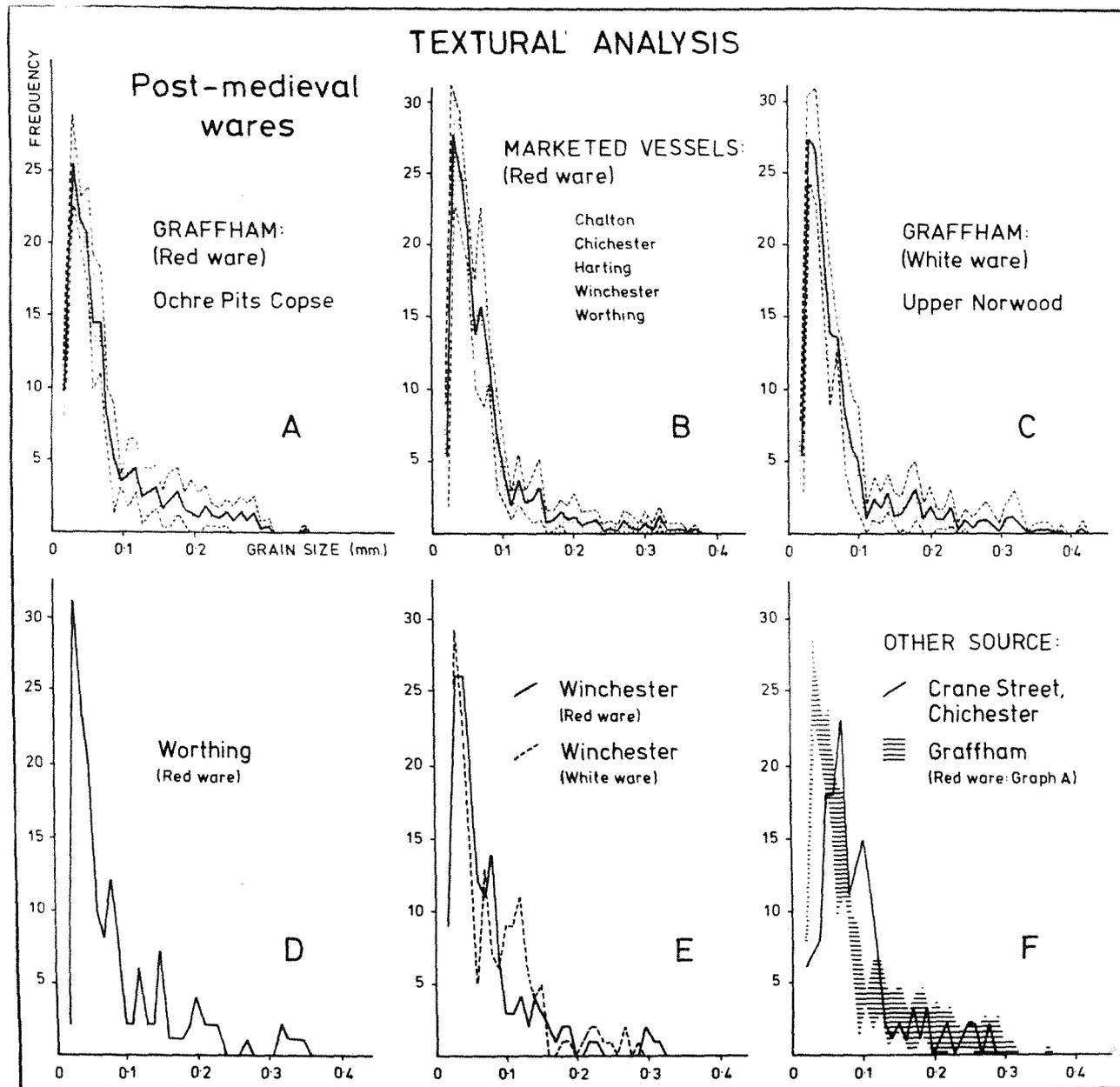


Fig. 6.16 Textural analysis. Graffham white-painted wares

Fig. 6.17 Textural analysis. Post-medieval Graffham wares



1960, 164). Examples of the latter have been found at Old House, Pulborough (Backhouse & Backhouse 1977-8, 381-7). Identifications have also been confirmed by textural analysis (see Section 12.1.13, Group Mii) showing that Graffham red wares reached Chalton, Chichester, Harting, Lodsworth, Winchester and the Worthing area (Fig. 6.17: Graphs A,B,D & E).

Few dated sequences have been excavated to assist with definition of the chronology, but documentary references to the post-medieval potters at Graffham suggest that many of the wares can probably be attributed to the first half of the seventeenth century. As we have seen (Section 6.3.3), however, Graffham crocks were mentioned in an inventory at Horsham in 1668. Moreover, the fact that the forms were recognisable to contemporaries reinforces the impression from excavated ceramic assemblages that post-medieval Graffham wares can be identified by eye.

6.6.4 Hareplain, Biddenden, Kent

Like the Boreham Street wares, products of the Hareplain kiln were marketed in the vicinity of the workshop. The fabric is distinguishable from the wasters at Lower Parrock and Boreham Street. Identifications of Hareplain ware at Aydhurst, Staplehurst; Brookside, Chart Sutton; and Bayham Abbey have been confirmed by textural analysis (Fig. 6.18). The significance of the identification at Bayham Abbey is discussed in Section 4.3.3, and the distribution of Hareplain ware in relation to other types from unknown sources is considered in Section 12.1.12 and illustrated on Fig. 12.41.

6.6.5 High Lankhurst, Westfield, East Sussex

By studying both the forms and fabrics of the High Lankhurst wasters, it has been possible to identify marketed vessels represented among the pottery from excavations in this part of East Sussex. A distinctive type of jug handle with its tapering thumb-groove has proved to be a diagnostic trait enabling these wares to be identified. In several cases, however, attributions have also been confirmed by textural analysis.

Both white wares and the more common oxidised earthenwares are represented at Battle Abbey among debris dated to c.1600 in the demolished chapter house (see Section 4.3.2). High Lankhurst products have also been found at Hastings and examples have been recognised among the material from Old Place, Icklesham (Vahey 1982, 8). These

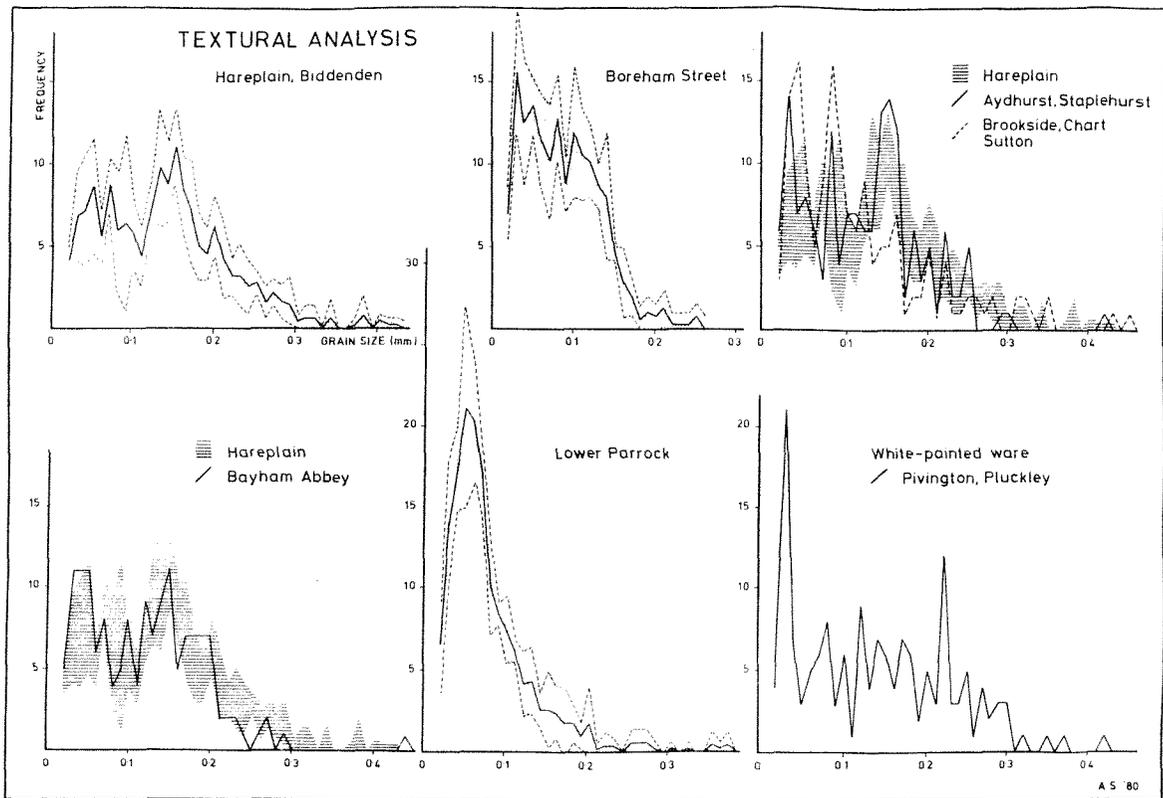


Fig. 6.18 Textural analysis. Early post-medieval wares in Kent and adjacent areas

wares also constitute a significant proportion of the pottery found in the courtyard at Camber Castle associated with finds dating from the late sixteenth/early seventeenth century (Streeten 1983b).

Discoveries so far indicate local marketing in Hastings, and trade along the east-west route between Rye and Battle. There are few finds to indicate the extent of northward distribution into the Weald, but a jug bearing the distinctive handle-groove occurs among material from Bodiam Castle (Myres 1935, 229 no. P15). This vessel has not been thin-sectioned, but its fabric is similar to the High Lankhurst wares.

6.6.6 Lower Parrock, Hartfield, East Sussex

The forms of many Lower Parrock wares are sufficiently distinctive to enable visual identification of marketed products when complete profiles can be reconstructed. Smaller sherds, however, can only be identified from their fabric. Textural analysis is therefore needed for examination of the surface pottery scatters found within a few miles or so of the kiln.

Results of textural analysis, as described in Section 3.4.3, are shown on Fig. 6.19. These demonstrate the contrast with other wasters dating from c.1500 (Fig. 6.19: Graphs 1 & 2). Marketed vessels have also been identified at Upper Parrock and Bayham Abbey (Fig. 6.19: Graph 3), while the coarser fabric is also represented at Upper Parrock and Ham Farm, Withyham (Fig. 6.19: Graphs 5 & 6). Details of the analyses appear in Section 12.1.12 (Group Li). The graphs illustrated here provide the basis for future identifications in the area and the significance of these finds for the interpretation of chronological changes in production and distribution in the Hartfield area is discussed in Section 5.10.5.

6.6.7 The Hampshire/Surrey border potteries

Post-medieval white wares from the Hampshire/Surrey border area occur at places which had not been served by the medieval white ware industries or where quantities of medieval Surrey ware were very small indeed. As we have seen (Section 5.10.5), Surrey white wares account for less than 5% of the medieval pottery found in the Hartfield area, and even finds of late fifteenth century Cheam ware at Bayham Abbey and possibly Bodiam Castle appear to be the exception rather than the rule. During the sixteenth and seventeenth centuries, however, Surrey white wares reached the Weald, and examples occur at

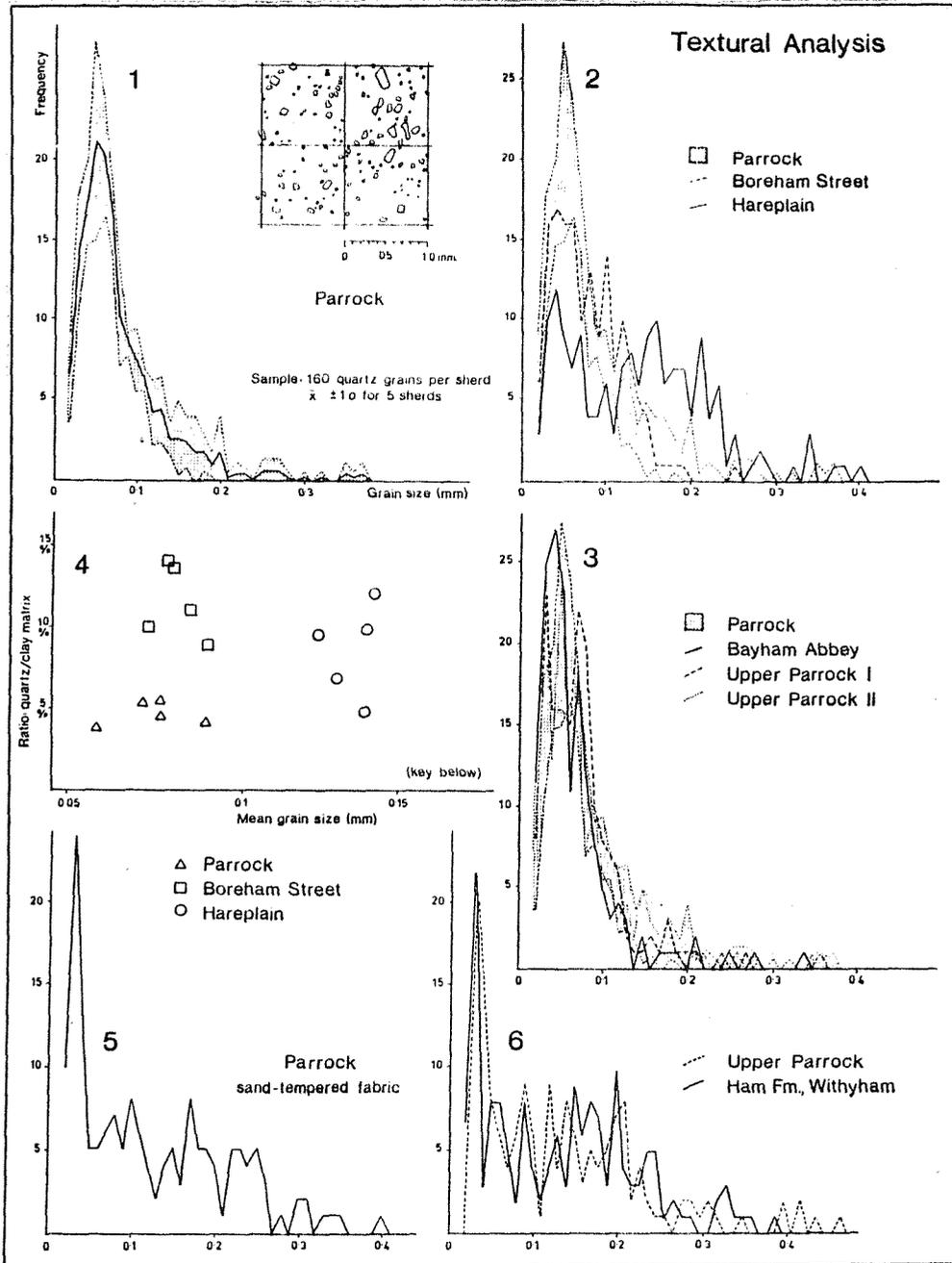


Fig. 6.19 Textural analysis. Wasters and marketed vessels from the Lower Parrock kiln

sites on the Kent/Sussex coast. These wares have been found not only at places such as Hartfield (Freke & Craddock 1979, 113) which had been on the fringes of the medieval distribution, but also at sites further afield such as Michelham Priory (see Section 3.4.1).

Post-medieval Surrey white wares occur at towns in Kent and Sussex. They are recorded from Gravesend (Tilley 1971, 196-7), Rochester (Parsons 1968, 12 no.8), Canterbury (N.Macpherson-Grant, pers. comm. 1984), Dover (Mynard 1969, 38-40), Hastings (Rudling 1976, 169), Newhaven (Pearcy 1976, 303), and Chichester (Down 1978, 367), to name but a few. In some cases, however, reliable identifications are hindered by the presence of local workshops also engaged in the manufacture of white wares. It is difficult, for example, to distinguish between Surrey white wares and those of the Graffham potteries.

Haslam (1975, 186) considered that the expansion of London's population, which more than doubled during the first half of the seventeenth century, was a significant factor in the increased demand for Surrey white ware at this time. It is not clear, however, to what extent the distribution of these wares reflects sales in London or the activities of middlemen plying their trade through market towns in the region. Water transport via the Thames is certainly likely to have been one factor determining the quantities of post-medieval Surrey ware which reached towns such as Gravesend, Rochester and Canterbury. The occurrence of Surrey wares in this part of the region is reflected on the opposite side of the Thames estuary where excavations such as those at Waltham Abbey (Huggins 1969, 71; *ibid.* 1970, 255), demonstrate the appearance of Surrey wares in the seventeenth century compared with the smaller quantities represented in ceramic assemblages of the fifteenth and early sixteenth centuries.

6.7 CHRONOLOGICAL CHANGES IN CERAMIC DISTRIBUTION PATTERNS

Drawing upon the case studies outlined above, it is possible to equate regional trends in the distribution of medieval and later ceramics with changes in the location of production centres described in Section 5.10.2. The close relationship between production and distribution is illustrated clearly in West Sussex (Figs. 6.20-22).

There is, at present, no evidence for continuity of the medieval potteries at either Binsted or Chichester into the late fifteenth century. Wasters found at Graffham, however, indicate transition from the medieval sandy wares to the new forms and clay technology of the fine white-painted wares. Changes in production were accompanied by new patterns of distribution as the Graffham potters captured markets which had been served formerly by the workshops at Binsted and Chichester (Figs. 6.20-21). Textural analysis confirms, for example, that the medieval Binsted wares found in the Worthing area had been superseded by the Graffham white-painted wares which emerged during the second half of the fifteenth century (Barton 1963a, 30). The source of the later West Sussex wares which preceded the white-painted types in this part of the region is not known, but if they, too, can be attributed to the Graffham industry, then these geographical changes might have taken place as early as the late fourteenth or early fifteenth century. More detailed examination of the wasters from Graffham and East Lavington, combined with extensive sampling of the later West Sussex wares, would be required to elucidate these trends.

It is clear, however, that the domination of West Sussex markets by the Graffham potters, which had taken place before c.1500, persisted well into the seventeenth century (see Section 6.5.6). The presence of post-medieval Graffham wares at Chichester and in its hinterland implies successful competition of this large industry with the Crane Street potter(s). The seventeenth-century craftsmen at Graffham also maintained their hold on customers in the Worthing area (Fig. 6.22). With fewer markets and correspondingly larger market areas during the sixteenth and seventeenth centuries, the nearest weekly markets for the Graffham potters would have been at Midhurst and Petworth, followed by Chichester, Arundel and Storrington. Nevertheless, traded vessels have been found outside the hypothetical market areas of even these five towns. This implies a well-organised

Fig. 6.20 West Sussex. Markets and pottery distribution c.1350

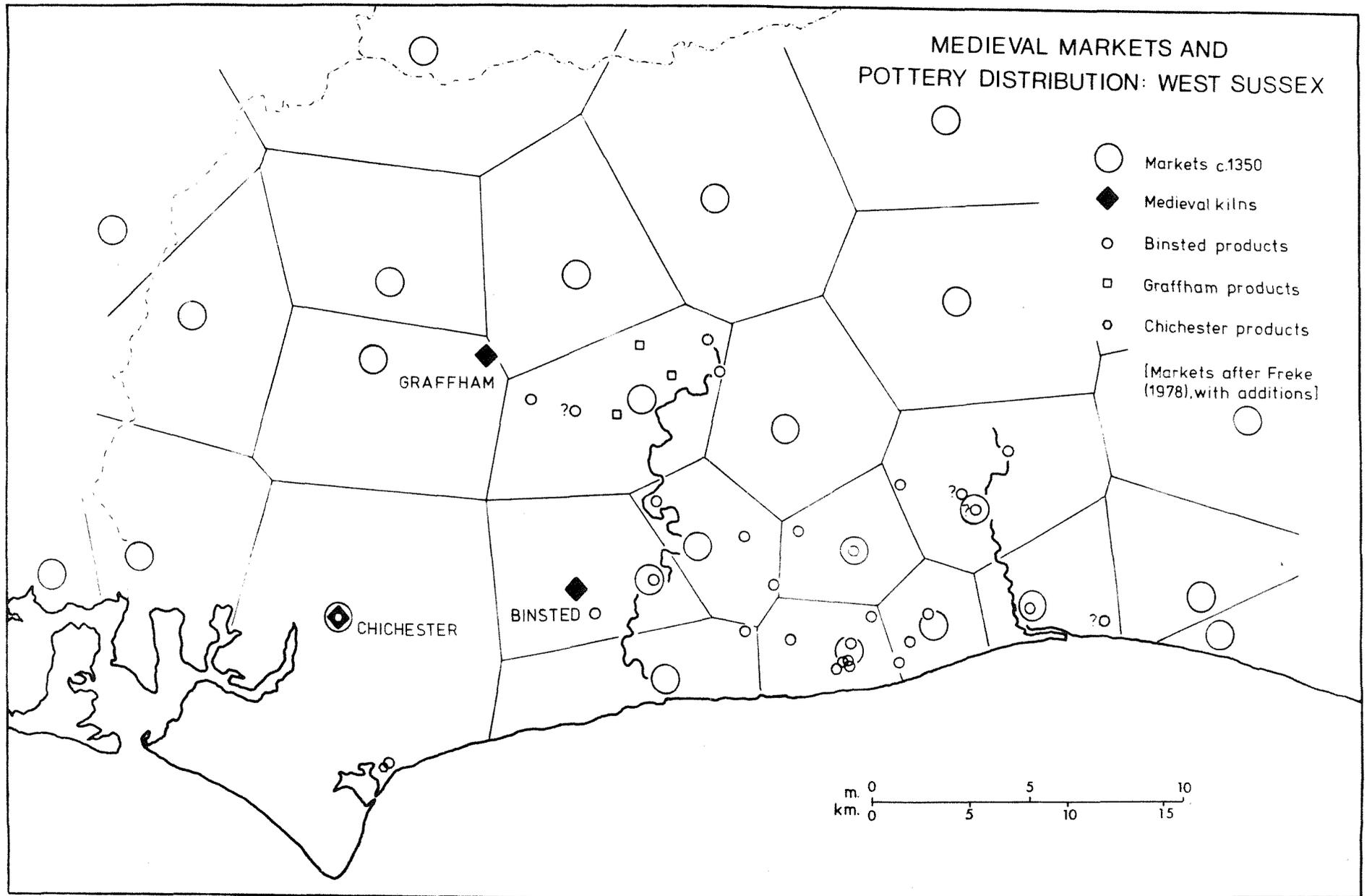


Fig. 6.21 West Sussex. Markets and pottery distribution c.1500

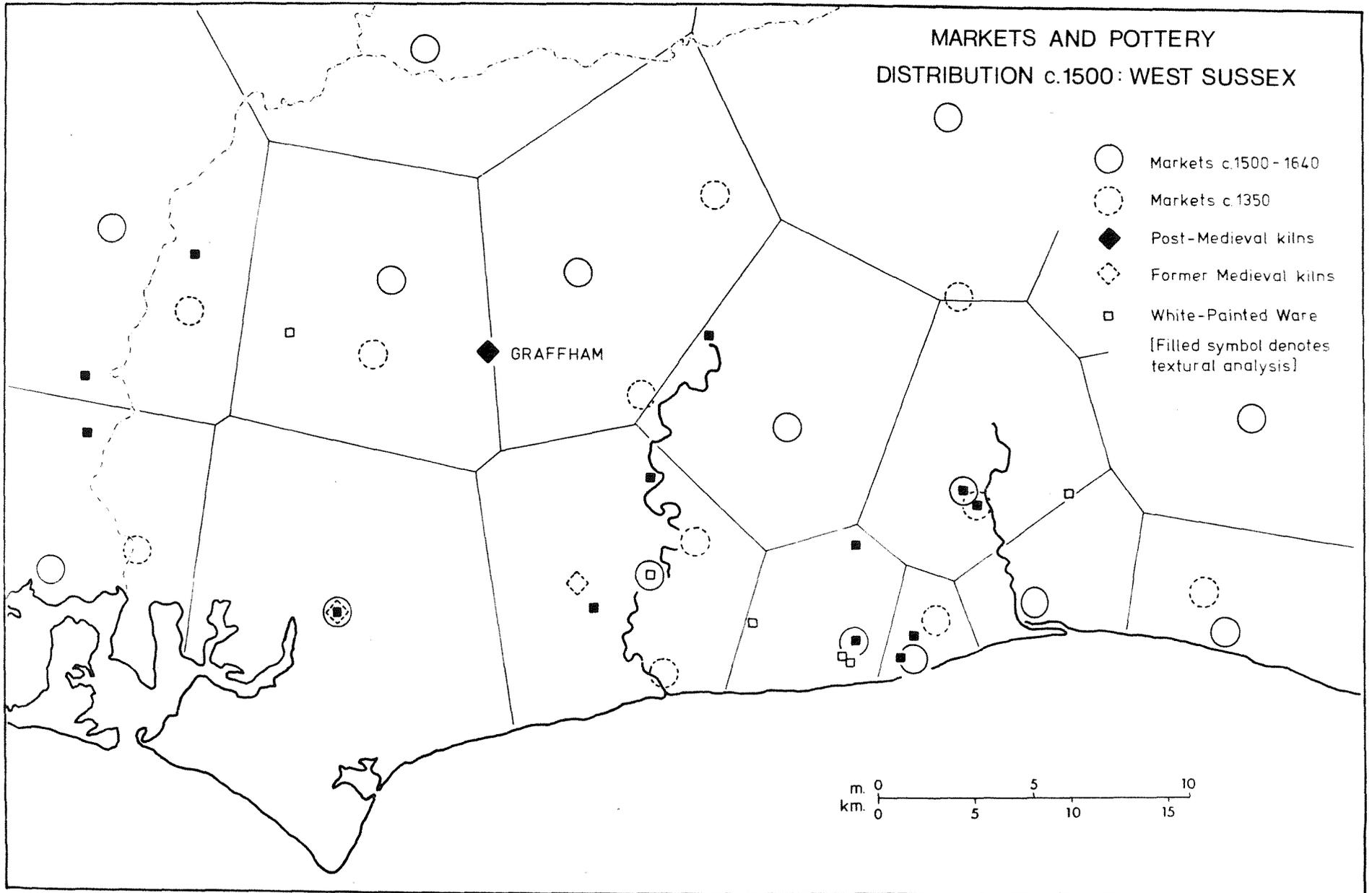
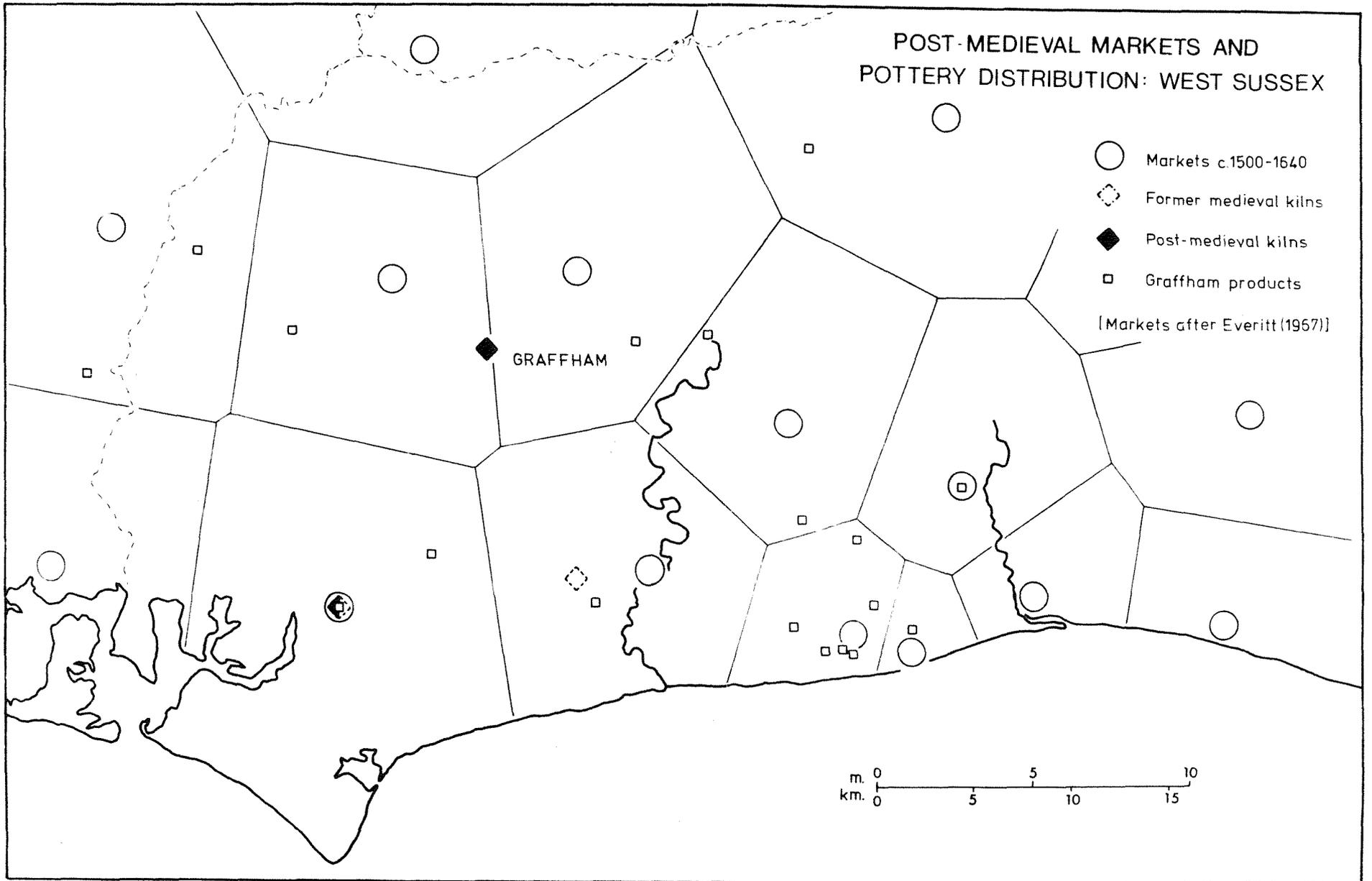


Fig. 6.22 West Sussex. Markets and pottery distribution: post-medieval



distribution network, presumably involving regular journeys - possibly by middlemen - over distances in excess of 25 km. (c.15 miles) in each direction.

In this respect the Graffham industry was similar to the seventeenth-century Wrotham potteries in Kent, which supplied their distinctive slipwares to towns as far afield as Croydon, Dover, Gravesend and Rochester (Ashdown in Hurst 1968, 186). The difference, however, would appear to lie in the chronology of these trends, because at the time when Graffham white-painted wares were being sold widely in West Sussex, the market for pottery in the Weald of Kent and East Sussex was shared by several small workshops. Documentary evidence which has recently come to light for medieval potters in the Wrotham area raises the question of continuity. It would be interesting to compare the development of production and distribution at Wrotham with the trends noted at the Graffham potteries situated in a similar location on the edge of the Weald. Even if there were potters at Wrotham in the late fifteenth/sixteenth century, however, their markets would have been more restricted than those of the Graffham potters owing to competition with potteries in the London area and with Wealden workshops such as Hareplain. Apart from possible wasters at Roughway, Plaxtol (see Section 9.1.4, no. 232) and the broad date range ascribed to wasters found at Platt Farm (see Section 9.1.4, no. 224), it should be stressed, however, that there is so far no clear evidence for pottery manufacture in the Wrotham area between the thirteenth and seventeenth century (see Section 5.10.2).

Changes in the marketing of locally produced ceramics between the fourteenth and sixteenth centuries were accompanied by changes in the distribution of imported pottery. The sources of supply reflect international trends related both to the output of continental kilns and to the carrying trade. The inland distribution of imported pottery, however, would have been determined by the same economic forces which encouraged the more widespread distribution of indigenous products, namely the intervention of middlemen in the contact between producer and consumer.

Unlike the east-coast ports, few Rhenish wares reached southern England before the arrival of Raeren stonewares in the fifteenth century (Allan 1983b, 204). Finds such as the stoneware jug dated to the early fifteenth-century at Hangleton (Hurst in Holden, 1963, 138-9) are unusual on inland sites in the region, although Siegburg was the principal source of continental imports reaching

London during the last quarter of the fourteenth century (Brooks & Hodges 1983, 234). An earlier Slegburg earthenware jug found at Guildford (?) (Hurst et. al. 1968) shows that some of these wares were probably traded inland. By the end of the fifteenth century, however, the emphasis of London's imports had shifted to Raeren stonewares and the Dutch earthenwares.

Owing to the lack of stratified sequences in the High Weald, it is difficult to determine whether Raeren stonewares arrived there during the fifteenth century or early in the sixteenth century. At the Lower Parrock kiln site, however, Rhineland stonewares comprised some 30% of the 'alien' pottery (Freke & Craddock 1979, 113). The date range of these wares is probably wider than that of the kiln debris, and the figure of 30% is considerably higher than the proportion of stonewares in the reredorter assemblage at Bayham Abbey (see Section 4.3.3). Nevertheless, the occurrence of significant quantities of imported pottery on an inland site reflects the increased penetration of continental wares from the sixteenth century onwards.

Difficulties of assessing the chronology of pottery imports in the Weald from the evidence of unstratified finds have been demonstrated by the discovery of a sherd in the form of a ram's head at Chelwood Gate, East Sussex (Buckland 1982b). It has been suggested that this is a fragment of applied decoration from a medieval jug datable to the late thirteenth or early fourteenth century. However, the micaceous fabric cannot be attributed to any of the known medieval kilns in Sussex, suggesting that this may be an unusual import from outside the region. Small red inclusions similar to those in this fabric are characteristic of certain South-West French wares, but R.G.Thompson (pers. comm. 1981) has confirmed that the quantity of mica in the Chelwood fragment cannot be paralleled among any of the imports recognised so far at Southampton.

Assuming that the thirteenth-/fourteenth-century date is correct, this would be the only known example of a medieval import found in the centre of the Weald. An alternative interpretation, however, has been offered by P.G.Farmer (pers. comm. 1982) who believes that the sherd is not from a medieval jug but is more likely to be half of a moulded figure - perhaps a child's toy or an ornament. If this is correct, then a post-medieval, possibly sixteenth-century, date is more probable. Affinities with the South-West French fabrics invite comparison with an unusual ram's head reported among the post-

medieval Saintonge polychrome wares at Plymouth (Clark 1979, 30). Attribution of the fragment from Chelwood Gate to a sixteenth-century French source would certainly conform with the general absence of medieval imports in the High Weald, but the elusive identification of this piece illustrates clearly the problems of interpreting isolated finds.

The port books of Meeching and Lewes describe the activities of one Peter Pernell during the second half of the sixteenth century. He was a merchant engaged in coastal shipping from London, and his imports to the town of Lewes included haberdashery, soap, figs, vinegar, stone pots and red herrings (Goring 1981, 169 table iii). Many of the sixteenth-century stoneware pots found in the region were probably redistributed from London in this way to the numerous ports and landing places on the south coast (see Section 1.4.6; Fig. 1.18). Thence they would have been traded inland.

An early seventeenth-century assemblage at Old Wardour, Wilts. has shown the variety of post-medieval wares appearing on inland sites at this period (Hurst 1967, 74-5). Similar evidence comes from documentary sources. At Ashburnham, East Sussex in 1660-8, for example, there were:

'in my Ladyes Chamber, 2 small pieces of Dutch and Portugail Earthenware' (ESRO: Ashburnham 2759).

Whereas medieval potters working near the principal ports of entry had faced competition from foreign imports (see Section 6.4.4), the trade in exotic ceramics and utilitarian stonewares penetrated further inland during the later sixteenth and seventeenth centuries. Future research should therefore be directed towards obtaining quantified data from which to measure the competition with local post-medieval wares on inland sites.

**7. CERAMIC BUILDING
MATERIALS : PRODUCTION
AND DISTRIBUTION**

7 CERAMIC BUILDING MATERIALS: PRODUCTION AND DISTRIBUTION

7.1 INTRODUCTION

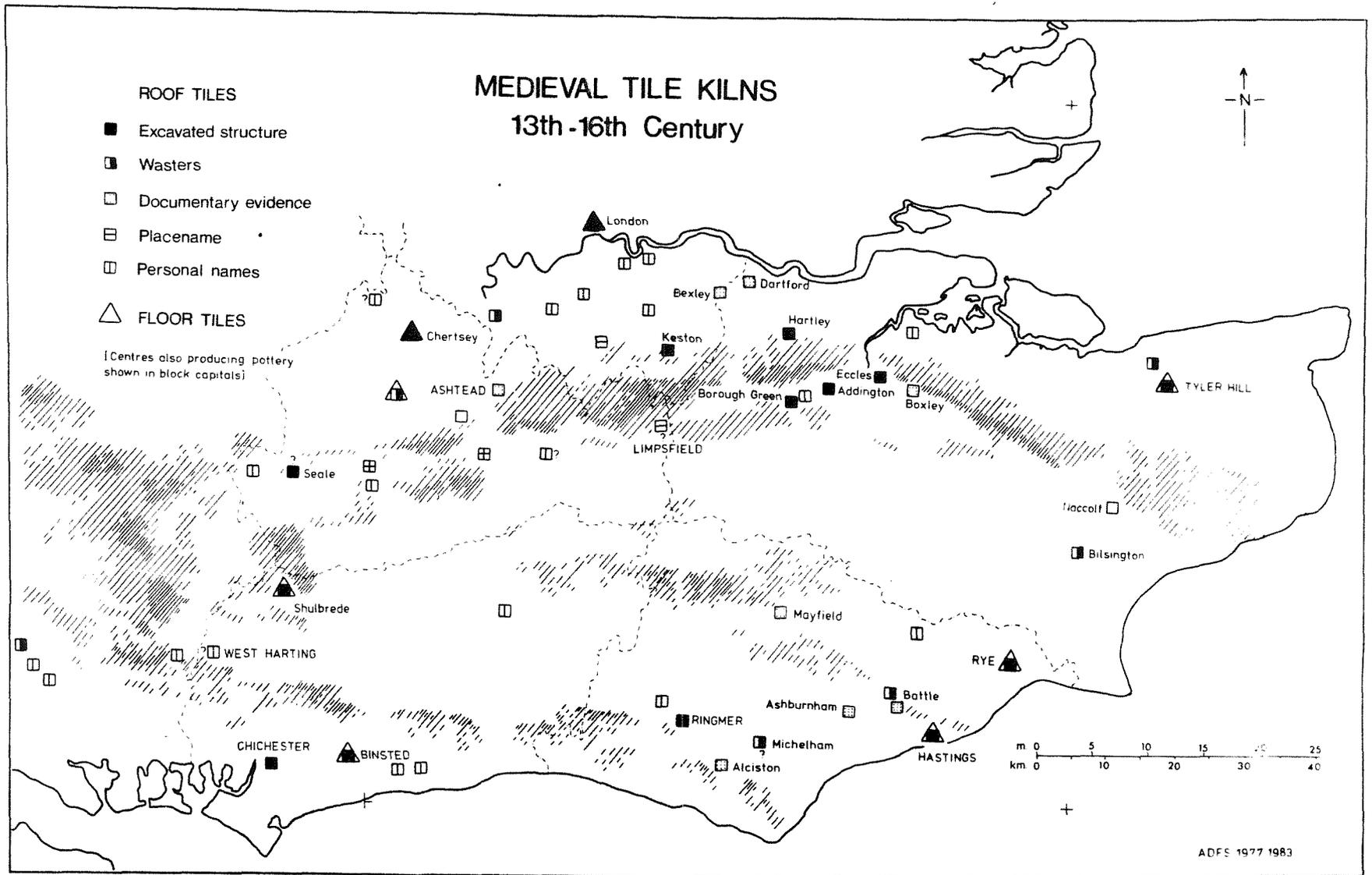
The output of several medieval workshops in South-East England included both hollow wares and ceramic building materials. While the same raw materials were used for these two products, the methods of manufacture and distribution were different. This discussion of ceramic building materials is therefore intended for comparison with the principal theme of pottery production and distribution; it is not intended as a definitive survey of brick and tile making in the region.

Documentary evidence is generally more plentiful for medieval building materials than it is for pottery manufacture and marketing. Written sources dating principally from the fifteenth century and later include building accounts, in addition to the payment of rents for fuel, raw materials and land required by the brick- or tile-maker. Thus, some of the evidence for medieval tile manufacture comes from sources of supply mentioned in building accounts, as well as from the study of place-names and personal names. Known or inferred tileries dating from the thirteenth to sixteenth century are shown on Fig. 7.1.

The criteria for evaluating the evidence are similar to those adopted for the identification of medieval potteries (see Section 2.4.7). Nevertheless, even when the antiquity and etymology of personal names or place-names has been established beyond doubt, there remains the problem of determining whether the name is derived from a craftsman who made tiles or from one who laid them. Moreover, in areas which possessed resources of building stone, the distinction between stone and clay tiles is not necessarily apparent from the form of medieval place-names (Drury 1981, 126).

Fransson (1935) has identified the names 'Tywelwright' 'Tylehelere', 'Teghlemaker' and 'Tiegheltourner' as possibly denoting the occupation of tile-maker. These names can be distinguished from the 'tile wallers' who were evidently bricklayers (Salzman 1913, 126), and the 'tilethackers' whose name was probably derived from the term 'thak' meaning the outer layer of roof covering. These craftsmen are therefore likely to have been tile-layers (ibid. 1952, 223). However, the surname 'Tyghelere' and its variants presents intractable problems of interpretation. In 1300-1, for example, we hear of men by the name of 'Joham and Radi

Fig. 7.1 South-East England. Evidence for tile manufacture (13th to 16th century)



le Tyghelere' who held lands in Willingdon, Eastbourne and Alfriston in East Sussex (ibid. 1907, 173 no. 1131). There were tileries in this part of Sussex during the sixteenth century (see Section 9.4.6, nos. 124 and 156), but although the medieval surname probably implies earlier tile-making in the area, the evidence is incapable of proof owing to uncertainty about the precise nature of the occupation. In 1494-5, for example, the Churchwardens' Accounts for the parish of St. Andrew, Canterbury record payment for:

'iij days' worke to Samson ye tyler xviiij' (Cotton 1917, 219)

Samson was certainly not a tile-maker, and the work which he undertook may have been repairs to a stable in Peter Lane. Likewise, 'tilers' are often mentioned in connection with the task of underpinning (ibid., 233; ESRO: AMS 5789/15), again an occupation unrelated to the manufacture of tiles. On the other hand, there is clear evidence that many 'Tyghelere' surnames can be attributed to the occupation of tile-maker. Examples in the region where surnames coincide with independent archaeological or documentary evidence for the existence of a tilery are cited in Section 9.4 and these include Kingston-upon-Thames, Hackington, Ashtead, Chertsey, Reigate, Shalford, Battle, Rye and Binsted (West Sussex).

Similar problems of interpretation are faced when evaluating the evidence of medieval and later place-names. The element tigel- OE (tile) occurring in a place-name is usually ...

'...an allusion to places where tiles were made ... being common in the names of woods where fuel was at hand for firing ...' (Smith 1956, 2, 179).

However, the same word can also apply to buildings with a tile roof, although Gover (et al. 1934, 247) has noted the likely connection between Tilehouse Farm, Shalford and one William le Tyghelere recorded in 1332 (see Section 9.4.5, nos. 119-120). Thus, not all place-names incorporating the elements -tile and -house necessarily imply the existence of a tilery, but the sites of some tileries are certainly denoted in this way. Seldom is the evidence so specific as at Ashburnham in 1362 when a 'building called a Tylehous for baking (siccandis) tiles' is recorded (Salzman 1923, 123). Further difficulties in the interpretation of place-names arise from corruption of the personal names Tulla or Tylla (Mawer & Stenton 1969, 121; 317). Likewise, the element -til (tilan) OE adj. (good; useful), as in Tilford, Surrey, is quite unconnected with

tile-making (Smith 1956, 2, 179). As in the case of personal names, however, there are several examples where an association can be inferred between place-names and tileries dating from before the mid-sixteenth century. These include Bexley, Keston, Hackington, Ashtead, Chertsey and Limpsfield.

The evidence for medieval and later tile manufacture in South-East England is assessed in a gazetteer of production centres (Section 9.4), arranged in the same form as the information about pottery production (Section 9.1). The entries have been grouped under headings similar to those used for the classification of pottery manufacture:

Evaluation of the evidence for tile manufacture

A. Positive identifications

Group Ai Kiln structures (to early 17th century)

Mid-13th/mid-14th century

Late 14th/mid-15th century

Late 15th/early-mid-16th century

Late 16th/early 17th century

Group Aii Wasters only (to early 17th century)

Medieval

Post-medieval

Group Aiii Documentary evidence only

Mid-13th/mid-14th century

Late 14th/mid-15th century

Late 15th/early-mid-16th century

Late 16th/early 17th century

B. Likely medieval tileries

Group Bi Occupational surnames with the element 'le', pre-1350

Group Bii Other occupational surnames pre-1350 occurring in areas of favourable geology

Group Biii Place-names without a doubtful element, pre-1350

Group Biv Place-names without a doubtful element, c.1350-1550

C. Possible tileries of uncertain date

Group Ci Place-names, post-1550, incorporating the element -kiln or -oast (not -house or -hurst), but not related to known tileries

Group Cii Other possible place-names (including -house or -hurst) post-1550 and not discounted on grounds of etymology or association with non-occupational surnames

D. Improbable evidence for tile manufacture

Group Di Occupational surnames, pre-1350, discounted on grounds of geology, wealth etc.

Group Dii 'Likely' personal names, but occurring 1350-1550 (excluding late occupational surnames attested by documentary evidence)

Group Diii Personal names with a doubtful element, pre-1350

Group Div Place-names post-1350 with a doubtful element or doubtful associations

Results from this analysis of the data are shown on Fig. 7.2 and the sites are listed in tabulated form on Figs. 7.3A-C where the serial numbers facilitate reference to the more detailed information contained in the county gazetteers. The evidence for medieval tileries derived from the discovery of kilns or wasters and from documentary sources can be supplemented by occupational surnames occurring before c.1350. Places where the names have been attributed to Groups Bi and Bii of the classification are shown on Fig. 7.2. Likewise, place-names recorded before 1350 and which do not contain a doubtful element (Group Biii) also appear on the map, together with other place-name evidence for tileries of uncertain date (Groups Ci and Cii).

The period maps highlight specialist centres such as Tyler Hill and Nackholt in Kent where production persisted for several centuries. Owing to the difficulties of dating the output of a tilery from its products, however, the life of some other industries may also have been longer than that implied by the maps. Tile manufacture requires more clay than the production of earthenwares, so medieval craftsmen would have been tied closely to their raw materials. As in the case of the potteries, many workshops were situated on the fringes of the Weald (Fig. 7.1), notably in the clay vale between Boxley and Borough Green in Kent. Other workshops exploited outcrops of Tertiary clay in Surrey and West Sussex. Despite similarities with the location of pottery production sites, however, there are significant contrasts in the organisation of these two industries. Comparisons will be made in the next section.

