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**THE ARCHAEOLOGY
OF SUSSEX POTTERY**



**Symposium proceedings
edited by D. J. Freke**

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INTRODUCTION

This volume contains papers read at the symposium on 'The Archaeology of Sussex Pottery' organised by the Sussex Archaeological Field Unit and held at Stafford House, Hassocks, from 12th-14th December, 1978.

The symposium was first suggested in 1977 after the successful conference on 'The Archaeology of Sussex to A.D. 1500' (C.B.A. Research Report 29) when it was felt that bringing together specialists concerned with many aspects of prehistoric, Roman, and post-Roman archaeology had been very fruitful. It was hoped that a symposium on the pottery of all periods would have a similar effect. Especially it was thought valuable to examine the uses to which archaeologists put ceramic evidence from excavations, and to learn of the many new methods of analysis being employed by ceramic specialists.

The symposium proceedings reflected the increasing emphasis being put on the social and economic implications of pottery. The problems of date and style are still with us, but they are discussed by most contributors to this volume as preliminaries to further interpretive work. The role of thermoluminescence in dating pottery was discussed by Dr. Sheridan Bowman (not included in this volume) who described the technique and examined its applicability in archaeological contexts (Thermoluminescence is discussed in detail in Aitkin and Mejdahl 1978 and 1979). Archaeomagnetic dating of kiln structures, hearths, burnt walls and ditch silts is explained by Anthony Clark, and it clearly offers a valuable tool to the excavator, the more so in view of the readiness of the Ancient Monuments Laboratory of the D.o.E. to take samples from promising contexts.

Stylistic arguments are rarely used as the primary evidence for dating by any contributors, and many are concerned to re-examine the conclusions reached by their predecessors using a body of material which has not been substantially added to in the last few decades. Tim Champion's re-evaluation of Iron Age pottery re-casts the chronology and functional understanding of the period, and Peter Drewett draws together and describes in detail for the first time the scattered references to Neolithic pottery in Sussex. Caroline Dudley's paper on the pagan Saxon material evaluates Myres' scheme in the context of Sussex. Fabric analysis is used constructively by all these researchers to establish pottery sources where possible, and in Anthony Streeten's important paper on the medieval pottery, the results of his new technique of fabric analysis are used to reach wide ranging conclusions about markets and economics.

Most contributors consider the pottery along with the other classes of artifacts which survive in the archaeological record. Ann Ellison's paper discusses the evidence from structures and metalwork, and Chris Green uses currency and urbanisation to corroborate the economic and social implications of the pottery. The work of John Hurst on imported medieval pottery may be a useful corrective to overspeculation about the role of 'traded' objects. He emphasises that the trading mechanisms which brought this material to Sussex are still inadequately understood, and may only be elucidated by more historical studies. Richard Hodges makes a similar point in his study of late-Saxon pottery, a period in which documentary studies and archaeology can be combined to produce a more fully rounded model of market systems than either could alone.

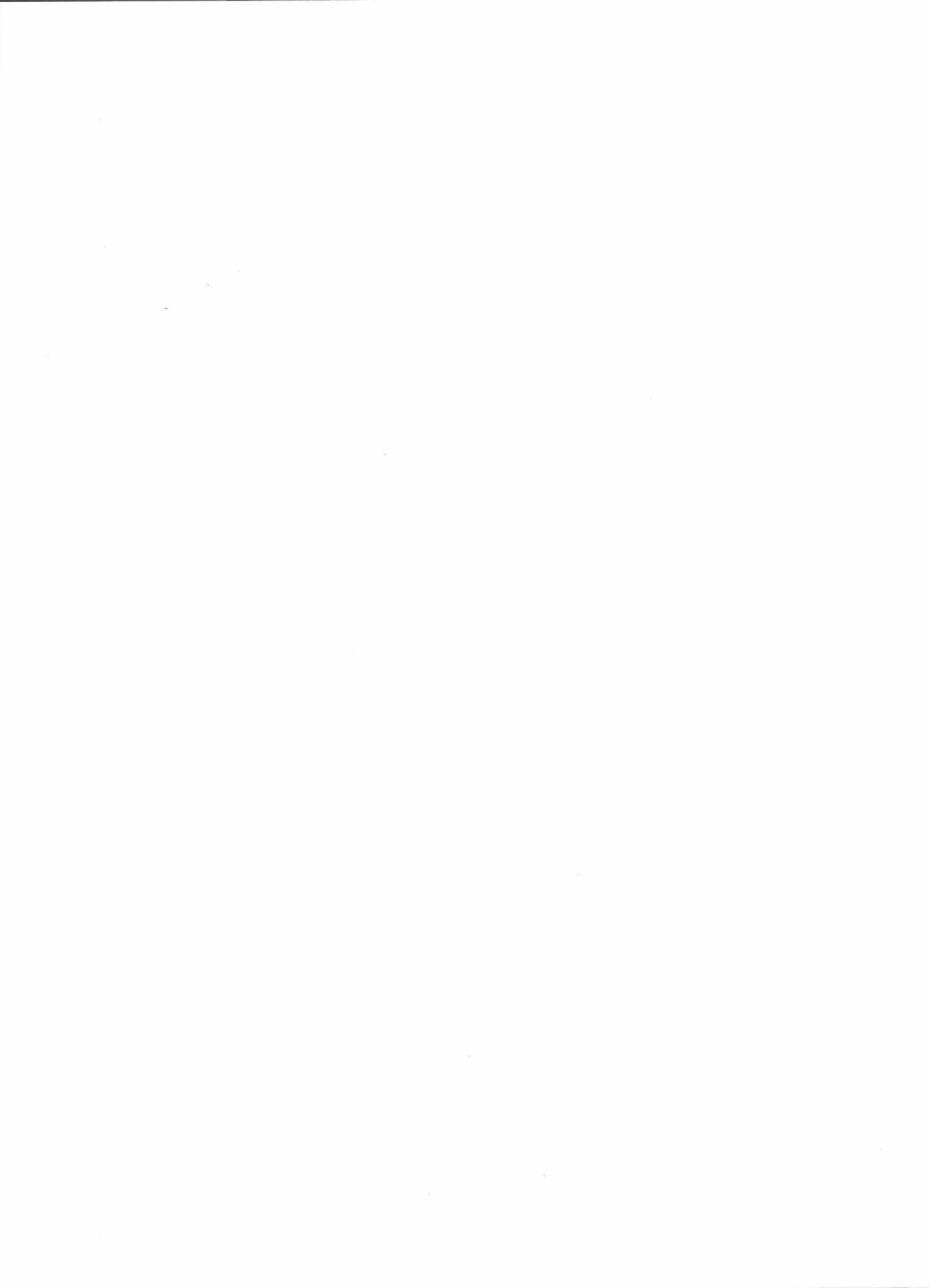
Another strand which links many of the papers is the recognition that standards of analysis, description and publication urgently need to be established. Clive Orton described the meticulous cataloguing and storage used at the Department of Urban Archaeology of the Museum of London, and some such system seems more and more necessary for efficient comparative studies. This paper is not included in this volume because a description of the D.U.A. system is fully published elsewhere (M. Rhodes, 'A pottery fabric type-series for London' *Museum Journal* 76, no. 4, 1977; and the *D.U.A. Pottery Archive Users Handbook*, 1978). It is interesting that although nearly all contributors mention the problems of analysis and publication, it constitutes the main argument of two Roman specialists—Chris Young and Martin Millet—and the medievalists. Workers in these periods have also formed their own pottery research groups and have produced, or are about to produce, guidelines for analysis and publication. The problem is obviously acute for excavators of Roman and medieval sites in a way which is not shared by prehistorians and Saxon specialists. The reasons must be firstly the masses of pottery usually recovered on Roman and medieval sites, and secondly the number of comparable sites and the complexity of the inter-site comparisons.

The post-medieval period is probably so complex ceramically that a single research group could not cope, so it was refreshing to hear John Manwaring Baines describing the wares and mores of the Sussex earthenware potters of the eighteenth and nineteenth centuries, the last representatives of a local ceramic tradition struggling against the competition of the industrial fine-wares of Staffordshire and elsewhere. John Nuttgens' paper is even more of an antidote to too much abstract theorising; he describes his own working methods and comments on archaeologists' interpretations of styles and techniques from the point of view of a practising potter.

The contributors to the symposium all stressed the need for continuing research into Sussex pottery, and it is clear that many of the conclusions presented here are provisional. But that must be the nature of a healthy discipline, and the success of this symposium will be measured by how quickly the cross-fertilisation of ideas makes this volume out of date. Nonetheless, these proceedings include the most recent thinking about Sussex pottery and many contributions provide summaries of the material in the county, and it is hoped that they will constitute a guide to current ideas and a spur to future research in and around Sussex.