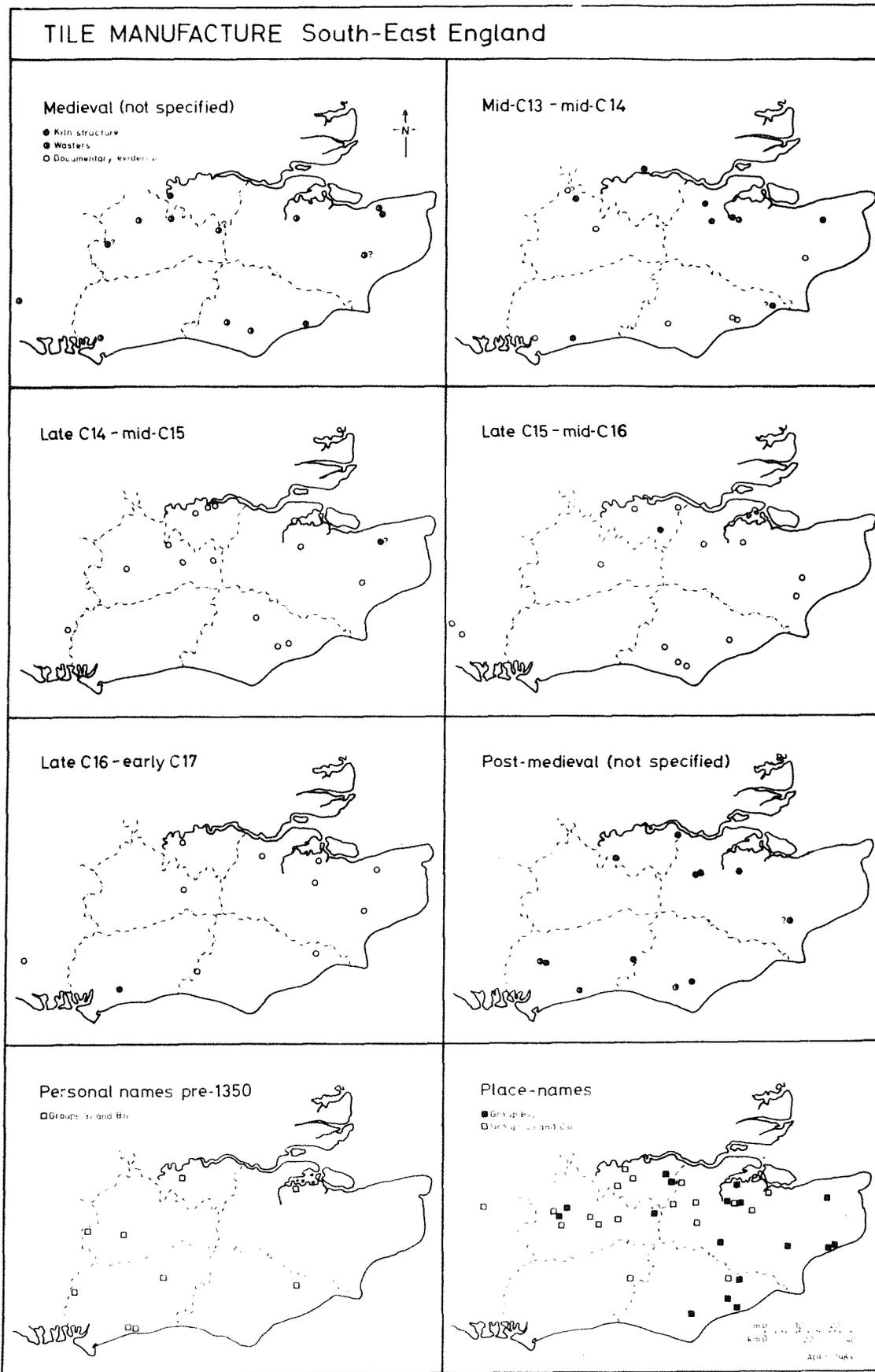


Fig. 7.2 South-East England. Evidence for tile manufacture: chronological summary

EVIDENCE FOR TILE MANUFACTURE			
<u>A. Positive identifications</u>			
<u>Group Ai Kiln structures (to early 17th century)</u>			
<u>Mid-13th/mid-14th century</u>			
GREATER LONDON		SURREY	
9	City of London	93	Chertsey
KENT		EAST SUSSEX	
30	Addington	151	Rye (?)
31	Eccles, Aylesford		
54	Hackington	WEST SUSSEX	
56	Hackington	169	Binsted, Tortington
57	Hackington		
67	Hartley		
<u>Late 14th/mid-15th century</u>			
KENT			
58	Hackington (?)		
<u>Late 15th/early-mid-16th century</u>			
GREATER LONDON			
6	Keston, Bromley		
<u>Late 16th/early 17th century</u>			
WEST SUSSEX			
17	Tortington		
<u>Medieval, not specified</u>			
SURREY		EAST SUSSEX	
116	Seale (?)	141	Hastings
<u>Post-1750</u>			
GREATER LONDON		WEST SUSSEX	
1	Bexley	159	Burgess Hill
KENT			
40	Boxley		
<u>Post-medieval, not specified</u>			
KENT		WEST SUSSEX	
36	Borough Green	164	East Lavington
74	Ightham		
EAST SUSSEX			
144	Ringmer		
145	Ringmer		
<u>Group Aii Wasters only (to early 17th century)</u>			
<u>Medieval</u>			
GREATER LONDON		SURREY	
11	Kingston-upon-Thames	88	Ashtead
		104	Limpsfield
HAMPSHIRE		115	Ripley
29	Owslebury		
KENT		EAST SUSSEX	
38	Boxley	125	Arlington (?)
53	Hackington	146	Ringmer
55	Hackington	147	Ringmer
59	Hackington	148	Ringmer
60	Hackington		
61	Hackington	WEST SUSSEX	
81	Whitstable	160	Chichester
86	Wye (?)	161	Chichester
<u>Post-medieval</u>			
GREATER LONDON		WEST SUSSEX	
18	Cheam, Sutton	165	Graffham
		173	Goring
KENT			
33	Bilsington (?)		
EAST SUSSEX			
155	Selmeston (?)		

Fig. 7.3A South-East England. Evaluation of the evidence for tile manufacture

<u>Group Aiii Documentary evidence only (to early 17th century)</u>			
<u>Mid-13th/mid-14th century</u>			
KENT		EAST SUSSEX	
87	Wye (?)	128	Battle
		129	Telham, Battle
SURREY		150	Ringmer
97	Egham (?)		
101	Great Bookham	WEST SUSSEX	
		162	Chichester
<u>Late 14th/mid-15th century</u>			
GREATER LONDON		SURREY	
10a	Woolwich, Greenwich	89	Ashtead
13	Streatham, Lambeth	108	Oxted
14	Deptford, Lewisham (?)	110	Reigate
		118	Shalford
HAMPSHIRE		EAST SUSSEX	
27	Otterbourne	126	Ashburnham
29b	Petersfield	128	Battle
KENT		143	Mayfield
41	Boxley		
87	Wye		
<u>Late 15th/early-mid-16th century</u>			
GREATER LONDON		SURREY	
2	Bexley	96	Dorking
13	Streatham, Lambeth		
HAMPSHIRE		EAST SUSSEX	
26	Bishops Waltham	124	Alciston
29	Owslebury	128	Battle
		150	Ringmer
		156	Wilmington
KENT			
34	Bislington		
37	Borough Green		
47	Detling		
87	Wye		
<u>Late 16th/early 17th century</u>			
GREATER LONDON		SURREY	
16	Wimblebon, Merton	110	Reigate
HAMPSHIRE		EAST SUSSEX	
29c	Upham	132	Beckley
KENT		WEST SUSSEX	
35	Blean	167	Keymer
68	Hartley		
71	Hollingbourne		
77	Newington		
87	Wye		
<u>B. Likely medieval tileries</u>			
<u>Group Bi Occupational surnames with element 'le', pre 1350</u>			
SURREY		WEST SUSSEX	
92	Bramley	158	Angmering
98	Farnham	166	Harting
		169	Poling
EAST SUSSEX			
136	Ewhurst		
<u>Group Bii Other occupational surnames pre 1350, occurring in areas of favourable geology</u>			
GREATER LONDON		WEST SUSSEX	
15	Merton	168	Nuthurst (?)
KENT			
50	Gillingham		
<u>Group Biii Place-names without a doubtful element, pre 1350</u>			
None			
<u>Group Biv Place-names without a doubtful element, c.1350-1550</u>			
SURREY			
117	Send		

Fig. 7.3B South-East England. Evaluation of the evidence for tile manufacture

C. Possible tileries of uncertain date

Group Ci Place-names incorporating the element -kiln or -oast (not -house or -hurst), but not related to known tileries

GREATER LONDON		SURREY	
5	Chislehurst	103	Guildford
8	St. Mary Cray	104	Milton
HAMPSHIRE		EAST SUSSEX	
23	Basing	130	Battle
		134	Ewhurst
		137	Hailsham
		142	Hastings
KENT			
32	Aylesford		
42	Boxley		
45	Cheriton		
48	Folkestone		
50	Gillingham		
73	Horsmonden		
75	Kingsnorth		
78	Sittingbourne		
79-80	Sturry		

Group Cii Other possible place-names (including -house and -hurst), post 1550 and not discounted on grounds of etymology or association with non-occupational surnames)

GREATER LONDON		EAST SUSSEX	
10	Norbury, Croydon	135	Ewhurst
21	Cheam, Sutton	138	Hailsham
22	Earlsfield, Wandsworth	139	Hailsham
		140	Hailsham
		153-4	Salehurst
KENT		WEST SUSSEX	
43	Boxley	163	Cuckfield
46	Chevening		
48	Eynsford		
66	Hadlow		
72	Hollingbourne		
85	Wrotham		
SURREY			
102	Great Bookham		
103	Milton		
111	Reigate		
119	Shalford		
122	Worplesdon		

D. Improbable evidence for tile manufacture

Group Di Occupational surnames, pre-1350, discounted on grounds of geology, wealth, etc.

None

Group Dii 'Likely' personal names, but occurring 1350-1550 (excluding late occupational surnames attested by documentary evidence)

GREATER LONDON		SURREY	
17	Carshalton, Sutton	123	Worplesdon
HAMPSHIRE		EAST SUSSEX	
25	Basing	157	Winchelsea
26	Basingstoke		

Group Diii Personal names with a doubtful element pre-1350

None

Group Div Doubtful place-names pre-1350

None

Group Dv Place-names post-1550 with a doubtful element or doubtful associations

KENT		EAST SUSSEX	
44	Boxley	133	Chailey
84	Womenswold		
SURREY			
99	Godstone		
112	Reigate		

Fig. 7.3C South-East England. Evaluation of the evidence for tile manufacture

7.2 POTTERY AND CERAMIC BUILDING MATERIALS: A COMPARISON

An obvious but significant difference between pottery and ceramic building materials is the life of the finished product and the fact that the latter could be re-used. This point is demonstrated clearly by a late fifteenth-century entry in the Churchwardens' Accounts for the parish of St. Andrew, Canterbury which includes payment:

'for olde pavyng tile xiis jd' (Cotton 1917, 228).

Thus, whereas the demand for domestic utensils was governed by the size of the population at a given period, requirements for ceramic building materials were related to the availability of capital for the construction of new buildings and for the repair of old ones.

Comparisons between the pottery industry and the manufacture and distribution of ceramic building materials are summarised on Fig. 7.4. Aspects of production and distribution are considered for six classes of product, namely culinary wares, table wares, roof furniture, roof tiles, two-colour floor tiles and bricks.

Among the most important distinctions is the different preparation of raw materials. Greater refinement of the clay was needed for wheel-thrown wares such as pottery and certain types of roof furniture, compared with the generally coarser clays used for roof tiles and the majority of floor tiles. Brickmaking on the other hand required a mixture of clay and sandy 'loam'. White slip applied to the predominantly oxidised wares made in South-East England occurs on table wares, roof furniture and floor tiles. It is seldom found on plain roof tiles apart from ridge tiles included under the category of roof furniture.

There are also significant differences among the craftsman's equipment and the type of kiln used for the various products. The wheel, confined to pottery and some roof furniture, has its counterpart in the moulds used for roof tiles, floor tiles and bricks. Stamps, however, could be applied to any of the products, although their use was generally confined to some table wares and floor tiles. There is no positive evidence from the region to indicate that clamp kilns were used for firing pottery during the thirteenth and fourteenth centuries. As we have seen (Section 5.6.2), the normal type of pottery kiln was a semi-permanent structure built of any suitable materials which were

available. Small batches of bricks, however, were fired in clamp kilns during the post-medieval period. Medieval and post-medieval tileries, on the other hand, usually had tile-built kilns representing a substantial investment of labour in what was usually a permanent structure. Judging from the medieval pottery kilns found in South-East England, even small tile kilns, as opposed to the commercial tileries, were more substantial structures than those erected by the potter.

These differences are reflected in the contrasting modes of production for pottery and ceramic building materials. Whereas some hollow wares may have been made at a domestic level, there is no evidence that ceramic building materials were manufactured within medieval households. Small batches of any ceramic product may have been made by itinerant craftsmen, but owing to the problems of recognising the output of an individual, the only clear evidence for itinerant craftsmen is derived from the study of stamps on floor tiles (Beulah 1979). Moreover, temporary workshops are less likely to have been established for the manufacture of culinary and table wares than for the ceramic building materials needed for specific construction campaigns. The majority of medieval ceramics, whether hollow wares or building materials, would have been made by craftsmen working within what Peacock (1982, 31-43) has described as a workshop industry (see Section 5.5.2). The organisation of rural brick- and tile-making in the Weald was probably similar to that described by Whitehead (1981) in the Forest of Arden. Estate workshops, too, were certainly engaged in the production of ceramic building materials, but the evidence for a direct involvement in pottery production is less clear. Urban potteries of the late sixteenth-century tin-glazed earthenware makers bear the characteristics of organisation and output which are typical of a manufactory (see Section 5.5.4). In the medieval period, however, the identification of manufactories is less certain, even among the nucleated tileries and centres of brickmaking. As in the case of nucleated potteries, it is difficult to establish the extent to which the supply of raw materials and the organisation of labour and distribution were co-ordinated by entrepreneurs. Larger estate tileries, such as those belonging to Battle Abbey at Nackholt, near Wye, however, may have been leased out and organised in this way.

Similar comparisons can be made between the distribution of pottery and ceramic building materials. The value of the

products - a significant factor affecting their distribution - would have varied considerably. The price of elaborate pieces of roof furniture and some of the fine two-colour floor tiles would have reflected the substantial investment of the craftsman's time and skill. Like some of the finer ceramic table wares, the value of other roof furniture and the bulk of slip-decorated floor tiles would have been moderate, while low-value items would have included both culinary wares, most table wares, roof-tiles and bricks. Transport would have been another factor affecting the distribution of these products, which can be divided into two distinct categories: fragile consignments of pottery and bulky loads of brick and tile.

Methods of sale were determined by the demand and use of these products. There are circumstances in which neither pottery nor ceramic building materials would be sold at all, namely when pottery was made for household consumption and when the output of ceramic building materials from estate workshops was intended for use on the estate itself. Moreover, direct sales at the workshop, the activities of itinerant salesmen and the role of markets as centres of exchange are all aspects of trade in which the potter but not the tile-maker would have been engaged. Both pottery and ceramic building materials, however, would have been sold in consignments by middlemen. These differences reflect the use of the products: pottery was traded as a commodity, whether as pots or as containers, whereas ceramic building materials were used as components in construction.

7.3 DEMAND FOR CERAMIC BUILDING MATERIALS

7.3.1 Repertoire and chronology

The production of ceramic roof furniture may have begun before the use of clay roof tiles became widespread. Indeed, earthenware chimney pots, and perhaps ridge tiles, could have been used on roofs covered with other materials such as shingles or thatch. Assuming that the chronology implied by radiocarbon dates at Ringmer is correct (Hadfield 1981a, 101-2) then the chimney pots associated with the probable twelfth-century kiln are earlier than the date inferred for the general introduction of medieval roof tiles in the region. Nevertheless, fragments of tile were embedded in the walls of the kiln at Ringmer and this early date may be exceptional owing to the proximity of Ringmer to a centre of urban demand at Lewes. Here, as in other towns, the burgesses would doubtless have been anxious to avoid the risk of fire on built-up tenements. Indeed, there is circumstantial evidence at Canterbury that clay roof tiles were available by the third quarter of the twelfth century (see Section 9.4.4).

Armitage et al. (1981) have assessed the archaeological evidence for early roof tiles at London in relation to medieval legislation concerning the use of combustible roofing materials in the city (Salzman 1952, 223). Early shouldered peg tiles similar to those illustrated from late twelfth-century contexts at London are recorded in association with the Southgate kiln at Chichester, probably dating from the early thirteenth century or possibly earlier (see Section 9.1.7, no. 554). A quite different kind of Roman-type roof tile, also recorded in London, has been found at Battle Abbey in a context which is likely to date from c.1100. As noted in Section 7.6.2, however, it should be emphasized, in view of the significant implications for dating this type of tile, that the examples from Battle do not come from a sealed context. Nevertheless, taking the evidence at face value, these appear to be the earliest known examples of medieval roof tiles so far discovered in the region. Finds of these tiles elsewhere suggest that their use was probably confined to towns, to religious houses and, although conclusive evidence is lacking, possibly to seignorial sites.

There are likely to have been significant regional variations in the introduction of roof tiles. Drury (1977, 89), for

example, has noted that peg tiles in Essex occur generally from c.1275 onwards, but they do not appear on some sites until the fourteenth century. Exceptional earlier examples of flat roof tiles have been found in Saxo-Norman levels at Waltham Abbey (Huggins & Huggins 1973, 168) and at South Mimms Castle, Herts. where they occur in a context probably dating from the second quarter of the twelfth century (Kent 1968). Thus, the apparent absence of twelfth-century peg tiles outside towns in South-East England may indicate no more than the lack of excavated contexts attributable to the appropriate date. The significance of this evidence, not only for the study of ceramic production, but also for interpreting the development of building construction, emphasizes the need for rigorous sampling and careful study of ceramic building materials found on excavations.

A review by Norton and Horton (1981, 66; 80) of the evidence for tile mosaic at Canterbury Cathedral, dated previously to the 1220s, has shown that the introduction of mosaic floor tiles to the repertoire of ceramics made at Tyler Hill can now be attributed to the last quarter of the thirteenth century (see Section 9.4.4, nos. 52-65), although a series of tiles with incised decoration as represented at Faversham Abbey can probably be assigned to the first half of the thirteenth century (Rigold 1968, 44). This revised interpretation places the Canterbury Mosaic somewhat later than the Medway group of tile mosaics which are presumed to date from the late 1250s or early 1260s (Horton 1983, 72). It was at about this time, too, that production of the famous series of Chertsey tiles commenced (see Section 9.4.5, no. 93). The innovation of floor tile mosaic in the region therefore represents a quite different development from the introduction of clay roof tiles. The floor tiles were made by specialists who, in the case of the Tyler Hill workshop, appear to have joined an existing enterprise engaged in the manufacture of pottery, roof tiles, and perhaps plain or incised floor tiles. A similar combination of pottery and floor-tile manufacture can be inferred at Rye during the late thirteenth century, but combined enterprises elsewhere, as at Binsted, West Sussex, date from the fourteenth century. A closer relationship can be inferred between the introduction of roof tiles and plain or incised (as opposed to mosaic) floor tiles during the twelfth century. Both types occur at South Mimms Castle, Herts. and examples of each have been identified set into the original fabric

of Orford Castle, Suffolk, dating from c.1165-7 (Drury & Norton, forthcoming). Evidence for plain floor tiles during this period is so far lacking in South-East England, but a line-impressed tile found at Boxley Abbey may date from c.1200 (*ibid.*). Whether or not workshops producing plain floor tiles as well as roof tiles were established to serve urban markets and other religious and seigneurial households in the region during the twelfth century nevertheless remains unproven.

Bricks were used during the twelfth century in Essex, but brick-making on a large scale does not seem to have commenced as early in Sussex, for example, as it did in parts of East Anglia. So-called Flemish imported types have been found in East Sussex, and 'tiles' are listed among the items on which duty was payable at the port of *Winchelsea* in 1295 (Homan 1940, 64). Shipments of imported bricks are also recorded in 1323 and 1327 (Holt 1970, 165). A few large soft red bricks were found in a fourteenth-century context at Glottenham (D.Martin, pers. comm. 1982) and fragments of red brick were discovered in the mid-thirteenth century make-up beneath the floor of the reredorter range at Battle Abbey. These finds are of particular interest because hitherto the earliest recorded use of local brick was at Herstmonceux Castle in the early 1440s (Simpson 1942, 110). Imported bricks are usually in a yellow or buff fabric, but it is not clear whether the examples found at Glottenham and Battle were imported or whether they were made locally. Bricks were used in humbler domestic buildings, principally for chimneys, from c.1600 onwards and several early seventeenth-century brick kilns are known in the Weald (Gulley 1961, 136). Late sixteenth-century workshops are recorded at Hollington, Ringmer and in St. Leonard's Forest (VCH Sussex 1907, 253), but bricks were not in common use for vernacular buildings until the early eighteenth century (Draper & Martin 1968, 55).

As well as the repertoire of bricks and tiles, output of workshops engaged in the manufacture of ceramic building materials included wheel-thrown wares such as drain-pipes (see Section 5.7.4) and other items including oven tiles. The latter are found principally in Sussex with considerably fewer examples noted in excavation reports on medieval sites in Kent and Surrey. Judging from their occurrence at kiln sites, oven tiles seem to have been made by potters or potter/tiler partnerships rather than by craftsmen engaged solely in brick- or tile-making. The terracotta

roundels set in the walls of the chancel at Frittenden Church, however, are more likely to represent the output of a tilery rather than a potter's workshop. They are unparalleled in the region, but the style suggests a possible fourteenth-century date. Whether or not the roundels are local products or imports has yet to be determined.

The introduction of terracotta is generally assigned to a later period exemplified by the Italianate Renaissance work which was fashionable between the 1520s and 1540s (Wight 1972, 178-197). Examples of terracotta dating from 1534 at Laughton Place, East Sussex, however, illustrate the problems of establishing whether or not the materials were made locally. As at Herstmonceux Castle, clay for brickmaking may have been obtained from excavation of the moat, but Warren and Haslam (1982, 154) have drawn attention to the poor quality of the terracotta at Laughton and have suggested that this might have been reject material from another building, perhaps in London:

'Such an argument', they believe, 'would explain the somewhat rustic and occasionally adaptive use of the pieces' (ibid.).

William Pelham, the builder of Laughton, was on the fringes of the court circle. Like the construction of brick buildings about a century earlier (Smith 1976, 56), an explanation for the unprecedented use of new materials in this part of the region should therefore be sought in social and political factors rather than in the economics of medieval trade which governed the regular sale of pottery and ordinary ceramic building materials. Likewise, the status of Camber Castle as a royal artillery fort would probably account for the presence of richly decorated stove tiles. They are similar to a series from London bearing the arms and initials of Edward VI (Victoria & Albert Museum C382-1940; C383-1940; also Yorkshire Museum), and the fabric compares closely with a large wall-cistern found at Wraysbury near Windsor which is decorated with the royal arms and the initials HR and ER, probably standing for Edward VI and his father (Victoria & Albert Museum C85-1933; Lane 1960, 43). The production of stove tiles gained importance in Germany during the late fifteenth and sixteenth century at the expense of floor-tile manufacture. Some of the stove tiles found in London and elsewhere were probably imported, but as Lane (1960, 43) has suggested, German craftsmen are also likely to have brought

their moulds to England.

The sixteenth century was therefore a significant period of change in the production and distribution of ceramic building materials. Alongside the popularity of decorative pieces bearing fashionable Renaissance motifs there was a general increase in the use of brick, while a significant market for floor tiles would have disappeared with the Dissolution of the monasteries. The nature of the demand for ceramic building materials will be considered in the next section.

7.3.2 Construction and repairs

A broad indication of chronological trends in the demand for ceramic building materials in a given area can be obtained from surviving building accounts and from the structural development of known medieval buildings. In the absence of adequate documentation, however, information concerning minor repairs and building campaigns can only be deduced from careful examination of the destruction debris and in some cases from surviving construction levels. Once a primary phase of construction had been completed, demand for ceramic building materials would have been determined by the need for repair and alteration to the original structure. At Bayham Abbey, East Sussex, for example, Horton (1983, 83-87) has elucidated aspects of the renewal and repair of floors in the claustral ranges from tiles scattered in the destruction debris, by relating the identifiable groups of tiles to a sequence of re-flooring established from the one surviving pavement so far discovered at the abbey.

There have not been enough similar studies to establish regional variations in the demand for floor tiles and roof tiles at different periods. Nevertheless, a worthwhile approach can be illustrated by analysis of the data derived from excavations conducted at Battle Abbey, East Sussex between 1978 and 1980. The classification of ceramic building materials from Battle Abbey is summarised in Section 7.6.2 and the phases to which the material is related are the same as those described in connection with the pottery sequence (see Section 4.3.2). These are enumerated in the forthcoming report by J.N.Hare. For convenience, the floor tiles and roof tiles will be considered separately.

Floor tiles

The very thorough destruction of many of the monastic buildings in the centuries after the Dissolution, combined with surprisingly sparse antiquarian investigation, had hindered serious study of the floor tiles from Battle until the excavations of 1978-80. Compared with the quantity of other finds, the number of complete floor tile designs even from these excavations is disappointing. Many types are only represented by small pieces. Isolated fragments were represented in thirteenth- and fourteenth-century levels (Periods B and C), but the majority came from debris discarded outside the reredorter shortly after the Dissolution (Period D). Others were found in contemporary deposits in the chapter house area, and some came from later demolition rubble (Period E).

Most of the principal rooms at the abbey would probably have been paved either with stone or with tiles, but even in the chapter house where the floor levels had been raised, only slight traces of a thin mortar bed were found, and there were no tile impressions. The excavated floor of the room at ground level in the reredorter was of clay, but it seems improbable that this would have sufficed for such a well-appointed chamber during monastic use of the building. Records show that parts of the abbey had stone floors, and although small squared blocks of Caen stone found in the excavation could have been used as flooring materials such a use is unlikely because they are thicker than known examples of stone mosaic. Furthermore, the stone is soft and there are no signs of wear. Stone floors would normally have been made of a more durable material.

The tiled floor of the dormitory survived until the early nineteenth century, although a certain degree of ambiguity surrounds antiquarian accounts of the details. Vidler (1841, 151), describing what he thought was the refectory (i.e. the dormitory), provides a succinct statement of the discoveries:

'In 1811 some of the original paving tiles were found. They were of excellent material and in good preservation; four inches and a half square; and three quarters of an inch thick; the bottom somewhat less than the top, the colour brown, figured with dull yellow; each one exactly alike, forming part of a pattern which required sixteen of

them to shew it entire'.

The Duchess of Cleveland (1877, 252), following Vidler's description, asserts that part of the flooring was still intact in 1811, and adds that she had been shown one of the tiles in question. Behrens (1936, 130) reminds us that the floor had been covered with earth for many years and maintains that part of the surviving floor was discovered when the earth was cleared in 1811. In support of this, she publishes a print dated 1826 which shows the chequered floor of the dormitory (Behrens 1937, opp. p.39). The impression conveyed is of a pavement composed of alternate slipped and unslipped tiles with no hint of the patterned types referred to by Vidler and later authorities. Both plain and patterned tiles were found among Dissolution debris excavated outside the reredorter and thus the decorated tiles may have been confined to a small area, perhaps at the south end of the dormitory. However, Vidler, who was writing some thirty years after the alleged date of discovery, does not specify that the tiles were in situ; this is an elaboration in the later accounts. It may be, therefore, that the decorated tiles were loose and he assumed that they had come from the dormitory when they may in fact have come from elsewhere. Indeed, the Duchess of Cleveland (1877, 220) notes that the church was paved with tiles. Trial trenches excavated in 1979 confirm that the floor of the dormitory does not now survive.

A small patch of broken plain tiles set in hard white mortar was found adjacent to the north-east buttress outside the chapter house, but these have certainly been re-laid. Another row of tiles was set on the surface of loam make-up representing late medieval/early post-medieval ground level outside the chapter house. Like many other tiles with mortar on their decorated surfaces, these have also been re-used, possibly even as the packing beneath a light timber-framed structure of late sixteenth- or seventeenth-century date. Thus the only archaeological evidence for the appearance of the floors at Battle Abbey before the Dissolution comes from the scattered collection of loose tiles found in the destruction debris of Periods D and E.

Using data related to the size and surface treatment of the tiles, as described in the classification, it is possible to identify variations in the distribution of certain types within the areas of the abbey which have been investigated. Results of the statistical analysis are shown on Fig. 7.5 and codes defining the

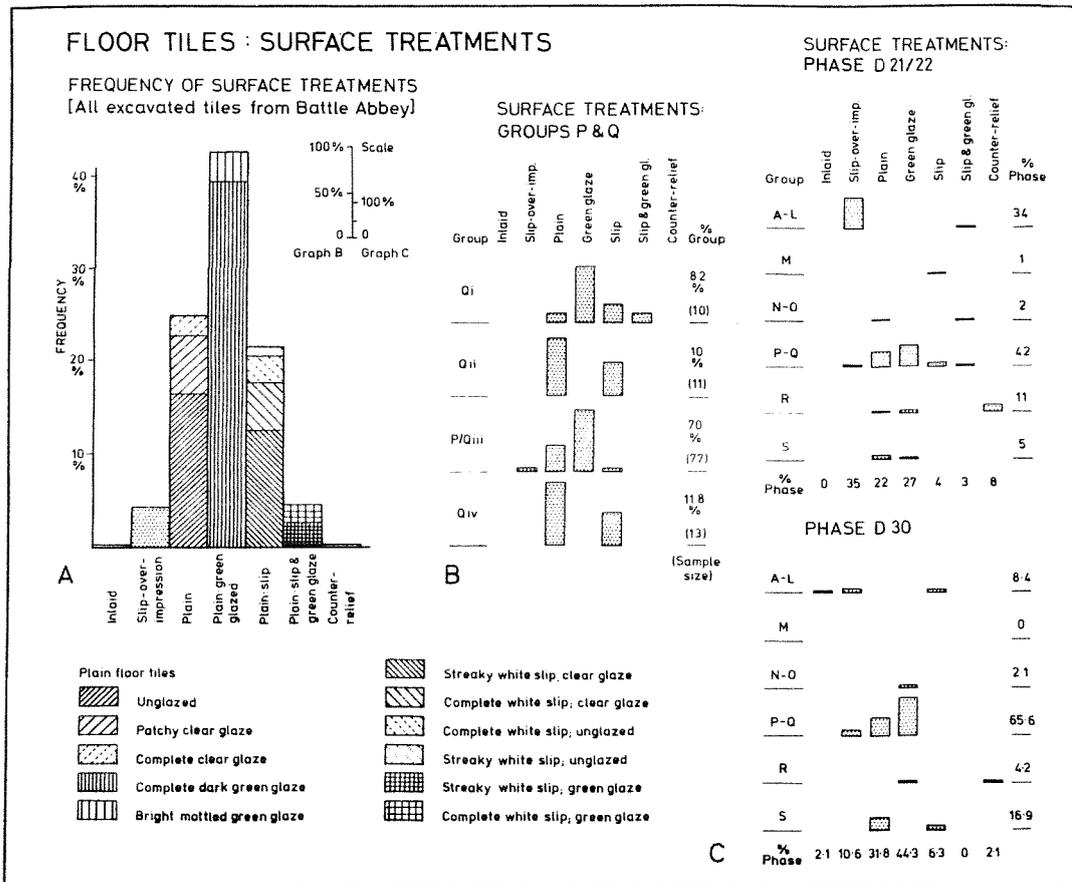


Fig. 7.5 Battle Abbey. Classification of floor tiles showing evidence for re-flooring in the east range. Histograms demonstrate the occurrence of surface treatments on floor tiles from all phases (A); in Groups P and Q (B); and among Dissolution debris in the reredorter area (C)

tile groups are identified in Section 7.6.2.

General conclusions must remain speculative because surviving tile arrangements elsewhere are often irregular, and extensive patching or repair would probably have been undertaken during the life of a pavement. Furthermore, the excavated areas may not be typical, because the wide variety of metalwork and other finds from a dump outside the reredorter suggests that items may have been collected from different parts of the abbey. The large number of tiles found here may therefore have come from more than one place. Nevertheless, there are significant differences between tiles from different areas of the excavation, and the overwhelming predominance of late medieval plain and glazed tiles indicates extensive re-flooring in the late fourteenth or, probably, in the fifteenth century (Fig.7.5: Graph A). Only three tiles can definitely be dated earlier than the fourteenth century, and the appearance of the original floors which accompanied the thirteenth-century re-building is not known.

Fragments of plain green-glazed floor tiles were found in make-up associated with alterations to the reredorter drainage system, and two examples of the most numerous type represented in the destruction debris (Group Qiii) occur in Period C. Whether or not this particular group was imported, documentary references to the trade in Flemish tiles confirm that pavements of large plain green glazed tiles were being laid elsewhere at least from the late fourteenth century onwards.

Classification of tile sizes remains to a certain extent subjective, but the dimensions and thicknesses of tiles in Groups C to G are sufficiently similar for these to have been laid together. Conclusive evidence that bevelled and straight-sided tiles sometimes formed part of the same panel is provided by one of the few tiles which retains most of the mortar into which it had been set. It can also be inferred from the cut triangular tiles in Groups C, E, F and G that at least some panels may have incorporated mosaic borders.

Only a combination of Groups P and Q provides a large enough sample to suggest ways in which the later tiles might have been arranged (Fig. 7.5: Graph B). Tiles in Groups Qii and Qiv are either plain or slipped, which probably implies a red and yellow chequer pattern. There are few examples in these groups, but plain tiles outnumber the slipped type by a ratio of approximately 2:1 in both sizes. This could be merely coincidence, but there may have

been borders or larger panels of plain tiles. Green-glazed tiles predominate in Groups Qi and Qiii, and although Qi is represented by only ten examples, the proportion is similar to that for Group Qiii, based on a sample of 77 tiles. Decorated Group P tiles which are similar in size to Group Qiii account for a very small proportion of the total. Both plain and slipped tiles in this group were made in the same sizes as the green-glazed examples. Even when the plain and slipped types are taken together, however, the green ones again outnumber the others by a ratio of approximately 2:1. Green and red/yellow tiles may therefore have been laid in similar combinations to the red and yellow tiles of Groups Qii and Qiv. Group S plain tiles on the other hand are of similar thickness to the mosaic and counter-relief tiles in Group R, which suggests that these two groups were probably part of the same arrangement. The smaller tiles were no doubt used as borders, but there are insufficient examples from which to draw more specific conclusions.

Analysis of the ratio between different surface treatments on the late medieval plain tiles has been based upon all examples, irrespective of their location, but nearly all of these came from the reredorter. Plain, green and patterned tiles of Groups P and Q occur as roughly equal proportions both in the dump outside the reredorter (Phase D21/22) and within the drain itself (Phase D30), which provides useful corroborative evidence that these tiles are probably from the same floor (Fig. 7.5: Graph C). Unless the debris was carted around the end of the building and dumped through the open arches on the south side of the drain - which seems improbable - the most likely origin for these tiles would have been either on the first floor of the dormitory/reredorter or from somewhere reached via the intermediate latrines at the west end of the reredorter. Debris could have been thrown both outside the building and into the drain from either of these places, but a location on the first floor of the dormitory or reredorter seems probable.

Unlike the plain tiles which occur both outside the reredorter (Phase D21/22) and in the drain (Phase D30), there is a markedly higher proportion of decorated tiles in the former (Fig. 7.5: Graph C). The origin of these tiles is uncertain, but the fact that they predominate in the debris outside the building suggests that they may have come from elsewhere in the abbey, rather than from the dormitory.

A detailed table showing the quantity of each tile group

represented in all phases has been deposited with the excavation records, but only the Dissolution deposits in the reredorter area provide a large enough sample for detailed analysis (Fig. 7.5: Graph C). Patterned tiles which can be identified more easily than the plain tiles are somewhat over-represented in these statistics but there were considerably fewer tiles of any type from the chapter house than in the reredorter.

Inlaid, or plain tiles in the same group, were found in both areas. Group C designs were confined to the reredorter, although plain tiles with similar dimensions were also found in the chapter house. A small number of tiles belonging to Groups D to H was also represented in both areas, and the isolated examples occurring in Phases D21/22 and D30 suggest that tiles from other parts of the abbey, as well as from the east range, were probably discarded here (Fig. 7.5: Graph C).

There is little evidence for major structural alteration to the east range after the thirteenth-century re-building. The late thirteenth- or fourteenth-century slip-decorated tiles cannot therefore be linked with identifiable building campaigns in this area. They may represent repair of existing floors, but, as has been noted, they are more likely to have come from elsewhere. The dormitory was almost certainly (?re-) tiled in the fifteenth century.

Roof tiles

In the absence of medieval or post-Dissolution surveys - such as that of Bradwell Priory (Mynard 1974, 37), which itemised the materials used on different roofs of the monastery - the evidence for medieval roofing materials usually has to be assembled from scattered documentary sources and from the archaeological record.

Parts of the twelfth-century church at Battle were roofed with lead (Searle 1980, 131) and there was a lead roof on the Lady Chapel in 1509 (VCH Sussex 1937, 103 n.1). The south part of the church, however, was covered with shingles in 1410 and 1434 (VCH Sussex 1937, 103 n.1). Moreover, although there are various late medieval references to lead, this may only have been used for guttering or for lining valleys (Searle & Ross 1967, 82).

Apart from the church, the less important claustral ranges

were roofed with slates, tiles or shingles. The dormitory was roofed with shingles in 1364-6. Nine thousand shingles were bought for 72s, and the work continued on a large scale in the following year (Abbey Accounts 1365,6). Walcott (1865-6, 167) asserts that part of a later shingled roof remained in 1811. Shingles, shingle nails, and other necessities for repairs within the monastery were accounted for in 1400 (Searle & Ross 1967, 95), and these documentary references leave little doubt that several of the monastic roofs at Battle will have left no trace in the archaeological record.

The first reference to the purchase of tiles - presumably clay roof tiles - occurs in 1275 when 2s 6d was paid to Martin Tiler's wife for 2,500 tiles (Searle & Ross 1967, 42). The fact that these were paid for suggests that they were not necessarily made at the abbey tilery, the first conclusive reference to which occurs in 1279. However, tiles are incorporated in the fabric of the thirteenth-century rebuilding which demonstrates that they must have been available before the earliest documentary reference. Tiles made in the late fourteenth and fifteenth century, and mentioned in the Cellarers' Accounts, were also probably used on the monastic buildings.

An indenture dated 1535-6 between John Young of Battle, tiler, and the abbot and convent of Battle provided for maintenance of the monastic buildings (ESRO: AMS 5789/15). All materials, including tiles and bricks, were to be provided by the abbey. John Young was to receive an annual wage of 26s 8d, together with food and drink, in return for which he would be responsible for 'tiling, lathing, daubing, underpinning and repairing' all the conventual buildings and certain other properties in Battle, 'for as long as the said John shall be able to tile and labour in the works abovesaid'. The contract demonstrates a continuing need for tiles to be used in repairs, but by this date the tilery does not seem to have been run directly by the abbey.

Taking into account the archaeological evidence of slate and stone roof tiles, the clay tiles from the excavation, which are ubiquitous in the thirteenth-century and later phases, can only have formed part of a wide range of roofing materials used at the abbey. Nevertheless, well-stratified roof tile debris provides a valuable horizon for establishing a relative chronology for destruction of the monastic buildings. The roof is usually one of the first parts

of any decaying structure to suffer the ill-effects of either the weather or deliberate molestation, and concentrations of tile debris are therefore likely to mark specific stages of destruction.

Structural interpretation is hindered by the apparent conservatism of production over many centuries. Even when a roof has been replaced, old tiles - particularly ridge tiles - may have been re-used. The most that can therefore be expected from the archaeological record is the recognition of new types added to the existing stock through time. Despite these limitations, however, the excavations at Battle Abbey have furnished evidence for an unusual form of early roof tile; for apparent differences between tiles on the roof of the reredorter and those from elsewhere; and for probable re-roofing of the reredorter on at least one occasion before the Dissolution.

Roof tiles made by more than one craftsman and fired on different occasions are likely to have been kept in stock for several months. Variation is therefore to be expected even among contemporary tiles laid on the same roof. Differences in size and the traits of manufacture, however, are sufficient to detect changes in certain phases. Large or significant groups have therefore been selected for analysis, but the size of the samples has been determined by practical rather than statistical considerations. There are few complete tiles, and even the width can be measured on only a proportion of the fragments. Some statistics such as the ratio of nibs to holes are based upon samples of several hundred fragments, but others rely upon less than 50 examples. Percentages have only been calculated for samples of twenty or more, and actual numbers are shown on Fig. 7.6 where there are fewer than twenty fragments.

Tile thicknesses show little variation between Periods B,C and D, but the thinner types are slightly more numerous in the later phases (Fig. 7.6: Graph A). Broad tiles, however, are distinctive of the mid-thirteenth century, and the width of the few examples from construction levels in the reredorter area (Phase B7) is consistent with a sample of measured tiles in contemporary fireplaces within the reredorter and east range (Fig. 7.6: Graph B). Those fragments on which the width can be measured at the top of the tile show that 'nib and hole' types predominate both in Phase B7, and in the later medieval make-up outside the reredorter (Phase C11/14; Fig 7.6: Graph B). Only in Phases D24 to 28 is there a

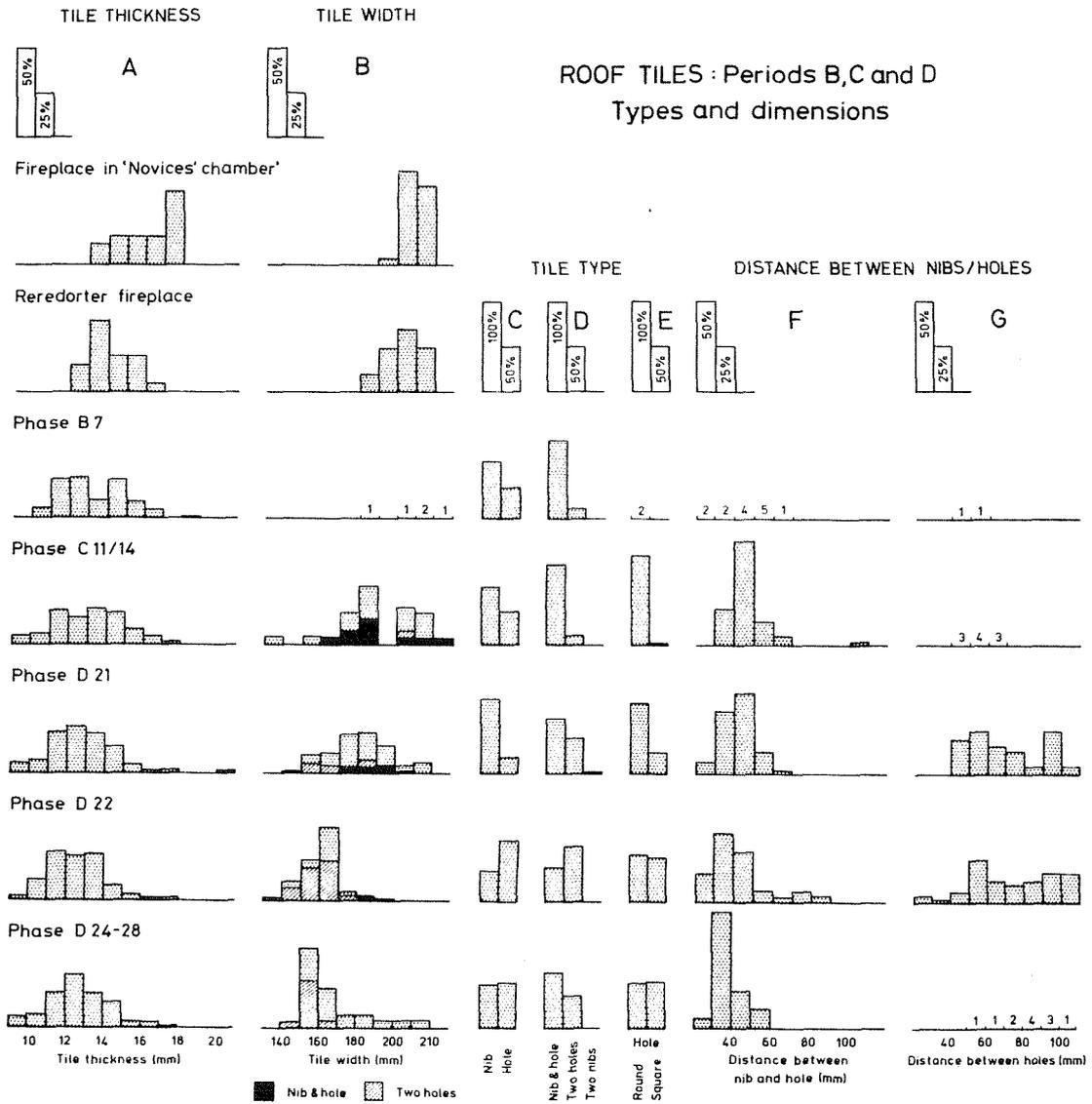


Fig. 7.6 Battle Abbey. Classification of roof tiles showing evidence for re-roofing of the east range. Graphs illustrate the classification of roof tiles according to their dimensions and other characteristics

reversal of the ratio when all nibs and holes are counted instead of just the near-complete tiles. The latter provides a more reliable index of the proportions of each type, but the low survival of complete tiles does not always provide a large enough sample for analysis (Fig. 7.6: Graphs C and D).

Narrow tiles occur in larger quantities among the later debris and most of the identifiable fragments have two peg holes rather than a nib and a hole (Fig. 7.6: Graph B). It appears, therefore, that a new type of tile had replaced some of the earlier ones by this period, but there is a marked contrast between Phases D21 and D22. The lower level of tile debris outside the reredorter (Phase D21) ends abruptly with the east end of the building and almost certainly represents destruction of the monastic roof. The range of tile sizes is similar to Phase C11/14, and the debris includes several 'nib and hole' types. Some of the tiles, however, are narrower than those associated with the thirteenth-century rebuilding (Fig. 7.6: Graph B). The implication must be that the reredorter was re-roofed during the monastic period, and that some of the larger tiles were replaced by smaller ones with two peg holes.

The methods of fixing the nibbed and peg tiles on the same roof would have been different, but not incompatible. It can be inferred from the position of the holes that the nib tiles would usually have been secured by a large-headed nail driven into the lath underneath. Occasional instances where the hole has not been punched right through the tile indicate that nailing was not universal, and this may indicate that in common with modern practice only every fourth course or so was fixed to the laths. Mortar was sometimes used for fixing the tail of a tile. Tiles with two peg holes may also have been nailed, but, by post-medieval analogy, wooden pegs are more likely to have been inserted and hooked over the lath like a nib. It would be normal only to use one peg for each tile, the two holes allowing flexibility for the tiler to insert his pegs to either right or left of the intervening rafters. Indeed, a 1:1 ratio of tiles to nails is witnessed in the purchase of 4000 of each, recorded in the accounts of Ralph of Sandwich for Banstead Manor in Surrey (Lambert 1912, 1, 41). Two fragments set in mortar with the impression of a lath illustrate the arrangement (Fig. 7.14, no. 8), but these are from final destruction of the reredorter and, although they are probably from the late medieval

roof, they may represent a later repair. Moreover, the extent of the mortar and the low pitch of the tiles implied by the angle of the lath impression suggests that this fragment probably comes from an awkward position on the roof and does not therefore set a standard for the roof as a whole. It is difficult to date renewal of the reredorter roof with precision, but the tile fragments from Phase C11/14 may represent construction debris, and the addition of a rainwater drainage system could well have been accompanied by repairs to the roof.

The assemblage of tiles from Phase D22 is quite different. Despite documentary evidence for shingles on the dormitory roof in the fourteenth century, however, the concentration of tile debris outside the north-west corner of the reredorter probably came from stripping of the dormitory roof after the Dissolution. The shingles had probably been replaced by tiles sometime in the fifteenth century. Material from Phase D22 includes artifacts which were apparently discarded at the Dissolution. Unless the context is a mixed one, the roof tiles are therefore unlikely to have come from a later roof in this area. The only remaining possibility that these tiles were brought from elsewhere in the abbey at, or slightly after, the Dissolution seems unlikely.

By implication, this shows that other tiled roofs were also renewed, probably during the monastic occupation, because the contrast between tiles from Phase D22 and those attributed to Period B is even greater than compared with Phase D21 (Fig. 7.6: Graph B). Indeed, the range of tile sizes is more akin to debris associated with the post-Dissolution buildings east of the parlour, but these may have incorporated re-used materials.

Statistical analysis has provided the basis for general conclusions about the nature and extent of re-roofing before the Dissolution. The methods require a rigid policy for collection of the data, and the statistical significance of criteria by which different types of tile can be identified has not yet been assessed. Meaningful results are only likely to be obtained from large-scale excavations, but this approach could undoubtedly be applied elsewhere, and when comparative information is available it will be possible to evaluate the different methods of sampling.