D. J. Freke, 1978

The Society is extremely grateful to the Council for British Archaeology for a generous grant towards the cost of publishing the proceedings of the symposium on Sussex pottery.



MAGNETIC DATING

by Anthony J. Clark

Both the direction and the intensity of the Earth's magnetic field are always changing. These are preserved in fired clay, so that the potential for dating is contained in this ubiquitous archaeological material providing the variations of the Earth's field with time are known. Following pioneer work by Folgheraiter at the end of the last century, the main foundations of archaeomagnetic dating with this type of material were laid from 1933 onwards by Thellier and Thellier in France. Most work has so far been concentrated on the directional aspect which requires orientated samples from fixed structures such as kilns and hearths. In Britain this was initiated by Belshé and Cook at Cambridge in the early 1950's, followed by Aitken and his colleagues at the Oxford Research Laboratory for Archaeology and the History of Art (Tite 1972; Aitken 1974). Since 1974, most directional work has been done cooperatively by the Department of Geophysics and Planetary Physics, University of Newcastle upon Tyne, and the Ancient Monuments Laboratory.

The long process of laying the foundations of magnetic dating still continues. The spur to its development, apart from the obvious fact that it extends the possibilities for scientific dating, is that it can, at its best, give better discrimination and precision than either radiocarbon or thermoluminescence—though it may need the assistance of one of these techniques to achieve its precision.

DATABLE MATERIAL

Archaeomagnetism depends upon the presence in the sampled material of iron oxides whose magnetism is orientated by the Earth's field. In clay and other materials, the process of firing both destroys the magnetism of the oxides and converts other iron compounds present into oxides. On cooling, the magnetic domains within the oxides acquire a *thermoremanent magnetism* aligned with the Earth's field and effectively permanent, the maximum conversion occurring when the *Curie temperature* (about 650°C) has been reached. Thus the best results are obtained with well fired structures, especially when they have fired red, which means that the oxide is predominantly haematite which is more stable than the magnetite that produces the dark colours.

One must be watchful for two sources of inaccuracy: tilting of the structure (or the part of it sampled) since firing, so that the vital original magnetic orientation is lost; and refraction or distortion of the magnetic field by the developing magnetism of the structure itself as it cooled. The tilting problem should always be suspected if the feature is not securely based on firm bedrock, and tends to be at its worst on urban sites with underlying archaeology, especially if this includes pits. Three examples, two from Sussex, illustrate this problem and possible solutions. At Chapel Street, Chichester, subsidence had clearly occurred all over the site, but Saxon pottery firing clamps seemed worth sampling because they overlay massive Roman walls likely to have formed a stable base. This was so where right-angled walls crossed, but a single wall proved on inspection to have tilted because of underlying pits which had also distorted the floor of the building. The clamp overlying this wall gave a correspondingly deflected magnetic direction, although this could readily

be allowed for because the wall, running north-south and rigid in this direction, had tilted the structure exactly east-west. The second example was the sixteenth-century kiln at Lower Parrock, Hartfield, which had floors of two periods. The lower floor, on the natural clay, gave a sensible result, but the upper floor, cracked and separated from the lower by a soft clay filling, gave a wildly improbable direction and must have tilted. Thirdly, at Stamford Castle, Lincs., a pre-existing bread oven was overlain by the castle wall, the great weight of which, as the readings indicated, had tilted it slightly; but again the original direction could be fairly confidently reconstructed because the orientation of the wall was known. Thus all is not necessarily lost if the direction of tilt can be ascertained; and conversely, if the date is known by some other means, the original position of a tilted structure may be discoverable magnetically, or the shape of a distorted or broken structure (even a pot) reconstructed by comparing the magnetic directions of its parts.

The most stable—and sometimes the only remaining—part of most structures is the floor, from which archaeomagnetic samples are therefore most frequently taken. However, magnetic refraction can cause a shallowing of the inclination of 2-3° in the clay floor of a typical pottery kiln. Samples from the walls, however, are subject to declination errors so that, although these cancel out if the samples are taken systematically around the circumference, the values are more scattered and thus have wider error limits than floor samples, especially as the walls are also likely to be less physically stable.

Finally, it must be remembered that thermoremanence records the last firing of the structure, which may be far removed in time from its construction.

With the development of improved and more sensitive magnetometers (e.g. the Digico), the possibilities of less magnetic materials have been pursued, and good results have been obtained at Stamford from burnt soil beneath the central fire of the castle hall and from the mortar of a more sophisticated fireplace; and, at Hascombe hillfort, Surrey, from a sandstone pit wall scorched by burning grain (Thompson, forthcoming)—in fact any *in situ* burnt material exhibiting the characteristic redness that betrays the presence of iron oxide is worth considering. To a limited extent, silts can also be used: if the material forming a silt contains magnetic particles, these tend to align with the Earth's field, like little compass needles, as they fall freely through water, or even air, so that on settlement the silt is left with a *depositional remanent magnetism*, which will accurately record the Earth's field direction providing the process takes place in still conditions and that the shape of the particles does not bear a systematic relationship to their magnetisation; for instance, long particles magnetised along their axes will tend to lie flat, giving a falsely shallow value for the inclination. Silts are more susceptible to disturbance than solid structures, and to a variety of possible post-depositional chemical changes collectively called diagenesis, and tend to be weakly magnetic and therefore difficult to measure accurately—but with the compensation of negligible magnetic refraction. Diagenesis is minimal, and silts most reliable, if they have remained saturated with water since deposition, as in ponds—or are as dry and inert as possible: dry, sandy silts have proved successful in a variety of situations because, once compacted, the sterile sand forms a protective matrix for haematite grains. Weathering is a cause of both disturbance and diagenesis, so that the deeper, best protected features tend to give the best results. In a ditch one should, if possible, sample the very lowest, fine layer of primary silt, washed or blown from the freshly cut sides in the first few days or weeks of the ditch's existence: not only is this contemporary with the cutting, but it is rapidly sealed and protected by progressively coarser silts (Thompson, forthcoming).

SAMPLING METHODS

Magnetic dating of fired clay structures originally required large samples involving extensive destruction. With the new magnetometers, measurements can be made on samples so small that damage can be almost invisible, so that samples may be taken even from structures that are to be preserved.

The angle of dip (inclination, *I*) and the declination (*D*) of the magnetic field preserved in the structure must be measured in the laboratory. This requires each sample to have a horizontal reference surface upon which is marked a line with a direction related to true north. The first can be done very accurately with a spirit level costing less than £1; the second is more difficult, and the ideal equipment for achieving this measurement with similar accuracy in any conditions is a theodolite fitted with a north-seeking gyro-compass, costing over £10,000. Much cheaper compromises are described below. The sampling procedure is to attach specially designed 1-inch diameter PVC discs to the structure by means of 5-minute epoxy resin, which will adhere even to a damp surface. Each disc is pushed down on to a small blob of Plasticine upon which it is levelled by means of a bullseye spirit level and which holds it thus while the adhesive sets. The north reference line is marked on the disc in one of several ways: directly by magnetic compass of the type with a straight edge that can be lined up with the needle, or by sighting back from a remote theodolite, using as reference either a built-in compass or a timed sun observation, the sun direction at that time being obtained from the Air Almanac; or a simple slab of accurately machined Perspex, half an inch thick and about 5 cm x 15 cm, stood upright on the discs, can serve as an accurate sun compass, as well as being an important adjunct to the other methods: it is used as a stand-off device to prevent the compass from being affected by the magnetism of the structure itself, or a small alidade is attached to its side for sighting back to the theodolite. As a sun compass, it is turned until neither shadow nor reflection is visible on the disc or the alidade, when it is precisely aligned on the sun. To complete the sampling process, a small piece of the structure is chipped or gouged away with the disc, about 1 cm³ or even less being sufficient. After drying, the samples are consolidated by dipping in PVA/methylated spirit solution or PVA-water emulsion.

Because of their softness and weak magnetism, samples of silts and similar materials are larger and fully encapsulated. PVC tubes 5 cm long x 5 cm diameter, cut from standard drainpipe, are placed over rather shorter pillars carved from the material, and carefully levelled. Plaster of Paris is poured into the space between pillar and tube and scraped off level. After the north reference is marked, these are detached and sealed on the underside also. The direct use of the magnetic compass is common because these materials are too weakly magnetic to affect it.

Whatever the type of material, several samples—normally eight to sixteen—are taken to reduce the effect of random errors and those due to magnetic refraction in fired structures and post-depositional disturbance in softer materials.