7.3.3 Patrons and customers

The pattern of rebuilding and repairs described at Battle

Abbey would have been repeated at other religious houses in the region. Monastic communities alone would therefore have constituted a significant proportion of the demand for ceramic building materials. Maps indicating the geographical distribution of religious houses at selected dates during the twelfth to sixteenth centuries are shown on Fig 7.7. The information from which these maps have been prepared is summarised in Section 11.4.5.

With the exception of Battle Abbey, evidence is lacking for the use of ceramic building materials at religious houses during the twelfth century. This reflects both the infancy of the industry at this period and the extent to which many of the early conventual buildings were rebuilt during the thirteenth century. Even where twelfth-century fabric was retained, floors and roofs would have required replacement. Moreover, the problems of identifying early tiles are exacerbated by the lack of excavated contexts attributed to this period. Nevertheless, discoveries outside the region attest the presence of ceramic building materials at towns and on seigneurial sites during the twelfth century. Unless, therefore, the Roman-type roof tiles at Battle are an exception, it is at the religious houses shown on Fig. 7.7 that evidence for the early use of ceramic building materials is likely to be found.

A significant increase in the number of religious houses took place between c.1150 and c.1250. Notable among the geographical implications of this development was the establishment of monastic communities on new sites in the Kent/Sussex Weald (Fig. 7.7). It was during the thirteenth century that clay roof tiles and floor tiles became more widely used. This trend must therefore be seen in the context of demand for the erection of new buildings and the replacement of old ones. Moreover, demand from religious houses would have been accompanied by that from urban residents in the newly-established market towns, especially during the second half of the thirteenth century (see Section 1.5.1). Likewise, the need for repairs and alterations to seigneurial buildings are witnessed by expenditure at Farnham Castle in 1273 (Briggs 1935, lvi) and at Banstead, Surrey during the fourteenth century (Lambert 1912, 1, 41).

By no means all roofs and floors would have been tiled, and the demand for ceramic building materials must be assessed in relation to alternatives. For floors, these would have included wood, stone, plaster, mortar and earth, while alternative roof

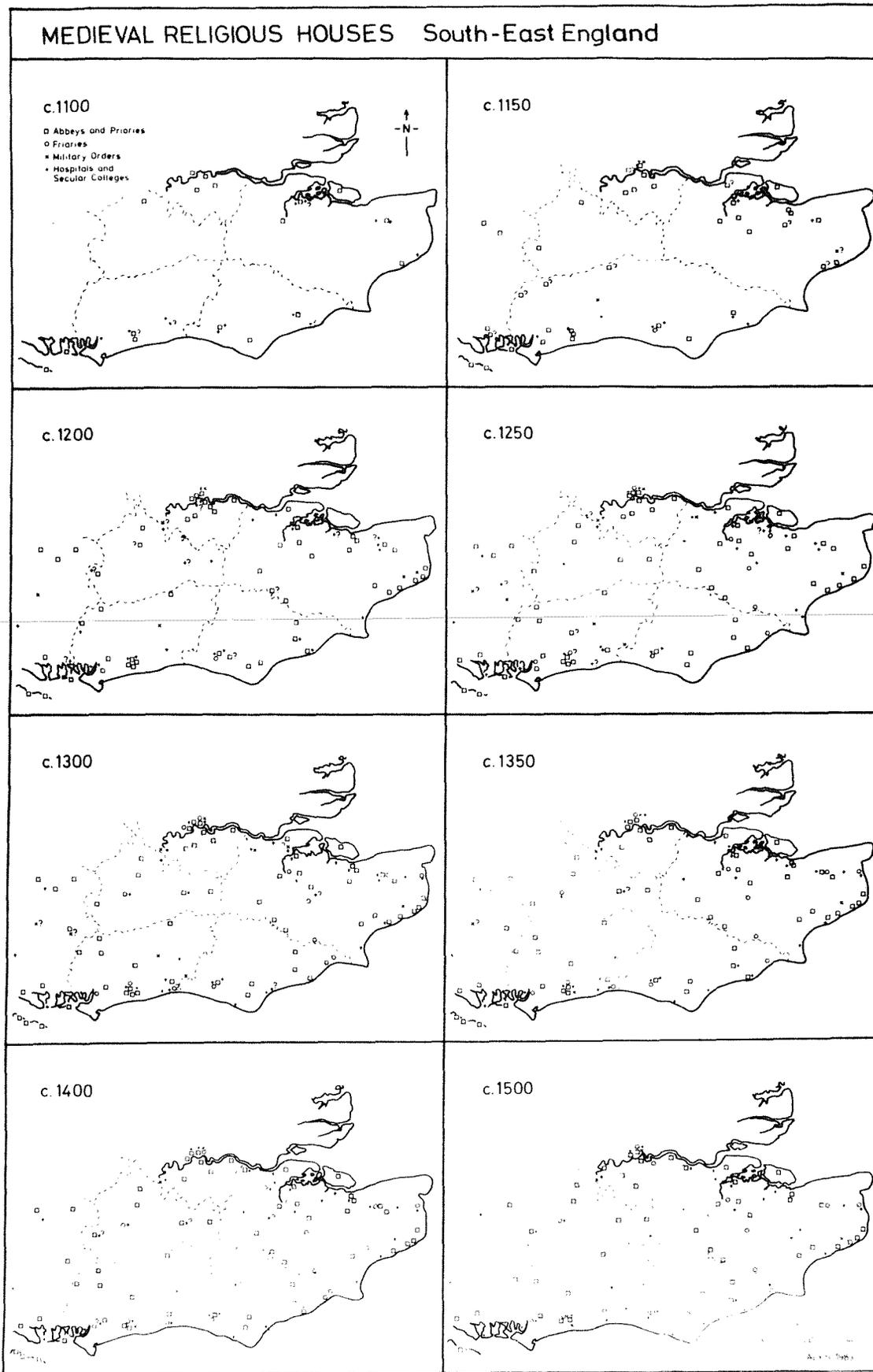


Fig. 7.7 South-East England. Chronological changes in the potential demand for ceramic building materials at religious houses

coverings comprised lead, stone tiles, thatch and shingles. As we have seen at Battle Abbey (Section 7.3.2) not all roofs in a complex would necessarily have been covered with the same material.

Documentary evidence from the survey of Chingford Manor in Essex in 1265, 1390 and 1480, for example, shows that the kitchen and chapel had tile roofs while the hall and granary were covered with oak shingles (Le Patourel 1978, 24). Thatch reeds cut at Willingdon were supplied to Pevensey Castle in 1289-90 (Salzman 1906, 9-13).

The materials used for domestic buildings were determined not only by their availability but also by what the owner could afford. Thus, Gulley (1961, 137) notes that during the sixteenth and seventeenth centuries Horsham stone and shingles were found principally on large houses, while the humble tenants of Duddleswell Manor near Ashdown Forest held rights to gather 'ferne' for covering their buildings. Roof tiles were used more extensively in the Etchingham and Salehurst area where supplies could be obtained from the tileries operating there during the late sixteenth century.

To conclude, therefore, it is clear that the demand for ceramic building materials, like pottery, was related to competition with other materials. In the case of mosaic and other thirteenth-century floor tiles, however, the product would often have been commissioned for a specific building. Thus, there is a significant contrast with the potter's wares which seldom appear to have been made for a particular customer. Mass-produced floor tiles of the fourteenth century perhaps offer a closer analogy. Their occurrence in parish churches shows that they were intended to meet more general demand, but owing to their weight and function they were distributed by quite different means from contemporary earthenwares.

7.4 ORGANISATION OF PRODUCTION

The establishment of monastic tileries would have been encouraged by the demand for ceramic building materials. In many cases the work must have amounted to more or less continuous campaigns of construction at those religious houses which were sufficiently well-endowed to afford new buildings. At Battle Abbey, for example, the first clear reference to the tilery comes in 1279 (Searle & Ross, 1967, 46). Thereafter it is mentioned intermittently in the Cellarers' Accounts until 1466, although the entries relating to the tilery did not always appear in the account of the same obedientiary. Tiles used on the earlier thirteenth-century buildings at Battle Abbey would also probably have been manufactured nearby. In the absence of published documentation, however, the identification of a monastic tilery at this period relies upon no more than inference.

Several medieval religious houses had their own tile kilns. In East Sussex alone there is a number of examples. Vidler (1932, 86) recognised a possible association between the Rye kilns and St. Bartholomew's Hospital nearby. Roof-tile wasters at Michelham Priory suggest that here, too, there was a tilery in the vicinity, which could conceivably have produced floor tiles as well as roof tiles (Barton & Holden 1967, 9-11). The names 'Tylehost Wood' and 'Tylehost fielde' near Robertsbridge Abbey (D'Elboux 1944, 148 no. 366; 149 no. 372) again possibly indicate tile production in the vicinity of a monastic establishment (see Section 9.4.6, no. 134).

A medieval workshop which had produced both roof tiles and floor tiles, as well as pottery, was found near Hastings in the nineteenth century (see Section 9.4.6, no. 141), but in this instance there is no positive association with a particular monastic establishment. Other medieval tile kilns in this part of the region are attested from documentary sources at Telham, near Battle (Cleveland 1877, 3) in the thirteenth century, and at Ashburnham in the mid-fourteenth century (Salzman 1923, 123).

Outside East Sussex, monastic tileries are known in South-East England at the abbeys of Boxley, Chertsey and Lesnes (see Section 9.4). Most were probably engaged in the production of roof tiles, but it is possible that itinerant craftsmen might have joined these workshops for short periods to execute specific batches of floor tiles (Eames 1980, 279). At Chertsey Abbey, for example, the

tile-makers' stamps can be related to the later output at Halesowen (see Section 9.4.5, no. 93).

Although situated on Battle Abbey estates, the precise nature of the abbey's involvement in running the tileries at Nackholt and Alciston is not clear from the published sources (see Sections 9.4.4, no. 86 and 9.4.6, no. 124). Certainly by the 1370s the kilns at Nackholt were being leased out to a man who operated them with hired labour (Salzman 1913, 123). It is more likely, however, that the tilery at Battle itself was run by the abbey for its own use during the fourteenth century, although by the 1520s this too was being leased (see Section 9.4.6, no. 128). The arrangements at Mayfield in the fifteenth century were probably typical of many estate tileries: any tiles which were not required on the estate were sold elsewhere (VCH Sussex 1907, 252). At Great Bookham, however, money was received from Epsom manor for the supply and carriage of 400 tiles, implying that these Chertsey Abbey manors were not administered entirely independently of one another (Chertsey Cartularies II, 395 no. 1324). Indeed, estate organisation is more likely to have influenced the distribution of ceramic building materials than the sale of earthenwares by tenant potters.

Estates - whether royal, monastic or seigneurial - were the principal record-keepers of medieval England. Evidence for the commercial tileries and small rural workshops is therefore less plentiful than for estate tile kilns. Moreover, as Drury (1981, 133) has stressed, the few references to these commercial enterprises usually occur in abnormal circumstances when materials were being supplied for major building works. One such example is the purchase of tiles for repair of the hall roof at Banstead, Surrey in 1372-3 (Moorhouse 1981, 109 fig. 89).

As an alternative to obtaining materials from local tileries, temporary kilns were sometimes established near a building site. Size and the quality of construction are significant factors distinguishing these temporary tile kilns from their permanent counterparts. The kiln at Hartley is a good example, probably erected to supply nib tiles for the nearby medieval site at Scotgrove (see Section 9.4.4, no. 67). The curious tile kiln at Eccles, Aylesford may also represent another example of temporary construction (see Section 9.4.4, no. 31), while there is documentary evidence for a tile kiln set up at Windsor Castle in 1430 (Salzman

1952, 143). Brick kilns, too, would have been needed to supply materials for specific buildings. Accounts for the construction of Camber Castle, for instance, include details of the bricks used in building the Henrician artillery fort. Despite their predominantly pale colour, which is un^onervingly similar to the medieval Flemish imports, the bricks at Camber were certainly produced on the site using local materials (Colvin et al. 1982, 425).

7.5 MANUFACTURE OF CERAMIC BUILDING MATERIALS

7.5.1 Techniques of manufacture

The output of medieval tileries may be characterised by study of the products. Some features such as the keys on the base of a floor tile, however, are more likely to be individual characteristics (see Section 7.6.2). Nail holes, however, indicate a specific method of manufacture because the edges of these tiles would have been trimmed with a knife around a template. Rare examples of slip-decorated floor tiles with nail holes have been found at Battle Abbey (see Section 7.6.2).

Methods of manufacturing two-coloured floor tiles have been described by Drury (1979, fig. 2). These include the inlaid and stencilled techniques and the 'stamp-on-slip' and 'slip-over-impression' methods. Distribution patterns show that there were regional variations in the adoption of these practices (Drury 1981, 129-30). In the case of worn tiles, however, it can be difficult to distinguish between two-colour designs produced by the 'slip-over-impression' or 'stamp-on-slip' methods (see Section 7.6.2).

Like most floor tiles, roof tiles would usually have been formed using a mould on a sanded table. Nibs were then made by pulling up a tongue of clay at the head of the tile. Few nibs were applied. This method of manufacture would result in the sandy surface of the tile being exposed when the nibs were hooked over a lath on the roof. Peg holes were also pressed through from the same side of the tile as the nib. There would appear to be little significance in the occurrence of round or square holes, other than the fact that different implements are unlikely to have been used for the same batch of tiles. An example from the High Lankhurst kiln, however, shows - from the shadow of a round impression - that its holes had been made by a round stick with a squared end.

Variations in the manufacture of roof tiles are seldom sufficient to facilitate the identification of products from specific tileries. Nevertheless, as we have seen (Section 7.3.2), rigorous classification of the sizes can indicate the occurrence of batches of tiles used at different periods. Contrasting methods of manufacture are indicated by a roof tile found at Battle Abbey which has nail marks similar to those on some of the plain and slip-decorated floor tiles from the site. This implies a likely

connection between the manufacture of some roof tiles and floor tiles in the area. As with the identification of decorated medieval earthenwares, the study of manufacturing techniques, especially among floor tiles, is therefore useful for distinguishing the output of different workshops and for assessing the degree of contact between craftsmen. These themes are considered more fully in the case study of ceramic building materials from Battle Abbey (see Section 7.6).

7.5.2 Kiln technology

The normal type of kiln used for firing medieval and later tiles in South-East England was a structure with two parallel flues stoked from one end only. Examples from the region, drawn to uniform scale (except Hartley: half size), are shown on Figs. 7.8 and 7.9. The form of these kilns is quite different from that of the typical pottery kiln in the area.

There are significant variations in size, although the firing chambers of the medieval kilns are generally larger than those in contemporary pottery kilns. Most were tile-built structures, the materials of construction no doubt reflecting their permanent status and the need for strength to support heavy loads of tiles. Like pottery kilns, evidence for the superstructure of medieval tile kilns is seldom recovered from excavations, although the extent of survival is generally greater because the flues of some tile kilns were evidently constructed below contemporary ground level.

Gardner and Eames (1956, 43) have attempted a schematic reconstruction of the Chertsey tile kiln. In this they show that the firing chamber was confined to one end of the structure, the remainder comprising a flat platform over long firing tunnels. A similar arrangement can be inferred for the kiln excavated at Little Hall Farm, Hackington in 1971 and for another found at Keston (Fig. 7.8). There was evidence from the excavation at Hackington that the length of the flues had been extended (see Section 9.4.4, no. 58). This is interesting because experiments at Norton Priory have shown that by extending the firing tunnels it was possible to reduce fluctuations in the temperature (Green & Johnson 1978, 38-9). A similar but probably less efficient arrangement could be achieved by tapering the side walls inwards at the mouth of the kiln to produce a bottle-shaped plan. Examples of this type are represented in the

Fig. 7.8 Selected medieval tile kilns in South-East England

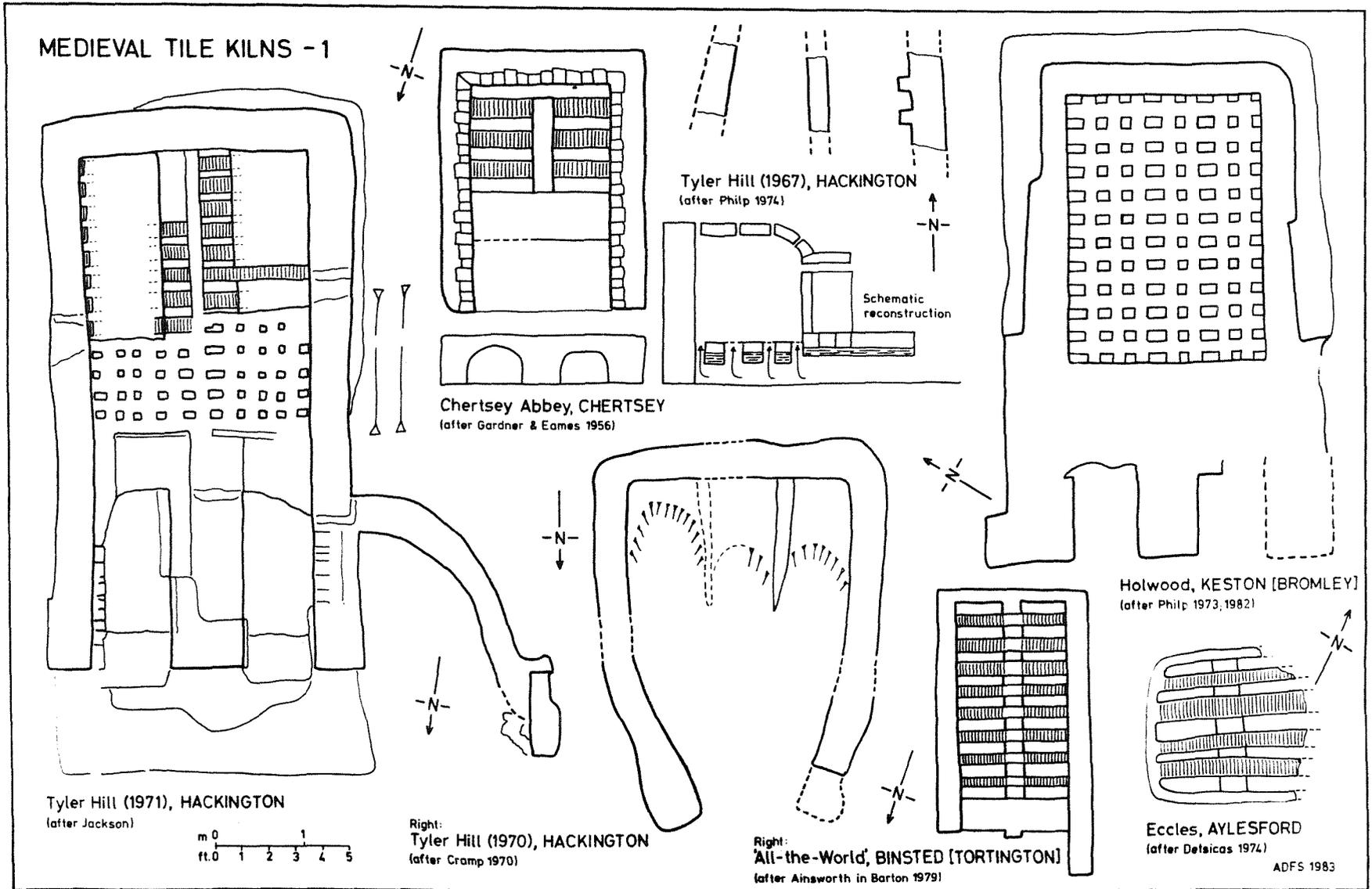
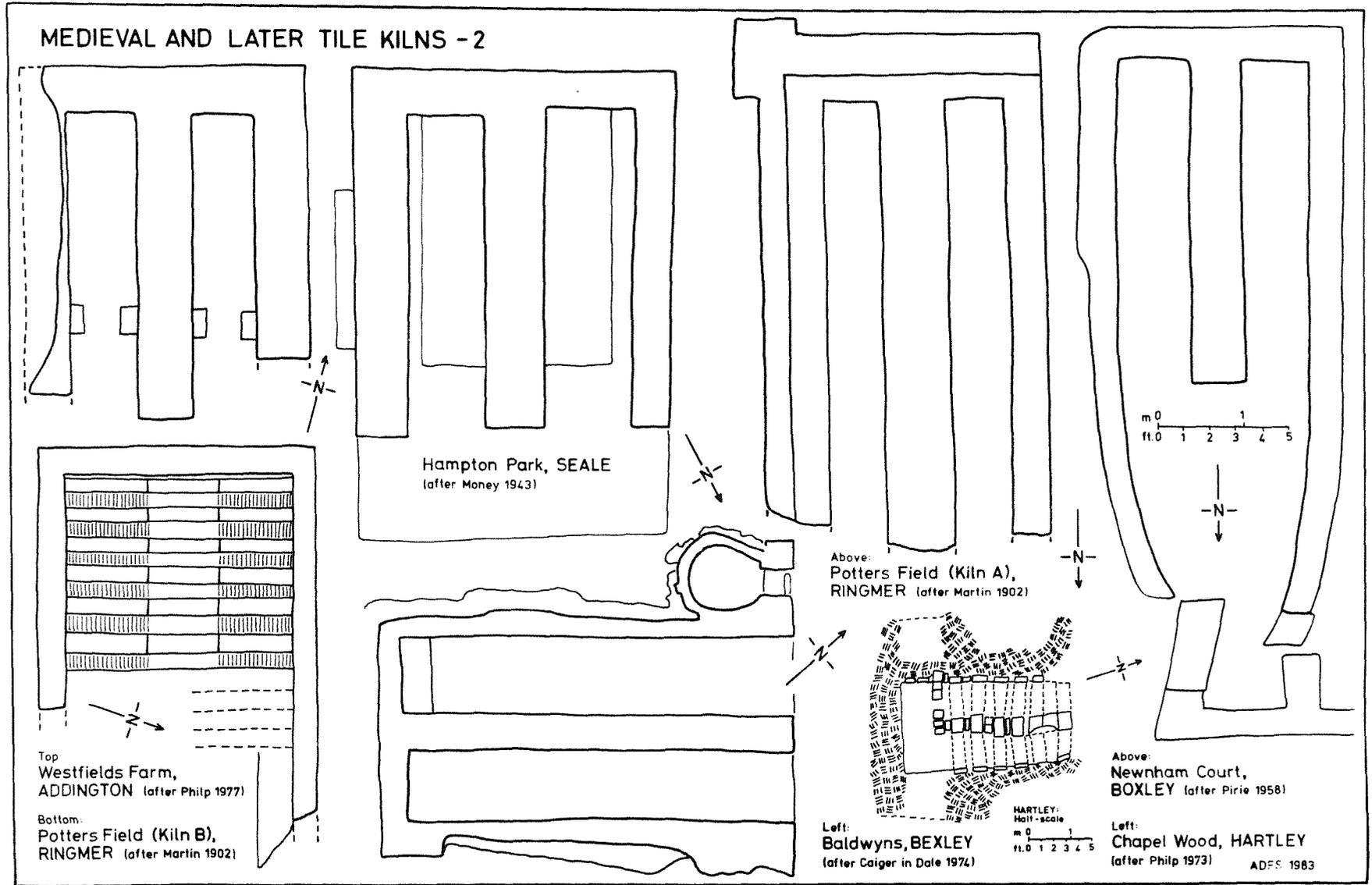


Fig. 7.9 Selected medieval and later tile kilns in South-East England



medieval period by another kiln at Tyler Hill (Fig. 7.8) and in the eighteenth century by the Newnham Court kiln at Boxley (Fig. 7.9).

Caiger (in Dale 1974, 30) has prepared a reconstruction drawing based on the eighteenth-century kiln excavated at Bexley. This is unusual in having a small subsidiary chamber beside the stoke hole (Fig. 7.9). One possible interpretation is that it was used for keeping the dry sand needed to dust the moulding table. Subsidiary chambers of rather different character occur in the medieval tile kilns at Rye. Interpretation of these is assessed in Section 9.4.6, but they may have been connected with the combined output of both pottery and tiles at this centre.

7.5.3 Combined workshops: the production of pottery and ceramic building materials

It will be apparent from the foregoing discussion that there were significant differences in the organisation of production, in the techniques of manufacture, and often in the kilns used for firing pottery and ceramic building materials. It is perhaps surprising that these two enterprises should be combined at so many centres in South-East England. At Lacock, Wilts., however, McCarthy (1974, 105) has inferred from the results of his excavations that...

'... it is not unreasonable to suppose that the tilers and the potters, often considered as two quite separate groups of craftsmen, worked co-operatively for some of the time. That this may have been the case is also suggested by the virtually identical methods of construction employed in all the kilns ...'

Few of the combined medieval workshops in South-East England have been subjected to the area-excavation which would be needed to elucidate the relationship between potters and tile-makers. At Binsted, West Sussex, however, it is clear that pots and tiles were fired in separate kilns situated in close proximity to one another. Analogies with other tile kilns suggest that those excavated so far at Tyler Hill were not used for firing pottery. A similar situation can be inferred at Hastings (see Section 9.4.6, no. 141). At Rye, on the other hand, it cannot be assumed that the parallel flue kilns were intended for tiles alone. They are certainly an unusual type, but the evidence that pottery- and tile-kilns were constructed back-to-back is inconclusive (see

Section 9.1.6, no. 502). Indeed, the excavator was emphatic in his account of the work that floor tiles constituted a minor part of the repertoire.

Although slip-decorated floor tiles only occur at some kiln sites, roof tiles have been found either among or in close proximity to the wasters at several other potteries such as Southgate, Chichester (see Section 9.1.7, no. 554). Where quantities are small, however, it is sometimes difficult to determine whether tiles were manufactured on the site or whether they were brought for use as kiln furniture (see Section 5.6.2). Nevertheless, comparison of the fabrics can often provide corroborative evidence for the production of roof tiles, roof furniture and pottery at the same place. A fragment of medieval roof tile found at Sandling Road, Maidstone (Maidstone Museum: med 50), for example, was made in a sand-tempered fabric with sparse shell which closely resembles the local coarse wares. As shell temper is not common among medieval roof tiles there can be little doubt that this example came from a workshop where the output included both pottery and ceramic building materials.

While the region is noted for its combined workshops, there were several sites where the distinction was maintained between moulded tiles and wheel-thrown pottery. In some cases, however, potters experimented with the production of tiles and vice-versa. At Cheam, for example, large square floor tiles - many of them wasters - were found among debris from the late medieval pottery kiln. The glaze, however, had failed to take on some 60% of these tiles and Orton (1982a, M42) has described them as 'a small and unsuccessful aspect of the production of this kiln'. Conversely, wasters associated with the eighteenth-century tile kiln at Bexley included crude thick vessels probably made by the tilers for their own use and included in one of the firings (Dale 1974, 26). The quality of these vessels emphasizes the fundamentally different skills required for making tiles and earthenwares.

It should not be assumed, therefore, that pots and tiles were made by the same craftsmen even where they occur among the output of the same workshop. Indeed, as we have seen (Section 7.4) it is likely that craftsmen making floor tiles settled at existing workshops - sometimes probably only for a short period - in order to execute their commissions. Such an arrangement has been inferred by Drury (1981, 132) at Ingatestone, and this can perhaps be paralleled

by discoveries at Binsted and Rye in Sussex. At Tyler Hill, there would have been a more permanent relationship between the potters and tile-makers, yet at Penn, Bucks. the output of a comparable industry was confined to tiles (Hohler 1941).

7.6 PRODUCTION AND DISTRIBUTION: A CASE STUDY AT BATTLE ABBEY

7.6.1 Introduction

Systematic study of the ceramic building materials from Battle Abbey has not only contributed information about the monastic buildings, but it also provides evidence for the production and distribution of these materials in an area where several local tileries are known from documentary and archaeological evidence. Much of the roof tile debris was derived from destruction of the monastic buildings, but there is some indication of post-medieval re-roofing. The floor tiles will therefore be discussed first because there is no evidence that tiled floors were laid at Battle after the Dissolution.

Although kilns and their products have been investigated and published, tiles from churches and monastic establishments in south-east Sussex have hitherto received little attention. Five tiles displayed in Battle church were found 'near the deanery' and are illustrated by Behrens (1937, 129). One of the designs - a figure on horseback - is almost certainly a product of the kilns at Rye (Vidler 1936, 109), but none of the tiles from the church can be paralleled at the abbey. The nearest sizeable group to Battle comes from Robertsbridge Abbey where both excavated material (Salzman 1935, 206-8) and casual finds are represented. Most of these tiles remain at the abbey, but some are dispersed (Martin, MSS notes, Sussex Archaeol. Soc. Library) and others are in the British Museum collection (Eames 1980; Norton 1981, 113-5) and at Battle Museum. Tiles were also found during excavations at Michelham Priory (Barton & Holden 1967, 10-11) and at the Bodiam moated homestead site (Battle Museum), Camber Castle (Ames 1975), Blackfriars Barn, Winchelsea (Cooper 1850, 127), St. Helens (probably Ore), and from Wilmington Priory (Barbican House Museum, Lewes). Floor tiles manufactured at the Rye kilns were used in St. Mary's Church, Rye (Vidler 1933, 47), and fourteenth-century tiles remain in situ at Etchingham Church (Slater 1857, 351).

For a wider range of earlier designs, however, it is necessary to look further afield to Lewes Priory (Boyson 1900; Eames 1980, cat. no. 11247-11276), and to Bayham Abbey where a comprehensive assessment of the floor tiles has recently been undertaken by M.Horton (1983). It is perhaps significant that very few of the tiles from Battle can be paralleled precisely at Bayham.

This demonstrates the extent of regional variations in repertoire. Despite similarities with designs at Robertsbridge and Etchingam and the two identical designs at Battle, most of the Bayham tiles have closer affinities with those of Kent rather than the coastal regions of Sussex.

In assessing the geographical significance of the tiles found at Battle Abbey it is necessary to consider the date and distribution of known regional groups. A series of thirteenth-century inlaid tiles from Lewes Priory may be derived from 'Wessex' designs, but examples are not recorded elsewhere and the kiln source remains unknown (Eames 1980, 202). Some of the Rye tiles have been assigned to the late thirteenth or very early fourteenth century (Vidler 1932, 95-101; Eames 1980, 741), but again the extent of their distribution is not properly defined. A somewhat later fourteenth-century series is known as the 'Lewes group'. Although the location of the tilery is not known, a continental source has now been confirmed by discoveries in France (Norton 1981, 109). Examples of these tiles are described in Section 7.7.3.

The distribution of Tyler Hill tiles extends as far as the churches of Romney Marsh (Norton & Horton 1981, 79), and the later mass-produced fourteenth-century Penn-type tiles also reached Sussex (Hohler 1942, 106; 110-12), probably by sea. Thus, although the excavated material from Battle is fragmentary, it does provide an interesting assemblage for comparison not only with the coastal distribution of thirteenth- and fourteenth-century tiles, but also with the earlier inlaid types from Lewes Priory and the ubiquitous late medieval plain tiles represented at Bayham Abbey. Situated within 18 km. (11 miles) of floor-tile kilns at Rye and Hastings, and with the possibility of production at the abbey itself, the tiles from Battle offer some scope for beginning to understand the organisation of production and distribution in the area.

7.6.2 Classification

The floor tiles and other ceramic building materials found at Battle Abbey are described and illustrated on the following pages. A discussion of the methods of classification and analysis precedes catalogues of the floor tiles, roof tiles and roof furniture, and several types of brick. Comparative material is included in the catalogues, but general conclusions are reserved for Section 7.6.3.

Battle Abbey
(ceramic building materials): 1

FLOOR TILES

Classification and comparison

Method of classification

The floor tiles have been classified with two distinct, yet related, aims: firstly, to identify groups which were probably made at the same place; and to compare the tiles from Battle with others found elsewhere in the area. Secondly, to identify those tiles which could have been laid together, thereby providing at least some evidence for the appearance of the abbey floors before the Dissolution.

The fabrics have been grouped according to conventional criteria of colour, texture, and inclusions, and the descriptions follow conventions recommended by Peacock (1977: 26-33). Individual tiles have not been examined microscopically, but thin sections have been prepared from selected examples (see below). Despite minor variations in fabric within certain classes, tiles within each group were probably manufactured at the same centre.

Particular production centres may be characterised by details of manufacture. Examination of large kiln assemblages, however, has shown that some traits such as the number, shape, and size of the 'keys' cut into the base of a floor tile may reflect the whim of an individual tile-maker rather than represent a distinctive feature of the output (Eames 1980, 198). Keys have not been found on any of the examples from Battle, but nail holes on the surface of both plain and decorated tiles are indicative of a specific method of manufacture (Eames 1980, 18). The following features have therefore been taken into account in the identification of manufacturing techniques: surface treatment; size and thickness; extent of

Battle Abbey
(ceramic building materials): 2

the bevel; and the presence or absence of nail holes.

Terminology adopted here to describe the surface treatment uses the conventions outlined by Drury (1979, fig 2). In practice, however, it has proved difficult to distinguish between two-colour designs produced by 'slip-over-impression' or 'stamp-on-slip'. Several of the tiles have been under-scraped when removing extraneous white slip from their surfaces, and in Group C particularly, the white slip has sometimes smudged beyond the impression of the design (eg. no. 4). Most of the tiles from Battle therefore appear to have been made using the slip-over-impression technique which is widespread in South-East England. One group has designs in counter-relief, and the late medieval plain tiles have been classified according to the combination of white slip and clear or coloured glazes.

Variations in size and thickness due to differential shrinkage of the clay are likely to occur even within the same batch of tiles, and for this reason many surviving medieval pavements have wide mortar 'joints'. It is important, therefore, to distinguish these minor variations from the intentional manufacture of different sizes, and, in view of the broad range of dimensions noted at Battle, the information has been plotted on a graph to illustrate the method of classification. The relationship between size and thickness of all tiles with at least one complete dimension is shown on Fig 2. Thicknesses have been measured on a fracture near the centre of the tile wherever possible, and an average dimension has been taken on complete tiles. Such an approach has the merit not only of defining 'standard' sizes, but it also shows minor variations within each group, and this method of presentation permits objective comparison with tiles from elsewhere.

The edges of tiles ^{nail holes} with/would have been trimmed with a knife, but the identification of knife trimming has been restricted to tiles with definite evidence of blade strokes. Most of the tiles are at least slightly bevelled, but a few definitely have straight sides. Bevelled or straight-sided tiles of similar thickness could

Battle Abbey
(ceramic building materials): 3

have been laid on the same floor, but variations in the technique of manufacture may indicate alternative sources of production, and the different types have therefore been grouped separately.

A few of the groups are only represented by a single example, and, whereas small decorated fragments can usually be identified, only those plain tiles with at least one complete dimension have been studied in detail. This introduces bias into the quantification, but analysis of thicknesses and surface treatments has been based upon all fragments recovered from the excavation (Figs 7-6 and 7-11).

It is not possible to identify where all the tiles were made, and different groups may have been manufactured at the same centre. This method of classification, however, not only offers a reliable means of objective comparison among the tiles from Battle, but, when a larger sample of kiln material is available in future, it may also be feasible to compare these groups with the range of sizes and traits of manufacture at specific tileries.

Textural analysis

In the absence of large samples of wasters, similarities between the repertoire of different industries will only become apparent from analysis of marketed tiles. Examination of the fabrics therefore has considerable bearing on the identification of the same stamps used at different production centres, and hence on the interpretation of tile-makers' itineraries.

Like pottery vessels, thin sections prepared from locally-produced floor tiles in South-East England do not contain inclusions which are diagnostic of a particular source. However, the method of textural analysis outlined in the pottery report has been used here for the first time to assess its usefulness in the study of ceramic building materials, and to provide an objective means of comparing the floor tile fabrics from Battle Abbey.

Battle Abbey
(ceramic building materials): 4

Raw materials used in the manufacture of ceramic building materials are seldom as carefully prepared as those required for pottery vessels, and greater variation among tiles from the same kiln must therefore be anticipated. Nevertheless, the range of quartz grain sizes in the floor tiles made at Rye compares closely with the two pottery fabrics identified among the wasters (Fig. 43: Graphs A and B; Fig. 7-10: Graphs B and D). The fabric of the Rye floor tiles is also quite different from thin-sections of floor tiles from Tyler Hill, Kent. The minimal preparation of the raw materials (Eames 1980, 18), however, may hinder the identification of marketed tiles where the contrast between the range of quartz grain sizes among wasters from different kilns is less pronounced.

Where possible, one thin-section has been prepared from each group of tiles found at Battle Abbey, although this has not been attempted where it would require disfiguration of the only complete example of a particular type. The slides have been compared visually under a petrological microscope, and the quartz grain size frequency of selected samples has been plotted on a graph (Fig. 7-10). Sample numbers mentioned in the text relate to a reference collection prepared by the writer and stored at the Department of Archaeology, Southampton University.

Detailed analysis of floor tile fabrics thus supplements the information derived from traits of manufacture, but, like the study of pottery, attribution of a whole group of tiles to a particular source on the basis of one identified sample inevitably relies upon less precise visual classification.

Group A

Fabric Grey core; brown surfaces. Hard harsh texture; rough fracture. Abundant medium coarse angular flint; sparse ironstone. (TP xii; Sample 1061).

Manufacture Plain, not glazed; straight sides; rough base; no keys.

Size not known Thickness 21 mm

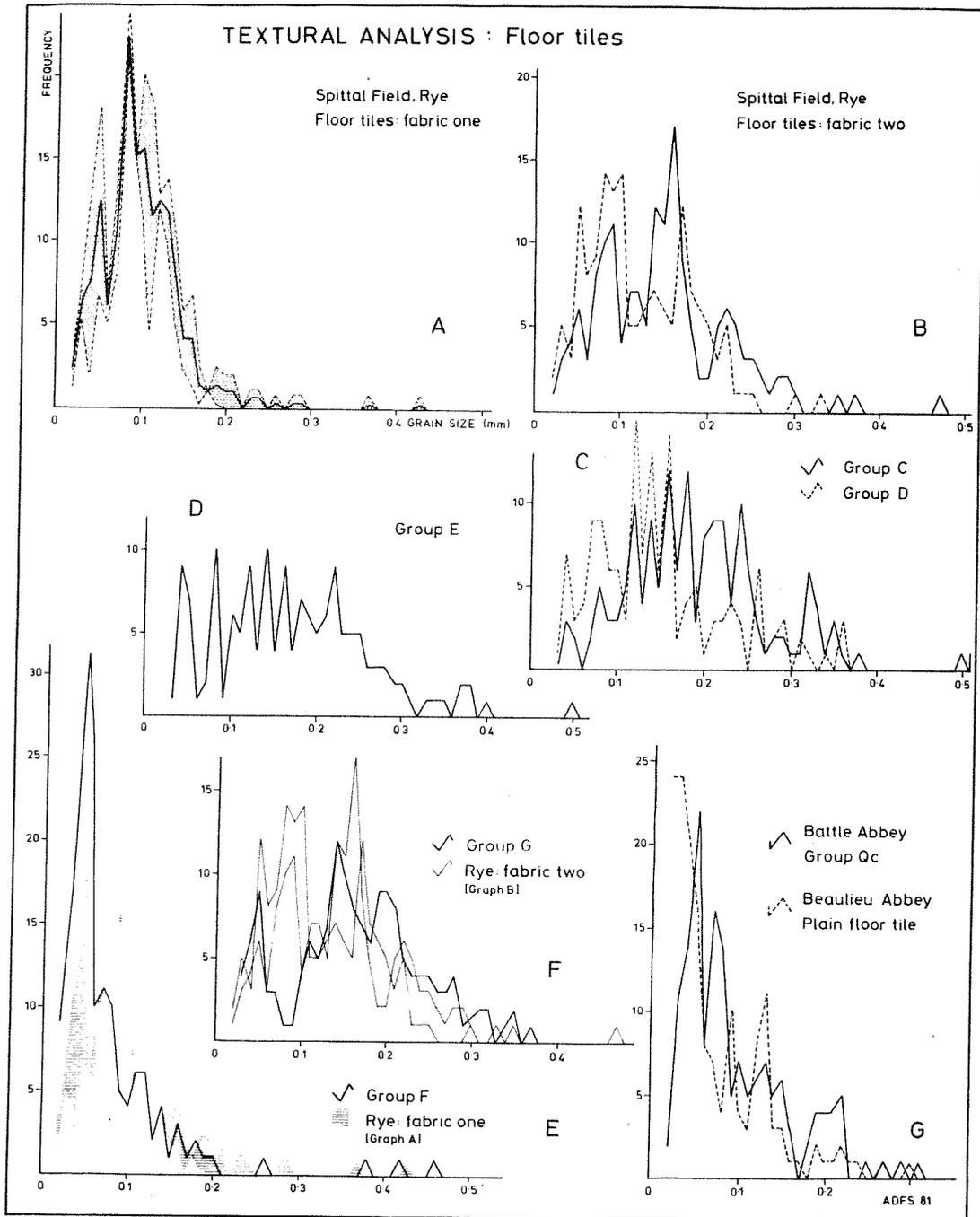


Fig. 7.10 Battle Abbey. Textural analysis of medieval floor tiles

Battle Abbey
(ceramic building materials): 5

Comparison Only one fragment of this type was found (Phase C14), but the thickness suggests that it is a floor tile rather than a roof tile. Similar coarse-gritted unglazed floor tiles were associated with an early/mid-twelfth-century building destroyed before construction of the bailey defences at South Mimms Castle, Hertfordshire (Kent 1968, n.p.). Thin-section analysis of the Battle fabric shows that the range of flint and quartz grain sizes is similar, if not identical, to local twelfth-/thirteenth-century pottery types from Pevensey and Newhaven. The centre of manufacture is not known.

Group B

Fabric Red-pink surfaces. Hard, fairly smooth texture. Fine sand temper. Not thin-sectioned.

Manufacture Inlaid slip decoration; plain tiles. Prominent bevel; fairly smooth base; no keys.

Size 85-85 mm Thickness 21 mm

1. Rosette. Phase D30.

Comparison Only one design was found during the excavations but this forms part of a wider repertoire of similar inlaid tiles known elsewhere. A small tile from Little Park Farm, Battle (Battle Museum) shows a unicorn (Fig. 74: A), and this is likely to be a stray from the abbey. Another group of similar tiles decorated with a fleur de lys or a rosette (without border, unlike Battle) occurs at Robertsbridge Abbey, and the identical methods of manufacture and dimensions indicate that all these tiles are from the same source (Fig. 74: Graph A). The designs on larger thirteenth-century inlaid tiles from Lewes Priory (Boyson 1900, 214-16), although similar in their simplicity, are different from those found at Battle and Robertsbridge. The fabric of the Lewes tiles, which contains specks of shell, is much coarser and indicates a different source of manufacture, but even though the trefoil motif on the border of the example from Battle is also shown on tiles from the kilns at Bohemia, Hastings (Lower 1859, 230), the source

Battle Abbey
(ceramic building materials): 6

of neither the Lewes nor Battle/Robertsbridge group is known. Date: mid-/late thirteenth century?

Group C

Fabric Red surfaces usually with a thick grey core. Hard, harsh texture; rough fracture. Abundant medium/coarse sand with sparse fragments of siltstone or sandstone. Sparse coarse grains of colourless quartz (up to 2 mm) are visible in the fracture of many fragments, but others are slightly finer. (TF ii and ix; Sample 1024).

Manufacture Slip-over-impression; plain green-glazed tiles. Prominent knife-trimmed bevel; sanded base; no keys.

Size 116-122 mm Thickness 18-21 mm

2. Seated human figure wearing a badge; hands clasped. Probably four-tile arrangement. Phase D22.
3. Two-headed eagle. Phase D22.
4. Floral. Four-tile arrangement. Mortar on surface of tile. Phase D22.
5. Birds in foliage. Four-tile arrangement. Phase D22.
6. Two eagles facing each other. Four-tile arrangement. Mortar on surface of tile. Phase D21/22.
7. Floral. Triangle cut from a square tile of design no. 8. Phase D22.
8. Repeating floral. Phase D22.
9. Fragment? from sixteen-tile arrangement. Phase D30.
10. ?Floral. Phase D22.
11. Fragment from (?) four-tile arrangement, although possibly similar to no. 2. Phase D21.
12. Fragment; probably the tail of an animal. Phase D22.
13. Fleur de lys from four-tile arrangement. Phase D30.
14. Interlocking circles with floral motifs. Possible nail hole indicates that this tile may belong to Group E. Phase E36.

Battle Abbey
(ceramic building materials): 7

Comparison This is the largest group of tiles, but only one of the designs can be matched elsewhere. No 6 is identical to a tile from Bayham Abbey (Horton 1983, 78: Group F, no. 60) and the treatment of foliage on some of the other tiles has affinities with the same group at Bayham. Devices such as the double-headed eagle and interlocking circles are common amongst fourteenth-century tiles in many areas (Eames 1980, design no. 1728), but M. Horton has identified other designs corresponding with his Group F from Bayham at several sites in Romney Marsh and West Kent, and design no. 6 from Battle also occurs at Frittenden (Anon. 1874, op. p.203).

In view of the wide range of tiles from Bayham, Mr Horton has argued that the abbey may have been the chief sponsor for production of that group, and he also draws attention to affinities with some of the designs at Rye. Textural analysis of a sample taken from Group C at Battle reveals similarities with tiles of fabric 'two' at Rye, but there is a higher proportion of quartz grains between 0.3 and 0.4 mm in the Battle sample than in the tiles from Rye (Fig. 7.4: Graphs B and C). Likewise, whereas the Bayham tiles (Horton 1983, 78: Group F, size iv) fall within the range of variation among Group C at Battle, products of the Rye kilns are slightly larger (Barbican House Museum, Lewes: Fig. 7.4: Graph A).

Neither the fabric nor the manufacture of this group can therefore be paralleled exactly at Rye, and the source must remain uncertain. Fragment no. 9 has been assigned to Group C on the basis of its fabric, but similarities with no. 20, which has a nail hole, suggest that Groups C and E may be related. A tile now in Battle Church (Behrens 1937, 129, top right) is of similar dimensions, and perhaps style, to Group C designs from the abbey, but it is framed in modern plaster, and neither the thickness nor the fabric could therefore be examined.

The link with a more extensive range of designs at Bayham suggests that these ^{two} groups are contemporary. The Bayham tiles have been assigned to the 1330s on the basis of detailed stylistic analogy, and therefore the Group C tiles from Battle

Battle Abbey
(ceramic building materials): 8

almost certainly belong to the first half of the fourteenth century, although the spirit of no. 2 is somewhat earlier.

Group D

Fabric Pink core and surfaces. Hard texture; rough fracture. Fairly fine sand temper; sparse fragments of coarse ironstone. Tendency for glaze to flake off from surface. (TF xi; Sample 1063).

Manufacture Slip-over-impression. Slight bevel; sanded base; no keys.

Size 119-122 mm · Thickness 19-20 mm

15. Figure in roundel. Either a continuous circle arrangement or a four-tile quartrefoil design. Mortar on surface of tile. Phase D24.

16. Figure with staff probably paddling a boat, in roundel. Arrangement as no. 15. Phase D24.

Comparison These designs cannot be matched precisely either among the published drawings of wasters from Rye, or among the larger collection from Vidler's excavation now stored in Barbican House Museum, Lewes. Several motifs, however, have affinities with the larger size of Rye tiles (Vidler 1932, 99-101: series III). The border circle decorated with lozenges is similar to Rye design III.8; treatment of the figures has much in common with design III.5 at Rye; and the arrangement of facing pairs of birds within a roundel composed of two different tiles (Rye: III.11) is similar to the manner in which the Group D tiles at Battle would have been laid. The fabric of this group is also similar to Rye (Fig. 7.4: Graph C) but, like Group C, the Battle tiles are smaller than the main series from the kilns (Fig. 7.4: Graph A). The source therefore remains uncertain. Date: fourteenth century.

Group E

Fabric Red core and surfaces. Hard texture; rough fracture. Medium/fine sand temper, with very sparse coarse colourless quartz grains. (TF ii; Sample 1066).

Battle Abbey
(ceramic building materials): 9

Manufacture Slip-over-impression. Nail holes at corners; slight knife-trimmed bevel; sanded base; no keys.

Size approx. 120 mm Thickness 18-20 mm

17. Angel with halo in floral border. Four-tile arrangement. Thick mortar bed adhering to the base and sides, including impression of the bevel of an adjacent tile. Phase D31.
18. Triangle cut from a square tile of design no. 19. Phase E35.
19. Floral quadrant design forming continuous pattern. Phase E39.
20. Foliage in lattice. Phase D22.

Comparison The size of these tiles is similar to Groups C and D (Fig. 7.4: Graph A), but they are distinguished by the nail holes. No. 19 is similar to a slightly larger tile from Bayham Abbey (Horton 1983, 78: / no. 37) and to another with fairly naturalistic foliage from Faversham Abbey which is considered to be derived from Wessex types (Rigold 1968, 49-50, no. 109). A scaled-down version of design no. 19 also appears on a hitherto unpublished tile from Rye (Fig. 7.4: B) which would have been divided into sixteen segments if the pattern was complete. No. 20 is again similar to an unpublished example from Rye (Fig. 7.4: C) but, like Groups C and D, there are significant differences between a sample of the Group E fabric at Battle and the wasters from Rye (Fig. 7.6: Graph D).

The decorated floor tile from kiln field at Tower Hill Farm, Battle has the same characteristic nail hole as the Group E tiles found at the Abbey (Fig. 7.4: D). Nail holes have not been noted on any of the decorated tiles from Rye, but they do occur on at least two plain ones from there, although the possibility that these were associated with St Bartholomew's hospital rather than with the kilns cannot be ruled out. It must not, therefore, be assumed that nail holes are distinctive of a particular source, but, if the fragment from Tower Hill Farm, is indeed a product of the abbey tilery, then the Group E tiles may have been made there. However, the pattern, which includes the paw of an animal, on the fragment from kiln field could also be similar to certain designs at Rye (Vidler 1932, 93, 98). Thus even if this group was manufactured at Battle, there appear

Battle Abbey
(ceramic building materials): 10

to have been marked affinities with the output of the Rye kilns. Date: fourteenth century.

Group F

Fabric Pink surfaces sometimes with pale grey core. Hard texture; rough fracture. Medium/fine sand temper with very sparse coarse colourless quartz grains. (TP xi; Sample 1026).

Manufacture Slip-over-impression. Little or no bevel; fairly smooth base; no keys.

Size approx. 125 mm Thickness 16-18 mm

21. Crowned figure. Four-tile arrangement. Mortar on surface of tile. Phase D24.
22. Griffin, similar to Group G no. 26. Phase D22.
23. Triangle cut from a square floral tile. Reredorter, unstratified.

Comparison 'King' designs occur both on late fourteenth-century tiles from the Nottingham area (Eames 1980, cat. no. 1; 246-8), and on the fourteenth-century mass-produced Penn-type tiles (Hohler 1941, 30, no. F18; Eames 1980, cat. nos. 246-8). It has been suggested that another full-length figure comprising two tiles from Rye may represent king Edward I (Vidler 1932, 96-7, no. III. 1-2), but no. 21 from Battle is slightly smaller than the series III tiles found at Rye (Fig. 7.4: Graph A).

No. 22 is probably from the same stamp as the badly-worn tile no. 28 with nail holes in Group G. These two groups may therefore be related. The fabric of Group F is much finer than the other slip-decorated tiles from Battle, and it is similar, but not identical, to the fabric 'one' tiles at Rye (Fig. 7.6: Graphs A and E). On grounds of both fabric and design there is reason to suppose, therefore, that Groups F and G were made by tilers who had close contact with Rye, even if they were not made there (see below). Date: probably fourteenth century.

Battle Abbey
(ceramic building materials): 11

Group G

Fabric Nos. 24-27 are indistinguishable from the fabric of Group F but others are slightly coarser. Red surfaces sometimes with pale grey core. Hard texture; rough fracture. Medium/fine sand temper with sparse fragments of siltstone. (TF ii; Sample 1017).

Manufacture Slip-over-impression; plain tiles. Little or no bevel; fairly smooth base; no keys.

Size approx. 124mm Thickness 17-20 mm

24. Two figures beneath canopy and foliage. Kiln stacking mark on surface of tile. Phase D21.
25. Fragment from four-tile roundel. Phase D21.
26. Griffin; similar to Group F no. 22. Phase E35.
27. Triangular tile cut from square with roundel. Phase D22.
28. Floral. Phase E47.
29. Grottesque. Probably from four-tile arrangement. Phase D22.

Comparison Close similarities between the shape, style and fabric of no. 24 and no. 21 shows that tiles both with nail holes (Group G) and without (Group F) were manufactured at one centre. Nos. 22 and 26 have also apparently been made from the same stamp.

The grottesque on no. 29 occurs on an identical unpublished example (without nail holes) from Rye. The fragments from neither Rye nor Battle are large enough to permit thin-section analysis. A sample taken from a similar plain tile at Battle, however, compares more favourably than any of the other groups with the Rye tiles of fabric 'two', because the graphs showing the quartz grain size frequency have the same distinctive 'double peaks' (Fig. 7/10; Graph F).

Battle Abbey
(ceramic building materials): 12

The range of wasters found at Rye is reflected at Battle by the presence of both fine and coarser tiles with the same traits of manufacture, and, although the fine fabric of Group F does not correspond precisely with any of the samples from Rye, the distinctive groundmass of small quartz grains appears in most of the wasters. Unlike Groups C-E, the two complete tiles in Groups F and G match the size of series II from Rye, and the combination of all the evidence provides a strong indication that tiles in these two groups were made at Rye.

The motifs and techniques of manufacture are particularly interesting in view of a recent reappraisal of the Corona Chapel at Canterbury Cathedral by E.C. Norton and M.C. Horton (1981). Tyler Hill designs at Canterbury include dragons (?) which are similar to the creatures on the Battle tiles (Norton and Horton 1981, 74), and, perhaps significantly, nail holes occur on the Parisian tiles from which the Canterbury designs are now known to have been derived. The technique of manufacture using nails to secure a template is most unusual for English medieval slip-decorated tiles (Eames 1980, 18) and it is uncommon even in France (Norton and Horton 1981, 76). None of the designs from Battle is identical to the Canterbury tiles, which do not ~~have~~ have nail holes, but the distinctive method of manufacture may indeed suggest some contact with foreign tile-makers.

The slip-decorated tiles in the Corona Chapel are now provisionally dated c. 1285-90; but the Battle tiles can be ascribed to nothing more specific than the late thirteenth or early fourteenth century.

Group H

Fabric Red core and surfaces. Hard texture; rough fracture. Medium/fine sand temper with sparse medium-sized fragments of ironstone. Not thin-sectioned.

Manufacture Slip-over-impression; plain tile. Knife-trimmed bevel; sanded base; no keys.

Size approx. 120 mm Thickness 24-25 mm

Battle Abbey
(ceramic building materials): 13

30. Birds with spread wings in foliage which is shown by 'negative' slip decoration. Pattern very worn. Phase D26.

Comparison Tiles in this group are thicker than those in Groups C-G, and the closest parallel in terms of size is a plain green-glazed tile from Tower Hill Farm, Battle (Fig. 7/4: Graph A). The technique of reproducing 'negative' floor-tile designs is more common in France than in England (Lane 1960, 34), and the decoration itself has French affinities (Miss J. Kerr, pers. comm.). The decorated example, if not the plain tile, may therefore be an import. Date: probably first half of fourteenth century.

Group J

Fabric Buff-brown core and surfaces. Fairly soft texture, rough fracture. Medium sand temper with moderate coarse colourless quartz grains. Tendency for glaze to flake from the surface. (TF iv; Sample 1068).

Manufacture Slip-over-impression. Straight knife-trimmed sides; sanded base; no keys.

Size approx. 125 mm Thickness approx. 28 mm

31. Floral. Four-tile arrangement. Phase D22.

Comparison The size and thickness is similar to plain tiles in Group Q: size 1, and the fabric is the same as variant (e) in the same group (see below). An identical design from Bayham (Horton 1953, 81: Group C, no. 87) occurs on tiles which are of similar thickness to the Battle example, but slightly smaller (Fig. 7/4: Graph A). Date: probably fifteenth century.

Group K

Fabric Red-brown core and surfaces. Fairly hard texture; rough fracture. Medium sand temper with moderate coarse colourless quartz grains. Tendency for glaze to flake off from the surface. (TF vi; Sample 1067).

Battle Abbey
(ceramic building materials): 14

Manufacture ?Slip-over-impression (red pattern against white slip background). Straight knife-trimmed sides; coarsely sanded base; no keys.

Size approx. 142 mm Thickness approx. 30 mm

32. Continuous lattice pattern. Phase D21.

Comparison Smaller tiles with red geometric circle patterns showing against a background of white slip are known from Robertsbridge Abbey and Etchingam, but this technique of manufacture is not common among published tiles from Sussex. As noted above, however, the white background did become popular on French tiles from the end of the fifteenth century (Lane 1960, 34). The size is similar to plain tiles of Group Qiii, but it lies just outside the range of variation defined for that group. It is therefore likely to be the lone survivor from a different batch. Date: late fourteenth or fifteenth century.

Group L

Fabric Thick grey core and red margins. Very hard texture; rough fracture. Fine sand temper with sparse fragments of siltstone and ironstone. (TF v; Sample 1064).

Manufacture Slip-over-impression. Straight or slightly bevelled knife-trimmed sides; irregular sanded base; no keys.

Size not known. Thickness approx. 32 mm

33. Circle and (?) foliage design. Phase E35.

Comparison The fabric is much harder fired than Group K, but thin-sections show a similar range of quartz grain sizes in these two groups.

Group M

Fabric Red core and surfaces. Hard texture; rough fracture. Fine sand temper with moderate medium-sized fragments of ironstone and some siltstone. (TF v; Sample 1020).

Battle Abbey
(ceramic building materials): 15

Manufacture Plain tiles. Irregular sanded base; no keys.

Size i approx. 100 mm Size ii approx. 135 mm

Thickness 18-21 mm

Comparison The dense groundmass of fine quartz with sparse medium-sized grains seen in thin-section is not matched in the other groups.

Group N

Fabric Red core and surfaces. Very hard texture; rough fracture. Fine sand temper with streaks of light coloured clay; moderate medium-sized fragments of coarse siltstone (TF i; Sample 1016).

Manufacture Plain tiles. Straight sides; irregular sanded base; no keys.

Size i Square tiles: 143-168 mm; Size ii Triangular tiles: approx. 158 mm (base); Size iii Triangular tiles: approx. 195 mm (base). Thickness 20-24 mm

Comparison These plain tiles are evidently from the same source as the example with counter-relief decoration (Group O). Identification is based principally upon distinctive white streaks in the fabric, and the wide range of sizes may indicate that some of the tiles attributed to this group really represent further fabric variations within Groups Qiii and Qiv (Fig. 7/14: Graph B). White streaks occur in certain Wealden bricks, and they are also found in a few floor tile wasters from Rye. The precise source is not known. Date: probably fifteenth century.

Group O

Fabric Same as Group N.

Manufacture Counter-relief decoration. Straight sides; irregular sanded base; no keys.

Battle Abbey
(ceramic building materials): 16

Size not known Thickness approx. 21 mm

34. Circle motifs. Lustrous clear glaze. Phase E35.

Group P

Fabric Red-brown core and surfaces. Hard texture; rough fracture. Medium sand temper. (TF iv; not thin-sectioned).

Manufacture Slip-over-impression. Slightly bevelled knife-trimmed sides; sanded base; no keys.

Size 151-152 mm Thickness 24-26 mm

35. Four fleur de lys. Phase D21.

Comparison Fifteenth-century tiles with simple slip decoration from Robertsbridge Abbey are larger than those from Battle, and, although there are several examples of no. 35, this is the only design which occurs on tiles over 150 mm square (Fig. 7/11: Graph B). These were almost certainly manufactured with plain tiles of Group Qiii (see below). Date: fifteenth century.

Group Q

Fabric (a) Red surfaces sometimes with grey core. Hard texture; rough fracture. Medium/coarse sand temper with moderate/sparse fragments of ironstone (TF iii; Sample 1018).

(b) Orange-red core and surfaces. Fairly soft texture; rough fracture. Medium/coarse sand temper with moderate/sparse fragments of ironstone (TF iv; Sample 1019).

(c) Pale purple core and surfaces. Hard texture; rough fracture. Medium sand temper with sparse coarse fragments of siltstone and ironstone. (TF vi; Sample 1021).

Battle Abbey
(ceramic building materials): 17

(d) Pale purple core and surfaces. Hard texture; rough fracture. Medium sand temper with sparse fragments of ironstone. (TF vii; Sample 1022).

(e) Buff-brown core and surfaces. Soft texture; rough fracture. Medium sand temper with moderate fragments of ironstone and sparse siltstone fragments. (TF viii; Sample 1023).

Fabrics (a)-(d), and probably (e), show a similar range of quartz grain sizes in thin-section and all are apparently from the same source.

Manufacture Plain tiles with unglazed, slipped, and glazed surface treatments. Slight bevel; sanded base; no keys. There are nail holes either at the centre or in the corners of some tiles, and a few have five nail holes. The presence or absence of these holes can only therefore be demonstrated if over half of the tile has survived, and it is impossible to assess the exact proportion of tiles which had been trimmed using a wooden template secured by nails. The proportion of different surface treatments in each size group is shown in Fig. 7/6: Graph B.

<u>Size i</u>	115-123 mm	<u>Size ii</u>	133-140 mm
<u>Size iii</u>	145-160 mm	<u>Size iv</u>	163-177 mm

Thickness 22-29 mm

36. Plain green-glazed tile with central nail hole. Group Qiii.
Phase D21.

37. Plain tile with eroded green glaze and nail hole at corner.
Deliberately shaped after firing, probably to fit around the base of a pillar. Group Q or S. Phase E42.

Comparison Nail holes are thought to be distinctive of tiles imported from Flanders (Norton 1976, 25), but the evidence from Group G at Battle shows that this technique was probably used on two-colour tiles made at Rye as early as the fourteenth-century. Another plain green-glazed tile from Rye also has nail holes (Barbican House Museum, Leves), and it is of similar size, if slightly thinner than

Battle Abbey
(ceramic building materials): 18

Group Qiii at Battle (Fig. 7/11; Graph B). It is possible that the tile from Rye is a stray from St Bartholomew's Hospital. The importation of 'Flanders tiles' is certainly well documented (evidence summarised by Keen and Thackray 1974, 147-8), but in this instance the presence of nail holes cannot be accepted as a conclusive indication of Flemish manufacture.

Some of the plain tiles at Winchester College belong to a specific batch imported from Flanders and mentioned in the College Accounts for 1397 (Norton 1976, 25, Type A). The dimensions of these tiles (c. 127 mm) fall between Groups Qi and Qii at Battle, but one type of plain tile with nail holes from Bayham Abbey (Horton 1983, 82: Group J: no. 92) just comes within the size range of Group Qi. Dimensions of the somewhat later tiles from the deliberate infill of the north bastion at Camber Castle, dated to c. 1570 (Wilson and Hurst 1964, 259-60), range from 114 mm to 129 mm, but most are slightly larger than Group Qi from Battle (Fig. 7/4; Graph B). Undue emphasis should not be placed upon minor variations in size, but it is perhaps significant that Groups Qiii and Qiv which comprise the largest number of plain tiles from Battle are not paralleled among the considerable quantity of comparable material from Bayham.

Thin-section analysis of plain tiles, similar to those from Winchester, found at Beaulieu Abbey, Hants. did not provide conclusive evidence for their source, and the range of inclusions would even have been consistent with local manufacture (Hinton 1977; 51). Samples from Battle have therefore been compared with the Beaulieu fabric, and the range of quartz grain sizes is strikingly similar (Fig. 7/10; Graph G).

The size of this albeit small sample of plain tiles with nail holes found at sites within reach of south coast ports does not show any marked degree of uniformity. Flanders tiles were certainly available in different sizes (Norton 1976, 32), but other variations between imports not necessarily made at the same place, and spanning a period of a century or more, must be anticipated. However, the presence of nail holes at Rye and the contrast between most of the

Battle Abbey
(ceramic building materials): 19

sizes at Battle and Bayham might indicate that at least some of these bulky products were manufactured locally.

Group R

Fabric Similar range of colours and inclusions to Group Q, but slightly coarser (TF v; Sample 1065).

Manufacture Plain, mosaic, and counter-relief tiles. Slight bevel; sanded base; no keys.

Size i Plain lozenge Size ii Plain mosaic approx. 56 mm

Size iii Counter relief: 67-72 mm wide Size iv Counter relief: 93-95 mm

Size v Plain mosaic: same size as R iv Size vi Triangular tiles: 115 mm (base) Thickness 29-34 mm

38. Fleur de lys. Plain green glaze. Group Riii. Phase D22.

39. Fleur de lys, same stamp as no. 38. White slip with clear glaze. Group Riii. Phase D24.

40. Plain lozenge. Streaky white slip and green glaze. Group Ri. Phase D23.

41. Roundel. Streaky white slip and green glaze. Group Riv. Phase D22/E36.

42. Roundel; different stamp from no. 41. Plain green glaze. Group Riv. Phase D26.

Comparison Counter-relief tiles were sometimes produced from the same stamp as those decorated with inlaid white slip (Ward-Perkins 1937, 128). However, similarities between the surface treatment of these and the green-glazed or white-slipped plain tiles of Groups Q and S suggests that all three groups are contemporary, if not manufactured at the same centre. This type was not found at Bayham Abbey, but the thickness of the counter-relief tiles from Battle is the same as Group S.

Battle Abbey
(ceramic building materials): 20

It has been observed that the practice of glazing relief-decorated tiles in contrasting colours for laying alternately on the pavement appears to have been abandoned by the late fifteenth century (Eames 1980, 45), but there is no independent dating for this type at Battle. Date: probably fifteenth century.

Group S

Fabric Similar to Groups Q and R.

Manufacture Plain tiles with similar range of surface treatments to Group Q; some unglazed. Slight bevel; sanded base; no keys. Nail holes are represented in Groups Siii and Siv, but not among the limited sample of smaller tiles.

Size i approx. 129 mm Size ii 180-191 mm

Size iii 200-205 mm Size iv 216-228 mm

Thickness 28 mm and over.

Comparison Most of the Group S tiles are both larger and thicker than those in Group Q (Fig. 7.11; Graph B). They have a similar range of surface treatments, but, like Groups Qii and Qiv, a higher proportion of the Group S tiles are unglazed than those in the large collection of Group Qiii tiles (Fig. 7.6; Graphs B and C). The paw print of a dog on the under side of a fragment from phase D30 suggests that some of the tiles were probably laid out to dry face downwards at the tiliary. The white slip is therefore likely to have been applied after the tiles had dried.

Some of the dimensions are akin to plain tiles from Bayham Abbey which are thought to be of local manufacture (Borton 1983, 82; Group E). The largest size, however, corresponds very closely with the 9 in x 9 in tiles from Winchester College which have been identified as probable Flemish imports laid in 1397 (Norton 1976, 39). Like Group Q the presence of nail holes alone is not necessarily distinctive of imported tiles and the source therefore remains uncertain. Date: probably fifteenth century.

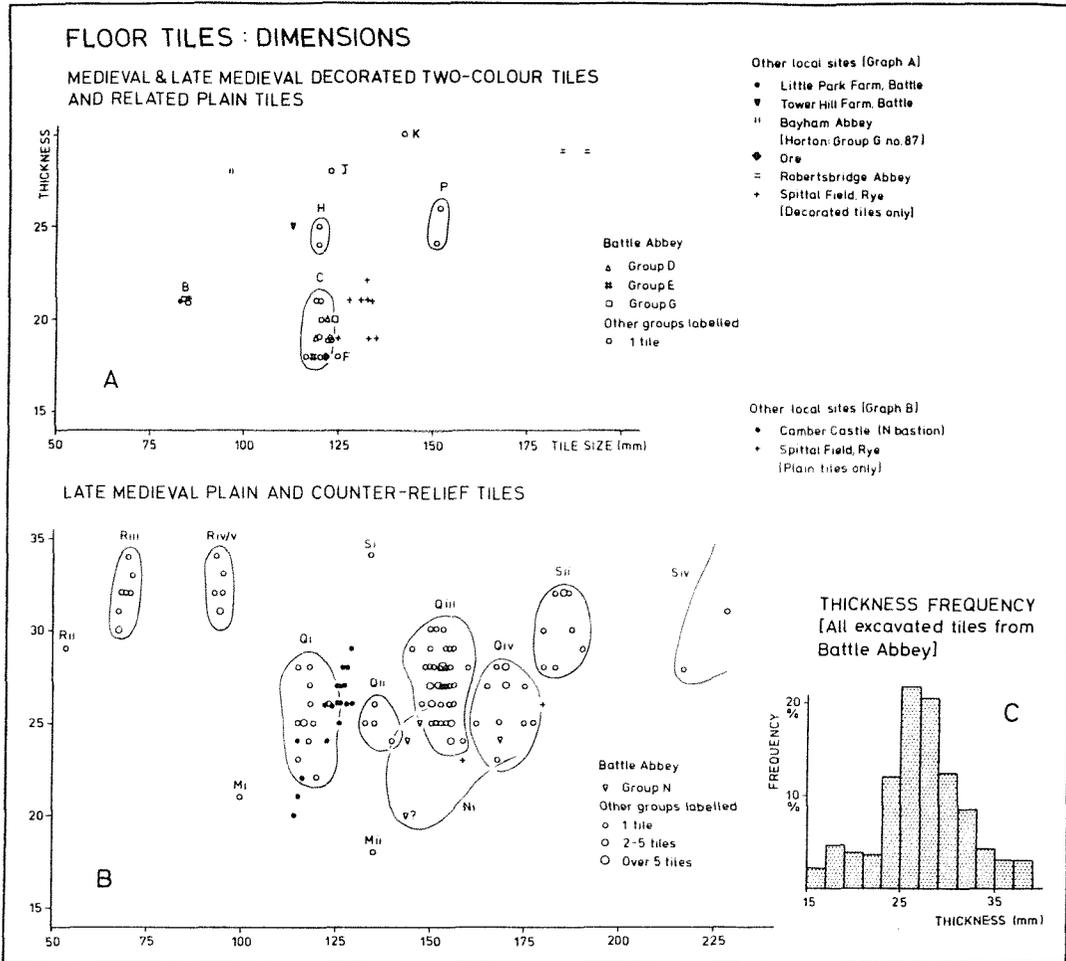


Fig. 7.11 Battle Abbey. Classification of floor tiles according to size (A and B) and thickness (C)

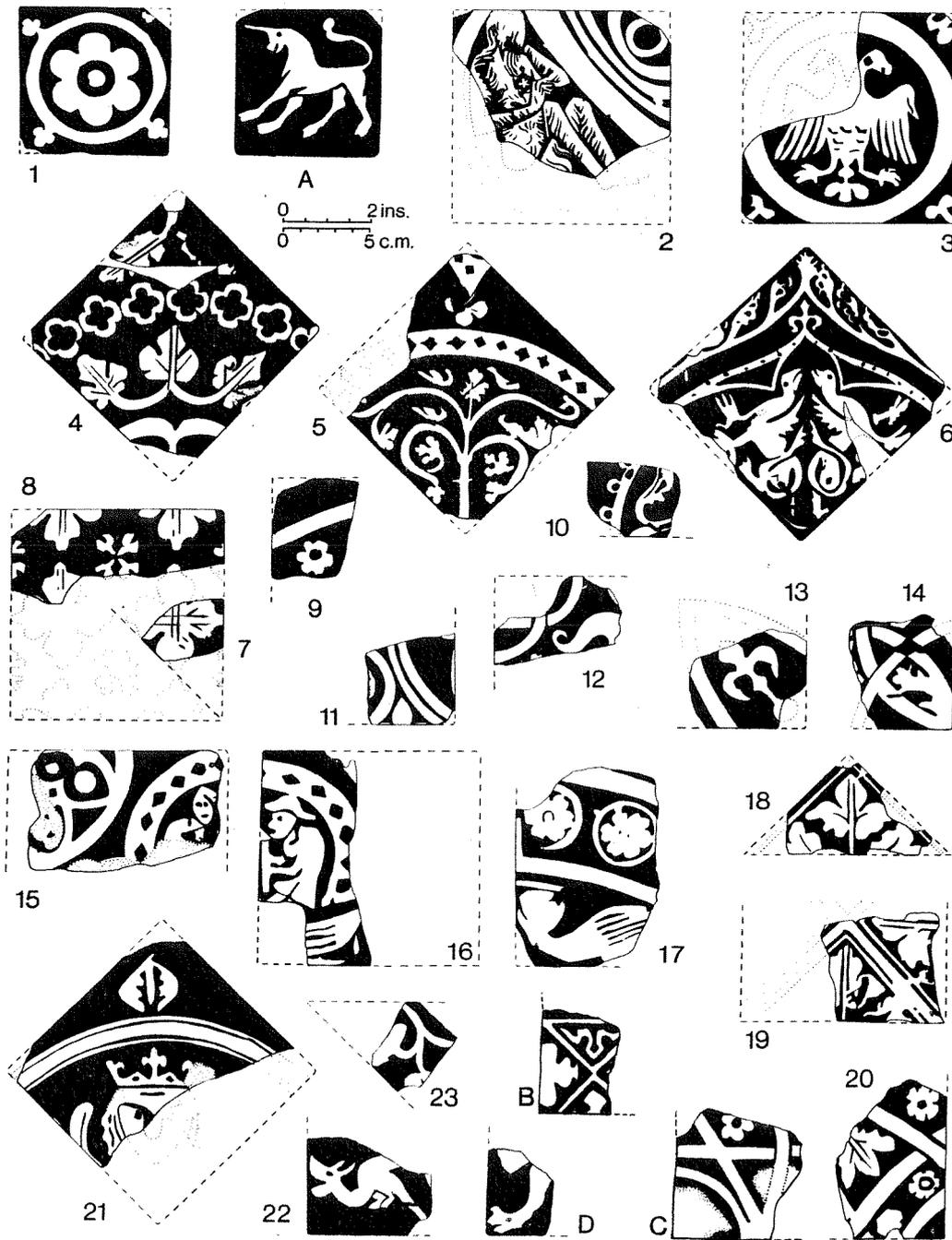


Fig. 7.12 Medieval slip-decorated floor tiles. 1-23: Battle Abbey; A: Little Park Farm, Battle; B-C: Spittal Field, Rye; D: Tower Hill Farm, Battle ($\frac{1}{4}$)

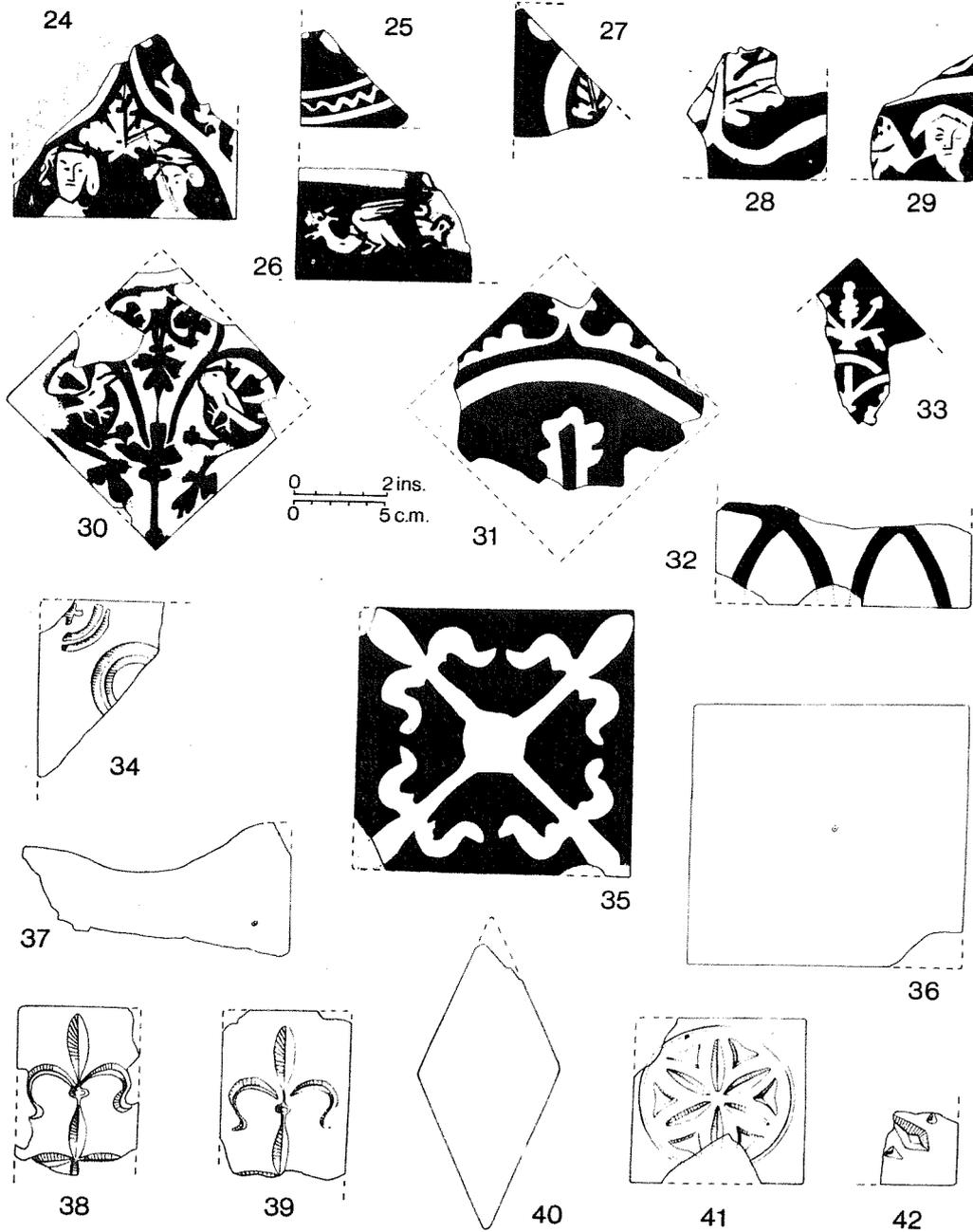


Fig. 7.13 Battle Abbey. Medieval slip-decorated, plain and counter-relief floor tiles ($\frac{1}{4}$)

Battle Abbey
(ceramic building materials): 21

Group T

Fabric Pink core and surfaces. Hard, fairly smooth texture; slightly laminated fracture. Moderate fine sand temper with streaks of white clay and moderate fragments of siltstone. (TF x; Sample 1025).

Manufacture Plain tiles, sometimes with white slip or patchy glaze. Very rough base.

Size not known Thickness 26-29 mm

Comparison This small group of fragments may be from floor tiles, but the prominent mould lines and eroded surface of the type sample suggests that it could be a broken 'Roman-type' roof tile in a finer fabric than the main series.

ROOF TILES AND ROOF FURNITURE

Classification and comparison

Fabrics

The roof tile fabrics have been classified according to the same criteria as

Battle Abbey
(ceramic building materials): 22

the pottery and floor tiles. Different code letters, however, have been used to distinguish these from the pottery fabrics, and similarities to other ceramics have been noted where relevant.

Descriptions

Z. Flint/shell-tempered fabrics

Zi. Grey core and surfaces. Hard; harsh texture; rough fracture. Moderate medium/coarse sand temper with moderate coarse flint; sparse flecks of shell and sparse ironstone. (TF 75) cf. pottery Fabric Bii.

Y. Sand-tempered fabrics

Yi. Grey core with red or grey surfaces. Hard, very harsh texture; rough fracture. Abundant coarse sand temper with moderate very coarse grains up to 2mm. Sparse fragments of siltstone or sandstone up to 5 mm. (TF G; Sample 1013) cf. floor tile Group C.

Yii. Grey or red core and surfaces. Hard harsh texture; rough fracture. Abundant medium/coarse sand temper. (TF J; Sample 1015).

Yiii. Pale grey core with dark grey surfaces. Hard, fairly smooth texture; rough fracture. Abundant medium/fine sand with sparse ironstone inclusions. (TF 1) cf. pottery Fabric Di.

Yiv. Buff-red or grey core with buff surfaces. Hard, fairly smooth texture; rough fracture. Moderate fine sand temper and moderate coarse ironstone inclusions; sometimes with sparse fragments of siltstone. (TF E; not thin-sectioned).

Yv. Red-brown core, with light brown surfaces. Hard, harsh texture; rough fracture. Abundant medium sand temper with sparse ironstone inclusions. (TF A; Sample 1007).

Yvi. Grey core, sometimes with red margins and grey surfaces. Hard, harsh texture; rough fracture. Moderate medium sand temper with sparse fragments of siltstone (TF C; Sample 1009).

Battle Abbey
(ceramic building materials): 23

Yvii. Red-pink core and surfaces. Hard, fairly harsh texture; rough fracture. Moderate medium sand temper with sparse fragments of ironstone. (TF D; Sample 1010).

Yviii. Red, sometimes grey, core and red surfaces. Hard, harsh texture; rough fracture. Moderate medium sand temper with sparse ironstone inclusions up to 2 mm and fragments of ironstone up to 5mm. (TF E; Sample 1011).

Yix. Red core and surfaces. Very hard, harsh texture; rough fracture. Moderate medium sand temper with sparse ironstone inclusions up to 2 mm (TF F; Sample 1012).

Yx. Deep red core; sometimes with grey surfaces. Very hard, harsh texture; fairly smooth fracture (vitrified). Moderate medium sand temper with moderate ironstone inclusions and sparse fragments of siltstone (TF B; Sample 1008).

Yxi. Red core and surfaces. Hard, harsh texture; rough fracture. Abundant medium sand temper. Dark 'metallic' glaze. (TF L; not thin-sectioned).

Yxii. Purple core and surfaces. Hard, smooth texture; rough fracture. Abundant medium/fine sand temper with moderate ironstone inclusions and sparse fragments of siltstone. (TF H; Sample 1014).

Dating and comparison

Some fabrics, are confined to roof furniture (Fabrics Zi, Yii and Yiii) and others occur only in the post-medieval phases (Fabrics Yxi and Yxii). Only the early Roman-type roof tiles (see below) are found in Fabric Yi, and the hard-fired types (Fabrics Yix and x) are not represented among the small group of tiles from Period A.

Several fabrics occur in the later phases of Period A, but significantly only tiles of Fabric Yi were found in the presumed foundation trench for the chapter house, dated c. 1100 (Phase A1). The fragments of nib or peg tiles in the chapter house graves (Phase A3) may be intrusive. The less well fired tiles (Fabric Yv) account for a slightly higher proportion of the total in Periods A-C

Battle Abbey
(ceramic building materials): 24

than in the later centuries, and they do not occur at all in deposits assigned later than Phase E37.

Apart from one residual fragment (no. 20), the roof furniture is confined to Periods A-C, but the fabrics used for other tiles persist throughout the monastic and post-Dissolution phases. However, hard-fired tiles (Fabric Yix) with small square peg holes appear only in Phase D23 or later.

The fabric of tiles found at Battle can be distinguished by eye from those at Bayham Abbey (Streeten 1983: 88-91), but only one of the louvers (Fabric Yiii) can be attributed to a specific source, at Rye. Fabrics Yv-x contain the same range of inclusions, and the grain size frequency of the quartz visible in thin-section is similar in each of these fabrics. Tiles in this group which occur at the same date are therefore probably from the same kiln, and the presence or absence of siltstone in the fabrics is unlikely to be distinctive of different sources. It cannot, however, be assumed that post-Dissolution tiles were manufactured at the same place as those used on the monastic buildings.

'Roman-type' roof tiles

Manufacture

Both flat, flanged tegula tiles and curved imbrex tiles were made in the same distinctive fabric (Yi). Most have a partial clear or sometimes green glaze which distinguishes them from their Roman prototypes. The tegulae were apparently moulded on a sanded base, and one of the imbrices is slightly tapered (Thompson 1978, 205).

1. Tegula. Partial clear glaze.
Fabric Yi. Phase A2.
2. Tegula. Splashes of green glaze.
Fabric Yi. Phase A2.

Battle Abbey
(ceramic building materials): 25

Dating and comparison

The examples from Battle belong to a class of tile which was first recognised at Southampton (Flatt and Coleman-Smith 1975, 2, 185-90; Thompson 1978), and which is now represented among finds from London (Armitage et al. 1981). Similar tiles are also known from Reading Abbey (A. Vince, pers. comm.) and they have been identified among wasters from the early phase of Scarborough ware production (P. and N. Farmer, pers. comm.). Other medieval tiles from sites with Roman occupation may not have been distinguished from earlier types, but the limited evidence available so far suggests that this method of tiling was confined to towns and monastic establishments in the middle ages.

An interesting feature of the Southampton tiles is that the use of green glaze within an albeit small sample of fragments, appears to be confined to the inbrices. A similar pattern recognised at Battle shows that this type of roof may have had the appearance of being dissected by vertical green 'lines' against a plain red or clear-glazed background.

The tiles from Southampton have been dated provisionally to the late twelfth century, and a similar date is suggested for those from London and Scarborough. The occurrence of this type at Battle in the presumed foundation trench of the chapter house (Phase A2), however, suggests that they were in use as early as c. 1100. In view of the implications for dating the introduction of this type of roof tile, however, it should be emphasised that these examples do not come from a sealed deposit. Fragments from Phase B7 are either residual or they may come from buildings replaced by the new range.

The fabric of the Battle tiles is different from those at Southampton, but the similarity between the early roof tiles and the later floor tiles of Group C suggests that the same raw materials may have been used at different periods.

Nib tiles

Manufacture

The characteristic rough surfaces of the flat roof tiles indicate that they were made in a sanded mould, and there are usually prominent marks on the other side

Battle Abbey
(ceramic building materials): 26

of the tile where the clay has been scraped to a uniform thickness. A nail mark on one example (no. 5), however, suggests that some roof tiles were made in the same way as certain floor tiles which are assumed to have been trimmed around a template. The term 'nail mark' has been adopted here to avoid potential confusion between the identical 'nail holes' on floor tiles and the larger 'peg hole(s)' in a roof tile.

The nibs occur in a variety of different shapes and sizes, but they are normally formed on the smoother side of the tile. The most common medieval type of nib at Battle is hand made and pulled up from the edge of the tile, usually with a finger streak at the base of the nib. The method of manufacture must have been similar to that described in an eighteenth-century French handbook which shows that the tile-maker pressed the clay into a mould which had a gap in one edge. This left a small projecting piece of clay which could be pulled up to form the nib (Lloyd 1934, 16).

Knife-trimmed nibs are more common on the post-medieval products, but a distinctive type fixed to the sanded surface of the tile (no. 7) was used at Battle before the mid-thirteenth century. Unlike the other types, the smooth—as opposed to sanded-surface of these tiles would have been exposed when they were in position on a roof. The extent of the knife trimming varies considerably, but knife-trimmed nibs seldom account for more than 10% of the tiles in any phase. A comprehensive typology used for classification has been listed in the excavation records.

Most of the nib tiles used on the monastic buildings had both a nib and a hole, but there are a few examples with a central nib and no holes. One tile (Phase D21) had two nibs. The holes and nibs are usually placed close together (Fig. 7.5: Graph F; measured centre to centre), and both round and square holes occur on either the right- or left-hand side of the nib (viewed from beneath). The earlier tiles are larger than the later types, and the size of the excavated ones (Phase B7) accords well with the width of contemporary tiles used for the fireplaces in the

Battle Abbey
(ceramic building materials): 27

reredorter and in the 'novices room' beneath the dormitory (Fig.7-5: Graph B). There are few complete examples, but a tile built into the buttress at the north-east corner of the reredorter measures 305 x 210 x 14 mm thick.

3. Nib tile, with round peg hole. Similar width to a tile built into the mid-thirteenth-century reredorter. Fabric Yviii. Phase C14.
4. Nib tile, with finger streak at the base of the nib, and with a round peg hole. Fabric Yviii. Phase C14.
5. Nib tile, with finger streak at the base of the nib, and with two nail marks at the corner of the tile. Fabric Yv. Phase E7.
6. Nib tile, with square peg hole. Fabric Yviii. Phase D21.
7. Nib tile. Knife-trimmed nib applied to the sanded surface of the tile. Fabric Yviii. Phase E7.

Dating and comparison

Nib tiles are now firmly established as a thirteenth-century type. They were used on a building demolished c. 1270 at Bishops Waltham, Hants. (Wilson and Hurst 1962-3, 319), and kiln debris including nibbed tiles was found in make-up beneath the east range of the Dominican Priory at Chelmsford, Essex, apparently built in the second half of the thirteenth century (Drury 1977, 90). Further afield, nib tiles were found in the fill of the camera in Area 10 at Wharham Percy, N.Yorksh., which was demolished c. 1250 (Thorn 1979, 66). Stratified examples from mid-thirteenth century contexts at Battle, however, are the earliest so far recorded from East Sussex (Martin 1978, 34-42), and the evidence confirms that this type of tile was probably made at least as early as the second quarter of the thirteenth century.

Medieval tiles with a hand-made nib and peg hole are known from other local monastic sites at Bayham Abbey (Streeten 1983, 89) and Hastings Priory (Martin 1973^f 40), and similar types occur on the roof of the surviving buildings at Robertsbridge Abbey. However, the tiles from a sealed deposit at Michelham Priory, dated c. 1300-1325, did not apparently include nibbed types (Barton and Holden 1967^a 9). A few tiles with knife-trimmed nibs occur in the mid-thirteenth

Battle Abbey
(ceramic building materials): 28

century at Battle, but up to 99% of the nibs among a large sample representing debris from the roof of the dormitory and reredorter (Phase D21/22) were formed by hand.

Peg tiles

Manufacture

Peg tiles have the same smooth and sanded surfaces as the nibbed types. The holes were made with a blunt, sometimes slightly tapering, round or square stick. Square holes are usually set diagonally, and, although small square ones (less than 10 mm) are found on some medieval tiles, these are usually distinctive of the later types (no. 9).

Like the nibbed tiles, holes on the few thirteenth- or fourteenth-century peg tiles tend to be placed closer together than on examples from the Dissolution debris (Fig.7-5: Graph C). The later peg tiles are also smaller, and the most common widths approximate to the standard $6\frac{1}{4}$ in. (159 mm) laid down in 1477 (Celoria and West 1967, 218; Fig.7-5: Graph B).

8. Peg tiles set in mortar with impression of wooden lath, viewed from beneath.

Fabric Yviii. Phase E36.

9. Peg tile. Fabric Yix. Phase D23.

Dating and comparison

The evidence from Battle confirms the impression formed elsewhere that medieval peg tiles are contemporary with the nibbed types (Drury 1977, 90). They occur in small quantities in Periods B and C, but are more common in Period D, which presumably reflects renewal of certain roofs before the Dissolution. The smaller peg tiles at Winchelsea are ascribed to the fifteenth century (Martin and King 1975, 137).

Battle Abbey
(ceramic building materials): 29

Peg tiles used as packing in the foundations of Building Y have widely spaced holes and are of similar width to the most common sizes found amongst post-Dissolution debris in this area (Phase D24-28). Even these, however, are wider than the estimated dimension of a tile with square holes found during excavations on the presumed site of the monastic tilerly at Tower Hill Farm, Battle (Battle Museum). The width of c. 140-145mm is considerably narrower than the majority of medieval roof tiles from the abbey, and the form suggests that this may be a post-medieval tile.

Ridge tiles

Most of the ridge tiles are plain (i.e. without decorated crests) and these are in the same fabrics as the flat roof tiles. Two decorated examples, however, are similar to the chimney pot (no. 16), and may therefore be from the same source. A crenellated fragment was found among wasters at Rye (Barton 1979, 254, no.3); two crested tiles remain on the roof of the Court Hall at Winchelsea; and a crest with simple undercut band, similar to no. 11 from Battle, is reported from Hastings Priory (Martin 1973* 40-1, no. 11). Decorated ridge tiles are not common in East Sussex, where plain types predominate (Barton 1979, 63), and differences between the fabrics of the plain tiles and the decorated ridge tiles at Battle suggest that the crested types may belong to a specialist output.

Possibly used as a ridge tile on a low-pitched roof but this could

10. Plain curved tile. / be a half-round hip tile. Fabric Iviii. Phase D21.
11. Ridge tile with simple 'wavy' crest. Fabric Yiv. Phase B7.
12. Ridge tile with triangular crest. Fabric Yiv. Phase C12.

Hip - or valley tiles

In the absence of the distinctive fixing holes for a hip tile or the plain head of a valley tile, 'curved tapering tiles are often assumed to be from a hipped roof. However, the /sanded surface is usually concave, and, if laid consistently with the flat tiles, these would form a valley rather than a hip. References to 'tuttertile' in the

Battle Abbey
(ceramic building materials): 30

Statute of 1477 (Celoria and West 1967, 219) and elsewhere (Salzman 1952, 232) suggest that tiles, as opposed to lead, would sometimes be used to line valleys.

No complete examples with/ or without peg holes have been found at Battle, but tapering tiles are represented in both the chapter house and reredorter areas. It is difficult to suggest a function for those found outside the north-west corner of the reredorter (Phase D21/22), because there was certainly no valley at this point, and the roof is unlikely to have been hipped. If there was a pentice outside the 'novices room' and the ground-floor doorway at the north-west corner of the reredorter, then they may have come from there. It is possible that some of the later ancillary structures may have been hipped, but the surviving gable at the south end of the dormitory is likely to be typical of the other claustral ranges, in which case there would have been no need for hip tiles on the principal buildings.

Roof furniture

Apart from no. 14 which is almost certainly from the roof of the reredorter, none of the roof furniture can be attributed to specific buildings. Zoomorphic finials, probably of wood (Dunning 1960), are shown on the well-known twelfth-century drawing of the reredorter at Christchurch Priory, Canterbury (Willis 1869, pl.1 parts 1 and 2). It is tempting to speculate that no. 13 is an early anthropomorphic equivalent in pottery, from the demolished Norman reredorter at Battle. The louver (no. 15) and chimney pot (no. 16) from the chapter house area were both discarded before the Dissolution, and they are unlikely to have come from that part of the east range. They may, however, be from other buildings east of the chapter house.

Battle Abbey
(ceramic building materials): 31

13. Anthropomorphic finial (?). Fabric Zi. Phase A5.

The decoration is similar to thirteenth century finials illustrated by Dunning (1961^f, 79), but, because of its context, this specimen is probably earlier, possibly late twelfth or early thirteenth century. The form cannot be reconstructed in detail but the curvature behind the mask suggests that this was from the rounded top of a hollow finial (Dunning 1961^f, 79, fig 5.1, no. 5).

14. Knob finial from louver (?). Fabric Yiii. Phase D21.

Solid knob finials attached to ridge tiles are represented among the wasters from Rye (Yidler 1933, pl.x, B; Barton 1979, 254), but this example is hollow and has traces of an aperture on one side. It could have come from the top of a louver, but it is more likely to be an unusual type from the crest of a baffle plate, as illustrated in the reconstruction of a louver from the kilns at Nash Hill, Lacock, Wilts (Dunning 1974, 129). The absence of soot blackening would be consistent with use as a ventilator in the reredorter, and the fabric is similar to pottery attributed to the Rye kilns.

15. Baffle plate from louver. White slip on the interior and on the face of the canopy; external green glaze on the sides. Fabric Yiv. Phase C12. Apertures in the sides of a louver usually had simple 'baffle plates' at the top of the opening as shown by the fine example from St Thomas Street, Winchester (Dunning 1972, pl. Lxxiv). When the canopy extended down the sides of the aperture, the edges were sometimes thumb-pressed (Dunning 1968, fig. 3), but the white slip and 'architectural' treatment on the louver from Battle is unusual. Date: late thirteenth or probably fourteenth-century.

16. Chimney pot. Fabric Yiv. Phase C17.

Conical chimney pots are frequent finds in Sussex, but the fabric of this example is finer than the early flint-tempered types (Dunning 1961^f, 82). There would have been holes in the side and probably in the top as well, but none is visible on the surviving fragment. The base

Battle Abbey
(ceramic building materials): 32

was added after the top half of the pot had been thrown.

Miscellaneous

17-19. Fragments possibly from a louver. Fabric Yii. Phase A2.

All three fragments are probably from the same fitting. Nos. 18 and 19 have the smoothed edges of an aperture(?), and, both are soot blackened on the 'interior'. These are therefore unlikely to be pieces of an elaborate ridge tile, but they have defied attempts at reconstruction. If they are indeed fragments from a louver, then this would be a very early example.