In the laboratory, a computerised spinner magnetometer is used to determine the field direction in each sample after removal of minor 'soft' magnetic components, acquired since firing or deposition, by applying to each sample a level of alternating field, or heating in zero field, determined by tests on pilot samples from the group. Finally, the mean direction and its level of precision are computed and normalised (see below).

CALIBRATION

The Earth's magnetic field is probably generated by a dynamo effect in the liquid metal core—it is significant that the fast-rotating planets tend to have the stronger fields. The main,

dipole, field of the Earth behaves as though there were a bar magnet almost in line with the axis of rotation. There is also a weaker, non-dipole component which, probably because of irregularities at the interface between the core and the solid mantle, is subject to changes in direction and intensity called the *secular variation*. It is upon these that magnetic dating depends: archaeology, in return, is contributing to the geophysicists' understanding of these majestic internal processes of the Earth.

The secular variations are apparently erratic; therefore every part of the curve requires calibration, and, because the causes of the variations are quite localised, a particular calibration curve will only apply to an area up to about 1,000 km across, and even then a normalising correction must be applied to the readings. The British Isles are a suitable size to form a single unit, and readings are normalised to Meriden as a central position.

Such was the interest of this maritime nation in the compass that the Earth's magnetic field was one of the first phenomena to be investigated scientifically, and we have direct measurements made in London as early as 1576. Back beyond this, the curve has been built up from measurements on structures dated archaeologically or, more rarely, by radiocarbon. This is a painstaking process: radiocarbon dates are imprecise, as are many archaeological dates, some of which are even wrong; but with the accumulation of results, the shape of the curve inevitably emerges and its absolute calibration is then greatly advanced by a few well-dated sites. A fruitful two-way process can develop, where the magnetic curve indicates which of two or more possible historical events the construction can be associated with, and then the date of the event is used to place a precise point on the curve.

The present state of calibration is shown by Fig. 1, which also illustrates the strengths and weaknesses of directional dating. Most noticeable is that, as the curve crosses and recrosses itself, the magnetic direction for a particular time is not necessarily unique, so that the method can never be totally independent of the archaeological context. The curve is quite well known back to about A.D. 1000, and for the Roman period. Between these, the former Dark Age is still dark magnetically, and only two measurements have so far been obtained for this period—one from the Saxon village at Chalton, Hants., and the other from an early Stamford Ware kiln. At some times the magnetic direction is changing rapidly and good discrimination is possible; for instance, inclination is changing by about 1° per decade for much of the sixteenth century, and from then to the present day it is possible to achieve results with a 68% confidence level of ± 10 years for good structures. There is a steady movement of both inclination and declination from about 1000 to 1300, over which period ± 25 years is attainable, especially around 1200, for which much good data has been obtained. Near the turning points, precision and discrimination are reduced by slow change and, unless results are very precise, by uncertainty about which arm of the curve they lie upon. This is particularly serious around 1400 and for the Roman period, which is represented by a hairpin fall and rise of inclination with hardly any change in declination. Fortunately, the rate of inclination change was quite rapid in Roman times, and ± 25 years is again obtainable, but the help of archaeology, radiocarbon or thermoluminescence is normally needed to find the correct side of the hairpin before the discrimination of a magnetic measurement can be translated into absolute precision. An exception is the type of site where samples from successive kiln floors will reveal the direction in which the curve is moving, and such a sequence in Alice Holt Forest, combined with close study of the pottery dating, is helping greatly with the detailed calibration of the Roman curve. This curve has been pushed back into the first century B.C. by measurements on samples obtained during recent excavations at the hillforts of Holmbury and Hascombe in Surrey; and a probably seventh-century B.C. salt-drying hearth at Mucking, Essex, has confirmed a strong easterly

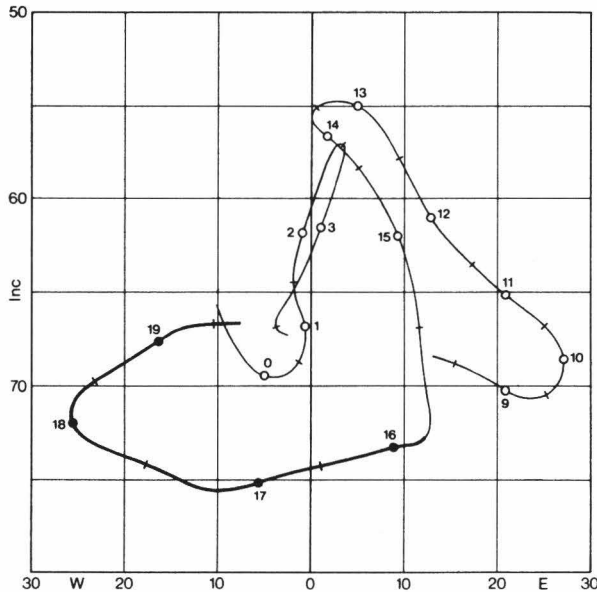


Fig. 1. The archaeomagnetic curve for Britain, normalised to Meriden. Inclination is plotted in degrees against degrees of declination east and west of true north which is at the centre. The numbered circles indicate hundreds of years AD, and the ticks mid-century points. The heavy line is the curve as known from direct observations. The thin line represents the tentative curve built up from measurements on archaeological features dated by other means. There is not yet sufficient information to fill in the curve between A.D. 350 and 850.

movement of 30° or more, first recorded by Aitken and Hawley for a hearth dated to this period by radiocarbon at Weston Wood, Surrey.

A flood of light has been thrown on the magnetic curve by recent research in Scotland (Turner and Thompson 1979). Cores taken from the sediment on the bed of Loch Lomond have been shown to quite faithfully record declination and inclination over several thousand years. Previous measurements on lake sediments, e.g. Windermere, have been only partially successful, mainly because of poor preservation of the inclination, and because calibration was based upon radiocarbon measurements on the organic fraction of the silt, which has proved to antedate its deposition considerably. Using the archaeomagnetic curve for comparison, the rate of sedimentation of Loch Lomond has been calibrated and reveals acceleration—from about half a metre to one metre per thousand years—in recent times, and briefly during the Roman period, that can be associated with increased erosion caused by land clearance, or, in the Roman case, conceivably even punitive burning. Calibration of the earlier parts of the curve is aided by more reliable radiocarbon than at Windermere. The easterly movement culminating about 750 B.C. is clear, but from about 300 to 1300 B.C. the curve, like the Roman one, forms a tight loop that will need help from radiocarbon and archaeology for its disentanglement. Between 1300 and 2500 B.C., the curve opens out to a wide loop thrusting 20° to the west which may help in establishing the detailed chronology of that time between the Neolithic and Bronze Ages when the greatest achievements of Wessex occurred. Between the Roman and medieval periods there seems to be a double loop which promises good discrimination for the migration period but will depend heavily on precision of measurement and supplementary data.

MAGNETIC INTENSITY

There is a possibility that intensity measurement, which requires no orientation and can be made on loose fired clay fragments such as sherds, will provide a further source of archaeomagnetic data for Britain. The short-term fluctuations of use to archaeology are cyclic and again require supplementary data, but intensity and direction in combination could give results more nearly unique than either method on its own. Measurements on Etruscan, Arretine and samian pottery seem to have shown that the strength of the Earth's field in Europe almost halved from 500 to 1 B.C., and then rose again to approximately the first value from A.D. 1 to 200. Such substantial and rapid changes could give very useful discrimination. Work on British material is under way at the Research Laboratory for Archaeology, Oxford.

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TOWARDS A STRATEGY FOR EXCAVATING POTTERY KILNS AND ANALYSING KILN ASSEMBLAGES

by D. J. Freke and J. Craddock

This paper is concerned with on-site and post-excavation procedures appropriate to the excavation of pottery kilns. The authors' experience of excavating a sixteenth-century kiln provided the motivation to tackle some of the problems which the increasing volume of kiln studies is bringing into focus, and many of the examples quoted are derived from that excavation (Freke 1979). It is becoming generally accepted that mere data collection is a fundamentally unsatisfactory approach to many archaeological problems (Wainwright 1978). An hypothesis and a research design, even in rescue contexts, must be specified before techniques can be discussed. It may be necessary to re-examine current practices for their relevance.

The history of kiln studies has been one of individuals whose work has necessarily reflected their personal interests, mediated by the prevailing archaeological concerns of their time. Implicit research aims have ranged from object-oriented antiquarianism (Vidler 1933) to the systematic classification of kiln types (Musty 1974). There will never be total agreement about the aims of such studies, nor about the techniques used to implement them, but this only makes it more imperative that excavators should examine the limitations and strengths of their methods.

Much recent work has been concerned with the relationship between the individual kiln site and its social and economic environment (for instance Streeten, this volume). For this sort of wide-ranging interpretation comparative sets of data are required, and inter-site comparisons of kiln structures are now well established, indeed many excavations are primarily directed at providing data for such comparisons. But the kiln-type is obviously only one of the variables exhibited by kiln sites and the examination of the socio-economic environment of kilns and potters requires inter-site comparison of other variables. Many excavation reports describe some of the variables of kiln sites and assemblages but not always in terms which allow their comparison with other sites. There has been no general discussion of what evidence pottery kiln excavations should produce, nor how to excavate kilns to ensure that such evidence is recovered, nor how this evidence should be analysed and published.

The current concerns of kiln excavators, as revealed implicitly by recent reports, seem to be twofold: firstly, a study of the spatial organization of pottery sites, most directly expressed in a specific appeal for the search for ancillary buildings (Musty 1974, 58); and secondly, a comparison of the fabrics and forms (Peacock 1977; Brears 1971, 18-20; Freke 1979). These divergent interests have always been present in the spectrum of kiln excavations, but they have now become specialised to the point where the excavation report and the pottery report of the same excavation can be published in different issues of a national journal (Tait & Cherry 1978 and forthcoming). These research orientations need both a more extensive and a more intensive approach to pottery kiln excavations than is usual at present. The elucidation of the layout of any site entails area excavation of suitably preserved sites, while the study of the variability of the product demands a vigorous approach to on-site collection and post-excavation analysis.

There is an apparent conflict between these aims. The excavation of large areas to expose the relationships between features is normally only economically feasible if earth moving machinery is

employed, a course which is incompatible with the meticulous recording of the surface distribution of pottery in the same area (Asch 1975, 173). Total excavation by hand usually necessitates digging a much smaller area than could be tackled using machinery. The special problems of multi-period urban or complex industrial sites will be considered below, but a solution on rural sites is a programme of sampling in advance of machining in order to allow the reconstruction of the spatial distribution pattern of the pottery. The samples should be collected in a controlled manner to enable valid inferences to be drawn about the product. If inferences about spatial distribution and product variability are to be reliable then the sampling procedures must be appropriate, that is, designed to answer carefully formulated questions. Reports of kiln excavations rarely state how the decisions about where and how to excavate were reached, nor how the fraction of pottery published was collected on site and selected for post-excavation analysis. A conscious multiphase approach is required (Redman 1975), first to establish the research design, then to survey the sites and assess which should be excavated, then to determine how, and how extensively, the selected sites should be dug, and finally how to select groups for analysis from the total excavated assemblage. This procedure is already carried out implicitly, but in an *ad hoc* fashion. At each stage attention needs to be focussed on the priorities and potentials of the sites and the proposed methods of excavation (Wainwright 1978; Groube 1978).

Survey and site selection

In Sussex the survey aspect is now well covered (Streeten, this volume), but site selection and excavation has, to date, necessarily been haphazard, depending on chance discoveries and opportunism. Imminent destruction has proved a potent spur to excavation and seven out of the thirteen medieval pottery kiln site excavations in Sussex have been the result of rescue programmes of the last ten years. It is probably imperative to continue excavating all threatened pottery kilns in view of their rarity as compared with, say, bronze age barrows (there are about a score of medieval pottery kilns known in Sussex, but there are over 215 barrows or barrow groups [Drewett 1976]).

Excavation strategy

It is at the stage of planning the excavation strategy that the research design becomes a critical factor in Sussex. Rescue archaeology should not imply rushed, unstructured or underfunded work. If excavations are to contribute towards the general aims suggested above then where possible controlled sampling and extensive area excavations should be carried out. On urban or complex industrial sites and rural sites the aims are the same, but the complicated stratigraphy on restricted urban and industrial sites make a simple distribution pattern difficult to achieve and interpret. The identification of different phases of the layout needs total excavation but sampling in advance of excavation will probably be less useful on urban sites than on rural ones. Instead, contexts which yield stratified groups must be the source of the material which will be used to assess the products. Sealed and stratified contexts may be very difficult to find, but as an excavator of *any* site must identify different phases and the products of those phases, the problem of what contexts to sample is a general archaeological concern (Brown 1975).

On rural sites, too, the excavator's prior knowledge about his site usually precludes a simple probabilistic sample design. In situations where the kiln can be located using a proton magnetometer and where the waster heaps may be visible on the surface and clay pits still extant and where even the limit of potter's holding may be known, then the use of a stratified, systematic, unaligned sampling procedure will be more useful (Redman 1975, 151). The theories and

procedures of sampling appropriate to archaeology are discussed in detail elsewhere (Mueller [ed] 1975; Cherry *et al* [eds] 1978). Here it is only necessary to establish that the purpose of the sampling strategies proposed for pottery kiln sites is to provide data for two types of assessment: firstly the pottery densities and variations at different parts of the site, and secondly the range and variability of the product itself.

The sample units therefore need not be very large. Enough of each zone of the site should be sampled to allow the distribution pattern to be discerned, and the pottery recovered from the units must provide enough material for the analysis of its variability to be statistically valid. It is usually thought that one problem *not* encountered in kiln sites is lack of material, but the appropriate size of a sample depends upon the frequency of the objects in which one is interested in the population being sampled. If the research aim necessitates the recovery of very rare items, like a particular decorative motif, then 'it might be necessary to recover virtually all the sherds from the site' (Asch 1975, 171). The truth of this was demonstrated at the Lower Parrock sixteenth-century pottery kiln where one particular moulded design was represented by one sherd out of 177,400 (Freke 1979, Fig. 14, no. 73). The choice of sample size clearly depends on the excavator's prior assessment of the likely frequencies of the objects in which he is interested, and the questions he intends to ask of his material (Cowgill 1975, 263 and 274). At Lower Parrock the general proportions of all the forms except the 'exotics' were established by analysing less than 1,000 rims.

Whether or not it is intended to attempt to recover virtually all the sherds on the site, the pottery collection from the sample units must be total. This may result in a large amount of material but as suggested above, only relatively small amounts need to be analysed in detail. Nonetheless the total collection of pottery from sample units will usually produce much less than the quantity excavators are tempted to accumulate.

Total collection from the sample units avoids the inevitably haphazard and non-probabilistic methods of gleaning otherwise forced upon excavators when faced with the quantities of material potentially available on kiln sites. *Ad hoc* methods are rarely detailed in reports and most on-site selections inevitably result in unquantifiable errors or bias, and the estimates of total output or variability based upon such selected material, even if attempted, must remain unsubstantiated guesses which depend for their authority on the intuition and experience of the excavator. Total recovery of pottery from sample units is, however, a slow process. At Lower Parrock the excavation of only 156 square meters of ploughsoil, which included a very small waster heap, took approximately 1,000 person/hours (6 excavators 4 weeks).

Analysis of the assemblage

The essential preliminary to the detailed assessment of the formal variation of the pottery is the analysis of the fabric. It is necessary to isolate 'alien' sherds and establish the range of fabrics produced at the kiln. It may be possible to distinguish 'domestic' and work areas using 'alien' sherd distributions, and different fabrics used by the same potter(s) may have been used to make different types of pots. Fabric analysis is discussed generally by Peacock (1977), and specifically in relation to kilns by Streeten (this volume).

The formal analysis of the pottery should be designed to yield information on the two research aims outlined above—the layout of the site and the variability of the product. The methods of analysis will be different for each. There has been no general discussion on how the material from kiln sites could be analysed except Clive Orton's work on the mathematical reconstruction of forms (1974) although there has been some examination of pottery quantification generally (Solheim

1960; Hinton 1977; Shepard 1956; Orton 1975; Young 1979b). The methods of pottery quantification used in archaeology are: sherd counts, sherd weights, volume displacement, rim counts, minimum vessel counts, and vessel equivalent counts. Some of these methods are not relevant to the sort of analyses contemplated here. Sherd weighing and sherd counting are simple methods which can demonstrate distribution patterns, and the ratio of number to weight can be used to identify pits or trampled areas. Volume displacement is rapid, but it is messy (Hinton 1977) and lacks the comparative element of counting and weighing. Simple rim sherd counts can be used to estimate total numbers of sherds; in the very large groups at Lower Parrock the number of rim fragments as a percentage of the total number of sherds in each of 34 groups was 5.9 per cent \pm 1.2 per cent to one standard deviation. Weights of rims were not such a reliable guide (9.8 % \pm 8.6%).

If weighing and counting are carried out in terms of simple vessel categories and broken down into vessel parts, like rims, bases, etc., it will give adequate information for the purposes of elucidating the site layout. Any more detailed information needs some method of calculating whole vessel numbers. The two widely used techniques are minimum vessel counts and vessel equivalent counts. Minimum vessel counts depend upon comparing various aspects of the sherds such as rim profile and fabric and assessing whether the fragments may have belonged to the same vessel. This is a very effective way of analysing relatively small numbers of sherds in restricted contexts, such as medieval pits (Freke 1978). The method depends upon being able to compare directly all the sherds in a group with one another, and also with those from all other groups on the site. This is necessary because fragments from one pot may have become scattered into, say, a score of contexts, and so will be counted 20 times if each context is considered separately.