20. Fragment, similar to nos. 17-19. Fabric Yii. Phase D24.

21. Ridge (?) tile with incised 'L' scratched after firing. Fabric Yviii. Phase E47.

22. Roof tile stamped 'W:B'. Presumably a local maker's mark.

Fabric Yviii. Phase E47.

Not illustrated. Tiles with paw prints of a medium-sized dog. Fabric Yviii. Phases C12 and C14.

Another fragment from a thick unglazed tile has a cat's paw print (Phase D21), but this may be a floor tile. It is normally assumed that animal paw marks were made while the tiles were laid out to dry before firing. If so, some of the products must have been spread on the ground rather than in racks where they would have been out of the reach of a dog.

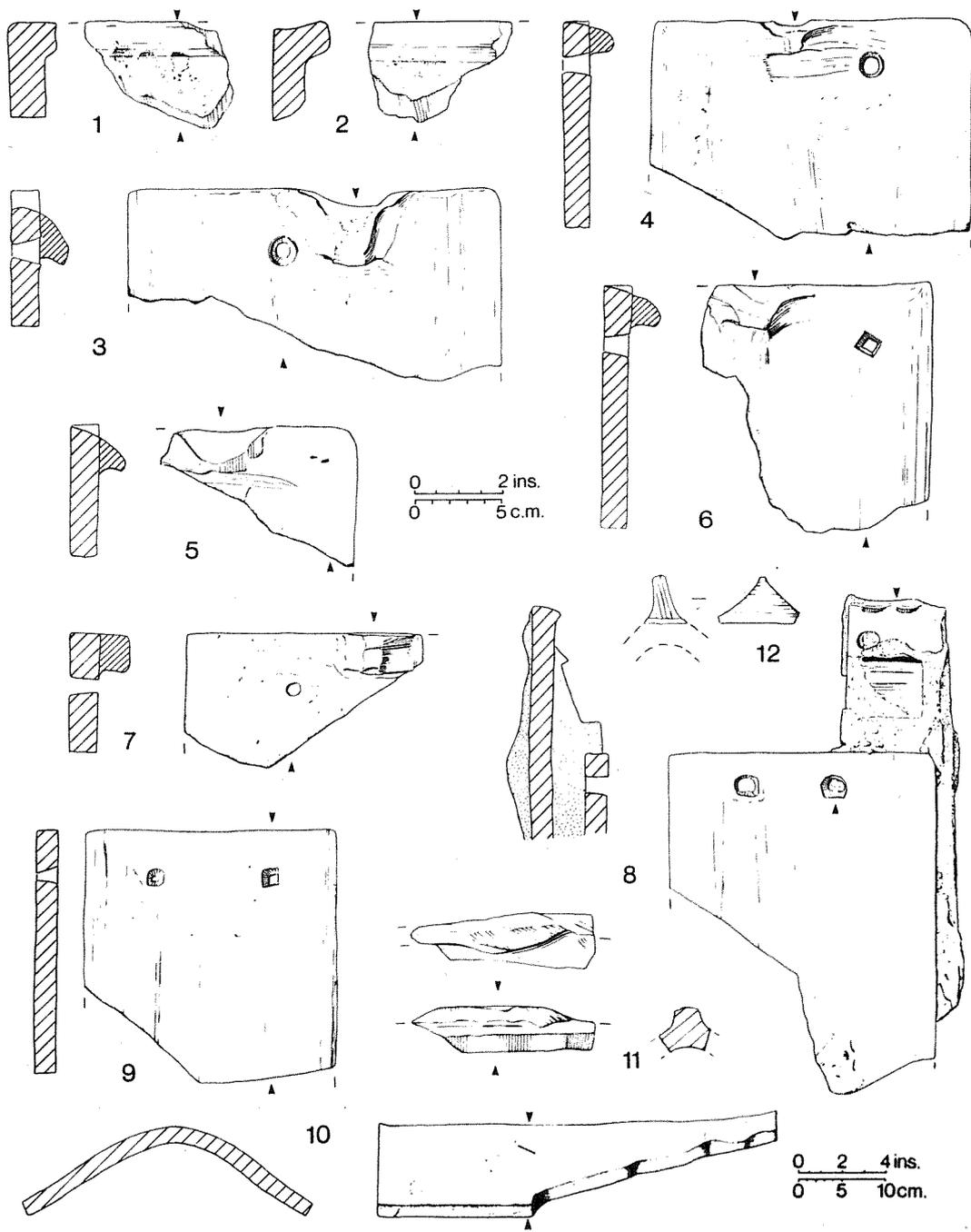


Fig. 7.14 Battle Abbey. Roman-type roof tiles (1-2); medieval nib and peg tiles (3-9) and ridge tiles (10-11). Nos 1-9 and 11-12 ($\frac{1}{4}$); no. 10 ($\frac{1}{8}$)

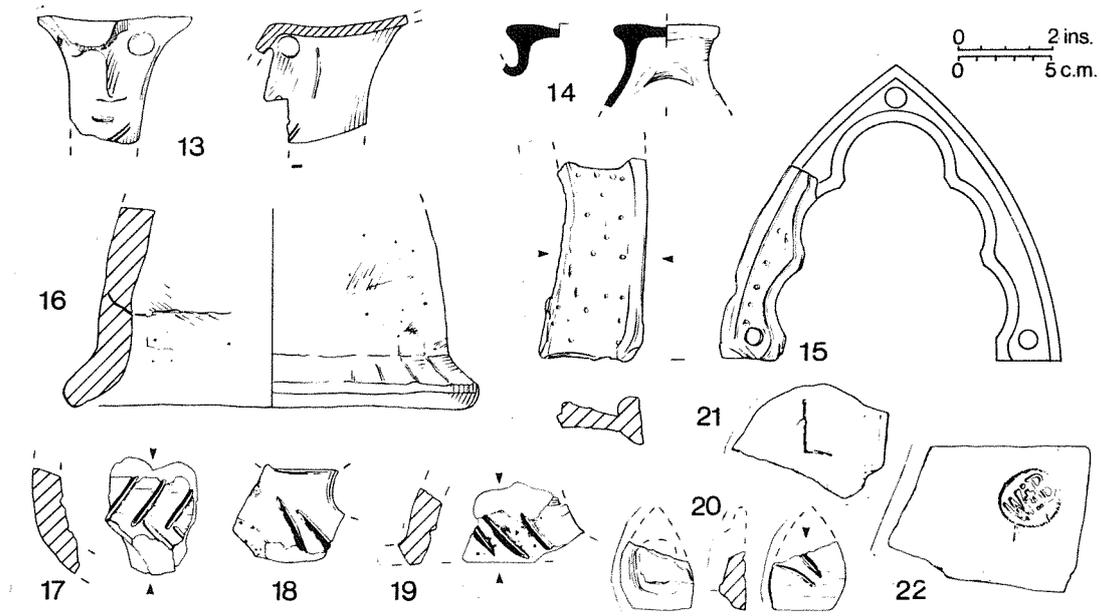


Fig. 7.15 Battle Abbey. Medieval roof furniture (13-20) and post-medieval roof tiles (21-22) ($\frac{1}{4}$)

Battle Abbey
(ceramic building materials): 33

BRICK

Introduction

Brick occurs in contexts attributed to the thirteenth century and later, but pre-Dissolution brickwork only survives *in situ* in one of the drains east of the chapter house. Material derived from the early phases may have been imported, but significant quantities of locally-produced brick were found among the Dissolution debris in the reredorter area.

Classification and comparison

Method of classification

Fragments of brick with at least one measureable dimension were retained for analysis. Smaller pieces were also collected from significant early contexts.

The assemblage has been divided principally according to fabric using the same criteria as those for the pottery and floor tiles. All the fragments have been measured, and, where possible, the range of sizes has been indicated for each type. Details of this analysis are included in the archive. None of the bricks described in this report is machine-moulded; all were made by hand.

Type 1

Fabric Brown-red core and surfaces. Fairly hard, harsh texture; rough, slightly laminated fracture. Moderate inclusions of red iron ore; little sand visible to the naked eye; groundmass of fine quartz grains seen in thin-section. (TFa; Sample 1052).

Battle Abbey
(ceramic building materials): 34

Size No complete dimensions.

Comparison Although the size of these bricks is not known, they are definitely thicker than the thickest floor tiles (Group S). The reddish colour, as opposed to the buff and pink tones of the imported Flemish bricks, suggests that these may have been produced locally. Even if they are imports, their occurrence in Phase B7 places them among the earliest examples of brick in Sussex.

Type 2

Fabric Mottled red-pink core and surfaces; Hard, harsh texture; rough fracture. Fairly fine sand; dark red and yellow-buff grog(?) inclusions. (TFg; not thin-sectioned).

Size 239-246mm (c. 9½ in) x 117-120mm (c. 4½ in) x 51mm (c. 2in)

Comparison The type occurs only on the bottom of the late medieval drain near the north-east corner of the chapter house. The bricks used here do not necessarily represent a repair, and the narrow thickness would be consistent with a fifteenth century date. The fabric, which includes pieces of buff-coloured (?) grog (similar to Type 3), suggests that these may be imported bricks.

Type 3

Fabric Yellow-buff core and surfaces. Fairly soft smooth texture; rough fracture. Fine sand. Irregular lines scored on both the upper and lower surfaces of one fragment. (TFg; not thin-sectioned).

Size c. 32mm (1¼ in) thick.

Comparison The thickness of only one of the two fragments found at Battle can be measured, and it is narrower than comparable Flemish imports from Bodiam and from Tower Hill Farm, Battle (Battle Museum). In view of the thickness and late context (Phases E36 and E42), there remains a remote possibility that these are

Battle Abbey
(ceramic building materials): 35

post-medieval floor tiles. The distinctive fabric, however, leaves little doubt that this a medieval type from the Low Countries. Similar bricks have been dated to between the fourteenth and sixteenth/seventeenth centuries, and the examples from Battle are therefore residual.

Type 4

Fabric Red core and surfaces. Fairly hard, harsh texture; rough fracture. Moderate sand; sparse fragments of siltstone or sandstone (TFd; not thin-sectioned).

Size i 30-36 mm (c. 1 $\frac{1}{4}$ -1 $\frac{1}{2}$ in) thick

Size ii 107-117 mm (c. 4 $\frac{1}{4}$ -4 $\frac{3}{8}$ in) x 48-57 mm (1 $\frac{7}{8}$ -2 $\frac{1}{4}$ in)

Size iii c. 69 mm (c. 2 $\frac{3}{4}$ in) thick

Dimensions of these bricks have been grouped on the basis of thickness alone.

The only two fragments on which the width survives are similar to sizes ii and v of Type 5.

Comparison Type 4 bricks occur among the Dissolution debris in the reredorter area, and the dimensions of sizes i(?) and ii are similar to late fifteenth/early sixteenth century bricks in South-East England (Lloyd 1925, 89). Size iii occurs only in Phase E47 and is probably eighteenth century or later (cf. Finchcocks, Goudhurst, dated c. 1725).

Type 5

Fabric Similar colour, texture and composition to Type 4, but with dark (?ironstone) inclusions (TFf; not thin-sectioned).

Size i 85-95mm (3 $\frac{3}{8}$ -4 $\frac{1}{4}$ in) x 50-56mm (c. 2-2 $\frac{1}{2}$ in)

Size ii 97-107mm (c. 3 $\frac{7}{8}$ -4 $\frac{1}{4}$ in) x 50-57mm (c. 2-2 $\frac{1}{2}$ in). Exceptional examples: 45mm and 47mm thick. Surviving lengths: 223mm (8 $\frac{7}{8}$ in) and 240mm (9 $\frac{1}{2}$ in)

Size iii 100-105mm (c. 3 $\frac{7}{8}$ -4 $\frac{1}{4}$ in) x 60-65mm (c. 2 $\frac{3}{8}$ -2 $\frac{5}{8}$ in)

Size iv 110-114mm (c. 4-4 $\frac{1}{4}$ in) x 54-60mm (c. 2 $\frac{1}{8}$ -2 $\frac{3}{8}$ in). Exceptional examples: 44mm; 50mm; and 63mm thick.

Battle Abbey
(ceramic building materials): 36

Size v 117-120mm (c. 4 $\frac{5}{8}$ -4 $\frac{3}{4}$ in) x 54-62mm (c. 2 $\frac{1}{8}$ -2 $\frac{1}{2}$ in)

Comparison These bricks are by far the most numerous type in Dissolution and later contexts, although intrusive fragments do occur in earlier phases. The only complete examples (size ii) come from Phase E38, but the dimensions are similar to those in sixteenth-century brickwork at Rolvenden, Kent (Lloyd 1925, 89). There is little difference in size between bricks from Period D and those from Period E. However, a considerably higher proportion of the fragments in Period E have been fired to a deeper purple colour, and, whereas glazed brick is virtually unrepresented among the Dissolution debris, it is more common in the later phases of Period D and in Period E.

Type 6

Fabric Red-pink core and surfaces. Hard, harsh texture; rough fracture fine sand; streaks of yellow clay; moderate inclusions of ironstone. (TFe; not thin-sectioned).

Size 102-114mm (c. 4-4 $\frac{1}{4}$ in) x 54-64mm (c. 2 $\frac{1}{8}$ -2 $\frac{1}{2}$ in).

Surviving fragments form an even scatter of dimensions within this range of sizes, with no obvious standardization.

Comparison Bricks from elsewhere in the Weald contain distinctive streaks of light coloured clay, and similar fabrics have been noted among the floor tiles (Group N). The occurrence of this type in Dissolution and later phases at Battle Abbey follows a similar pattern to Type 5, although there are few examples.

Type 7

Fabric Bright orange-red core and surfaces. Fairly soft, smooth texture; rough fracture. Fine sand; sparse inclusions of ironstone moderate mica, (TFc; not thin-sectioned).

Size c. 67mm (c. 2 $\frac{5}{8}$ in) thick.

Comparison There is only one example of this type in Phase E39.

7.6.3 Conclusion

The thirteenth-century inlaid tiles found at Battle were definitely not made at the same place as contemporary types from Lewes, but similarities with tiles from Robertsbridge Abbey suggest that both Battle and Robertsbridge may have been supplied from the same, as yet unknown, centre. The possibility of an itinerant tiler at this period cannot, however, be ruled out until more local comparative material is available.

Affinities with wasters from Rye can be traced in the slip-decorated tiles of Groups C to G, but the evidence for actual manufacture at Rye is not always conclusive. Tiles in Groups C and D are slightly different in both size and fabric, and those in Group E have nail holes. These are not found on the decorated tiles from Rye, although there are two plain tiles made in this manner. Groups F and G provide the closest parallel with Rye in terms of fabric, but the only example of an identical stamp used on tiles from both Rye and Battle occurs with a nail hole at the latter but not at the former.

The tile in question from Rye was not published by Vidler, but even such a small fragment cannot be dismissed merely as a stray. Two alternative interpretations of this evidence arise: either tiles both with and without nail holes were manufactured at Rye; or the stamp used at Rye was also used at another centre where the tiles were trimmed around a template secured by nails. In either case, there is strong evidence to suggest the existence of a distinctive local enterprise which had adopted an unusual trait of manufacture, possibly derived from the Continent.

Although over thirty two-colour designs have now been identified at Battle, patterns and sizes which are distinctive of the 'Lewes group' French imports are not represented. This is surprising because of the extensive coastal distribution in Sussex, but their absence may be a significant indication of more easily accessible supplies in the vicinity. Another tile from Battle (Group H) does, however, seem to belong to a different series of French designs.

Evidence for the manufacture of floor tiles at Battle itself relies upon tantalisingly inconclusive information. There was certainly an abbey tilery, but the only indication that its output included decorated floor tiles comes from a single fragment found at Tower Hill Farm. If this does, indeed, indicate local

manufacture, then tiles with nail holes formed part of the repertoire, and the Group E designs show that there must have been links with Rye.

Unlike the more remote Wealden sites, Battle Abbey would have been well situated for the purchase of late medieval tiles imported from the Low Countries, and the dimensions of at least one group are the same as tiles from Winchester which are almost certainly Flemish imports. The presence of nail holes on a large plain tile from Rye, however, casts doubt upon the significance of this method of manufacture which has hitherto been assumed to be a distinctive feature of the imported tiles, although an alternative explanation might be sought in the migration of craftsmen.

Some of the roof tiles may have been obtained from the same sources as the floor tiles. The example with nail marks is most unusual and confirms a likely association with the production of floor tiles. At least one of the fabrics used for the roof furniture can be paralleled at Rye. Combined with the evidence from Bodiam this discovery shows that the Rye potters met local requirements for roof furniture as well as coarse wares within a radius of at least 18 km. (11 miles) from their kilns (see Section 5.7.4).

Brick may have been used as early as the thirteenth century, and it was certainly available in reasonable quantities at Battle before the Dissolution. Most of the fragments found among the primary destruction debris probably date from the early sixteenth century, although the use of over-fired bricks to form a pattern of blue headers is known on fifteenth-century buildings elsewhere in the region as at Farnham Castle in 1470-75. Indeed, a notable feature of the bricks found at Battle Abbey is the increasing proportion of over-fired and glazed types in the later phases of Period D and in Period E. Only 9% of the fragments from Dissolution debris in the reredorter area (Phases D21/22 and D30) were glazed, whereas glazed brick accounts for between 58% and 60% of the material attributed to later phases.

7.7 TRANSPORT OF BUILDING MATERIALS

7.7.1 Methods of distribution

Bulky low-value goods such as bricks and tiles would generally have been made as near as possible to where they were needed. The effect of distance on transport costs is well illustrated by the supply of tiles for the King's works at Banstead, Surrey in 1372-3. 10,500 tiles were obtained from 'Henry Tilere of Asshstede' at a cost of 4s 6d per thousand while 10,000 tiles were purchased from 'John Tilere of Reigate' for 4s per thousand.

Carriage was reckoned separately in Sybthorpe's Accounts:

'He reckons for money paid to one man carrying tiles from Reigate to Banstede for ten journeys, at 14d a journey, 11s 8d. And for carriage of tiles from Asshstede by different men in ten journeys at 8d a journey, among them 6s 8d'

(Lambert 1912, 1, 129).

Thus, for the tiles brought from Ashtead some 6.5 km. (4 miles) away, carriage amounted to 12.5% of the total cost of the tiles but for those obtained 10 km. (6 miles) away at Reigate, transport costs represented over 22% of the expenditure, because the tiles themselves were cheaper. The cost of carriage was evidently taken into account for the tiles from Reigate because, had they been sold at the same price as those from Ashtead, the proportion of expenditure on transport (c.13%) would have been similar.

There would always be a need to call upon distant commercial suppliers for large building campaigns, but the high costs of carriage would have encouraged the establishment of estate tileries such as those associated with religious houses in East Sussex (see Section 7.4). Sometimes, as in the case of tiles required at Guildford Castle, supplies could be obtained from a commercial tilery nearby (Salzman 1923, 124). The scale of medieval tile manufacture at Wye, Kent, however, implies that this industry served a wider market (see Section 9.4.4, no. 86). In 1719, tiles were said to have been sent 'into all the eastern parts of the County' (Dr Harris, cited by Morris 1842, 32) and in 1582 tiles used for repairs at Dover Castle were sent from Wye, some 27 km. (17 miles) away (VCH Kent 1932, 393). It is impossible to define the extent of regular trade, but estate connections probably account for the supply of tiles from Wye in 1381-2 to the Battle Abbey manor at Washenden (Biddenden, Kent) over 21 km. (13 miles) away (Battle

Abbey Accounts: J.N.Hare, pers. comm.). A journey of similar length in a northerly direction would have brought the Wye tile-makers to the workshop of rival craftsmen at Tyler Hill. The market for tiles in the area between Wye and Canterbury is therefore likely to have been shared by these two industries.

Like the extended distributions of decorated earthenwares, there can be little doubt that patterned floor tiles were probably sent further from their place of manufacture than plain roof tiles from the same source. Owing to the difficulties of characterisation, however, it is not possible to quantify this trend within the archaeological record. Nevertheless, it is important to recognise the likely imbalance of the evidence. As with the sale of pottery, middlemen are likely to have been involved in marketing the mass-produced tiles from industries such as Penn, Bucks. and perhaps Tyler Hill, Kent. This would offer a plausible explanation for the extensive distribution of tiles bearing these designs.

7.7.2 Documentary and archaeological evidence for the transport of building materials

In order to understand the distribution methods for ceramic building materials, it is instructive to compare and contrast the evidence for other materials used in medieval buildings. Principal documentary sources are the accounts of royal, monastic and seigneurial households. Maps illustrating the supply of materials for selected royal building works in South-East England during the reigns of Henry III and Henry VIII are shown on Fig. 7.16 and Figs. 7.17-18 respectively.

The choice of sources for medieval building materials would have been determined by their availability, by ownership or access to the resources, and by the costs of transport. For materials such as stone, metals and wood, availability would depend upon geology and natural resources. By contrast, however, few areas of South-East England are without access to clays which could be used for the manufacture of ceramic building materials (see Sections 1.3.2 and 13.1). Ownership was a less significant factor affecting the source of stone than it was for wood, which was obtained principally from royal forests (Figs. 7.16 and 7.17). A good deal of stone, however, would have come from the King's quarries, and prepared timber such as planks and shingles was purchased from craftsmen outside the royal household. A selection of the entries

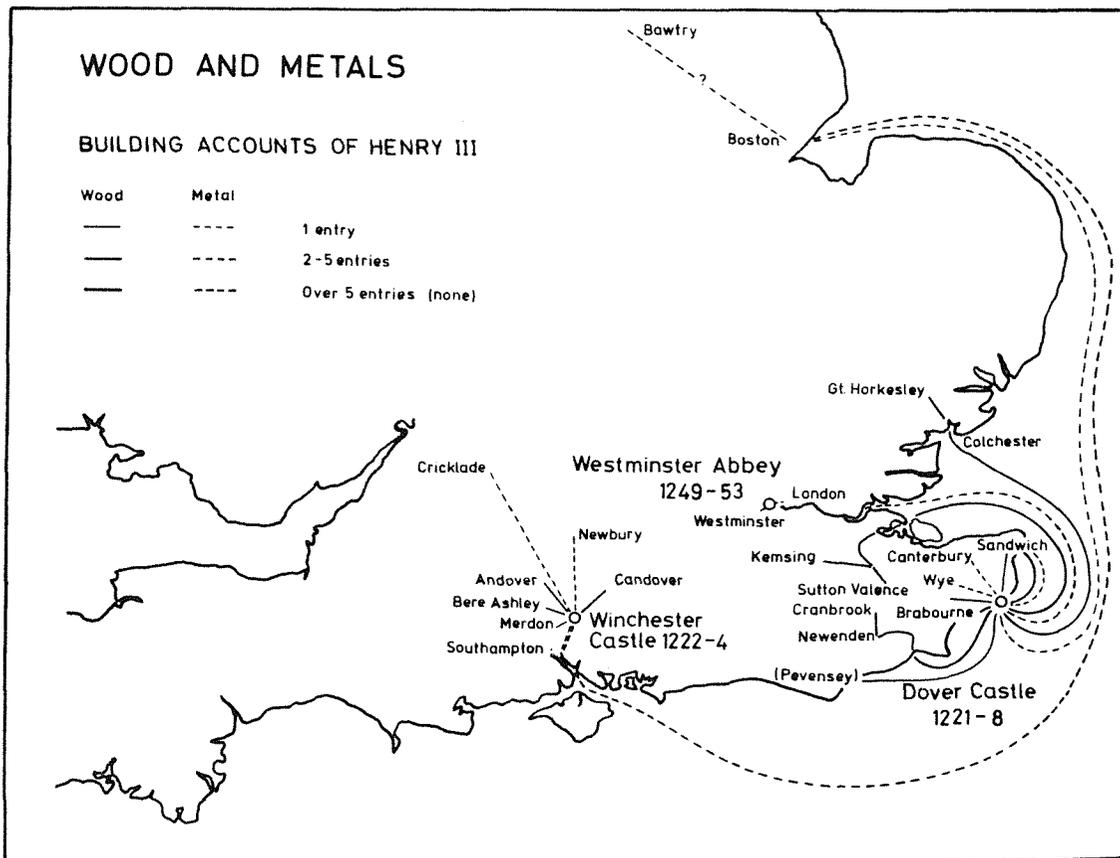
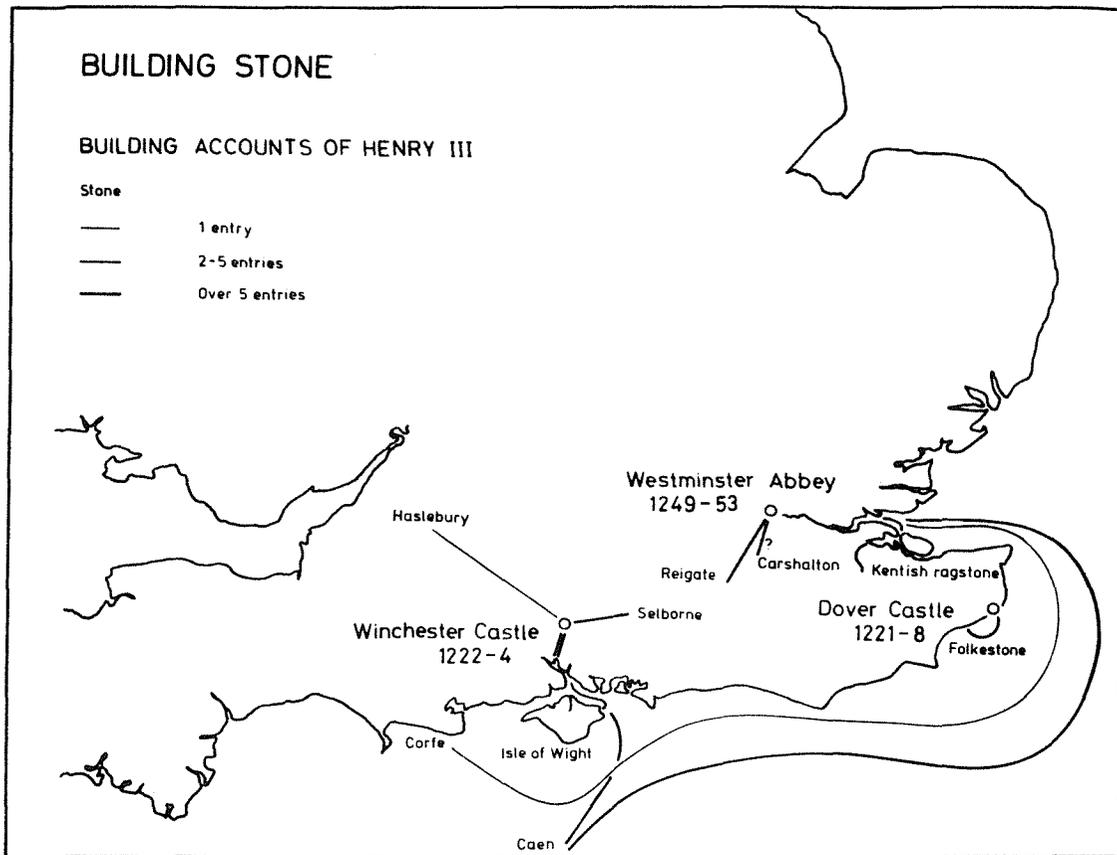


Fig. 7.16 Building Accounts of Henry III. Building stone; wood and metals

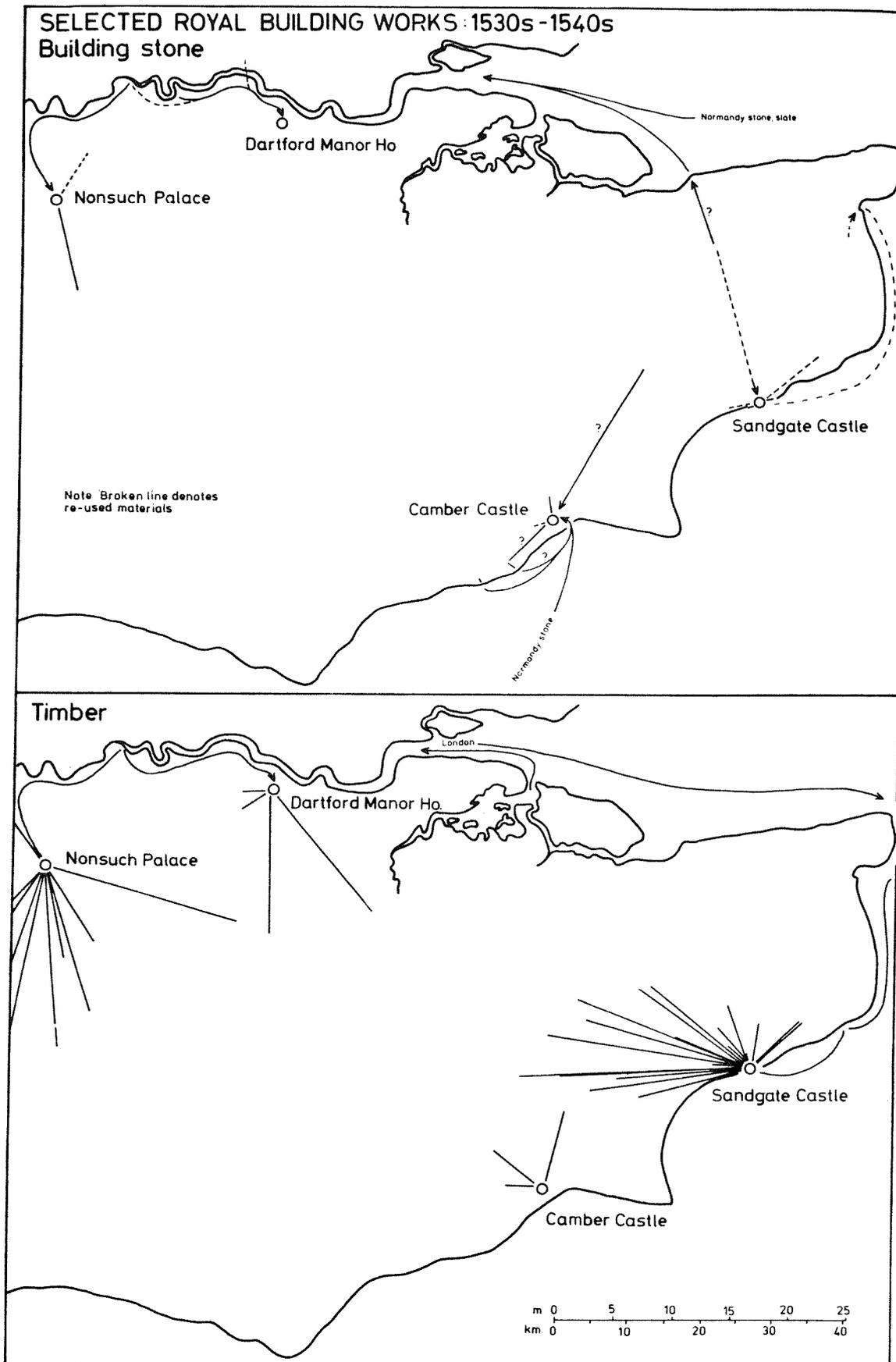


Fig. 7.17 Selected royal building works: 1530s and 1540s. Building stone; timber

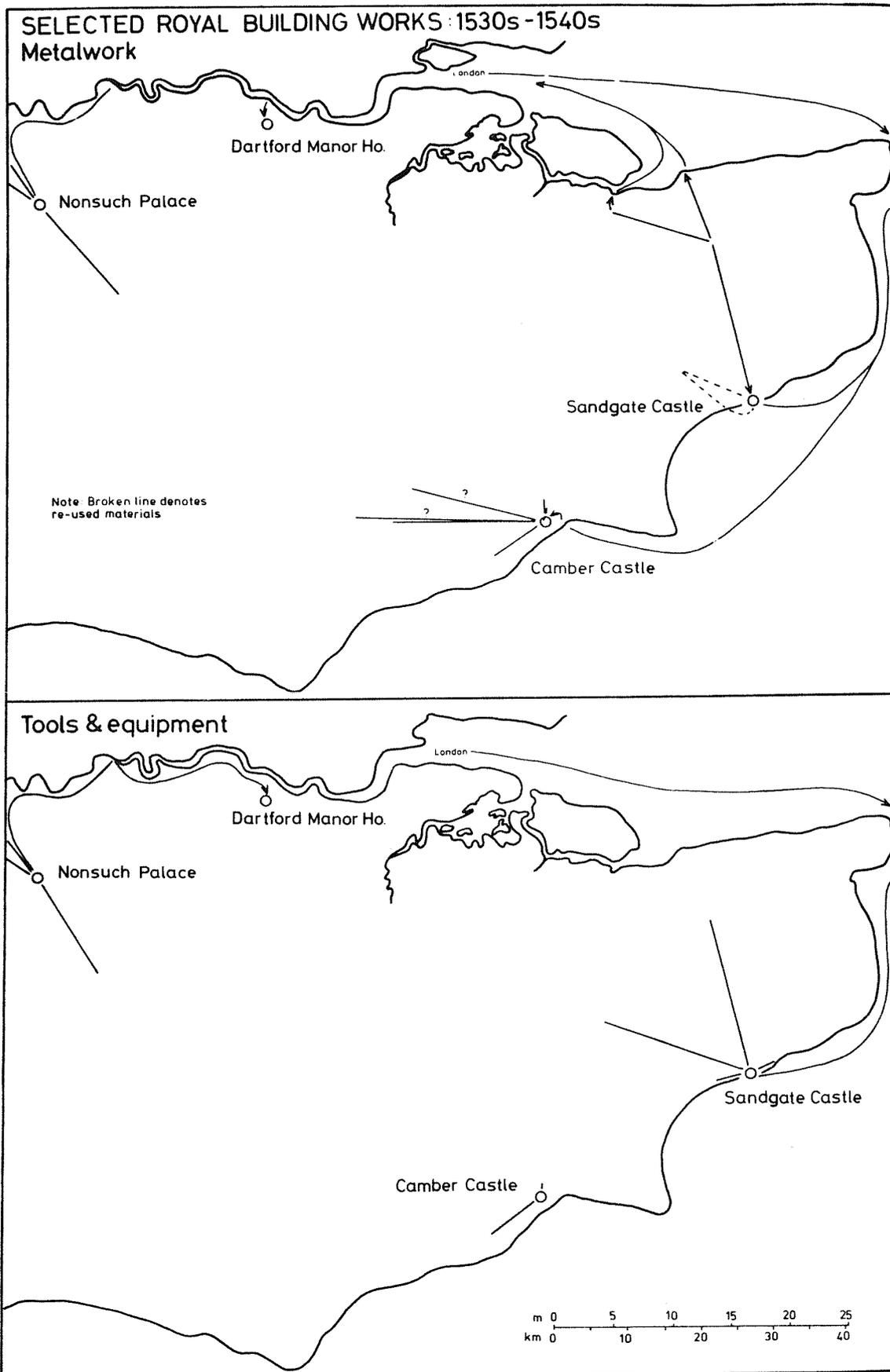


Fig. 7.18 Selected royal building works: 1530s and 1540s. Metalwork, tools and equipment

in the Building Accounts of Henry III (Colvin 1971) appears in Section 13.2 to illustrate these themes.

Generalisation from the royal building accounts of the thirteenth and sixteenth centuries offers a framework within which the distribution of ceramic building materials can be evaluated. Bricks and tiles were sometimes fired in temporary kilns on site, but the supply of ceramic building materials could be organised - as we have seen at Banstead - in a similar way to the stone obtained from commercial quarries or prepared timber purchased in the towns. Owing to the costs of transport, however, it is unlikely that bricks and tiles would have been obtained from further afield than timber and metalwork or tools and equipment. With the exception of items supplied from London, transport over distances of more than 25 km. (15 miles) is unusual for the materials used in royal building works in the region during the 1530s and 1540s (Figs. 7.17 and 7.18). This emphasizes the likely influence of middlemen on the extended distributions of medieval floor tiles which were transported considerably further than this.

Where recorded, the routes along which these materials were carried also offer an insight into contemporary communications. The methods of transport were sometimes mentioned specifically in the Building Accounts of Henry III. 100 tree-trunks from the royal forest of Kingswood in Essex, for example, were carried by boat to Dover in July 1222. Felled timber had been taken to the harbour outside Colchester during the preceding month (Colvin 1971, 21). The significance of water transport is illustrated by the journeys shown on Fig. 7.16. The building accounts also demonstrate the probable use of alternative routes either overland or by sea. In February 1221, for example, 32 great joists were loaded on a cart at Sandwich with the help of a carter (*ibid.*, 37), while other entries in the accounts refer to the carriage of timber from Sandwich by sea to the shore at Dover (*ibid.*, 43).

The transport of materials obtained inland is also of particular interest. Timber felled in the parks of Kemsing, Sutton and Brabourne was carried by water to Dover (*ibid.*, 25). A likely route for the wood from Kemsing and Sutton (Valence?) would have been via the River Medway from Maidstone. Likewise 20 tree-trunks from one of the archbishop's woods near Cranbrook were taken to the river at Newenden and thence to Dover (*ibid.*, 29). Medieval tiles are also likely to have been carried by water in the same way,

making use of navigable inland waterways wherever possible (see Section 1.4.6). Nevertheless, the organisation of royal building works cannot be regarded as typifying the supply of materials for parish churches and domestic buildings in Kentish villages. These generally undocumented movements are best studied from the material evidence of surviving medieval buildings.

The principal sources of medieval building stone in South-East England are shown on Fig. 7.19. Flint was abundant on the chalk lands, but freestone had to be imported to these areas. It would either have had to be carted overland or carried on inland waterways. By studying the distribution of building stones used in medieval churches, it is therefore possible to evaluate the significance of water transport in different parts of the region. Davey and Hodges (1983, 8) have stressed the need for more surveys of medieval building stones such as that published by Jope (1964) for Wessex. Settlement locations were seldom influenced by the intermittent requirement for building materials (Roberts 1977, 90); depending upon the availability of local stones, therefore, materials from some of the larger quarries such as Barnack, Northants. were transported over considerable distances for use in medieval churches and seigneurial buildings. The supply of good freestone would have been analogous to that of decorated floor tiles obtained from distant workshops. The cost would have been determined to a considerable extent by the ease of transport. Thus, the occurrence of these building materials reflects both geographical factors and the ability of the patron to pay for them.

As the number of surviving medieval churches attests, there is no shortage of potential data for evaluating regional trends in the distribution of medieval building stones (see Section 1.4.1). Pelham (1931, 176) illustrated the significance of water transport by mapping the occurrence of Caen stone from Normandy used in Sussex churches. A similar pattern exists in east Kent where, in the absence of local freestone, the flint walls of medieval churches are accompanied by Caen stone dressings. A more precise impression of the role of water transport, however, can be obtained by examining regional variations in the quality - as opposed to mere presence or absence - of medieval building stones.

A sample area of north-west Kent, centred on the Medway valley, has been selected for detailed study. Medieval parish churches in the survey area are shown on Fig. 7.20. At this stage

Fig. 7.19 South-East England. Principal sources of building stone

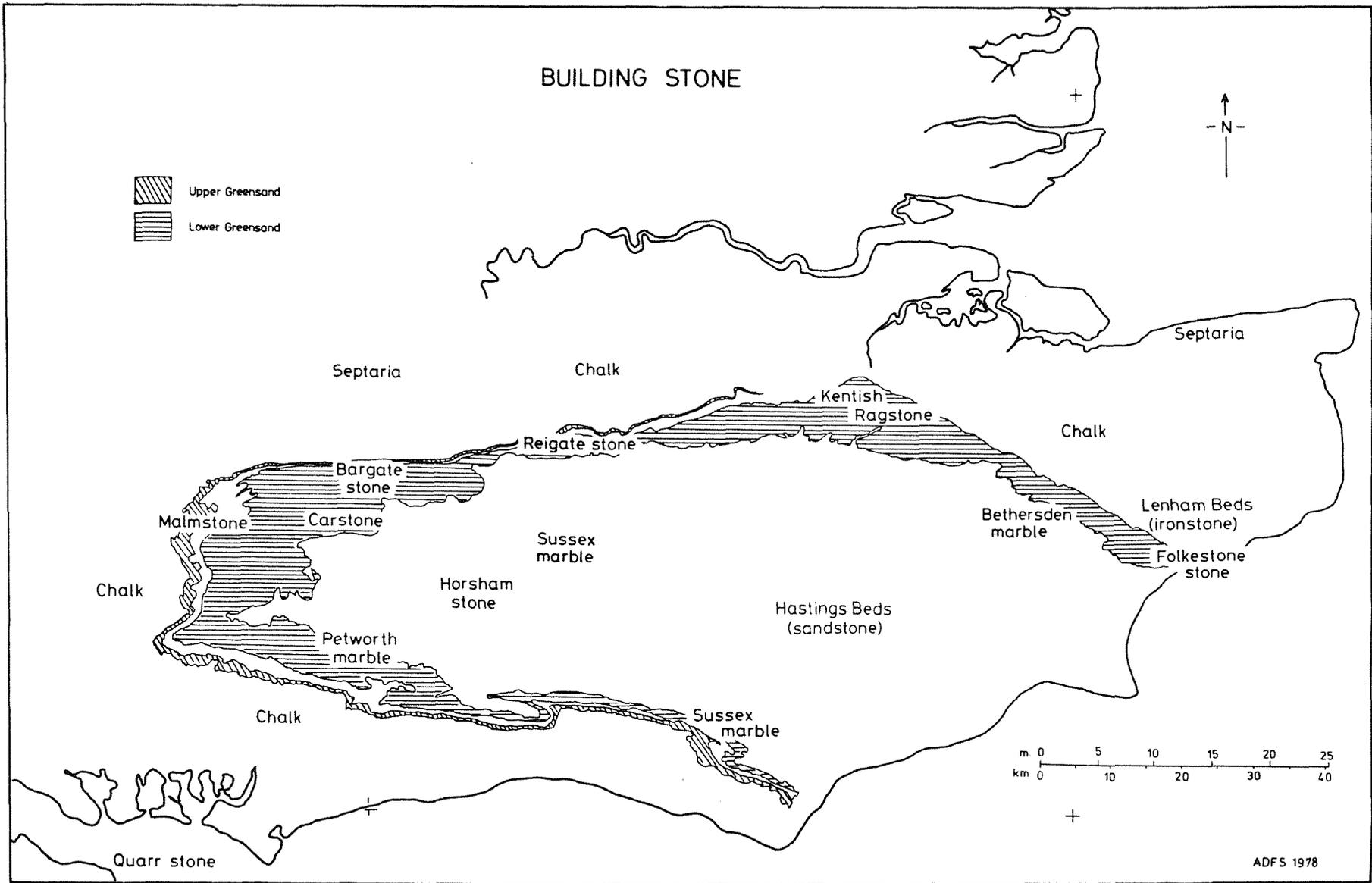
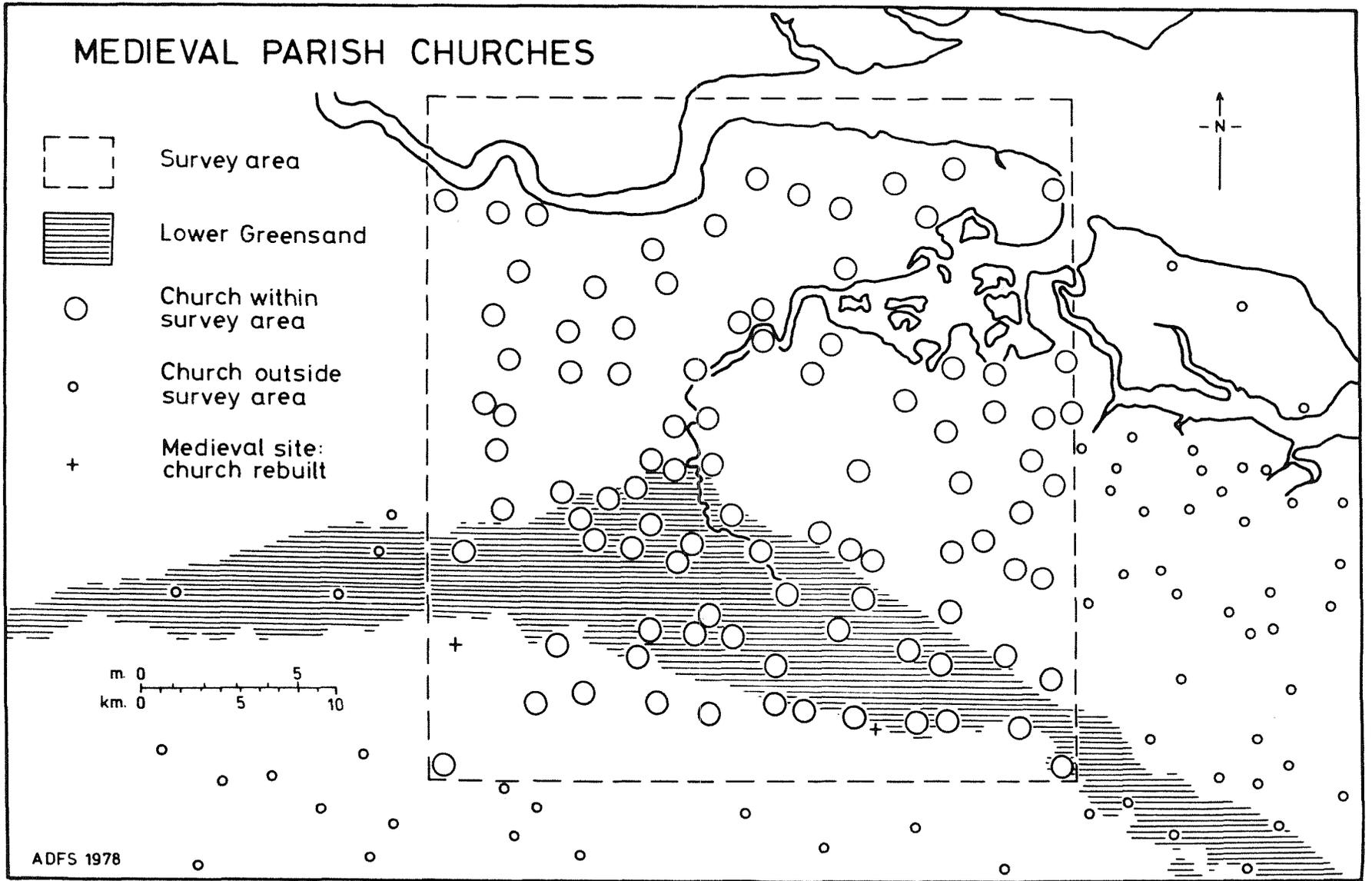
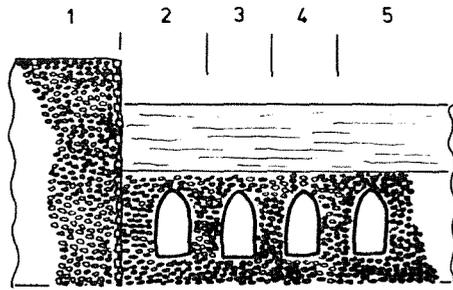


Fig. 7.20 Medway valley. Medieval parish churches in the survey area



BUILDING STONE: MEDIEVAL PARISH CHURCHES



- 1 Ragstone quoins etc, flint walls
- 2 Flint walls with sparse ragstone
- 3 Flint and ragstone walls
- 4 Flint/ragstone walls, patches of ragstone
- 5 Ragstone walls with sparse flint
- 6 Ragstone quoins etc and walls
- 7 Ragstone walls, some sandstone quoins etc
- 8 Sandstone quoins etc and walls

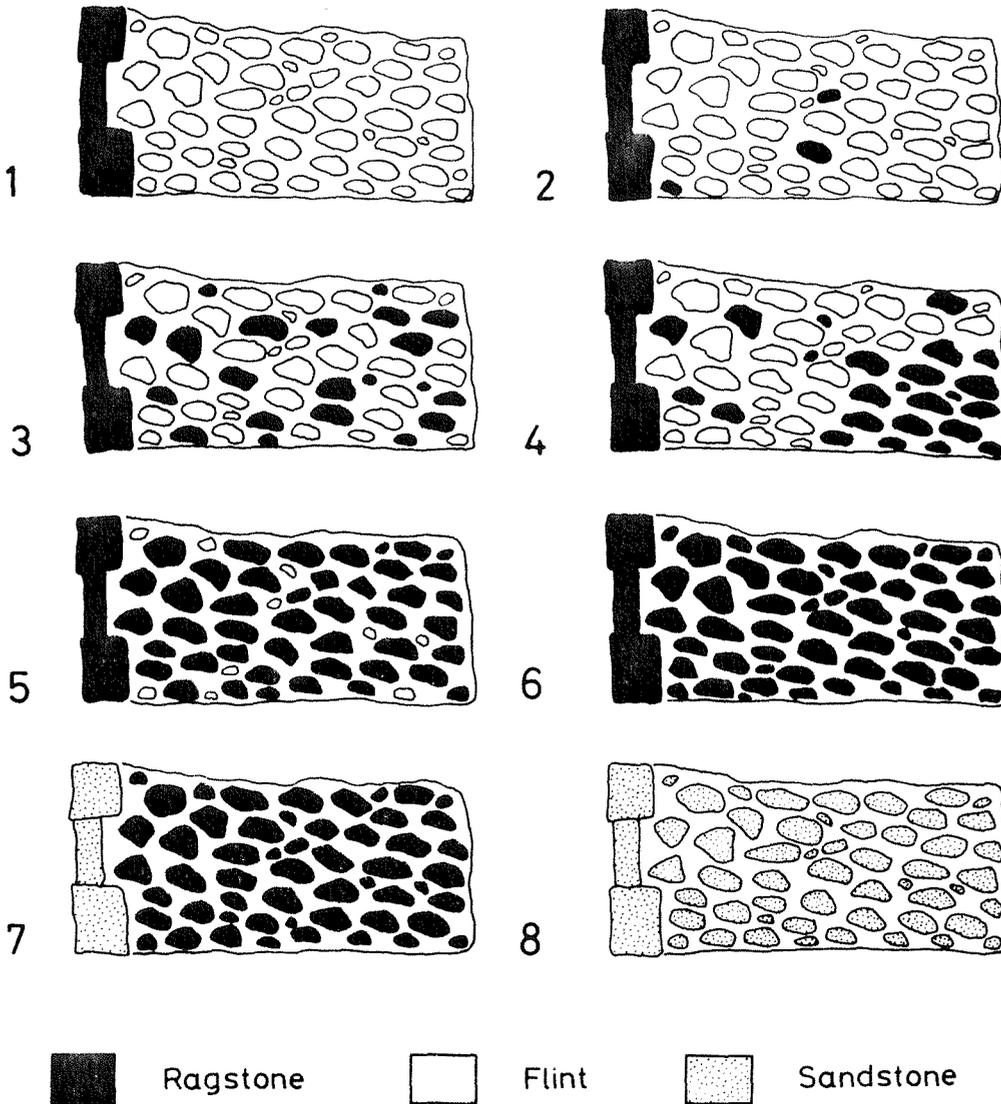


Fig. 7.21 Medway valley. Key to principal building stones used in medieval parish churches within the survey area

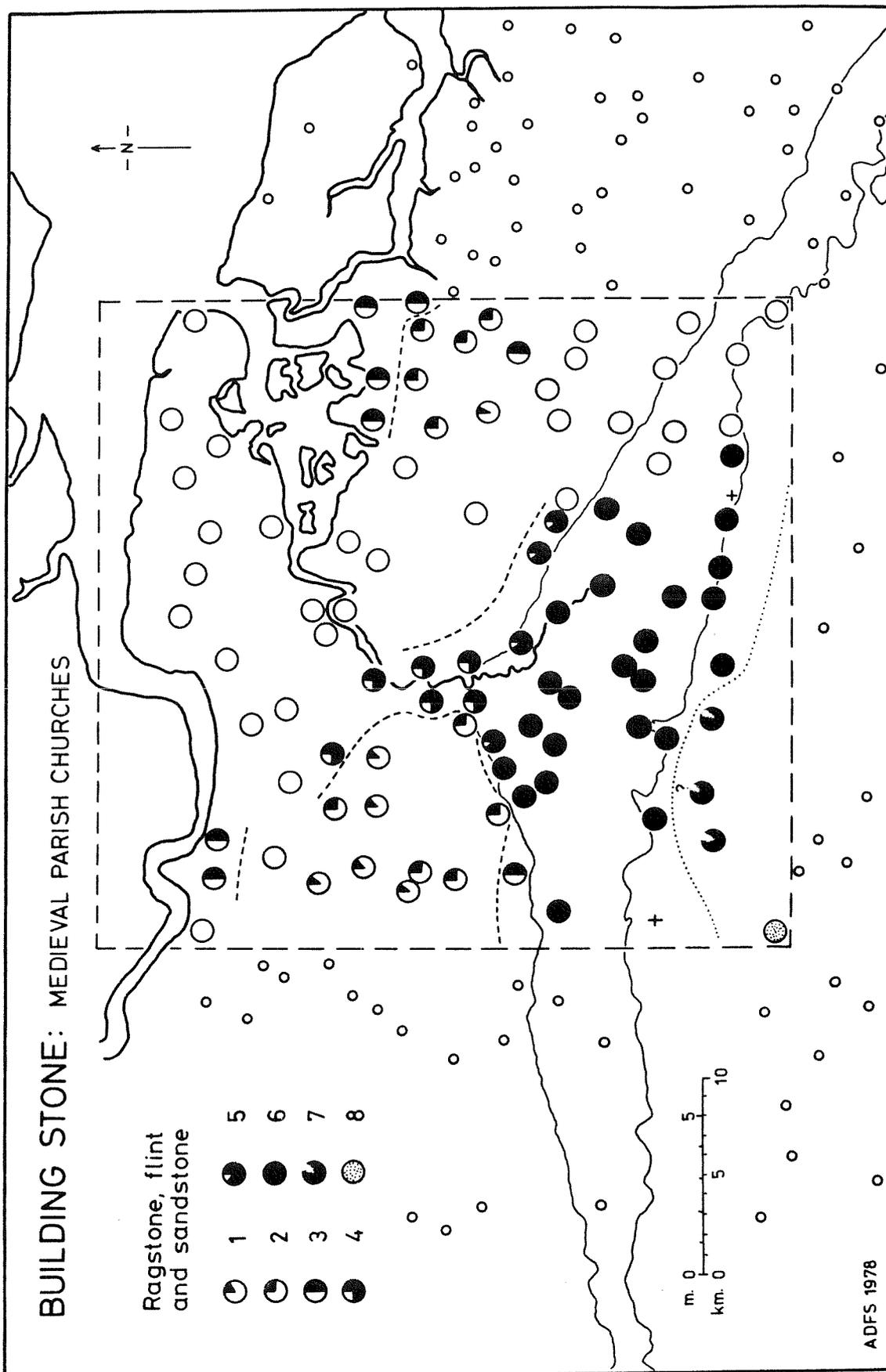


Fig. 7.22 Medway valley. Geographical variations in the proportion of different building stone used in medieval parish churches within the survey area

it is not possible to offer more than an interim report on the fieldwork which has been undertaken so far. Fig. 7.22 shows those churches which have been visited and for which assessments of the building materials have been made. The survey is intended to ascertain the extent to which building materials were transported outside the areas where they occur locally and to assess the effects of water transport along the River Medway. Owing to the replacement of many medieval roofs and especially their coverings, these have been excluded from the analysis.

For the purposes of quantification, the use of local building stones has been divided into eight categories, representing the proportion of different materials used both for walls and for the dressings (Fig. 7.21). Evaluation of each building is based upon an overall impression of the medieval fabric. The mapping of chronological trends has not therefore been attempted at this stage. Moreover, replacement of window tracery and dressings in the nineteenth century has precluded accurate assessment of some churches. Nevertheless, mapping of the data shows that a significant pattern has emerged (Fig. 7.22).

Where the underlying geology is Lower Greensand, medieval churches are built predominantly of the local material known as Kentish ragstone. Churches whose walls and dressings are of Kentish ragstone (6) appear as filled symbols on Fig. 7.22. Within about 2 km. ($1\frac{1}{2}$ miles) to the south of the Lower Greensand, however, superior sandstones of the Wealden series were used for dressings (7), while at Hadlow, in the south-west corner of the survey area, both walls and dressings are of sandstone (8). Flint and chalk are the dominant local materials to the north of the Lower Greensand outcrop. Chalk was unsuitable for exterior work and it was seldom used for interior dressings. Nearest to the Greensand, sparse flint appears in predominantly ragstone rubble walls (5); further away, the walls tend to contain either patches of ragstone (4) or a mixture of flint and ragstone rubble (3), but usually with dressings of ragstone blocks. Sparse fragments of ragstone occur in some predominantly flint walls (2) while in some churches the use of ragstone is confined to the dressings (1).

Results derived from completion of this survey in the southern and western part of the sample area show clearly the effect of water transport on the distribution of Kentish ragstone quarried in the Maidstone area. Churches near the river have a higher

proportion of ragstone than those on the chalk uplands where the use of ragstone is confined principally to dressings. Higher proportions of ragstone have also been noted at those churches which have been examined near the north Kent coast (Fig. 7.22). Evidence that distribution was related to the use of water transport is unequivocal and the zone in which Kentish ragstone occurs in greater quantities than might be anticipated from the underlying geology is defined by a broken line on Fig. 7.22. A dotted line denotes a similar division between the use of ragstone and sandstone dressings on the south side of the area.

The distribution of ceramic building materials would have been governed by similar constraints of water transport. The course of the River Medway is likely to have influenced not only the arrival of decorated floor tiles upstream from outside the area, but also the distribution of products from what were probably commercial tileries engaged in the manufacture of roof tiles near Addington and around Maidstone. Indeed, the decision to erect an apparently temporary tile kiln at Scotgrove, Hartley may have been determined by its situation roughly midway between the outcrops of London Clay to the north, the tileries in the Gault Clay vale to the south and access to water transport via the River Medway to the east.

When more sites have been excavated and once the date range of the tileries situated on the Gault Clay has been established, it would be interesting to ascertain whether the introduction of tiled roofs occurred later in areas which lacked suitable raw materials and which were poorly served by water transport.

7.7.3 Road and water transport

The use of water transport for ceramic building materials would usually necessitate double-handling of the goods: they had to be carried from the workshop to the boat or barge, then unloaded and carted to their destination. This is illustrated by an entry in the Robertsbridge Forge Book of 1555 which mentions payment for the carriage of 300 paving tiles 'that was left at the water syd ...' (Crossley 1975b, 159). There was, however, less risk of damage to the bricks and tiles than there was to fragile pottery (see Section 6.4.3). Water transport was probably preferable for the movement of ceramic building materials.

The 'Lewes group' of imported medieval floor tiles must have arrived by sea. This series of tiles was first recognised by

Lord Ponsonby who proposed the term 'Lewes group' on the basis of discoveries at Lewes, Poynings, Wilmington and Winchelsea; with outliers at Langdon Abbey (Kent) and further afield (Ponsonby 1934, 41). To these should be added two tiles from Horsted Keynes, one of the drawings of which was unfortunately published in reverse (Figg 1850, op.p. 239 (right), no. iii; Barbican House Museum, Lewes). More recent discoveries have come from Michelham Priory (Barton & Holden 1967, 10), and from as far west as Angmering (Bedwin 1975, 30-1) and Arundel (Evans 1969, 75-6). The extent of the known distribution is mapped on Fig. 7.23A and summarised on Fig. 7.23B. Eames (1980, 210) suggested the possibility of a French origin for these tiles, and, although the location of the tilery is not known, this suggestion has been confirmed by discoveries in France (Norton 1981, 109).

Compared with the marketing of imported pottery, it is more difficult to quantify the distribution of imported floor tiles which would have been sold and transported in batches. Nevertheless, they probably arrived at one of the principal ports and were then redistributed by coastal traffic. The extent of the distribution in Kent and Sussex, combined with the occurrence of an example on a domestic site at Old Place, Icklesham, suggests that Winchelsea may have been the port of entry. Imported tiles used on domestic sites are perhaps more likely to have been obtained locally than supplied as a specific order over some distance. However, the identification of Winchelsea as the port of entry as well as a point of redistribution remains entirely speculative. Nevertheless, significant quantities of imported pottery have now been recognised at Winchelsea, and it is instructive to compare the distribution of Lewes group floor tiles with the occurrence of decorated Rye jugs at coastal markets to the west of the kilns.

Compared with the distribution of medieval pottery, it is surprising to note the penetration of imported tiles as far inland as Horsted Keynes in the Weald. Nevertheless, many examples of what appear to be typical plain late medieval floor tiles from the Low Countries have been found at Bayham Abbey (Horton 1983, 82). The possibility of local production, possibly by migrant craftsmen using similar techniques to those in the Low Countries cannot be ruled out, especially in view of indigenous production recognised at Radwinter, Essex (Webster & Cherry 1980, 262) and the small output of plain floor tiles identified at Cheam (see Section 7.5.3).

Fig. 7.23A Distribution of 'Lewes group' imported medieval floor tiles

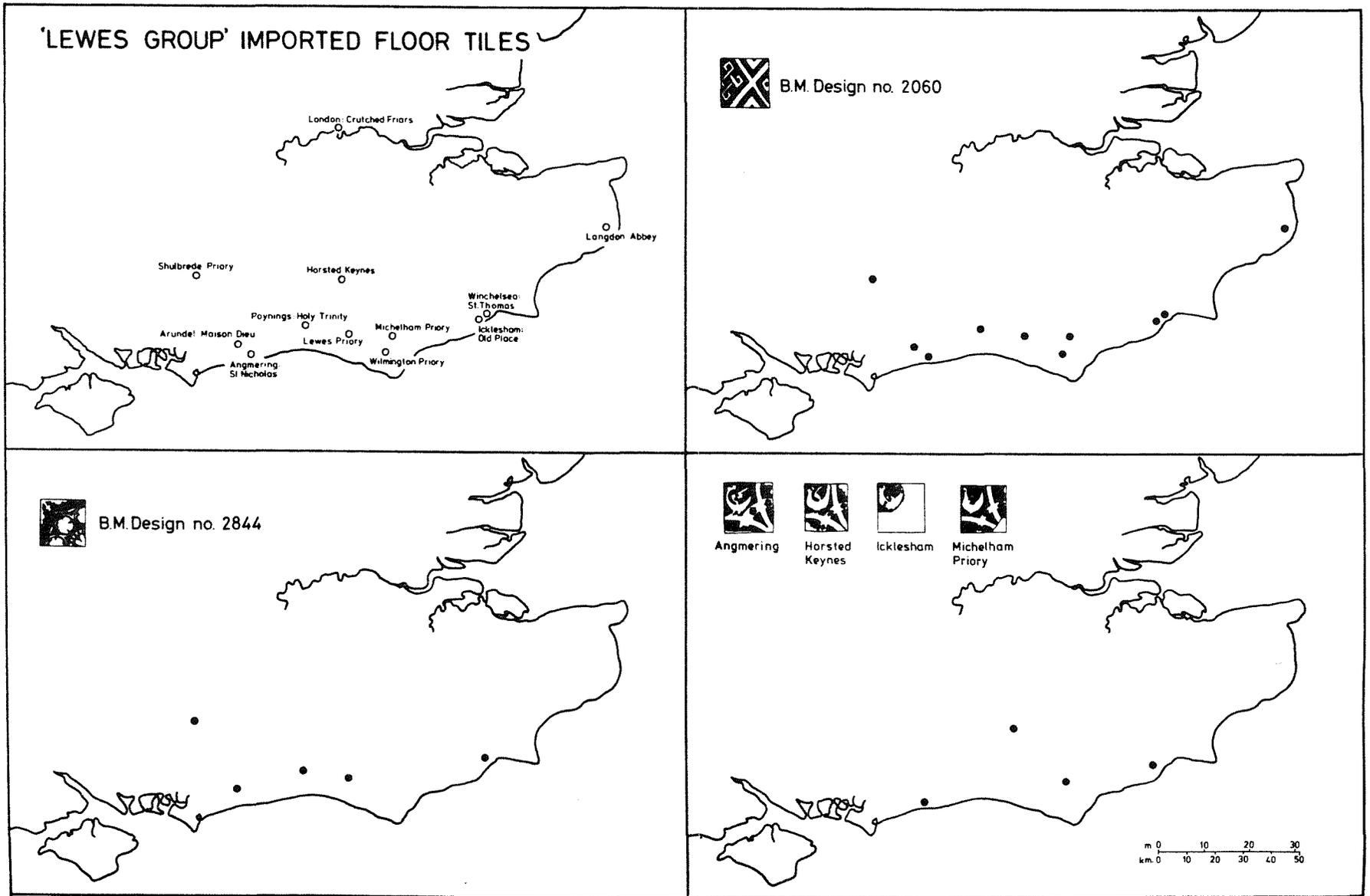


Fig. 7.23B Summary of published 'Lewes group' imported medieval floor tiles

'LEWES GROUP' IMPORTED MEDIEVAL FLOOR TILES

Site	N.G.R.	Publication	Museum
St. Nicholas' Church, ANGMERING	TQ 068 044	Bedwin 1975, 31	Worthing Mus.
Maison Dieu, ARUNDEL	TQ 020 071	Evans 1969, 75	Worthing Mus.
HORSTED KEYNES		Figg 1850, opp. 238, nos. iii and iv	Barbican House Mus., Lewes
Old Place, ICKLESHAM	TQ 881 168	Vahey 1982, 10-11	Hastings Area Archaeol. Res. Group
LANGDON ABBEY	TR 32 46	Ponsonby 1934, 58	Victoria & Albert Mus.
LEWES PRIORY	TQ 41 10	Eames 1980, 728, Cat. Nos. 11, 266-74	British Mus.
Crutched Friars, LONDON	TQ 32 81	Medieval Catalogue 1940, 247, no. 66	Museum of London
City of LONDON	TQ 32 81	Eames 1980, 210	Langley Mus., Southwark
MICHELHAM PRIORY	TQ 55 09	Barton & Holden 1967, 10-11	Michelham Priory
Holy Trinity Church, POYNINGS		Ponsonby 1934, 58	?
		Eames 1980, 728, Cat no. 11, 353	British Mus.
SHULBREDE PRIORY	SU 88 29	Ponsonby 1934, 58-59	?
WILMINGTON PRIORY	TQ 54 04	Ponsonby 1934, 58	?
St. Thomas' Church, WINCHELSEA	TQ 90 17	Cooper 1850, 127	?
WINCHELSEA	TQ 90 17	Eames 1980, 728, Cat. nos. 13, 460-63	British Mus.

(Other examples from Eynsham Abbey and St. Mary's Abbey, York)

However, analysis has demonstrated close similarities between the fabric of late medieval plain floor tiles at Battle Abbey and examples analysed by D.F. Williams from as far west as Beaulieu Abbey, Hants. The details and implications of these identifications are considered more fully in Section 7.6, but the evidence certainly implies an extensive coastal distribution. Nail holes are generally assumed to be distinctive of the imported tiles, but discoveries of identical slip-decorated tiles both with and without nail holes, at Battle Abbey and Rye respectively, may necessitate revision of this assumption. Like the problem of distinguishing between local and imported earthenwares, a more extensive programme of textural analysis might assist with the identification of plain floor tiles. Even though it may be impossible to distinguish clay sources, comparisons between the tiles themselves would provide a means of defining the groups objectively. Sources of manufacture might then be inferred from their distribution and from comparative analyses of tiles from the Low Countries.

7.7.4 Tyler Hill: a case study in the distribution of pottery and ceramic building materials

Comparison between the distribution of pottery and slip-decorated floor tiles made at Tyler Hill shows that the latter occur in parts of Kent where pottery was obtained from different sources (Fig. 7.24). This emphasizes the different methods of distribution. Earthenwares were intended for domestic use and would have been sold through markets and perhaps by middlemen or itinerant salesmen, whereas batches of floor tiles were supplied to meet specific requirements for a class of building material which was made at fewer centres.

Middlemen are likely to have been involved in the distribution of both pottery and tiles, but the archaeological evidence of find-spots suggests that water transport was used more extensively for the latter than the former. There is no indication that floor tiles were made at Nackholt, near Wye. Moreover, slip-decorated Tyler Hill floor tiles were evidently supplied to areas where roof tiles could be obtained from the nearer source at Wye. Like the assessment of competition between the Potters Corner workshop and the potteries at Tyler Hill, however, definitive interpretation is hindered by imprecise chronology. Roof tiles were being made at Wye at least from the 1330s and there is no clear

indication that production of slip-decorated floor tiles had ceased by this date. It is salutary to note, however, that even the simplest of geographical comparisons must rely upon what remains a tantalisingly inconclusive chronology.

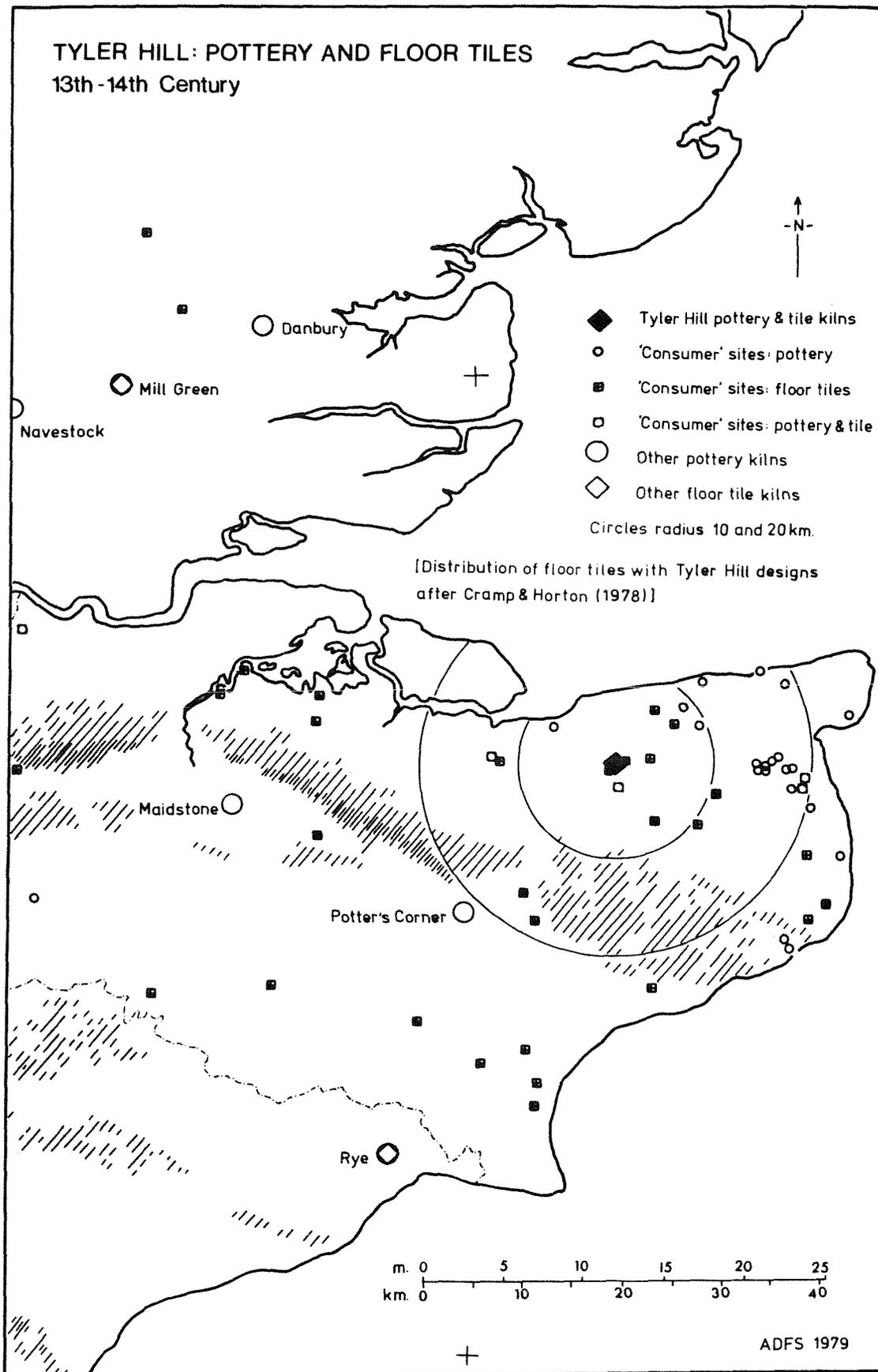


Fig. 7.24 Tyler Hill. Distribution of pottery and floor tiles: a comparison

8. CONCLUSION

8 CONCLUSION

8.1 ARCHAEOLOGICAL EVIDENCE FOR CHANGES IN DEMAND, HABIT AND TASTE

Few medieval pots found on excavations show signs of having been repaired. Repairs would have been impractical and seldom worthwhile for a comparatively cheap commodity. Although the life of a pot would vary according to its use and perhaps even according to the whim of its owner, most pottery was probably discarded by the generation who had purchased it (Le Patourel 1976, 169). Within the limitations of interpreting the archaeological record, pottery finds can therefore be regarded as a fairly reliable indication of demand for this commodity at a given period.

The content of a ceramic assemblage, however, also reflects its origin within the household. In theory - and sometimes in practice within urban rubbish pits - it is possible to distinguish deposits comprising predominantly table wares or culinary vessels. Trends in the demand for pottery and its use by a monastic community are illustrated by the ceramic sequence at Battle Abbey (see Section 4.3.2). The range of forms represented in each phase reflects the general trends observed from study of the fabrics. The medieval repertoire is largely confined to cooking utensils and jugs, but the later hard-fired earthenwares include a variety of new forms. Fig. 8.1 shows the occurrence of vessel types in each phase. Some forms have been identified from a single distinctive sherd, but identification of others is based upon larger rim fragments. No attempt has therefore been made to assess the number of vessels represented, but residual medieval wares have been excluded from the tabulation for Periods D and E.

Vessels such as the Saintonge polychrome jug or the fine green-glazed jugs from Rye would have served as table wares. For the later period, it is known from contemporary illustrations and from documentary evidence that Raeren stoneware tankards were used for drinking. Costrels would probably have been carried by travellers as depicted on an early sixteenth-century tapestry from Brussels, hanging in the Nether Gallery at Penshurst Place, Kent. Vessels whose forms suggest that they were used for the preparation or storage of food and drink predominate at Battle even among the large group of pottery discarded at the Dissolution. This implies

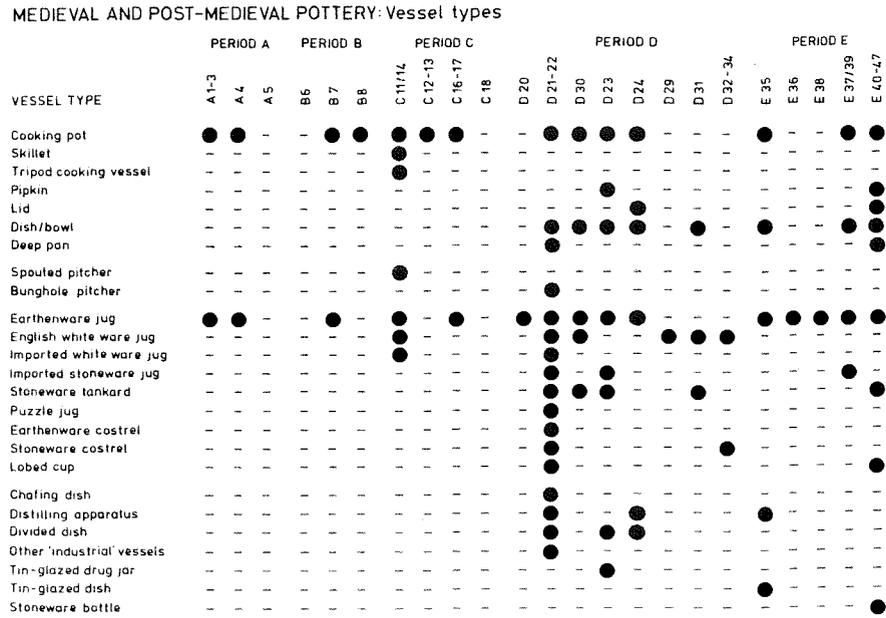


Fig. 8.1 Battle Abbey. Chart showing the range of vessel forms represented at different periods before and after the Dissolution

that at least some of the material was derived from one of the monastic kitchens.

The same assemblage also includes distilling apparatus. Distillation would have been required in medicinal preparations, but this apparatus could also have been used for distilling alcohol or even in the practice of alchemy (Greenaway 1972, 83-88). A small jar, probably for mercury, was found in the same deposit (Phase D22) as the distilling apparatus, and a similar association has been noted at Bayham Abbey (Streeten 1983, 103 fig. 43 nos. 52 and 53). Mercury was among the alchemical materials used during the early sixteenth century (Holmyard 1956, 732; 747) and, assuming that the function of these jars has been identified correctly, an association with alchemy seems probable. As at Battle, finds from Selborne Priory, Hants. also included a pottery costrel or flask in a group of ceramics containing vessels which were probably associated with distilling (Moorhouse 1972, 98-101). It is possible, therefore, that these costrels were used not by travellers but in connection with the distillation of liquids. Battle may now be added to the growing list of sites where distilling apparatus has been found near a monastic reredorter, but there is no clear indication from which part of the abbey the debris was derived. An origin somewhere in the east range or the infirmary would be logical, but such a large number and variety of vessels as those found at Battle must surely have come from several different rooms.

In the absence of inventories, interpretation relies upon inference from the archaeological evidence. Among the later post-medieval pottery at Battle, for example, some of the table wares such as Westerwald stonewares were probably discarded as rubbish from residential accommodation in the west range. The deep pans and bowls of Sussex earthenware could have been used in outbuildings attached to the former dormitory and reredorter. At Ashburnham, on the other hand, a mid-seventeenth-century inventory provides a useful insight into the location of ceramics within the house, as well as indicating the range of exotic imports which had been acquired (see Section 6.7). Relevant entries in the inventory are as follows:

'In My Ladyes Chamber:

1 large Earthen jar. 2 small china jarrs with couers one of them broken. 1 large bason and Elephant tooth tipped round and footed with silver gilt and 2 small china dishes.

2 small pieces of Dutch and Portugail Earthenware.

In the Long Gallery:

4 large Jarrs of China. 2 paire of large earthen
Candlesticke. 2 flour potts. 2 bottles. 1 large bason.
10 small basons. 19 small pots some broken, some whole and
all of china' (ESRO: Ashburnham 2759).

Farmhouse inventories such as those in Essex transcribed by Steer (1969) offer similar information about the presence of earthenwares in dairies and in other parts of the house.

Even without the benefit of documentation, the function of some earthenwares can be related to household practices. The form of the hearth, for example, is reflected in the use of curfews and cooking vessels. Most curfews are of the typical round variety suitable for an open hearth (Hurst 1964). Moorhouse (1983c, 102-3), however, has recognised a distinctive type of semi-circular fire-cover which would have been intended for a wall-hearth. One of the three examples known so far has been found at Tyler Hill, Kent, but the other supposed round ones may in fact belong to this type (ibid., 104). The identification of semi-circular curfews on excavations could assist with the interpretation of heating arrangements in medieval buildings, but more significant is the implication that this type of curfew was produced for a specific class of customer who possessed a wall-hearth in his house. Urban demand from Canterbury may account for the output of this form at Tyler Hill. Nevertheless, the concave wall-hearth on the north side of William de Warenne's eleventh-century country house at Castle Acre, Norfolk (Coad & Streeten 1982, 153-5) serves as a reminder that the use of round curfews would not necessarily have been confined to an open hearth. Examples of these typical round medieval curfews occur on a wide variety of sites, and their use does not appear to have had any social significance (Le Patourel 1976, 178). At Norwich in the seventeenth century, however, it has been suggested that the arrival of fire-covers made of North Holland slipware may coincide with the introduction of sea coal used as a fuel in the city during the 1630s (Jennings et al. 1981, 94).

Like curfews, there is no evidence for a social distinction in the use of medieval culinary wares, although the nature of the hearth would probably have affected the type of vessel which was used. The round- or sagging- based cooking pot, for example, could be placed in the embers of a fire, whereas the tripod cauldron or

its eventual successor, the pipkin, were presumably intended to stand on a level surface. Clearly the length of the legs was related to the source of heat for which the pots were intended. On the basis of their estimated weight when full, it is unlikely that large medieval earthenware cooking pots were suspended over a fire (Barker 1970, 44). Holes in the rim of a fourteenth-century 'cooking' pot in Chichester Museum (1742) were therefore probably used for attaching a lid - possibly of wood, leather or even parchment (Moorhouse 1978a, 14) - rather than for hanging the vessel over a flame. Holes in pottery lids found at King John's hunting lodge at Writtle, Essex offer corroborative evidence for the attachment of lids to containers, although it must be acknowledged that the holes could have been for steam to escape during cooking (Rahtz 1969, 109 no. 7). Dripping dishes were intended for use beneath a spit, and their flat bases imply that, like the tripod cauldron, they too were placed on a level surface. These dishes were made from the late thirteenth century onwards and remained in the repertoire of the potter until they were superseded in the seventeenth century by rectangular baking trays.

Similar connections can be inferred between pottery forms and other household practices. The presence of medieval storage jars, such as those from South-East England illustrated by Andrews and Dunning (1939, 308-10), can be equated with the apparent lack of storage pits found in excavations (Hinton 1977a, 191). Likewise, the introduction of pottery money-boxes probably reflects trends in the circulation of currency. An early money-box dating from the thirteenth or, to judge from its fabric, more probably from the fourteenth century has been found at Canterbury (Millard 1968a) and this form is represented in London during the thirteenth century. Later examples occur among the output of the Hampshire/Surrey border potteries (Holling 1971a, 80 fig. 5) and typical forms are represented by finds of the late fifteenth and sixteenth centuries from Oxford (Ashmolean Museum: 1887.3035; M177; 1909.1177). Ink-pots offer another instance where ceramics reflect broader trends within medieval and later society. Monastic use is attested by a medieval inkstand found at Byland Abbey (Dunning 1961c) but the sixteenth-century ink-pots made in the Hampshire/Surrey border area reflect the more general practice of writing at this later period (Matthews & Green 1969, 16). Urinals, too, were confined originally to monastic communities but became used more widely during the

fifteenth century (Le Patourel 1976, 178). Insights into contemporary habits are offered by the use of perfume pots such as the example in Tudor Green ware found at Portchester Castle (Cunliffe 1977, 184-5 no. 387). During the seventeenth century these vessels were sometimes used in the superstitious belief that a pot-pourri would ward off the plague. Vases of flowers would also have been enjoyed for their scent and colour. Some pots without handles may have been made specifically as flower vases, and it can be inferred from the discovery of South Netherlands Majolica vases on domestic sites that these are also likely to have been used for flowers (Hurst 1970, 362). Other curiosities of the archaeological record include the vessel found at Beddington which has been identified by Orton (1984) as a hanging garden.

The late fifteenth/early sixteenth century was a significant period of innovation among the output of the Hampshire/Surrey border potteries. Indeed, there were only minor additions to the repertoire during the seventeenth century. Of particular interest at an earlier period, however, is the emergence of bunghole pitchers during the fourteenth century. Marshall (1924, 93) drew attention to their likely use for the storage of liquids which were prone to developing a sediment. Considering the possible uses for medieval jugs, Dunning (1945a, 235) suggested 'wine, cider or - poor third - beer'. The latter brewed with hops produces a sediment and is more likely to have been stored in bunghole pitchers than in jugs. There are several references to the drinking of beer during the fourteenth century (Evan-Thomas 1932, 32) and the archaeological record probably therefore reflects an increase in the consumption of beer during the later middle ages. Moreover, Orton (1982a, 80-1) has drawn attention to the apparent correlation between the occurrence of bunghole pitchers and pottery drinking vessels. Both were manufactured in the region, but imported drinking vessels were arriving in increasing quantities from the second half of the fourteenth century onwards. Indeed, as Le Patourel (1983, 35) has suggested:

'It may be that the Dutch carrying trade, making available ample supplies of Siegburg, Raeren and Langerwehe pots did much to alter the drinking habits of the English as did the hops that so frequently entered the country on the same ships'.

The use of pottery, however, must be considered in relation to other

materials such as wood (see Section 6.4.5). The rising price of wooden drinking vessels may have encouraged competition from the potters and an increase in their share of the market does not itself constitute positive evidence for a change in drinking habits.

The examples selected here to demonstrate the contribution of medieval ceramics to the study of social history show that the archaeological record should not be interpreted in isolation. Nevertheless, ceramic evidence is capable of more than mere illustration of historical themes. Having established the significance of certain vessel forms, accurate quantification would help to elucidate both geographical and chronological trends. We are only now beginning to overcome the problems of recognition and characterisation. Future ceramic research in the region should therefore be directed towards the comparison of pottery distributions based upon vessel types and their occurrence on monastic, seigneurial and domestic sites, both in towns and in the countryside.

8.2 POTTERY PRODUCTION AND DISTRIBUTION: A NATIONAL PERSPECTIVE

A reliable ceramic chronology is required in order to understand the development of pottery production and distribution. As we have seen (Section 4.2) the output of manufacturing centres can be dated either by the recognition of marketed vessels in stratified contexts or by dating of the wasters themselves on the basis of typology or their association with kilns for which absolute dates have been obtained by scientific analysis. Both methods have been applied in South-East England, but progress with the dating of different wares has been hampered by the practical difficulties of characterising sand-tempered ceramics, combined hitherto with a lack of large published and quantified sequences from towns other than London.

In an area where flint-, shell- and sand-tempered pottery predominates before the thirteenth century, the output of individual centres cannot be recognised with sufficient accuracy to estimate the number of workshops supplying the region. For the thirteenth and fourteenth centuries, however, archaeological, documentary and place-name evidence attests a high density of production centres, especially on the fringes of the Weald. Few of the known potting villages and hamlets in the region acquired a potter- prefix to their names. Moreover, Fig. 8.2 shows that an association between village/hamlet names and pottery manufacture has been confirmed by archaeological or documentary evidence at more sites in the Home Counties to the north of London than in the area south of the Thames. Sites marked on the map are identified on Fig. 9.122. Nevertheless, the evaluation of minor place-names and field-names in the counties of Kent, Surrey and Sussex has yielded several examples where there is a likely association with pottery manufacture. Comparison of the data discussed in Section 2.4.5 with the few village and hamlet names mapped on Fig. 8.2 demonstrates the need to apply this type of study to other regions. The potential of place-name evidence is well illustrated by a comparable study published for the historic county of Warwickshire (Clarke 1963-4). The evidence is mapped here (Fig. 8.3) in order to compare the density of names with those in South-East England.

Evidence which is accumulating from excavations and from regional surveys highlights contrasting patterns of ceramic development, repertoire and organisation in different parts of the

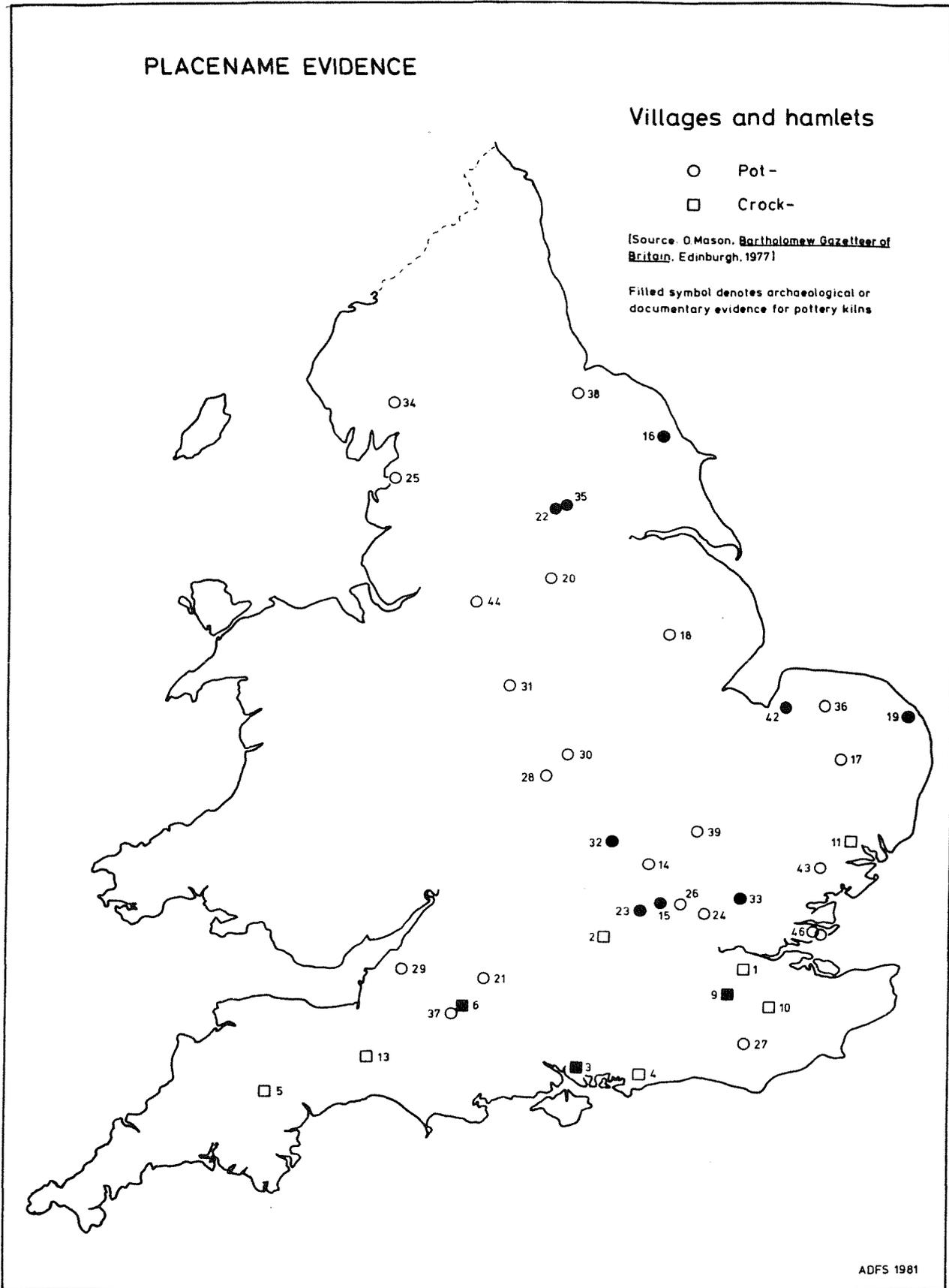


Fig. 8.2 Place-name evidence for pottery manufacture

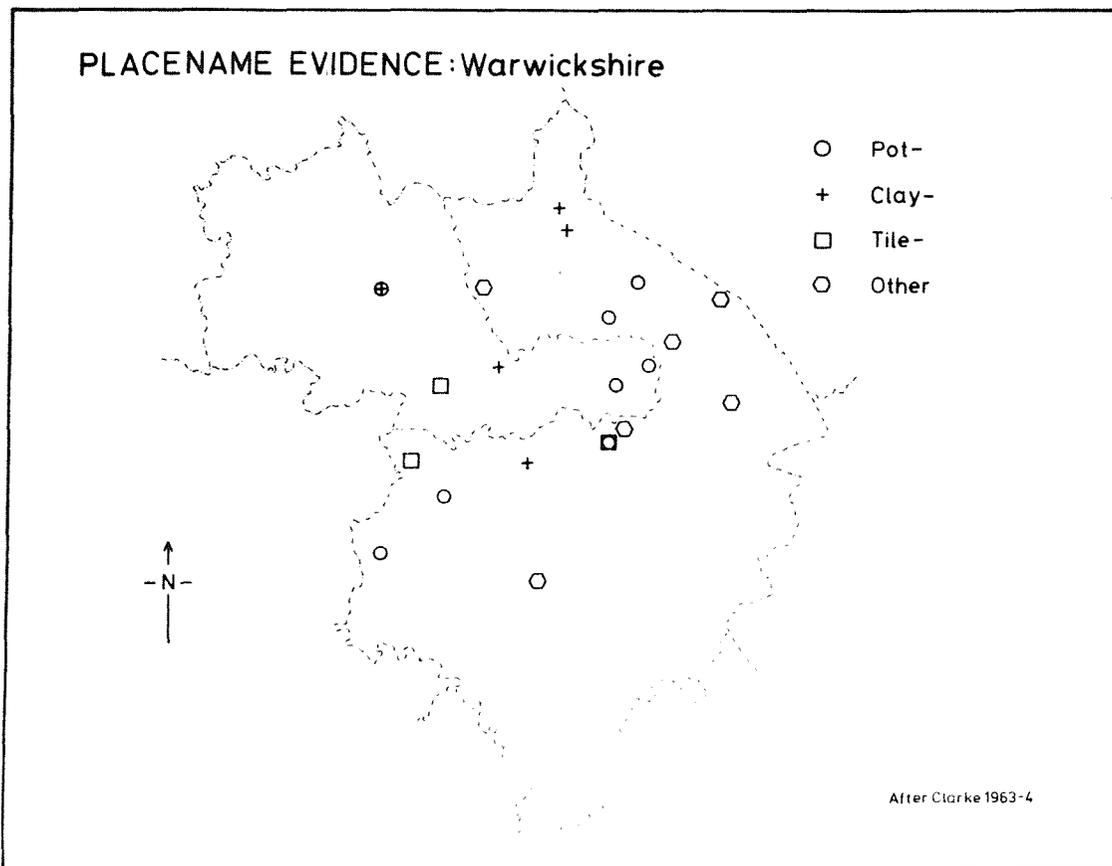
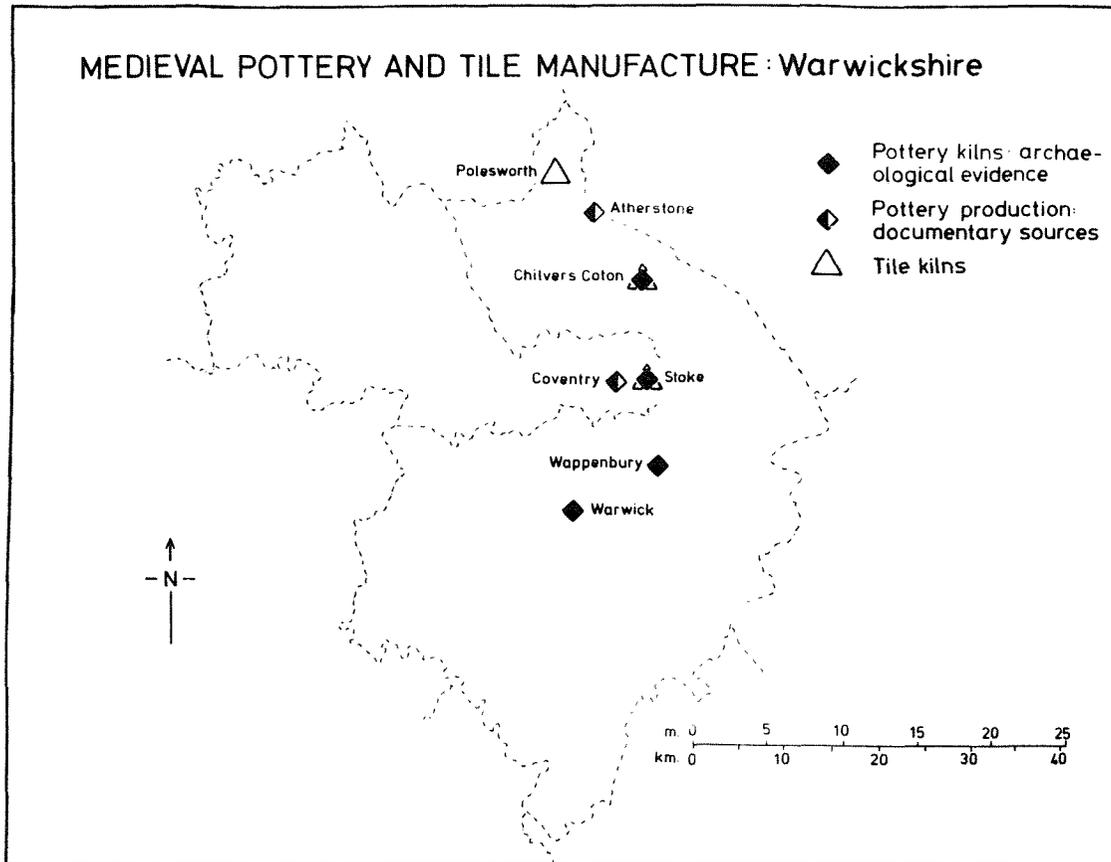


Fig. 8.3 Warwickshire. Documentary and place-name evidence for the manufacture of pottery and tiles.

country. Maps on Figs. 8.4-11 have been prepared in order to place in a national context the conclusions drawn from the study of medieval and later ceramics in South-East England. It should be stressed, however, that the information which is summarised in Section 9.2.2 is based principally on published sources. During a period of such rapid progress in the study of production centres and their output it has not been possible to take account of all the most recent research. The chronology of the industries, for example, is derived from assessments accompanying published reports on the kiln sites; these do not therefore include new evidence arising from the study of ceramic sequences in the hinterlands of the kilns. Within these limitations, however, comparison shows that while some of the trends in production and distribution noted in South-East England can be paralleled outside the region others are different from those in, for example, East Anglia, the West Midlands and South-West England.