On kiln sites the sheer numbers of sherds in each context, let alone the whole site, precludes the efficient comparison of every sherd with every other. The alternative method of whole vessel assessment—the vessel equivalent count—avoids this problem. It is calculated by adding up the percentage of the circumference of the rim which each rim sherd represents and dividing by 100. This gives a notional total number of complete pots. It can be checked by comparing the vessel equivalent number of jugs with the number of jug rim fragments still attached to a handle stub or with a scar of one (which therefore represents one vessel). In large enough groups (over 10 vessels) this comparison gave a very close correspondence at Lower Parrock (Freke 1979, Table 3). The vessel equivalent method avoids the problem of the single pot spread into many contexts. It also avoids the subjective decisions about similarities of form or fabric on which minimum vessel counts ultimately depend. The rim types can be divided into any desired sub-groups to whatever level of detail, down to actual single vessels. Comparisons of different rim profiles are very easily carried out using reference drawings, whose range can be extended as significant new profiles are identified.

When compared with the results of simple rim sherd counts it can be demonstrated that vessel equivalent counts give an automatic adjustment to compensate for different sized forms (Freke 1979, Figs. 5, 6). So, narrow-necked costrels (form 6), whose rims are often found whole or in only a few fragments, represent a much higher percentage of the whole assemblage by vessel equivalent than they do by simple rim sherd count. The converse is true of the wide mouthed forms like plates and bowls (forms 3 and 4), whose rims commonly shatter into many fragments.

Of course, some forms cannot be identified by their rims alone, or their rims may be too fragile to survive well. But other features, like bung holes, handles, decorative motifs or even bases can be used to refine the information given by the vessel equivalents. For instance, at Lower Parrock, rim form 2 included bung hole pitchers, small handled jars, and storage jars without handles. These forms could not be distinguished by rim profile alone, but in conjunction with other features like

handle stubs and bung holes they were easily quantified (Freke 1979, table 3). Forms which do not have rims at all, or where rims may not have survived could be quantified as whole vessel equivalents using other criteria unique to those vessels. The important thing is to establish some method of counting whole vessels.

At this point the aim of calculating the proportions of different forms represented in the wasters should be explained. It has been argued and generally accepted that the wasters on pottery kiln sites cannot be used as evidence of the proportions of forms actually produced (Musty 1974; Mayes 1968). It is suggested that the potters would have protected their finer wares from damage more carefully than their household wares, and that therefore fine wares are likely to be under-represented in the wasters. (There is a counter argument that the fine, more fragile vessels may have suffered more and have been less saleable as seconds than the more robust coarse wares, resulting in a disproportionately high representation of such vessels in the wasters.) Musty does point out, however, that rare items on kiln sites are also rare on 'consumer' sites, (1974, 59-60), and John Nuttgens (this volume), who uses a wood fired kiln to fire stonewares, considers that his own wasters are a fair representation of his actual production, except that mugs are under-represented and large plates and dishes are over-represented. Hugh Tait has pointed out that some potters' catalogues do not tally with the wares found in the excavation of their kilns (pers. comm.), but there is no reason to accept that potters' catalogues are necessarily a more accurate reflection of their output than their wasters. Even if we accept that wasters may be a skewed sample, then differences in the proportions of forms found at different kilns will still reveal differences in production, although they may not be so simply related to actual output. The outright dismissal of the usefulness of comparing the proportions of forms represented in the wasters at different sites has meant that the data has not been collected which would enable us to answer questions about the specialities, if any, of different potteries, or about the standardization of forms, or how potteries varied in the quantity and quality of their products, or how the fashions in coarse wares altered through time and from place to place.

It is likely that many devices and techniques used by potters which are assumed to be technically necessary may actually be individual, local, or national habits. This gives them a cultural as well as technical significance. At Lower Parrock, counting, measuring and classifying handles showed conclusively that the styles of attaching the handles to the body varied simply as a function of the handle width but the treatment of the handle itself (stabbing or ridging) was clearly related to the form of the pot and had little to do with technical 'necessity'. More comparative data from pottery kiln sites will enable pottery studies to make serious contributions not just to the dating of other sites, but to the wider problems of cultural development.

The more prosaic, but equally pressing, problems of adequate publication may also benefit from these suggestions. It has been shown at Lower Parrock that a rational sampling procedure results in a manageable amount of pottery, of which a relatively small proportion need be analysed in detail to produce the answers to specific questions. It is to be hoped that this will encourage those who are daunted by the prospect of coping with mountains of material to make a molehill out of it from the very beginning.

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PRACTICAL POTTING TECHNIQUES

by John Nuttgens

The topic of potting techniques is enormous, so in this short paper I will concentrate on aspects which are particularly relevant to the archaeologist. Many modern practices bear only a tenuous relation to the traditional methods which produced the remains which archaeologists study. But some of my methods are not too different from those of the traditional country potter, particularly as I make domestic wares, mainly from the clay on which the workshop is built, and I fire them in a wood fuelled kiln. Against this it must be admitted that many materials such as kiln furniture, temperature cones, glaze materials and ball clay are imported. Also my market of craft shops catering for a middle class clientele is obviously different from that of earlier periods. However, much ceramic technique is universal, so my experience may be of use to those studying earlier pottery.

There are some differences in the terminology used by potters and archaeologists; potters say 'body' when archaeologists use 'fabric', and the archaeologists' 'body' is the potters 'pot' (shape), and 'kneading' is called 'blungeing' by some archaeologists. 'Blungeing' for the potter is the mixing of clays or glaze materials into a liquid slip. These terminological confusions are symptomatic unfortunately of an occasional lack of understanding of practical potting, and many flights of fancy which purport to be descriptions of fact can be found in the archaeological literature. One example will suffice: "The speed of rotation which the wheel builds up creates centrifugal forces which throw up the lump of clay, while the potter has to control it and force it to maintain the shape he wants. A wheel has to spin at at least 100 revolutions per minute to create centrifugal forces" (Goven 1973). This is nonsense. Closer co-operation between archaeologists studying pottery and those who still make it would help to avoid much mis-understanding, and enhance the interpretation of pottery in archaeological contexts.

I will describe the processes involved in making my pottery, attempting to quantify time, materials and so on where possible.

Preparing the clay

The clay is dug from a glacial deposit of clay mixed with sand, flints and pebbles. It is dug from pits 2 m by 3 m in horizontal spits the depth of a spade blade (25 cm). The pits are 1 to 2 m deep, and in four years of work comprising 45 kiln loads, four pits have been dug (10 m³ of raw clay extracted). The pits are backfilled with sweepings from around the kiln, wood scraps, clay waste, slops and rubble. The clay is dried under covers to facilitate its subsequent slaking and then it is mixed with water in a large tub (blungeing). The resulting slip is passed through a large fine sieve ($\frac{1}{30}$ th inch mesh) into a settling trough, where it is left for two to three days before the surface water is poured off. Powdered white ball clay is then added to make a 50/50 mixture of more or less workable consistency, although a little more drying may be necessary. The clay is then kneaded before use.

Throwing, glazing and drying

The wheel is electric and revolves at 0-200 revolutions per minute. The lump of clay is always opened out from the centre, which may leave a clockwise spiral groove inside the base (the result of

an anticlockwise spinning wheel). Some interior surfaces—especially in the necks of bottles and pitchers—may show a rippling stretch marking in the form of diagonal lines rising from left to right. These occur when the pot has been ‘collared in’, that is, its diameter reduced, and they are most noticeable in pots made of clay which has not been rendered into slip in preparation. Marks rising from left to right indicate an anticlockwise spinning wheel, usual in the west (N.B. in the Far East, wheels revolve clockwise). Two or three weeks’ work is needed to produce the approximately 250 pots which make up a kiln load.

When mixing the glaze for application to leather hard pots, it is necessary to add 20 to 40 per cent of clay or 5% bentonite so that it will shrink at the same rate as the pot as they both dry out. A liquid glaze may be applied to some simple shapes of bone dry pot before firing without the risk of it flaking off. However, if it is applied to the inside only the pot is liable to crack as the inside clay surface expands with the intake of moisture.

Large pots require several weeks to dry but small items, up to approximately 10 cm high, can go into the kiln still damp. Obviously the weather and seasons affect this process, and in winter the drying pots must be protected from frosts. This may make potting impracticable during the winter without a heated workshop.