Although clamp kilns have been found at Chichester, and although marketed pottery recovered at other towns in the region attests the supply of culinary vessels to the principal urban centres in South-East England during the eleventh and early twelfth centuries, there is a marked contrast with East Anglia and the Midlands at this period (Fig. 8.4). Unlike the Midland industries, evidence is tenuous for the adoption of glazes before c.1100. The earliest post-Conquest use so far noted in the region is at Canterbury at about this time when glaze was applied to spouted pitchers, many of them bearing rouletted decoration (Macpherson-Grant 1981b, 2-9).

The inspiration for the typical collared rims on some of these wares may have come either directly or indirectly from the Low Countries. The forms certainly set these east Kent products apart from the contemporary flint-tempered vessels represented at Chichester and Lewes in Sussex. The collared rim does, however, occur on a hand-made cooking pot dating from the late eleventh or early twelfth century found at Hastings Castle. This has been described as a local copy of a form which has analogies with North-West French wares (Barker & Barton 1977, 98-9 no. 1).

Over much of the rest of South-East England it would appear that the introduction of glazed wares occurred during the second half of the twelfth century. A similar pattern has been noted by Vince (1981, 311) in Berkshire and north Hampshire where glazed

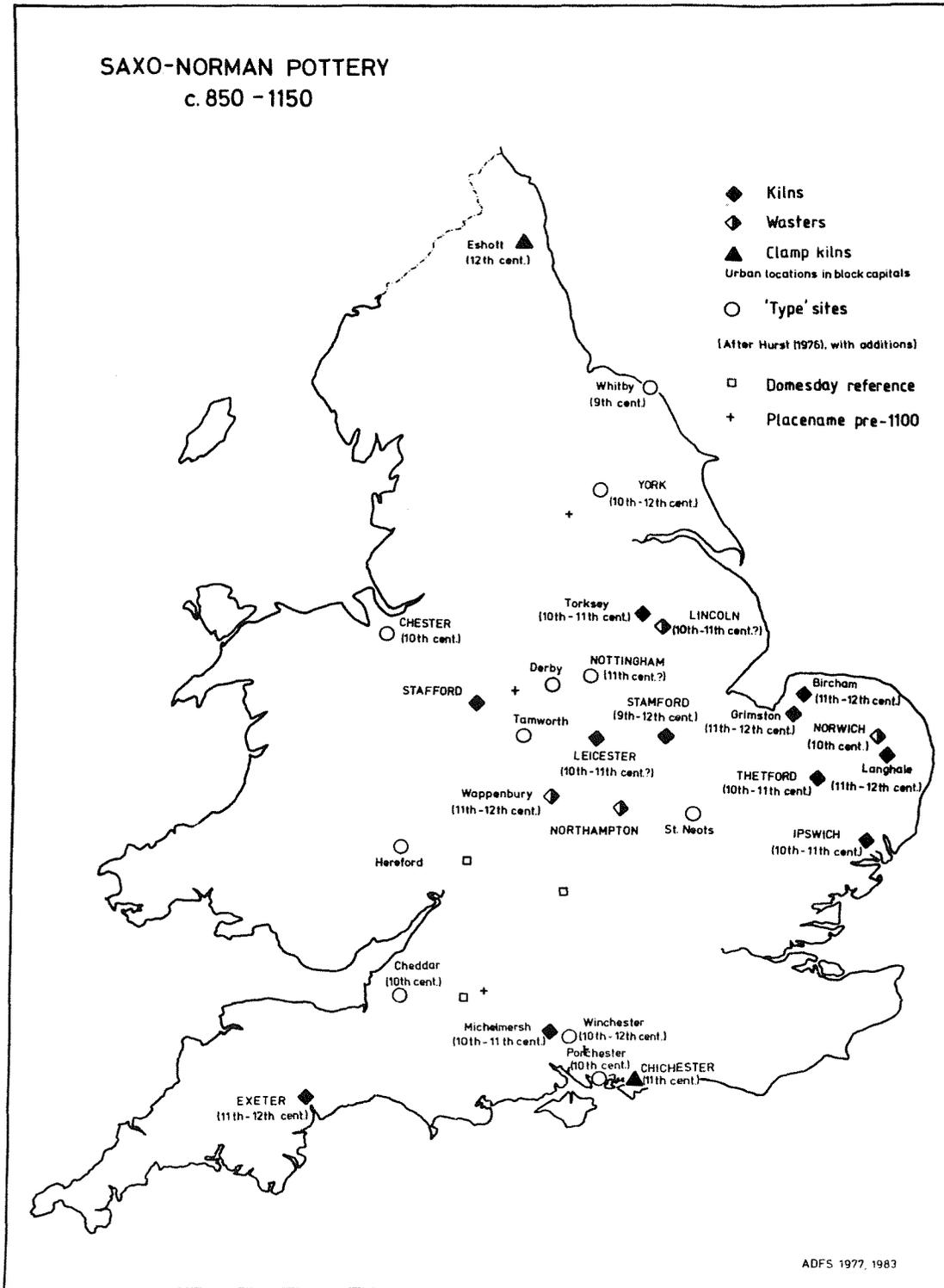


Fig. 8.4 Saxo-Norman pottery manufacture

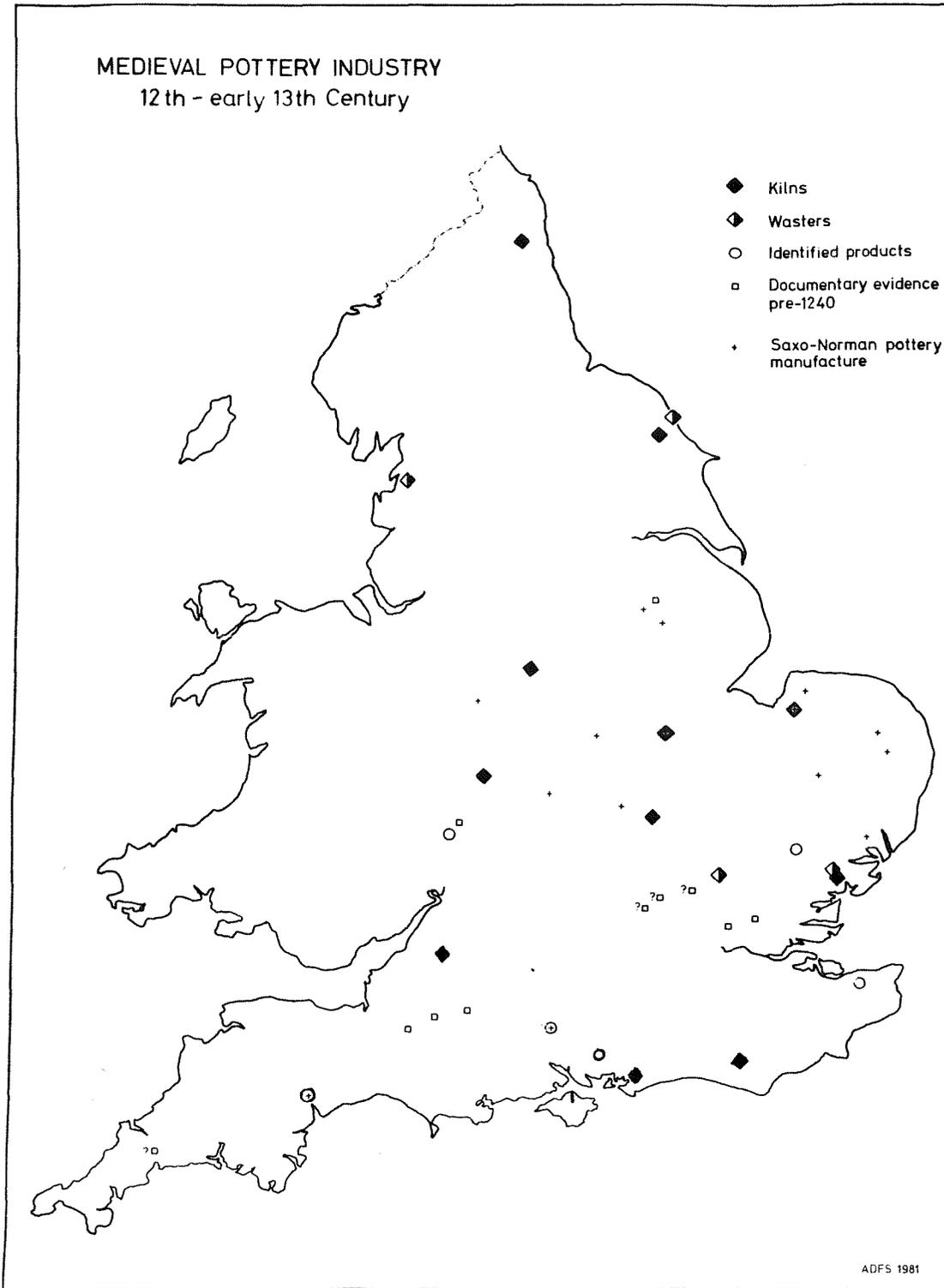


Fig. 8.5 Medieval pottery manufacture: 12th/early 13th century

vessels appear some 50 years later than in the Lower Severn Valley. Owing to the lack of contexts securely dated to the late twelfth century it is not possible to define with precision the regional variations which are likely to have existed in South-East England. Nevertheless, the presence of glazed wares, possibly from the London area, alongside local shell-tempered fabrics in Phase Z at Eynsford Castle suggests that glazed vessels were probably distributed further than the output of local workshops which would have met the demand for culinary vessels. During the twelfth century, for example, Vince (1981, 312) has shown that glazed tripod pitchers, perhaps made at Minety, Wilts., were traded over the area served by seven cooking-pot industries. Fabric groups identified in South-East England (see Section 12.1) hint at similar local distributions, but it has not been possible to examine samples in order to confirm the common source of glazed wares found in the same areas.

There were parts of South-West England and the Welsh border counties which remained aceramic until the eleventh century and sometimes later. Comparable circumstances probably prevailed in sparsely-settled areas of the High Weald, although pottery would doubtless have reached the area initially through regular contact with parent settlements near the downlands (see Section 1.4.1). Nevertheless, contrasting patterns of settlement history probably account for apparent differences in the organisation of pottery production in South-East England during the thirteenth and fourteenth centuries, compared, for example, with the Severn Valley and adjoining areas. In the latter, Vince (1981, 313) has detected a decrease in the number of potteries not only in the late twelfth/early thirteenth century, but again in the late thirteenth/early fourteenth century. Both decreases, he says:

'... are a true reflection of events, and the dwindling number of small potteries found can be seen in individual stratigraphic sequences' (ibid.).

An area of comparable size in South-East England, however, has over twice as many production centres during the thirteenth/fourteenth century as there were in Vince's study area. Moreover, documentary evidence confirms that many of the industries in South-East England were contemporaneous.

Variations in the density of production centres shown on Fig. 8.6 undoubtedly reflect differential fieldwork, excavation and

documentary research. Comparisons between South-East England and the Severn Valley area, however, imply that some of the apparent lacunae may reflect contrasting organisation of the industry. Moreover, it is interesting to note that there are few pot- and crook- place-names in an area where research has shown that demand for pottery in the thirteenth and fourteenth centuries was met by a comparatively small number of workshops (Fig. 8.2). The density of production centres in East Sussex, on the other hand, is comparable with parts of Hertfordshire where there are several known kilns and a number of pot- and crook- place-names. Owing to the problems of identifying and dating kiln sites, maps depicting only the evidence from pottery production centres themselves can give a misleading impression of their density (Figs. 8.4-5). Far more twelfth-century wares are known from their occurrence on 'consumer' sites than the discovery of kilns and wasters would suggest. Systematic fieldwork such as that being undertaken at Ringmer and at Tyler Hill should therefore help to redress the chronological bias of kiln sites dating from the thirteenth and fourteenth centuries.

Among the distinctive characteristics of ceramic production at this period was the emergence of specialist centres engaged in the manufacture of decorated jugs. In the case of the Bristol industry, Vince (1981, 313) has drawn attention to the fact that the output was confined to jugs, but the more usual combined output of culinary and table wares is represented at several medieval potteries in South-East England. Jugs were often transported further than coarse wares, but evidence for the distribution of pottery from the Malvern and Minety industries indicates that culinary vessels and jugs were traded over comparable distances from their source of manufacture (*ibid.*, 313). A different pattern has emerged in South-East England where West Sussex ware jugs occur further afield than their accompanying coarse wares and where jugs from Mill Green, Essex reached households in Kent which obtained their coarse wares from nearer sources. The London-area industry, however, is characterised by its distinctive jugs which undoubtedly represent a specialist line, although analysis suggests that the output of this industry may also have included coarse wares (see Section 5.6.4). It must be accepted that some culinary wares from distant sources are liable to pass unnoticed among assemblages of predominantly sand-tempered pottery. Nevertheless, the impression that jugs travelled further than coarse wares in the region is

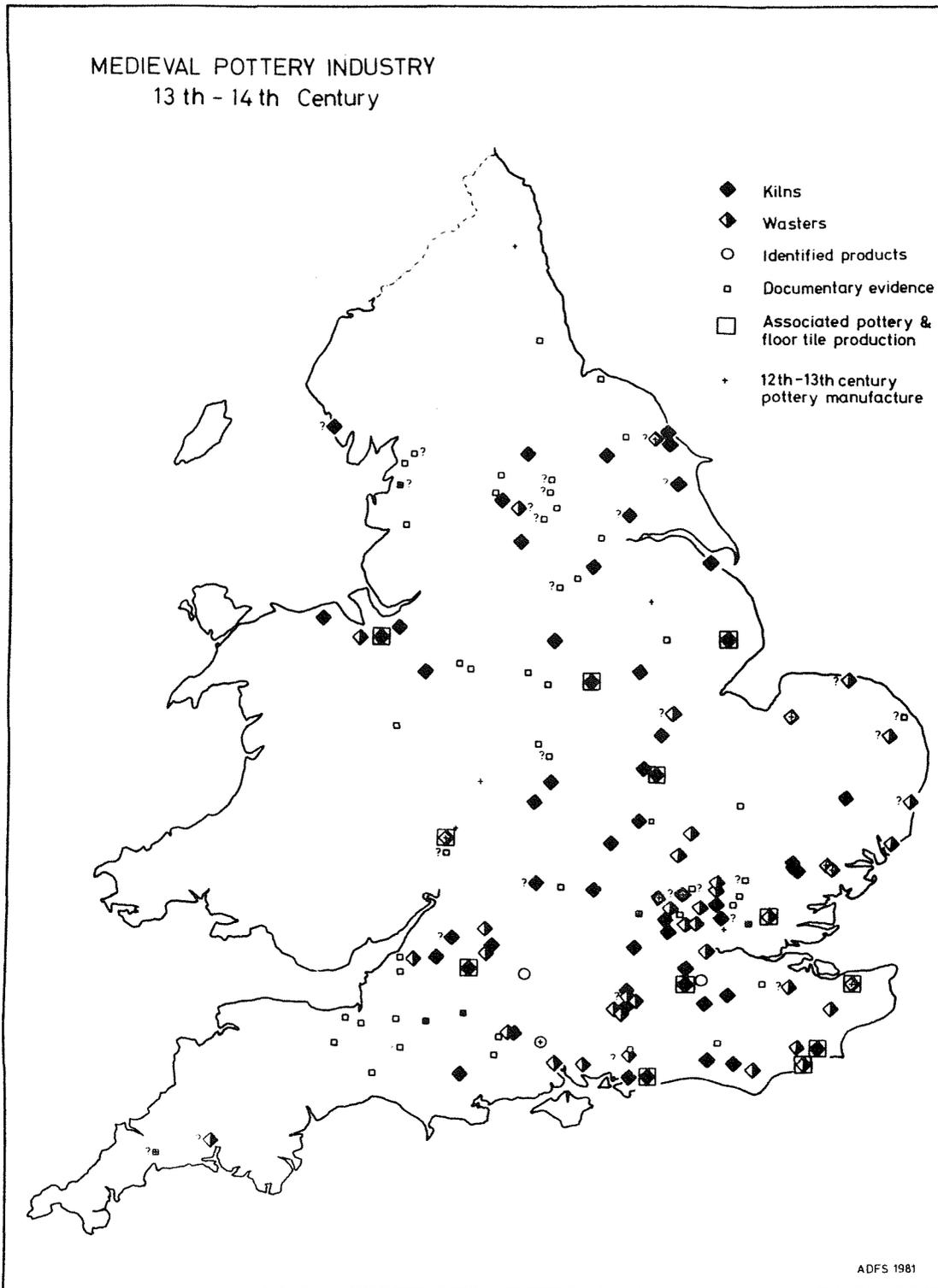


Fig. 8.6 Medieval pottery manufacture: 13th/14th century

confirmed by the few finds of Tyler Hill ware in west Kent and by quantification of the Rye wares found on sites in Sussex. This trend is comparable with that established for the Grimston industry in Norfolk and for the Brill/Boarstall potteries in Buckinghamshire.

Variations in the scale and duration of pottery production in South-East England during the later middle ages are also paralleled in other parts of the country (Fig. 8.7). Important centres at which production continued from the thirteenth to sixteenth century included Bourne, Lincs.; Brill, Bucks.; Chilvers Coton, Warws.; Grimston, Norfolk; Hanley (Malvern), Worcs.; Harlow, Essex and Potterspurty, Northants. These nucleated workshop industries find their counterparts in South-East England at centres such as Ringmer and Tyler Hill and the Graffham/East Lavington potteries in West Sussex. Further comparisons between the date range of industries in South-East England and those elsewhere in the country can be made using the tables in Sections 2.4.7 and 9.2. As shown on Fig. 8.7 many production centres of the thirteenth and fourteenth centuries did not persist into the fifteenth century. The demise of the Limpsfield grey ware industry in Surrey, for example, seems to have taken place at about the same time as the decline of the Hertfordshire potteries, possibly as a consequence of competition from the wider market secured by the Farnborough Hill potters. In the absence of comprehensive regional assessments in the area north of London, however, it would be premature to suggest a precise sequence of cause and effect. Moreover, the chronological sequences established from excavation of Thames waterfront sites only reflect trends in ceramic marketing at London; they do not offer definitive evidence for the duration of the industries themselves. Nevertheless, it is clear that a similar decline of local potteries was accompanied by the dominance of Farnborough Hill wares in the area to the west of these kilns (Vince 1983, 332-6).

Domination of the West Sussex markets by products of the Graffham/East Lavington industry during the late fifteenth and sixteenth centuries is analogous to the widespread distribution of sixteenth-century Malvernian wares (Vince 1977, 286-8). These vessels are dominant in ceramic assemblages from the nearby towns and in many cases they were the only type of pottery obtainable within a radius of about 25 miles of the kilns. The contrasting pattern of several small workshops found in the Kent/East Sussex Weald is comparable with the apparently isolated late medieval kiln

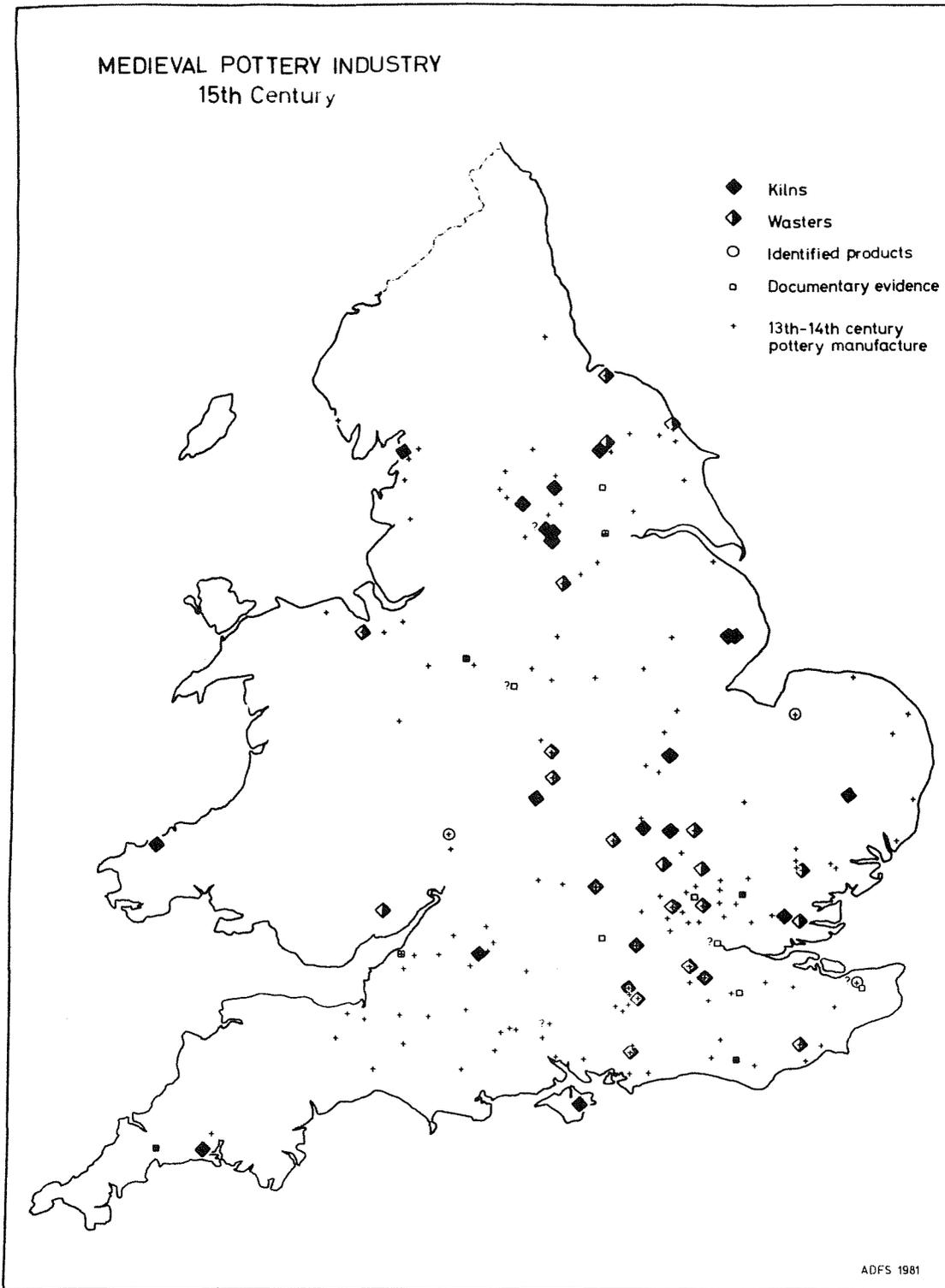


Fig. 8.7 Medieval pottery manufacture: 15th century

at Knighton in the Isle of Wight (Fennelly 1969). Similar minor rural industries are known at Langley Burrell, Wilts., dating from the late fifteenth or early sixteenth century, and at the other sites listed in Section 9.2.2. Several minor post-medieval workshops have been identified in Norfolk and those recorded before 1984 have been summarised in the Post Medieval Newsheet (2 ser., no. 18). The example from Fulmodeston (Wade-Martins 1983), however, shows that the dating of waster assemblages by typology alone can be difficult and sometimes contentious (McCarthy 1983). If the suggested revision of the dating for the material from Fulmodeston is acceptable, then the apparent scale and rural location of the workshop compares closely with that at High Lankhurst, East Sussex.

As in earlier periods, the evidence from production sites alone cannot be regarded as a definitive indication of all the workshops which were operating during the sixteenth and seventeenth centuries (Figs. 8.8-9). The problems of identifying fine-textured earthenwares on consumer sites, however, often preclude reliable assessment of the number of sources represented in an assemblage. Moreover, it is possible that production may have persisted at some rural potteries which appear, from known groups of wasters, to have been short-lived. While the arrival of a new product can usually be detected in the archaeological record, evidence for the decline of an industry is sometimes more elusive.

Scattered documentary sources for the later seventeenth, eighteenth and nineteenth centuries attest the presence of numerous country potteries in southern England. Knowledge of them depends entirely upon the extent of the research which has been undertaken in different areas (see Section 9.2.1). Nevertheless, post-medieval documentation illustrates clearly the trends inferred from the archaeological record of earlier periods: some workshops persisted for several generations, while other enterprises were short-lived, sometimes intended perhaps to supplement an agricultural livelihood. Industries in South-East England are described in Section 9.1 and examples elsewhere in southern England are listed in Section 9.2. It will be apparent from the maps (Figs. 8.10-11) that outcrops of clay on the fringes of the Weald which had been exploited by potters in the thirteenth and fourteenth centuries continued to influence the location of post-medieval potteries.

It would be misleading, however, to consider that the location of an industry was determined solely by the availability of

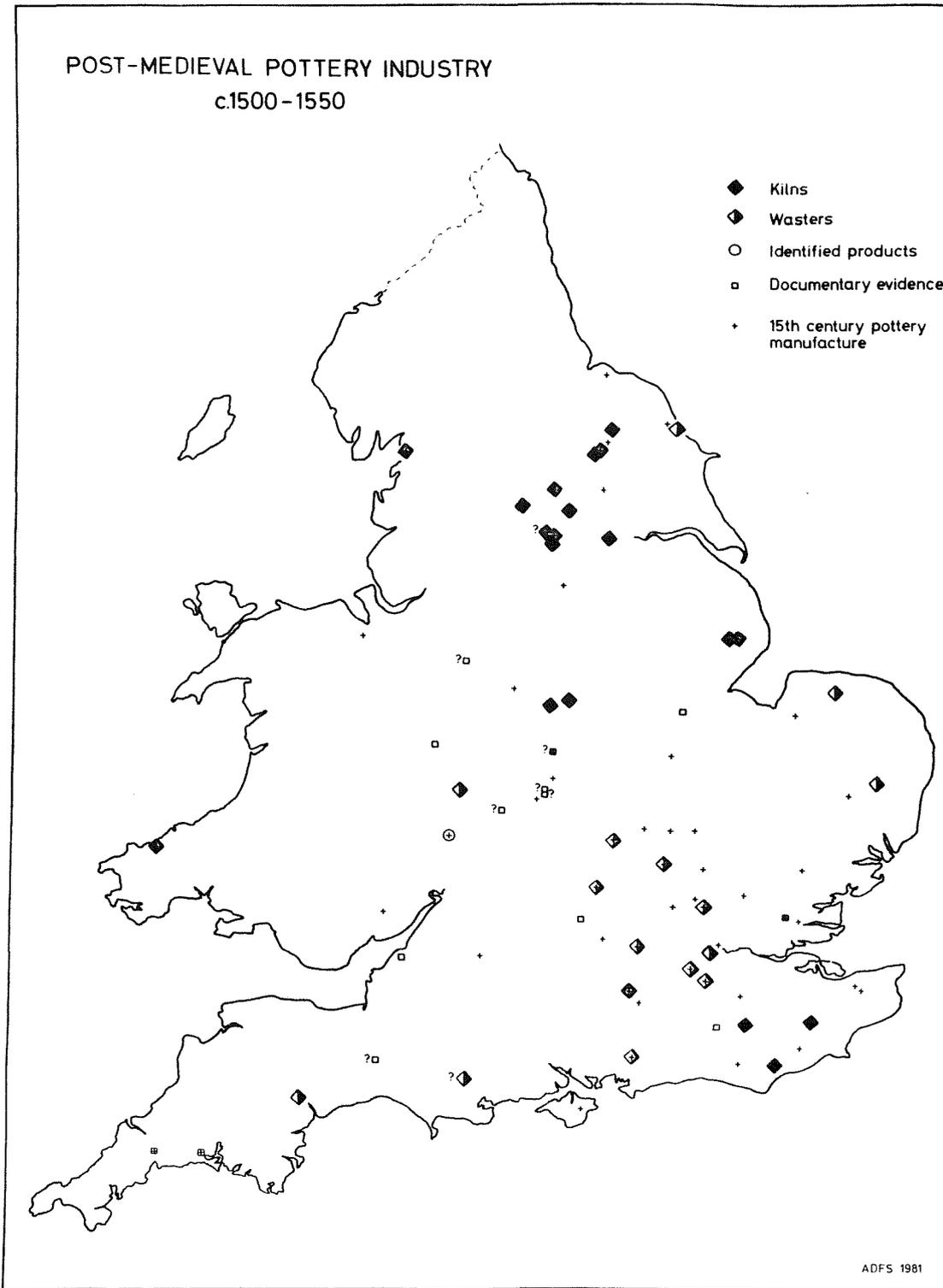


Fig. 8.8 Post-medieval pottery manufacture: c.1500-1550

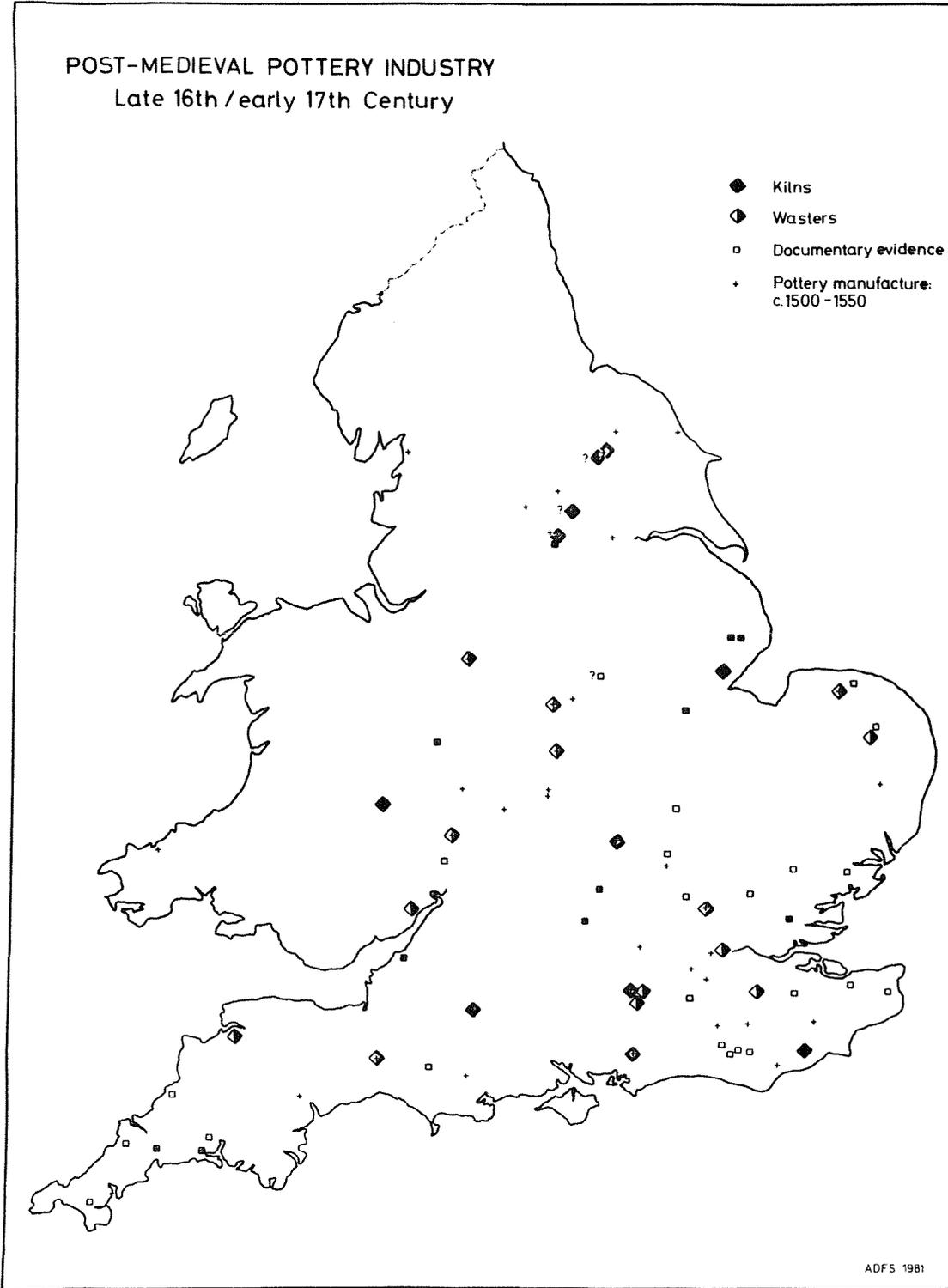


Fig. 8.9 Post-medieval pottery manufacture: late 16th/early 17th century

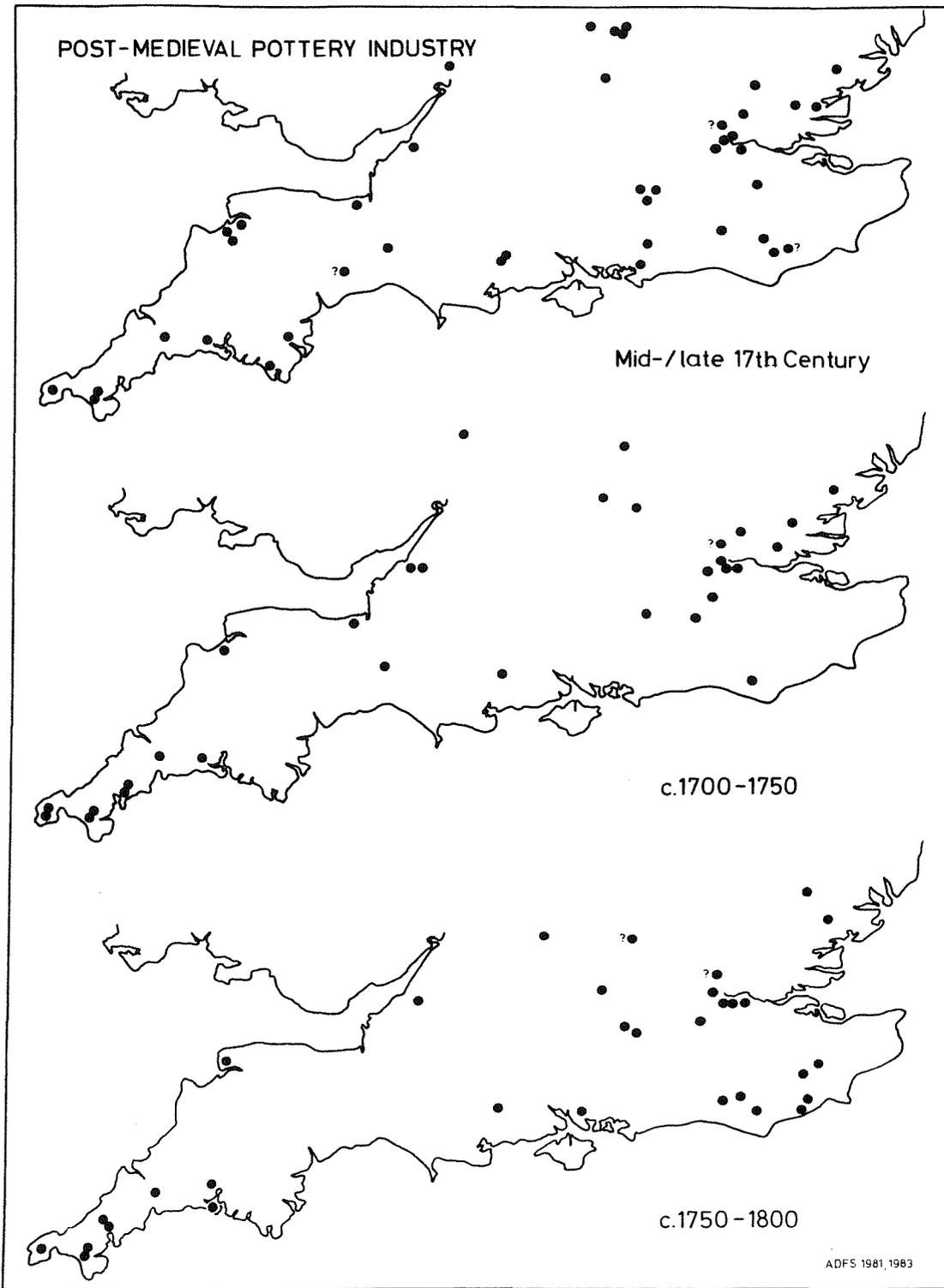


Fig. 8.10 Post-medieval pottery manufacture: mid-17th century to c.1800

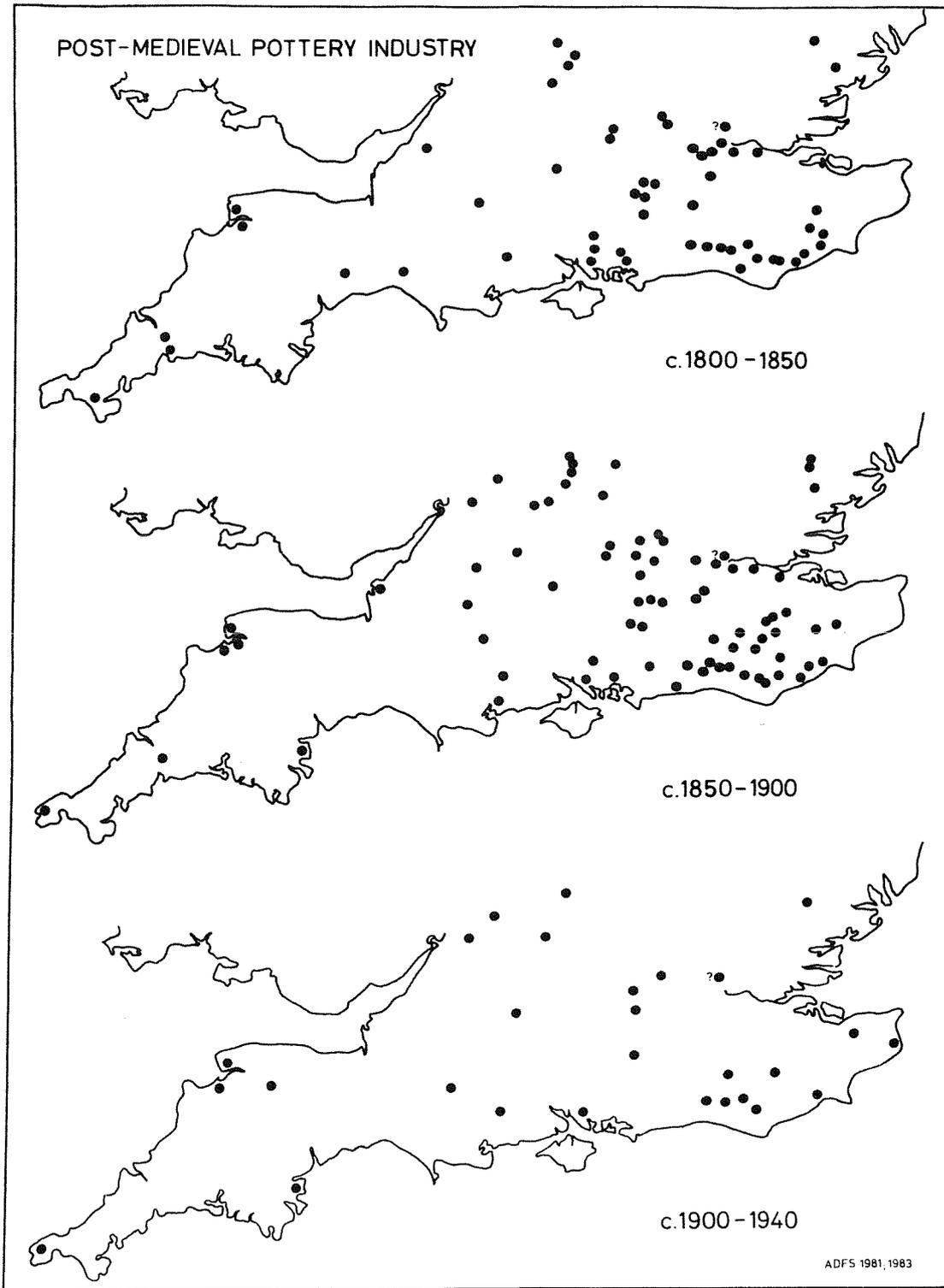


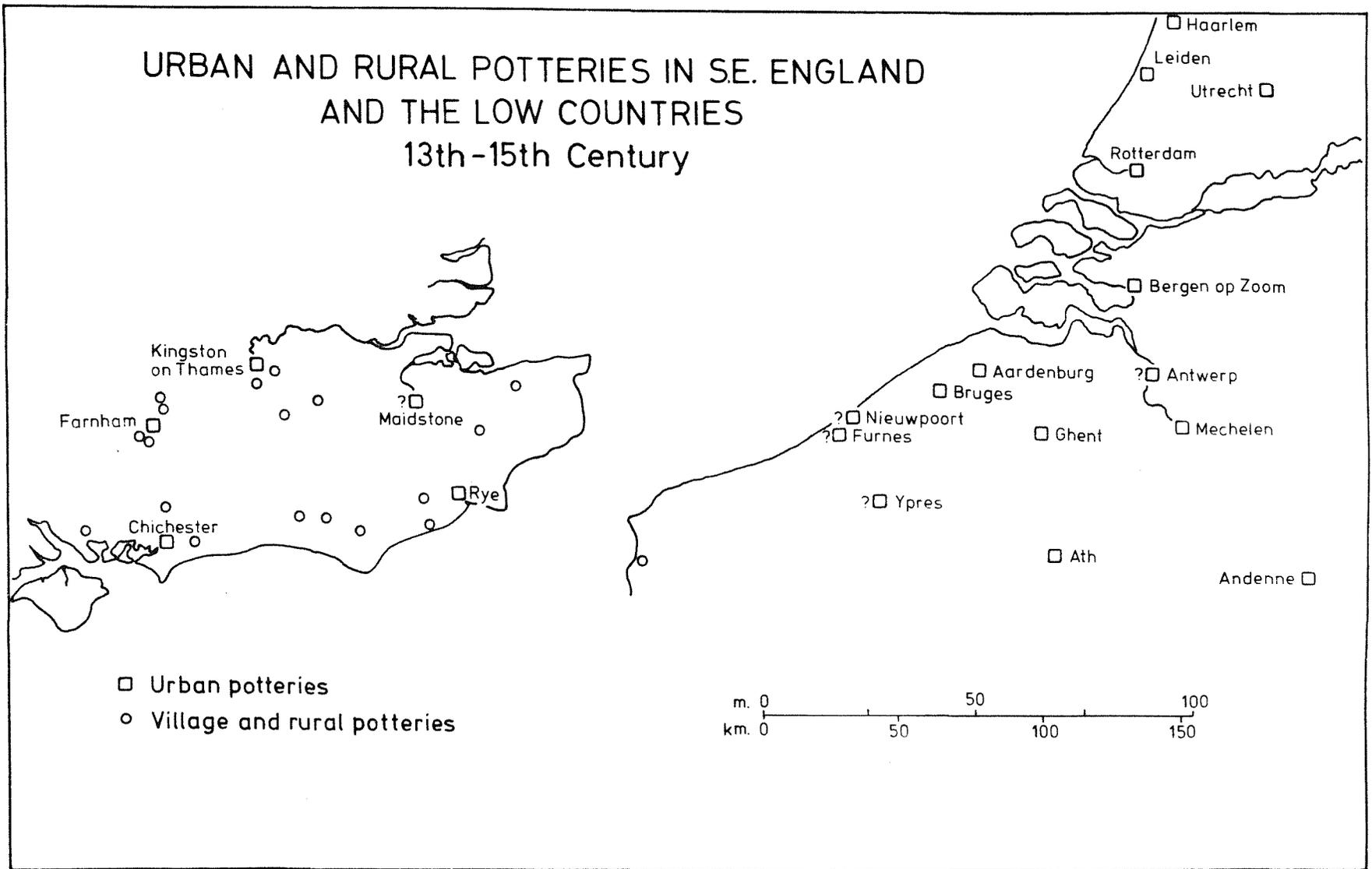
Fig. 8.11 Post-medieval pottery manufacture: c.1800 to c.1940

raw materials. More important was demand for the finished product. Most English medieval pottery was made by rural craftsmen who would often have combined seasonal potting with their agricultural interests. Urban industries of the Saxo-Norman period in the Midlands and East Anglia were generally superseded by these rural workshops (Figs. 8.4-8). Excavations and documentary research, however, have shown that some potters worked in the suburbs of medieval towns such as Bristol and Shrewsbury in the west or at Nottingham in the Midlands and Doncaster in the north. Examples in South-East England include the kilns at Chichester, and smaller towns such as Kingston-upon-Thames, Farnham, Rye and the enigmatic kiln at Maidstone (Fig. 8.12). To these can now be added the evidence for pottery waste in Southwark (see Section 9.1.2, no. 67). These were exceptions, however, to the predominantly rural workshops in the region, contrasting with the long tradition of urban pottery manufacture in the Low Countries. As we have seen, it may be significant that the influence of Dutch forms among locally-produced wares of the late fifteenth and early sixteenth century occurs at newly established potteries near urban markets at Kingston-upon-Thames and in the London area.

This comparison between pottery manufacture in South-East England and in other regions illustrates the close relationship between production and distribution. Naturally the market areas served by several contemporary industries were smaller than those dominated by a few larger centres. Nevertheless, the size of the distribution area was not necessarily related to the scale of production: an output of table wares comparable with that of culinary vessels might be distributed further and in smaller quantities than a larger number of cooking pots sold to local customers.

Sample ceramic distributions have been plotted on Fig. 8.13 for comparison with the patterns identified in South-East England. The Ham Green industry originated in the early thirteenth century while the distribution of vessels from Malvern and Brill is typical of the later thirteenth and fourteenth centuries. Geographical constraints in South-East England are immediately apparent. The dominance of Tyler Hill ware in east Kent, for example, is confined to a smaller area than that served by contemporary industries at Malvern or Brill. Moreover, textural analysis used to discriminate between visually similar fabrics emphasizes the restricted

Fig. 8.12 South-East England and the Low Countries: a comparison of urban and rural pottery manufacture



distribution of medieval coarse wares in west Kent and east Surrey. Quantification has shown that the main axis of the Ham Green distribution was along the Severn Valley/Bristol Channel (Vince 1981, 315 fig. 22.1 map F), reflecting the significance of water transport. A similar pattern can be detected for the Rye wares where the distribution of stamped jugs extends further along the Sussex coast than it does inland. The later slipped jugs, however, have not been recognised at these distant sites. There were evidently distinctions both in the chronology and types of pottery traded outside the hinterland of the kilns. This trend was similar to, though less marked than, that of the Scarborough wares. These were sold in a Yorkshire hinterland of comparable size to that of the Tyler Hill industry in Kent, yet the distinctive output of highly decorated wares was traded extensively around the coast of Britain and across the North Sea (Fig. 8.13).

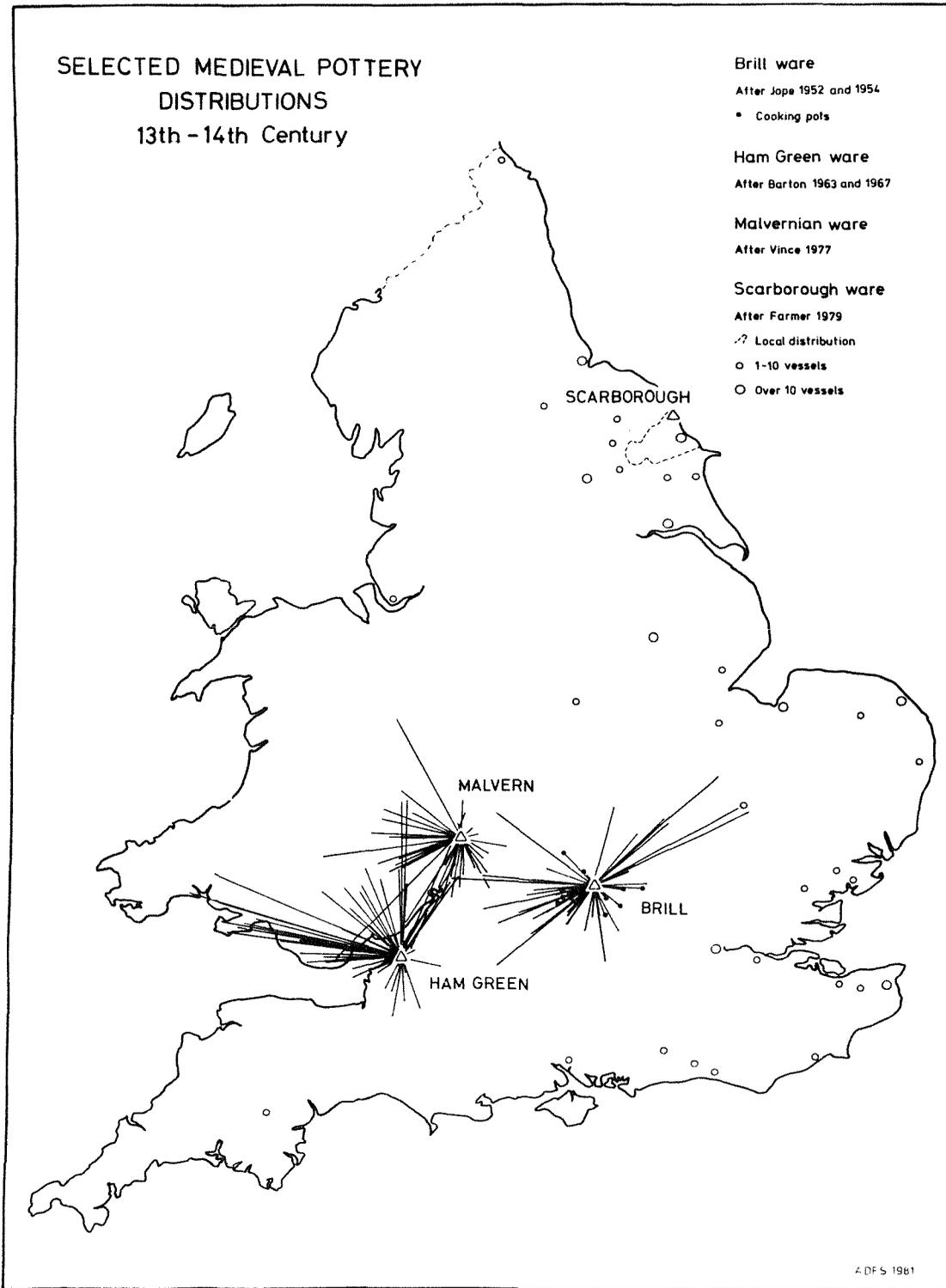


Fig. 8.13 Selected medieval pottery distributions: 13th/14th century

8.3 THE ARCHAEOLOGY OF MEDIEVAL TRADE AND INDUSTRY

Intensive study of pottery production sites and the characterisation of regional ceramic types has facilitated the recognition of vessels which had been carried considerable distances from their place of manufacture. Archaeologists faced with the task of interpreting the evidence have turned to documentary sources in order to explain these patterns. Moorhouse (1983b), for example, has assembled an impressive collection of material illustrating the movement of household retinues, seigneurial and monastic officials, and individuals during the middle ages. Documentary sources attest that pottery was carried or obtained on some journeys and there would have been many other unrecorded movements of medieval pottery in this way. Such evidence helps to explain the incidental transport of ceramics as containers, utensils or even gifts, resulting in diverse assemblages like those recovered from Sandal Castle and Kirkstall Abbey (*ibid.*, 62, fig. 9 and 67, fig. 10).

While it is realistic to interpret material evidence in the light of documentary sources, it would be quite another matter to draw detailed conclusions from the ceramics found on poorly documented sites. In the case of religious houses whose estates were more scattered than those of Kirkstall Abbey, it would surely be difficult to distinguish pottery brought by casual and unrecorded visitors from that representing contact with distant manors and granges. As excavations at Kirkstall have shown, a similar diversity of sources to that represented among pottery from the guest house is also found among assemblages elsewhere on the site (*ibid.*, 69). Without the benefit of specific documentation indicating the number and origin of the visitors, the principal contribution of ceramic studies must therefore be the recognition of sites where there is evidence for wide contacts. Owing to the problems of reliable inference it is unlikely that it would be possible to reconstruct and interpret the minutiae of individual movements.

There is a significant contrast between the movement of pottery by long-distance travellers and the regular contact between local potters and their customers. Links between estates and their manors are better documented than the weekly ebb and flow of trade in rural markets. It is inevitable, therefore, that the emphasis of ceramic research should be directed towards quantifying local

geographical and chronological trends. This offers a means of understanding the production and distribution of a commodity - possibly typical of others - for which the archaeological evidence arguably has greater potential than the documentary sources.

Keene (in Schofield & Palliser 1981, viii) has stressed the value of studying pilgrim badges as an index of what can be regarded as the medieval equivalent of the twentieth-century tourist industry. Indeed, the contrast between archaeological evidence for personal travel and the regular trade through local markets is well illustrated by comparing the evidence for pilgrimage to Canterbury with the sale of pottery from the nearby workshops at Tyler Hill.

Canterbury became renowned as a centre of pilgrimage after the murder of Thomas Becket in 1170, and the cult surrounding his martyrdom seems to have lasted until c.1400. Registrars named William and Benedict were active for about a decade after the murder, recording miracles reported by pilgrims to the shrine. Their registers indicate the towns and villages from which individuals travelled often considerable distances to Canterbury (Finucane 1977, 165). Places recorded in these registers are shown on Fig. 8.14. A similar pattern, representing a longer time-span than the documentary evidence, is attested in the archaeological record. Pilgrim badges and ampullae are distinctive, frequently bearing a letter 'T', an image of St. Thomas or a scene depicting his murder. Although there may have been other sources of manufacture these signs are known to have been made and sold at Canterbury. Certainly in the minds of his contemporaries, the wearer of a badge was believed to have made a pilgrimage to the shrine identified by his sign. Medieval illustrations show that pilgrim badges were frequently worn on the hat (Spencer 1968, 137). Archaeological finds are therefore capable of identification with a specific source. A selection of the widespread discoveries of pilgrim signs depicting St. Thomas is listed in Section 13.2 and shown on Fig. 8.4. These include finds from York (Baily 1851), Dunwich (Hugo 1860, 129), Bristol (Barker 1977) and Paris and Iodose, Sweden (Spencer 1975, 245). Each of them can be assumed to represent the journey of an individual pilgrim.

The evidence, both documentary and archaeological, for the medieval pottery industry is meagre by comparison. The destination of vessels made at a particular kiln is seldom known from documentary sources; the pots themselves are rarely as distinctive

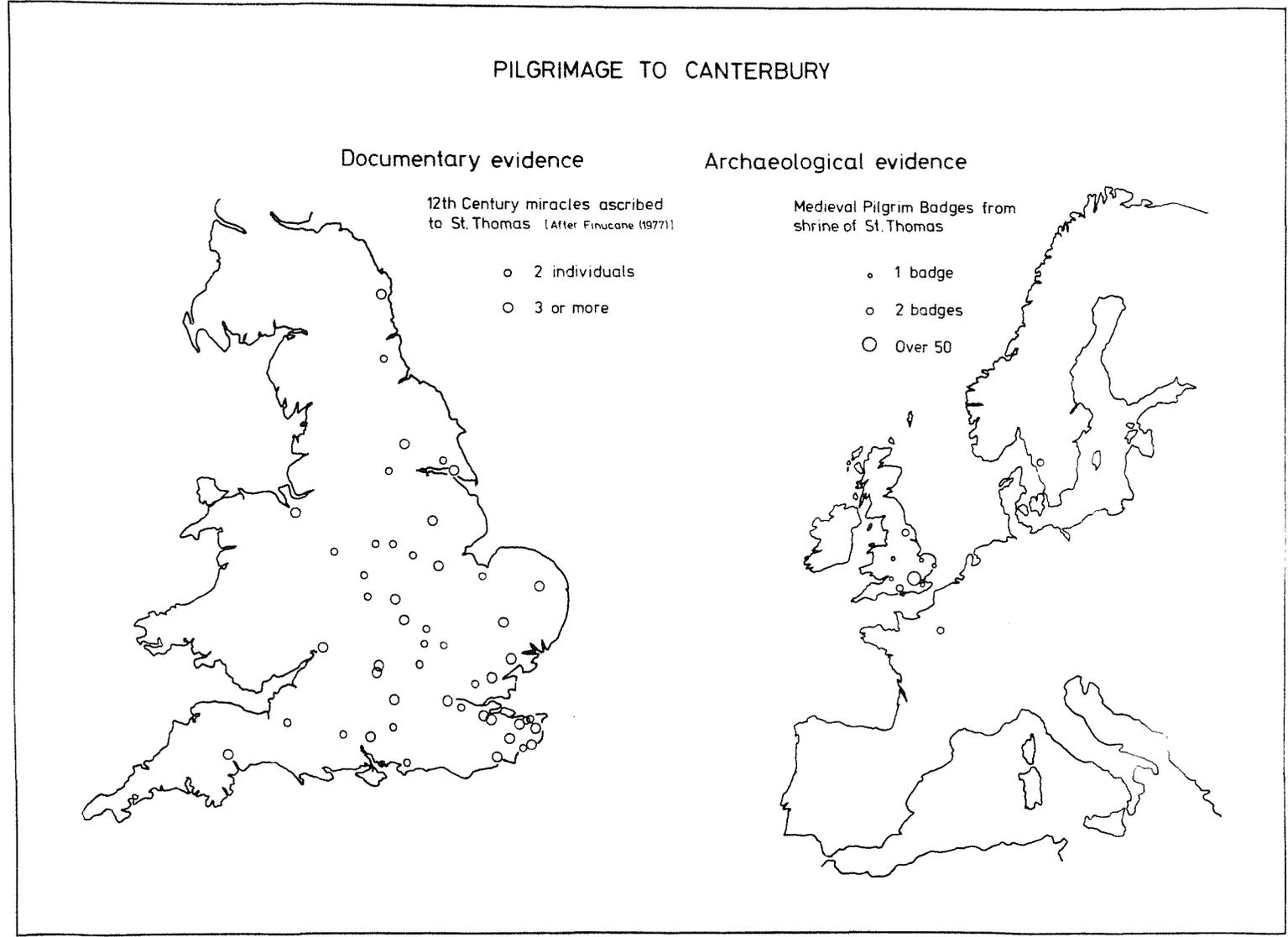


Fig. 8.14 Pilgrimage to Canterbury. Documentary and archaeological evidence (pilgrim badges of St. Thomas Becket)

as a pilgrim badge; and, unlike pilgrim signs, the means of movement is not implicit. In the case of pottery, even if the source of manufacture can be identified it remains for the archaeologist to deduce the method of transport. Nevertheless, the dominance of Tyler Hill ware in east Kent, compared with the distance from Canterbury of known pilgrim badges and recorded miracles attributed to St. Thomas, emphasizes the contrast between individual journeys and regular trade. Thus, pilgrimage can be added to the numerous explanations which Moorhouse (1983b) has suggested might account for the movement of pottery, yet quantification indicates that these are often no more than anomalies in a predominantly local pattern of supply.

More general economic conclusions can be drawn from pottery accompanying trade in other commodities such as wine (Hodges 1977) or salt. It is significant for example that a range of non-local wares has been identified at Middlewich (Moorhouse 1983b, 55). Like the pots carried by individuals, these are exceptions to the general pattern of ceramic marketing, but where there is a connection with a specialist industrial centre, the archaeological evidence is capable of illuminating undocumented aspects of inland and coastal trade. A sherd of tenth-century Porchester ware associated with the salterns at New Monks Farm, Lancing (Holden & Hudson 1981, 142-3 no. 1), for example, occurs further east than the general area in which these vessels have been found (Cunliffe 1970, 79 fig. 1). Even though proof is elusive, it is tempting to speculate that there may have been a connection with the supply of salt to areas outside the immediate hinterland of the Adur Valley at this period.

Pottery containers were probably used for some of the goods on which duty was charged at the port of Winchelsea during the last decade of the thirteenth century. Ale was transported in barrels and wine in tuns, but jars were used for honey and pitch, while in the fourteenth century duty was payable on jars of oil and ginger (Homan 1940, 59-66). Ceramic containers are among the few items apart from quernstones mentioned in the Patent Rolls of 1295 and 1321 which might be identifiable in the archaeological record at Winchelsea or in its hinterland. Indeed, as Davey and Hodges (1983, 7-9) have stressed in their summary of the archaeological evidence for medieval imports, it is only the study of low-value stone objects such as hones, quernstones and mortars which offers comparable scope to that of ceramics for quantifying trends in the

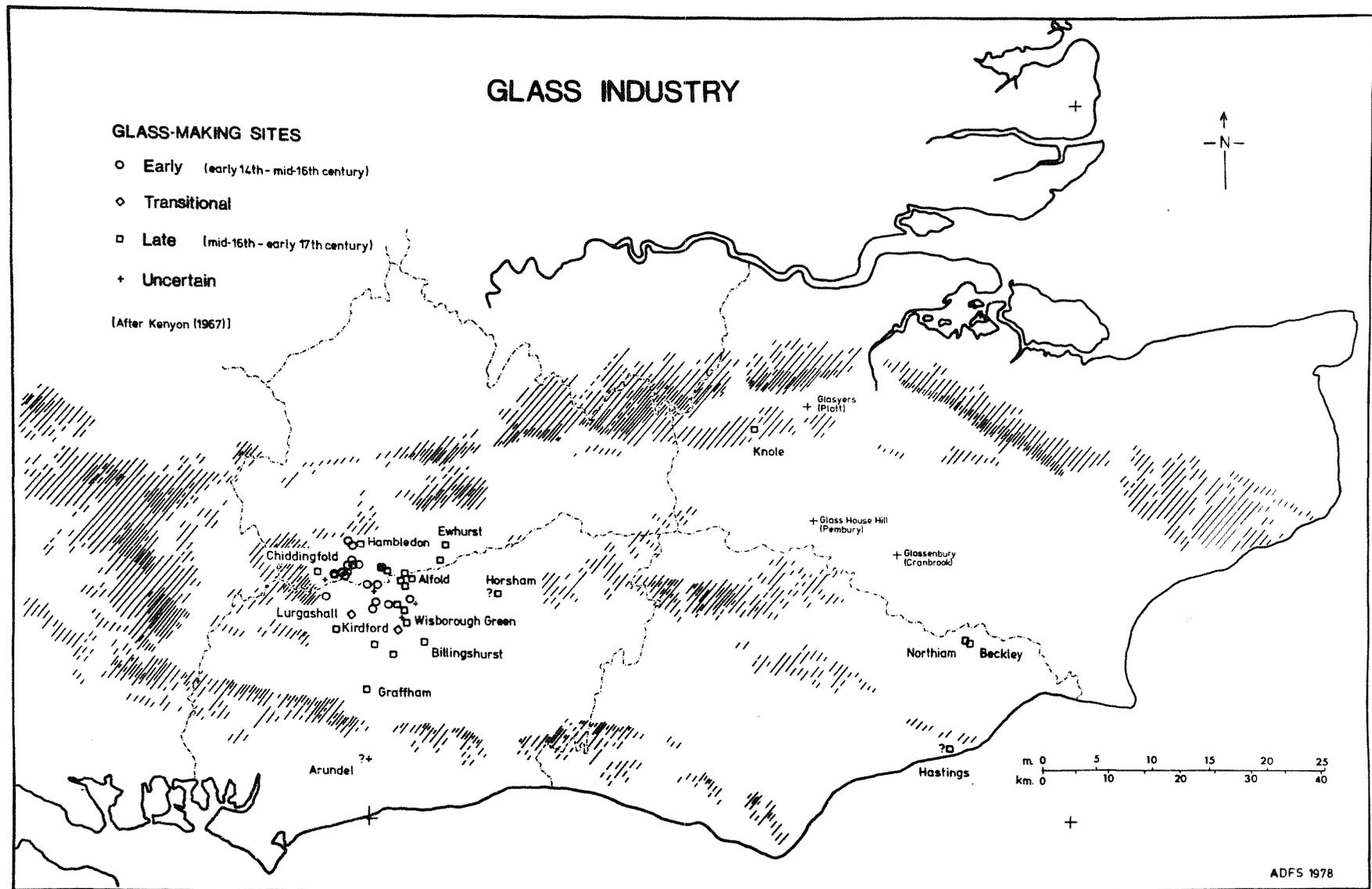
sources of supply and competition between them.

Early work on honestones (Dunning 1937, 682-95; 1948b, 230-232) has been followed by more recent syntheses (Ellis 1969; Moore 1978) which illustrate the extensive inland penetration of this commodity. Whereas few imported medieval ceramics appear to have entered the High Weald, a Norwegian honestone has been found in a medieval context at Bayham Abbey (Streeten 1983, 117 no. 1) and other examples are represented among the Dissolution debris. Examples are recorded from many other sites in the region and, like some pottery, they probably reached their destinations among the items sold by middlemen through local markets. Stone objects may have arrived with general wares on the same ships as those engaged in the redistribution of earthenwares. Finds of tufa mortars dredged from the sea off the Sussex coast suggest coastal traffic in these goods (Brighton Museum R3098; R3269). Thus, as implied by Dunning (1965-6) in his study of finds from Aardenburg, there is a need to evaluate the distribution of ceramics in the context of other movements which can be recognised in the archaeological record. At an earlier period, for example, MacGregor (1978, 39) has stressed the geographical connection between imports of Pingsdorf-type pottery from the Rhineland and the arrival of Mayen lava querns from the same region.

Much of the glassware used in the Weald during the later middle ages was of local manufacture. Output evidently included both vessel glass and some window glass because in 1353 John Geddyng, glazier, was ordered to go into the counties of Kent and Essex to obtain glass for St. Stephen's Chapel, Westminster (VCH Kent 1932, 400; Kenyon 1967, 27-28). Glass for St. George's Chapel, Windsor had been supplied from Chiddingfold the previous year (ibid.). Vessels in green glass made at Wealden furnaces included lamps, bottles, urinals and distilling apparatus (Charleston 1980, 70-73). Examples have been found both at religious houses and on domestic sites, but, unlike pottery, traded vessels can seldom be attributed confidently to their source of manufacture. A brief comparison between the organisation of pottery production and the Wealden glass-making industry during the medieval and later period will serve to highlight not only the factors affecting the location of an industry, but also the effects of location upon the organisation of distribution.

Unlike the long-established art of potting, the skill of

Fig. 8.15 South-East England. Medieval and post-medieval glass manufacture



glass manufacture was not indigenous: it had certainly been (re-) introduced by the mid-fourteenth century and possibly as early as the thirteenth (Kenyon 1967, 12). Compared with the widespread distribution of pottery kilns, the early glass-making sites in South-East England were concentrated around Chiddingfold in the western half of the Weald (Fig. 8.15). This contrast probably reflects the different origins of the two industries; their scale; their market; and the restricted availability of sand suitable for glass-making, compared with more widespread deposits of potting clay. Unlike some of the nucleated workshop industries established by medieval potters during the thirteenth century and earlier, the location of glass furnaces probably shifted to new sites as the raw materials became exhausted (Hunter 1981, 148).

Sixteenth-century changes in glass production came somewhat later than the transition from medieval pottery forms and fabrics, but technological developments in the glass industry were more far-reaching. They were comparable to those of immigrant potters in London, but their impact on rural ceramic production was not so great as the new glass-making techniques which were introduced at the Fernfold furnaces by Jean Carre in 1567 (Kenyon 1967, 14). Few sixteenth-century glass-houses, however, have been found in the Weald beyond the former nucleus of the medieval industry. The medieval tradition, combined with the stimulus of innovation, seems to have outweighed any advantages in extensive diversification of new production sites. A few exceptions have been noted by Kenyon (*ibid.*, 209-14), who stresses that glass furnaces which are known from archaeological, documentary and place-name evidence outside the Surrey/Sussex border area are all of late sixteenth/early seventeenth-century date. A possible late medieval site at Platt, Kent, discussed in Section 9.1.4, is therefore of particular interest.

Glass vessels would undoubtedly have been of greater value than ceramic utensils. During both the medieval and later periods, therefore, glasswares are likely to have been carried over longer distances than locally-produced ceramics, owing both to their value and to the organisation of production. Engravings of the sixteenth century illustrate the activities of glass carriers engaged in distribution of the wares (Kenyon 1967, pl.xi; Hunter 1981, 149-50). The earliest known glass carrier in the Weald was one Henry Ropley of Chiddingfold recorded in 1495. He and his sixteenth- and

seventeenth-century successors show that the distribution of glass was probably more akin to that of exotic pottery sold by middlemen than the locally-produced coarse wares obtainable in rural markets.

This comparison serves to emphasize once again the relationship between production and distribution. It also highlights the impact of an entrepreneur on the location of manufacturing sites. Nevertheless, the interpretation of archaeological evidence for the distribution of glassware presents similar problems to those for the movement of pottery. Many discoveries of imported glass at ports and in the hinterland of important inland markets can be explained - like pottery and stone objects - as part of the commercial process of redistribution. It is possible, however, that glasses may also have been carried on the journeys of medieval travellers. With fewer finds of glasses than of pots, it is more difficult to quantify trends in their distribution. Among the 36 glass vessels assigned to a pre-Dissolution date at Bayham Abbey, however, only one vessel was an import. Two other clear glasses belonged to the later sixteenth century (Charleston 1983). It could be argued that the fifteenth-century glass bowl of Italian or Netherlands' origin complements the evidence for a wider range of non-local ceramics including pottery from Surrey which became available in the area during the later middle ages. It is a matter for speculation, however, whether this exotic piece of glassware arrived in the Weald via the south-coast ports or London, or whether it might have been brought by a visitor to the abbey - perhaps even on a journey similar to those mentioned in an early fifteenth-century itinerary which recommended routes from Titchfield Abbey, Hants. to other Premonstratensian houses elsewhere in the country (Dickens 1938). Journeys from Titchfield would provide an opportunity for glassware imported via Southampton to be 'redistributed' into the Weald entirely independently of commercial transactions.

In order to evaluate the significance of commercial distribution, it is necessary to compare the evidence from a variety of contemporary sites in a given region and to identify places where imports have not been found as well as those where they do occur. The place of pottery within the market economy will therefore be considered in the final section.

8.4 POTTERY DISTRIBUTION AND THE MARKET ECONOMY: A NATIONAL PERSPECTIVE

The increasing number of weekly markets established between the late twelfth and the early fourteenth century would have served as centres of exchange for agricultural produce and household necessities. The study of pottery distribution can therefore make a significant contribution to the definition of rural hinterlands, while the expansion of rural marketing itself may account for changes in the organisation of ceramic production.

Different types of trade within a market would be reflected in contrasting hinterlands for different goods. An obvious but significant contrast is that between perishable and non-perishable commodities. Moreover, the level of trade would also reflect the status of the market. There is an underlying assumption that rural craftsmen would participate in transactions at most markets, while trade in some commodities would be confined to those centres occupying a more important position in the market hierarchy (Berry 1967, 98). For the medieval period, therefore, archaeological policies for urban excavations are directed principally towards determining the extent to which towns were functionally and economically different from other settlements in a given area. A suggested hierarchy of medieval market centres in South-East England has been discussed in Section 1.5.5.

Important evidence for the hinterland served by the port of Southampton comes from analysis of entries in the fifteenth-century Brokage Books (Coleman 1960-61, xxiv & opp. p.114; Platt & Coleman-Smith 1975, 18; Platt 1976, 78). Building materials and coal were carried some 20 km. (12 miles) inland, household goods penetrated about 48 km. (30 miles), while wine was carried as far as Oxford (104 km.; 65 miles) and dye-stuffs even further. The significance of the overland route between Salisbury and Southampton is reflected in the archaeological record by the discovery of some Laverstock wares at Southampton and in its hinterland (e.g. Platt & Coleman-Smith 1975, 2, 17; Matthews 1981, 34). Thus, in the absence of documentation, the archaeological evidence from inland sites is potentially capable of offering an insight into the commercial movement of goods. Imports discussed in the previous section (8.3) should therefore be examined in relation to inland communications from south-coast ports. As we have seen (Section 1.4.6), the

absence of significant through routes from Sussex ports to the Thames Valley is reflected in smaller hinterlands than that served by Southampton (Pelham 1929).

Important inland markets such as Newmarket, Suffolk would have drawn tradesmen from a wide area, but the evidence presented by May (1981, 33 fig. 1) shows that most traders came from a more restricted hinterland within a radius of about 20 km. (12 miles) of the market. The sale of pottery would have been incidental to the primary function of markets as centres for the sale of agricultural produce and the purchase of commodities which could not be obtained locally. The density of known potters' workshops of the thirteenth and fourteenth centuries in South-East England therefore implies that journeys to distant markets for the sale of culinary wares would have been the exception rather than the rule.

While pots may occasionally have served as containers or may have been carried by tradesmen for their own use on journeys to distant markets, it is surely inconceivable that such travellers would have chosen these visits as the occasion on which to obtain their households' requirements for a cheap and fragile commodity which could have been obtained more conveniently nearer home. It can be argued that the opportunity to obtain a vessel of unfamiliar form could have encouraged the movement of what might even be regarded as souvenirs, but the economic argument that middlemen were engaged in marketing offers a more plausible explanation for the often extensive distribution of medieval jugs. The impetus for sale is more likely to have come from the producer or his agent than from purchases by distant consumers. This assumption suggests that a more satisfactory explanation for the pattern of the archaeological evidence can be obtained from the generally undocumented activities of middlemen, chapmen and pedlars than from the scattered references to traders attending distant markets and fairs.

Harvey's (1965) penetrating study of the medieval Oxfordshire village of Cuxham serves to emphasize that the nearest market was not the limit of a man's horizon. Carting services, for example, would have involved journeys outside the manor. Thus, the 1285 Custumal of the Archbishop's Manor of South Malling in Sussex records that:

'[Malle de Aqua] must carry supplies of the Lord Archbishop from Lewes market to the court for 15 days in winter and 15

days in summer and he shall have each day one quarter loaf'
(Redwood & Wilson 1958, 114).

Nevertheless, as Hoskins (1982, 62) has stressed, the whole subject of inland trade in the pre-industrial period has been badly neglected owing to the problems of assimilating the scattered data. Archaeological evidence can therefore make a positive contribution to the understanding of relationships between market towns and their hinterlands.

It is axiomatic that:

... 'while many medieval industries may have had a rural setting, the greatest [recoverable] proportion of their products was lost in the town' (Keene 1981, 153).

Emphasis on demand as the principal explanation for the distribution of medieval pottery, however, ignores the fact that the producer's choice of market at which to sell his wares may also have been determined by the need to purchase other commodities for himself (Bromley et al. 1975, 531). Indeed, as Miller and Hatcher (1978, 77-8) have said:

'Sometimes medieval townsmen seem to be pursuing the ideal of a land consisting of a honeycomb of rural islands with, at the centre of each, a town in which industry and exchanges were concentrated. If this autarchic notion ever corresponded to reality, however, it very soon ceased to correspond to facts'.

Although ceramic distributions are restricted, they attest that medieval potters probably sold their wares at several local markets, perhaps following a cycle of journeys between markets held on different days of the week (see Section 6.3.2).

Chronological trends in the spatial relationship between medieval kilns and markets in the Home Counties are illustrated by the maps on Figs. 8.16-19. These are intended for comparison with the patterns identified in South-East England south of the Thames. Detailed geographical assessments such as those described in Section 6.3.1-2 are beyond the scope of this survey, but the tabulated data in Sections 9.2.2 and 11.3 would enable such analyses to be undertaken. Even without detailed analysis, however, the comparison serves to illustrate some trends which are similar to those in South-East England and some which are different from those in other parts of the country.

In his study of the Severn Valley area, Vince (1981, 319)

has postulated that the expansion of markets related to craft specialisation may account for changes observed in the distribution of ceramics during the late twelfth and early thirteenth centuries. Several market charters had been granted to places in the London area by c.1250 but in Hertfordshire and Essex, as in other parts of the South-East, there was a significant increase in the number of markets during the following half-century or so (Figs. 8.16-17). It will be apparent from the maps, however, that there were fewer new markets in Buckinghamshire and Bedfordshire after c.1250 than there were in the other counties (see Section 1.5.2).

Turning to the ceramic sequence, the Saxo-Norman coarse ware fabrics represented at places such as Waltham Abbey, South Mimms Castle and Hertford are different from the later Hertfordshire grey wares, suggesting that in this area, too, a change in ceramic production and distribution had taken place before the mid-thirteenth century. Thus, a connection between the market economy and the manufacture of culinary wares similar to that in the Severn Valley area can also be suggested for the London region. This trend, however, is different from that around Canterbury where analysis of finds from Dover and from Caesar's Camp, Folkestone has shown that by the mid-twelfth century much of the east Kent market was probably being served by an industry in the Tyler Hill area.

The production sites shown on Fig. 8.16 do not give an accurate impression of the sources of manufacture for early medieval pottery in the London area. Moreover, the apparent increase in the number of workshops during the thirteenth and early fourteenth centuries is as much a reflection of the type of evidence as it is an indication of the level of demand for pottery in the region. Nevertheless, the density of known kiln sites reinforces the conclusions drawn from Kent, Surrey and Sussex that the pattern of production at this period was different from the small number of contemporary workshops in the Severn Valley area (see Section 8.1).

Apart from markets situated on or close to principal routes there were few markets in the vicinity of London on either the north or south side of the Thames during the thirteenth and fourteenth centuries (Fig. 8.17). As in South-East England some voids in the distribution of medieval markets can be attributed to topography and land ownership. The paucity of markets around Chichester in West Sussex, however, finds analogies in the vicinity of Colchester and Chelmsford in Essex. This probably reflects the strength of these

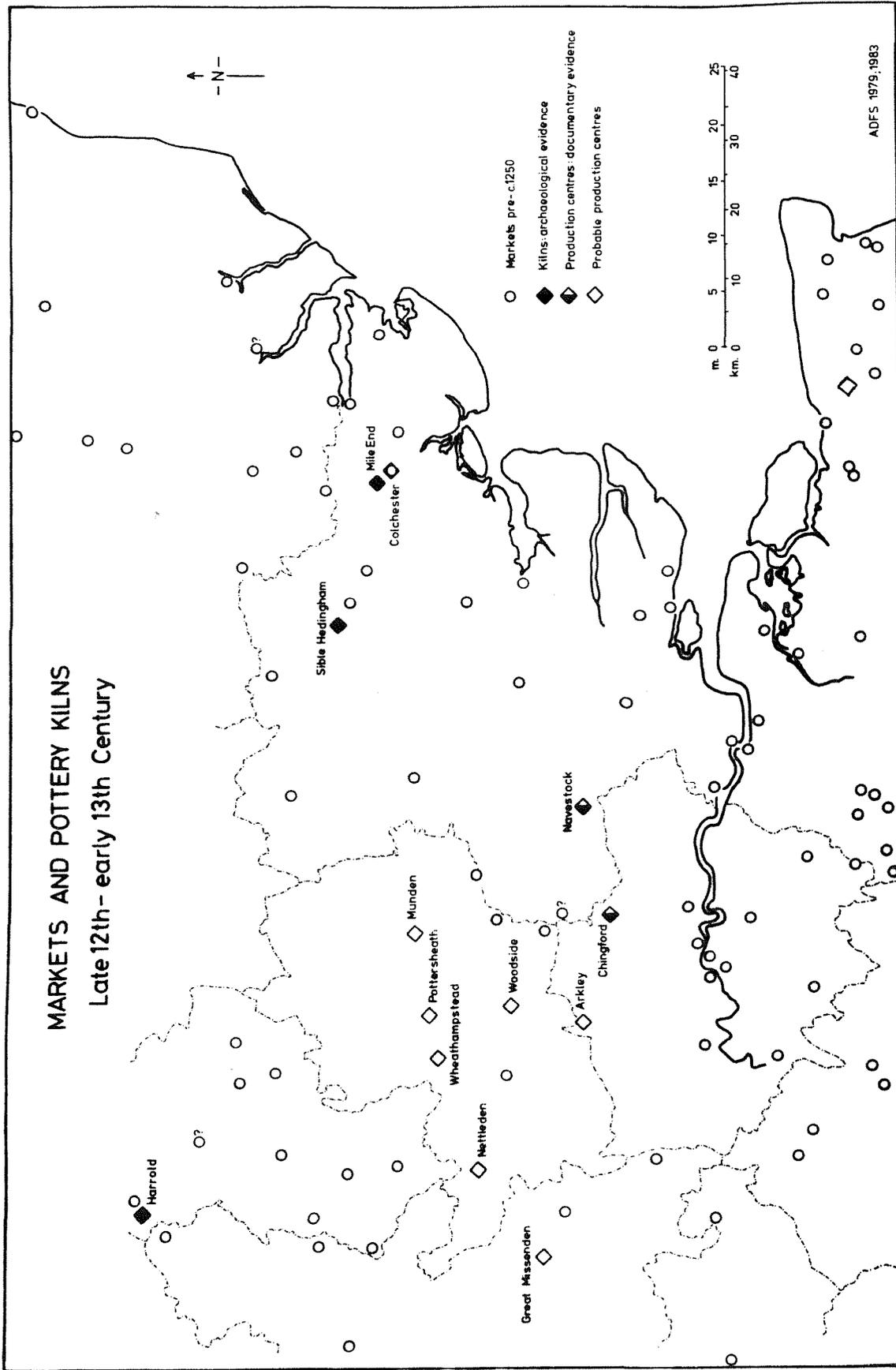


Fig. 8.16 Home counties. Markets and pottery kilns: late 12th to early 13th century

Fig. 8.17 Home counties. Markets and pottery kilns: mid-13th to mid-14th century

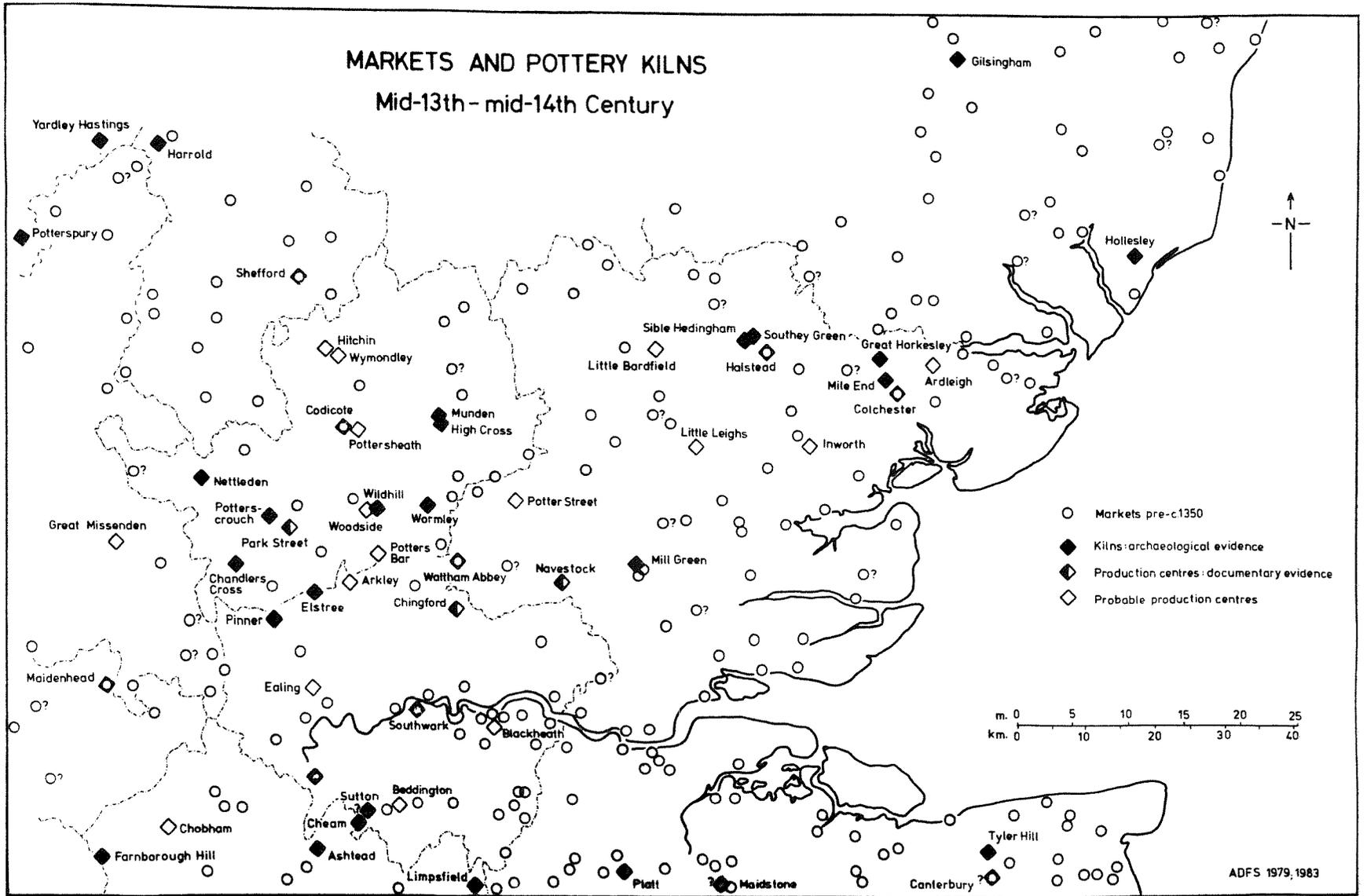


Fig. 8.18 Home counties. Markets and pottery kilns: late 14th to mid-15th century

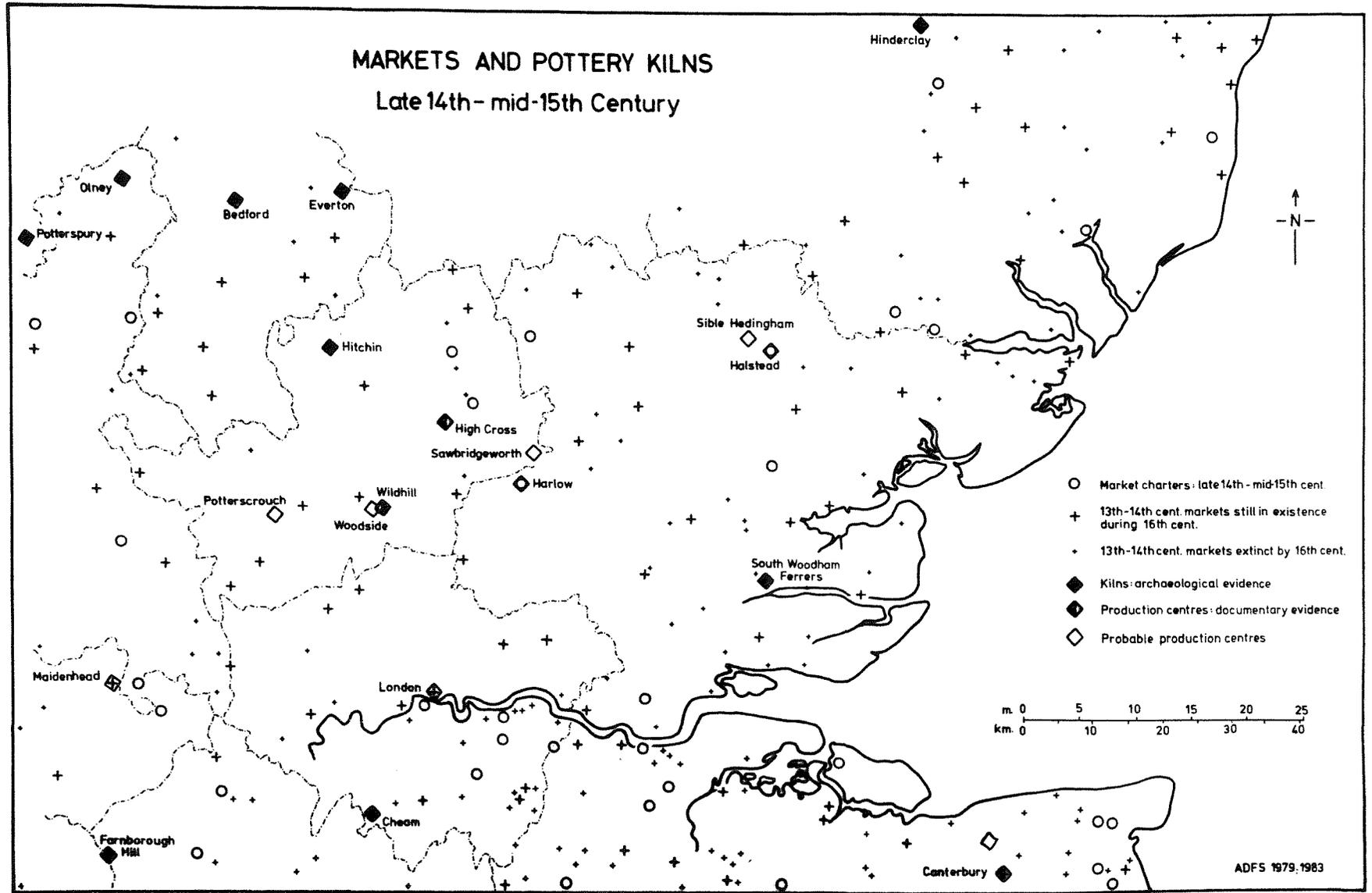
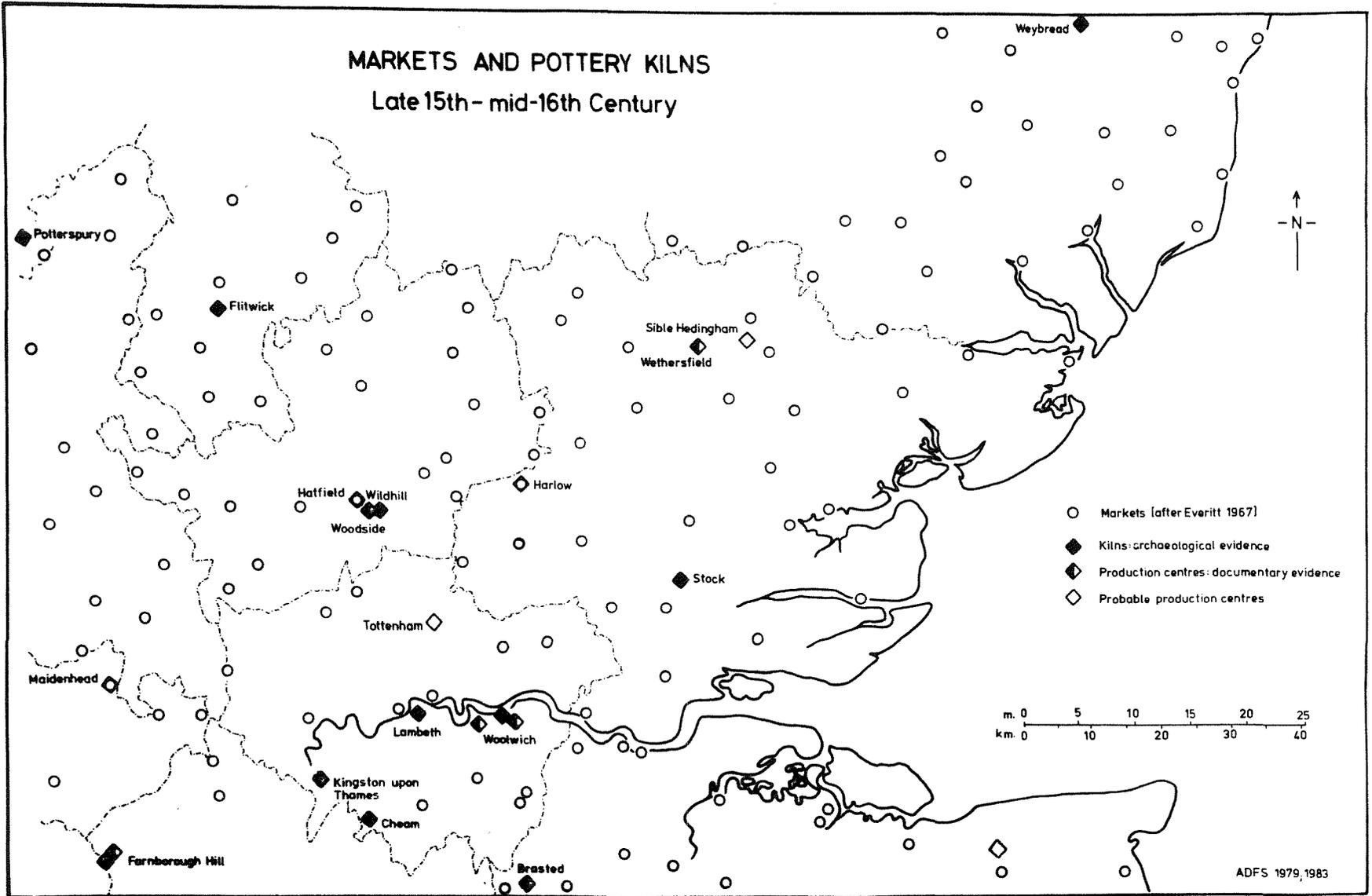


Fig. 8.19 Home counties. Markets and pottery kilns: late 15th to mid-16th century



market towns in resisting, both politically and economically, the establishment of rivals. Moreover, Petchey (1980, 117) has stressed the geographical links between rural potteries and some of the principal medieval towns. In Essex alone, Ingatestone (Mill Green) is about 8 km. (5 miles) from Chelmsford; Sible Hedingham is only a mile or so further from Braintree and there were potters' workshops in close proximity to Colchester. The output of these rural potteries was doubtless stimulated by urban demand as at Canterbury, Reigate and Lewes in the counties of Kent, Surrey and Sussex respectively.

Like the area south of the Thames, many of the minor medieval markets in counties to the north of London disappeared probably during the late fourteenth century (Figs. 8.18-19). As we have seen (Section 1.5.6), there was a significantly greater number of new charters at this period in the Weald of Kent and East Sussex compared with parts of Essex. Several of these minor Wealden markets remained in the early sixteenth century and it was perhaps through these that craftsmen operating from small rural workshops found an outlet for their wares. The persistence of industries in the Hatfield, Harlow, Sible Hedingham and Chelmsford areas, on the other hand, was more akin to the dominance of the Graffham/East Lavington potteries in West Sussex.

By setting the production and distribution of medieval ceramics within a chronological and economic framework, it is possible to attempt regional comparisons. Conclusions drawn in one area raise questions in another. It is important therefore that ceramic research strategies should be addressed to these wider issues. Questions will not be answered simply by collecting more data, but there is a need for the recovery of ceramic assemblages from Wealden towns to evaluate their trade connections to north and south. Having established the broad outlines of the medieval pottery industry in the region and having identified the problems for future research, there is scope for testing these suggestions by detailed local studies. The dating of production centres through the occurrence of their output in stratified assemblages is particularly important.

The documentation of pottery finds, production centres, markets and settlements accompanying this study is intended to facilitate the integration and understanding of new evidence. The task of defining local distributions will be made easier by the

analyses and geographical syntheses of existing information presented here. Experience has shown, however, that reliable identifications can only be made by time-consuming fabric classification and comparison, preferably accompanied by a programme of textural analysis. Place-names and documentary evidence suggest that there are more kilns to be found on the fringes of the Weald. When such discoveries are made, the methods and data described here offer a means of identifying their output and assessing the distribution of their products in relation to neighbouring industries.