Firing

The pots are stacked in the kiln without saggars which would take up at least half the available space and are only necessary for fine wares on which flashing is considered a blemish. On my wares volatilised fly-ash can produce pleasing surface effects. The unglazed pots are stacked rim to rim or base to base on modern refractory clay batts. The load is approximately 250 pots of various shapes and sizes, in a kiln with a floor area of $1\frac{1}{4}$ m², and a total capacity of 2 m³ with a load capacity of 1.3 m³. The kiln is brick and is loaded through the doorway which is bricked up and clammed over with a mixture of clay and the ash from previous firings. The kiln has been repaired once in four years. Firing takes fourteen hours and consumes ten cwts of wood in the form of pine bark off-cuts weighing up to twenty pounds and pine and beech furniture off-cuts. It is fired to a temperature of 1260°C to produce stoneware. The firing produces only about half a bucket of ash, the rest being blown through, particularly the ash from soft woods like pine. Some of the ash in the firebox fuses into a glassy clinker. Firing at a lower temperature to produce earthenware would result in more ash. The kiln takes 48 hours to cool sufficiently to draw.

Rejects

Probably the most prominent characteristic of pottery kiln sites are the wasters. A great deal can be deduced about the operation of the pottery by the faults it produces. Quality control depends upon the standards that a potter sets for himself. This varies, even for a single potter: for instance what I might regard as saleable one day I may reject out of hand another day if it’s drizzling. Some potters may not mind selling (and their customers do not mind buying) a fire-cracked pot, while others (on both sides of the transaction) may be more concerned about their reputations.

A waster dump may be considered to represent the output of the pottery, insofar as there should be examples of all the lines produced. However, some lines are more prone to faults than others (table 1). These differences reflect the inherent vulnerability of the different shapes to the stresses induced during firing, but there are many other causes of failure which can operate independently of these built-in weaknesses. In fact, firing cracks and explosions, faults which are closely related to shape, account for only about a quarter of the pots in my waste heap. The rest being the result of accidental breakages, overfiring, glaze stickers and so on (table 3). The relationship between my actual production and the waster tip is shown in table 2. It must be

remembered that these are the result of only four years' work, in a new area, making high-fired stonewares. A long established kiln making earthenwares would have a different characteristic pattern of faults; probably a larger proportion would be overfired. Some sorts of faults are not represented in the tip at all because they do not survive even as fragments; for instance, a faulty clay mix once caused the loss of a complete kiln load which was then used as hard core. The fragments have subsequently disintegrated. Seriously underfired vessels would suffer similar destruction.

As suggested above, some faults are characteristic of the methods of firing. At the sixteenth-century pottery kiln site at Lower Parrock (Freke 1979) some of the bases were very underfired, but a few centimetres higher up they were well fired, sometimes overfired. This indicates that they were positioned on a relatively cool surface in the kiln, possibly a shelf or more likely the ground. This fault would occur in the bottom layer of pots in a kiln without firebars (as at Lower Parrock) or with an internal pedestal (Musty 1974, 45; types 1b, 2c, 4a [ii]).

Comments on some potting techniques

All my handles are applied in the English country tradition. A stub of clay luted onto the pot near the rim is pulled, using water as a lubricant. It is bent over and luted at its lower end. This results, naturally, in a thumb print at the top and possibly ridges and grooves down the length of the handle. These are not necessarily a conscious design feature but merely an impression of the individual hand which pulled the handle, especially if it is made at speed. It is possible to pull a handle from a stub in three strokes. The forms of the handles found at Lower Parrock are the result of the stub being initially squeezed between forefinger and thumb to give a wedge shaped section, and then the sharper edge being turned under with a few strokes.

A close examination of many medieval pots will reveal that fast and uneven firing dictated the potting techniques to a large degree. This includes the pricking and slashing of handles which being relatively thick are prone to explosions. Similarly the achievement of a uniformly thin section from top to bottom of a pot is clearly an advantage in fluctuating firing conditions. To attain this some finer medieval jugs were first thrown upside down to produce a thin section in what would ultimately be the lower part, then a thin sheet of clay was fitted into the open end and the pot turned the right way up on the wheel. The base was quickly smoothed in and the rim zone thinned and finished. The 'sagging' bases of coarser medieval cooking pots were another response to uneven firing. They cannot have been caused by lifting the pot from the wheel without cutting it off, as is sometimes suggested (for instance, Solon 1885). It is quite impossible to prise off a pot, even with a sanded wheelhead. The sagging bottoms were undoubtedly made by pressing out the leather-hard bases, possibly into a mould of wood or clay. One of the reasons for doing this was probably that a curved base is better able to withstand the stresses of a fast and vigorous firing and of subsequent cooking than is a flat base. Another advantage is that in stacking the kiln a curved base to curved base arrangement allows more freedom for the circulation of the gases, so there is less likelihood of bloats and explosions.

To conclude; the possible shapes and treatments of pots made by traditional methods are very various, but underlying all the variations are the inescapable limitations and strengths of the processes employed. To isolate the individual or cultural achievement embodied in pottery from archaeological contexts it is necessary to appreciate these physical parameters.

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Table 1. Percentages of rejects in particular lines.

Shape	Per Cent
Egg cups or similar	1
Mugs and Cups	2
Jugs	2
Storage jars (small)	2
Small bowls	5
Teapots	4
Storage jars (large)	5
Plates	10
Large flat dishes	12
Very large vessels (over two gallons)	15
Experimental shapes and glazes, and others	25

Table 2. Each line as percentage of total output, compared with waster heap.

	% of total output	% of waster dump
Egg cups or similar	6.5	4
Mugs and cups	31	13
Jugs	7.5	4
Storage jars (small)	5	2.5
Small bowls	18.5	20
Teapots	3.5	2.5
Storage jars (large)	3.5	5
Plates	4.5	6.5
Large flat dishes	1	10.5
Very large vessels	2	2.5
Experimental shapes and glazes	1	4
Vases	1.5	0
Large bowls	3.5	15
Plant pots	10	9
Salt kits	1	1.5

Table 3. Causes of common faults, with percentage occurrence in waster heap.

Fault	Comments	No. of vessels	%
Firing cracks	Uneven firing, vessels damp before firing, kiln damp, bad joints (especially handles), clay too thick, stacks too heavy.	18	24
Accidental breakages	Pots dropped when unloading kiln, damage caused when prising apart pots fired in contact.	17	22
Overfiring	Symptoms: bloats (large bulges with spongelike interior structure, caused by carbonaceous inclusion), blisters (small regular spaced bulges caused by small bubbles of air in clay), warping.	12	16
Glaze stickers	Glazed pots fired in contact with other pots.	10	13
Experimental shapes	Mostly cracked.	6	7
Faults in commissioned pots	Pots with names etc. must be perfect.	3	4
Non adherence of slip	Usually on sharp angles such as rims.	3	4
Glaze tests	I have made 200-300 glaze tests on small bowls or cylinders. Many of these will end on waste dump.	2	2½
Explosions	Pots too damp, clay in excess of 3 cm thick, usually very large vessels.	2	2½
	Total	76	100

There were 13 alien pots represented in this dump in addition to the wasters.

NEOLITHIC POTTERY IN SUSSEX

by Peter Drewett

The study of Neolithic pottery in Britain is currently in a state of flux. Established types have been discarded and new broad styles have been isolated. Major problems do, however, remain and the time is clearly ripe for a total re-appraisal of Neolithic pottery along the lines of Clarke's Beaker pottery analysis (Clarke 1970). It seems widely agreed, however, that three broad groupings can be defined in England during the early Neolithic. Wainwright's Western and Eastern Components and Decorated Group (Wainwright 1972, 71-75), Smith's Hembury, Grimston/Lyles Hill and Abingdon Groups (Smith 1974, 106-111), and Whittle's South-western, Eastern and Decorated Groups (Whittle 1977, 77-98) all underline this three-fold division (Fig. 2). There do, however, appear to be fundamental differences about what belongs to which groups. These problems are nowhere more acute than in Sussex where Smith states that 'At Whitehawk the Hembury Style reaches the eastern limit of its known distribution, and there is associated with two groups of decorated bowls which owe their forms respectively to Hembury and to Grimston/Lyles Hill, and with a number of Ebbsfleet bowls' (Smith 1974, 110). Whittle however clearly takes 'issue with Smith's view of the Whitehawk assemblage as a mixture of Hembury and Grimston/Lyles Hill Styles' . . . 'forms, decoration, and the use of lugs and handles all taken together, the assemblage may be best considered as a variant of the Decorated Style' (Whittle 1977, 94).



Fig. 2. Neolithic pottery types in England: (a) Distribution of Grimston/Lyles Hill Series and Hembury Style (after Smith 1974); (b) Distribution of Eastern, South-western and Decorated Styles (after Whittle 1977).

The basic problem when studying earlier Neolithic pottery in England is the broad uniformity of the tradition over much of the country. Simple round based bowls, either open with S-profiles or carinated, together with deep bag shaped vessels, predominate. Rim sections are generally simple and decoration is often absent or very simple in type. Locally there are differences but the basic elements remain the same throughout the earlier Neolithic.

With many of the forms common to the three regional groups, an essential difference appears to be in the quantity of decorated forms favoured in the region. The South-western (Western or Hembury) region has virtually no decoration, while the Eastern (Grimston/Lyles Hill) region has very sparse decoration largely restricted to fluting inside the rim, although incised oblique lines are not unknown. The South-eastern region (Decorated Style) is characterised by its extensive use of decoration including incised and fluted lines, horizontal bands of short jabs, bands of shallow depressions and even incised zones of criss-cross lines.

The presence of lugs in the South-western region and their absence in the Eastern region remains a significant difference between the two groups. Several types of lug are known in the South-west, including perforated and unperforated types which include the 'trumpet' lugs with their characteristically expanded ends. The South-eastern region (Decorated Style) has some lugs with the perforated type being most usual.

Although these three styles do appear distinct in the centres of each region, Devon and Cornwall (South-western Style), Yorkshire (Eastern Style), and Lower Thames and Kent (Decorated Style), zones of distribution clearly confuse the situation over most of the remaining areas of Britain. Work by Hodges (in Smith 1965) and Peacock (1969a) has shown the existence of extensive pottery production centres and distribution patterns in the Neolithic. Our three zones could therefore indicate generalised distribution zones (Fig. 3). Such distribution zones are, however, blurred by the existence of a substantial underlying domestic pottery industry.

Following the work of Hodges and Peacock, an attempt is being made in Sussex to use petrological analysis of pottery thin sections to identify local and traded pottery. To date, 14 sections have been examined, two from Whitehawk (unpublished), one from Barkhale (unpublished), two from Alfriston (Drewett 1975), one from Selmeston (Drewett 1975a), two from Offham (Drewett 1977), and six from Bishopstone (Bell 1978). The actual sectioning and identification of twelve of the sections was undertaken by Caroline Cartwright, Research Assistant in the Sussex Archaeological Field Unit, while the remaining two from Whitehawk were sectioned by Henry Hodges.

Using the results of these thin sections, together with simple surface examination of material from other sites, it is possible to define five distinct fabrics current in Sussex during the third and fourth millennia B.C. (Fig. 4).

Fabric I

A grey ware with reddish brown to grey surfaces, which although smoothed are irregular where large pieces of calcined flint cut through the surface. In general a roughly made and poorly fired fabric. Thin sectioning of this type shows large quantities of large, angular, calcined flint inclusions with some smaller, more rounded flint fragments as well. Also scattered throughout the clay matrix are small, sub-rounded quartz grains and small, angular and splinter-like flint chips, iron mineral inclusions and iron staining.

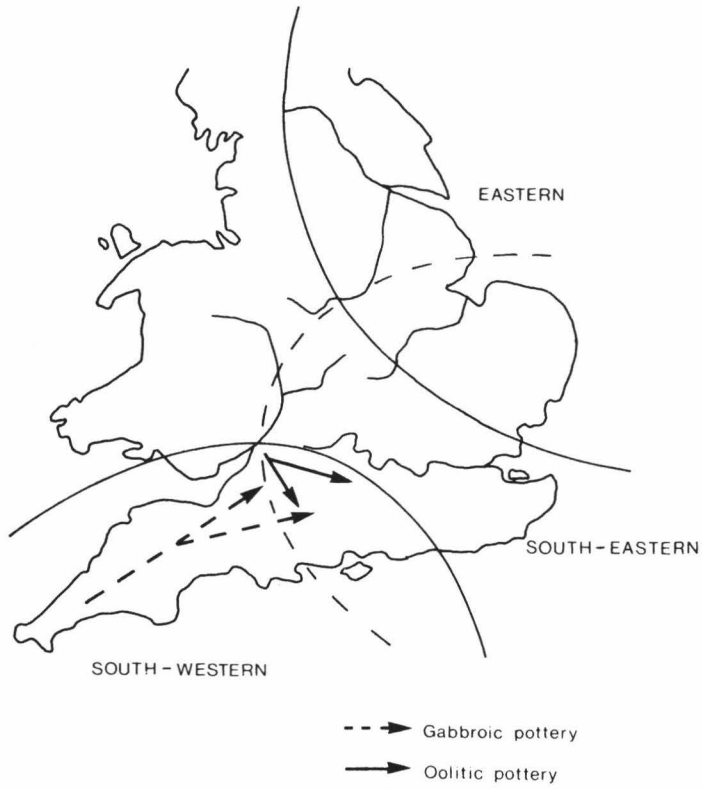


Fig. 3. Possible long distance distribution zones of Early Neolithic pottery in England and known distribution of Gabbroic and Oolitic wares.

NEOLITHIC POTTERY FABRIC TYPES
IN SUSSEX

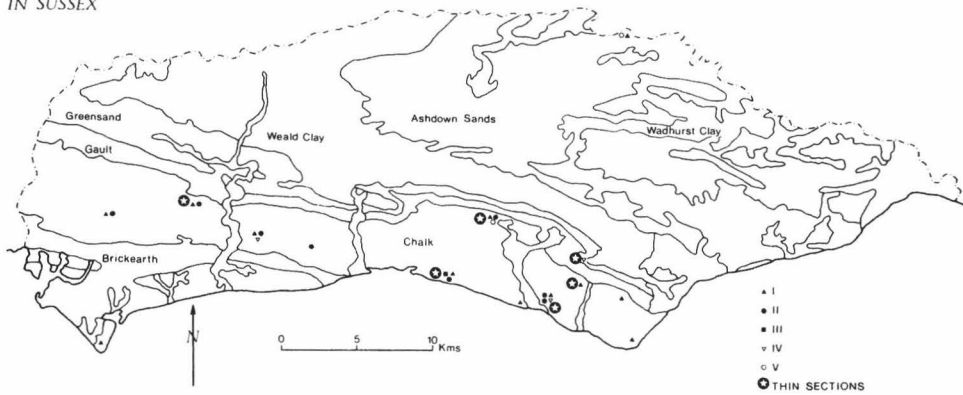


Fig. 4. Neolithic pottery fabric types in Sussex. On geological base map (after Sheldon, in Drewett 1978).

Fabric II

A light brown to grey ware with medium to fine calcined flint tempering. Compared with Fabric I, the calcined flint inclusions in the thin section of Fabric II were smaller and more numerous, although still mainly angular. Also more numerous were the small to middle sized flint inclusions which were evenly scattered throughout the denser clay matrix. Numerous sub-rounded to angular small quartz grains, some iron mineral inclusions and patches of iron staining were scattered throughout the sherd body.

Fabric III

A red-black ware with coarse to medium shell inclusions. A thin section of an example from Bishopstone indicated the probable use of mussel shells which appeared in thin section as long, lath-like fragments. Small mineral fragments, predominantly quartz but with some magnetite, were noted. The Bishopstone examples also all contained limestone fragments.

Fabric IV

A sandy fabric with large pieces of calcined flint which project through the surface of the vessel. Thin sections show large, angular flint fragments with small, rounded quartz and feldspar grains and a little very fine grained quartzite.

Fabric V

A thin, soft greyish ware tempered with grog, a little quartz and flint together with iron mineral inclusions and patches of iron staining.

The most striking conclusion that can be drawn from the study of early Neolithic fabrics in Sussex is that they indicate localised manufacture and distribution probably resulting from a domestic potting industry. Due to the linear nature of the geological deposits in Sussex, virtually all sites, at least in the south of the county, have local access to clay (either Gault, Wealden or Downland Clay-with-Flints) together with local sources of flint for tempering. It is therefore not surprising that the bulk of all Neolithic pottery in Sussex is flint tempered of Fabric I and II. Little can be concluded from these fabrics except that as the constituents were locally available at all sites, they are most likely to have been used locally.

The use of shell, sand and grog underlines the very localised nature of Sussex pottery. Marine shell tempering (Fabric III) is only found on the south side of the Downs at, for example, Whitehawk and Bishopstone. Both these sites are near a sea-shore source. Sand tempering (Fabric IV), although uncommon, is found on both sides of the Downs, although a sea-shore source is likely for sites like Bishopstone while the Greensand to the north of the Downs could supply sites like Bury Hill. Heavy mineral analysis may help solve this problem.

The single pottery group from the High Weald (High Rocks), being a great distance from sea and Downland sources, used Wealden resources with grog tempering dominating. The very slight use of grog at Offham, on the north side of the Downs may indicate some Wealden connections.

The only hint of anything other than very localised manufacture and distribution we have from fabric analysis are a few rounded pieces of slightly metamorphosed limestone in one sherd of Fabric III from Bishopstone (Bell 1977, 18). No Sussex source can be found for metamorphosed limestone, although limestone is known in the Newhaven outlier of the Woolwich and Reading Beds. It is

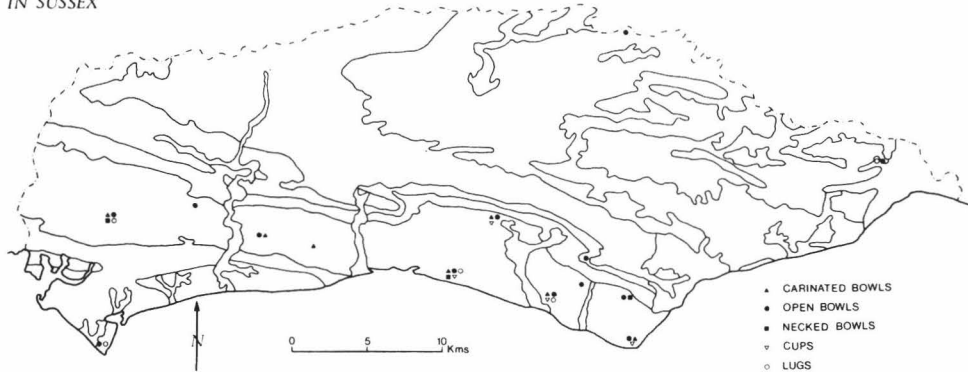
NEOLITHIC POTTERY FORMS
IN SUSSEX

Fig. 5. Distribution of Neolithic pottery forms in Sussex.

conceivable, however, that metamorphosed limestone could have arrived on a Sussex beach by long-shore drift or even glacial action (Briggs 1976).

Fabric analysis, slight though it has so far been, would suggest a very localised pottery industry in Sussex with possibly even each site producing only pottery for its own needs. Trade between sites is impossible to demonstrate in Sussex using fabric analysis. We shall now therefore turn to pot forms (Fig. 5) and decoration (Figs. 6 and 7) to see whether any groupings could indicate pottery production on anything more than a site by site basis.

There are many problems which arise when considering forms and decoration. Firstly the scarcity of material; three larger assemblages, six smaller ones (ranging from 351 sherds at Bishopstone to 171 at Offham) and a few individual chance finds. This material comes from causewayed enclosures, settlement sites and a barrow, so variations in form and decoration could reflect usage at sites serving different functions. Finally we have no evidence that all the groups are contemporary. Bearing in mind these problems, certain features of both decoration and form tend to underline the distinction between sites on the south side of the Downs and those on the north side and in the Weald. Lugs are more common on the southern side (Trundle, Whitehawk, Bishopstone) with only one known from the north (Offham). Likewise stabbed, incised and fluted decoration is found on the south side and is only represented by two sherds (from Bury Hill) on the north side of the Downs (Fig. 7).

A consideration of decoration and form, therefore, possibly underlines the absence of any fabric evidence for north-south movement of pottery across the Downs. This may suggest either east-west trade along the coast or, more likely, that we are dealing with an entirely domestic pottery industry.

If we now turn to the chronology of Neolithic pottery in Sussex, we still have the problem of very few Carbon-14 dates to give absolute dates to the sequence (Fig. 8). The elements we have considered so far may largely be thought of as Earlier Neolithic, a period beginning perhaps c. 4300 B.C. and lasting c. 1000 years down to c. 3300 B.C. A Carbon-14 date from Findon (3390 ± 150 b.c.) marks the beginning of the sequence, while another from Bishopstone (2510 ± 70 b.c.) perhaps marks the end. During this period flint mines, causewayed enclosures and long barrows

NEOLITHIC POTTERY IN SUSSEX

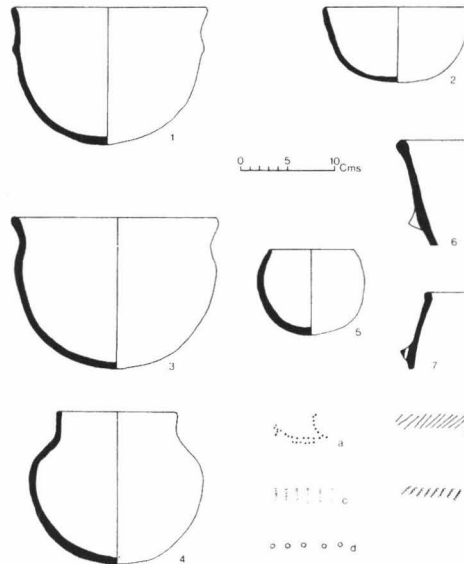


Fig. 6. Main Neolithic pottery forms in Sussex ($\frac{1}{2}$): 1 Carinated bowl (e.g. Bishopstone); 2 Open bowl (e.g. New Barn Down); 3 Open bowl (e.g. Trundle); 4 Necked bowl (e.g. Combe Hill); 5 Cup (e.g. Offham); 6 Solid lug (e.g. Whitehawk); 7 Perforated lug (e.g. Whitehawk); (a) Stabbed decoration (e.g. Trundle); (b) Incised (e.g. Trundle); (c) Fluted (e.g. Bishopstone); (d) Perforations (e.g. Offham); (e) Impressions (e.g. Selmeston).

dominate the landscape. A domestic potting industry with largely similar forms, fabrics and decorations spans the whole period. It is likely that although the elements remain constant throughout the period, comparative percentages of these elements may vary with time. This cannot, however, be determined until large groups have been found, analysed and independently dated in Sussex.

Around 3300 B.C. (or 2500 b.c. in Radiocarbon years), we see a radical change in the Neolithic in Sussex (Drewett 1978). Causewayed enclosures, Long barrows and possibly flint mines go out of use to be replaced by few communal monuments other than the odd scruffy oval barrow, e.g. Alfriston, 2360 ± 110 b.c. (Drewett 1975). With the absence of henges in Sussex we unfortunately have no big assemblages of pottery which can be assigned to the late Neolithic (*c.* 3300 B.C.—2500 B.C.). The odd sherds of Peterborough Style from Selsey, Oving, Castle Hill and Friston could well be late Neolithic, but the best group of late material comes from the recent small scale excavations of an open settlement on Bullock Down, Eastbourne. At least five sherds of Mortlake Style bowls and three collar sherds, with bold grooved ornament, more in the Fengate Style, were found associated with plain, heavily flint gritted wares. Although Grooved Ware is sometimes associated with these late Peterborough Styles (e.g. at West Kennet), none was found at Bullock Down, although the Beaker settlement of Belle Tout some 1 km to the west did possibly produce some Grooved Ware (Bradley, pers. comm.). Elsewhere in the county Grooved Ware is most uncommon with sherds from Findon and a possible example from High Rocks being the only known decorated examples. The single example of a small, round based pot with lugs associated with early Beaker or plain Grooved Ware material at Playden in the far east of the county may

NEOLITHIC POTTERY DECORATION
IN SUSSEX

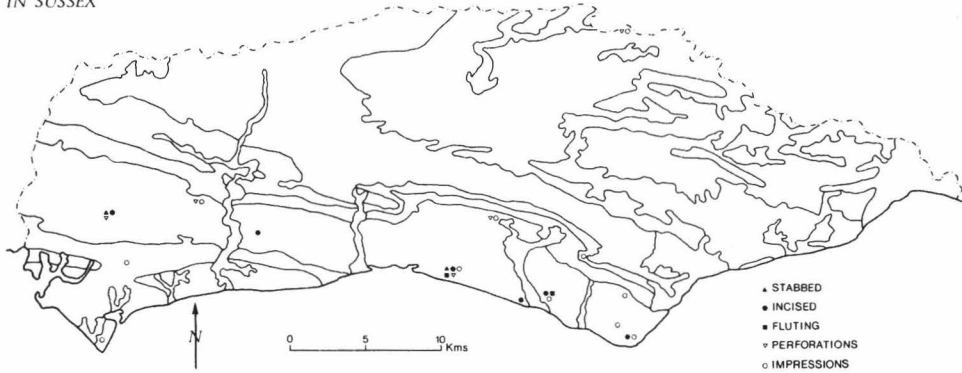


Fig. 7. Distribution of Neolithic pottery decoration elements in Sussex.

suggest the continuation of the early Neolithic tradition of simple, plain round based bowls throughout the late Neolithic and even into the early Bronze Age. Playden has a C-14 date of 1740 ± 115 b.c. (BM 450) to confirm this late date. The essentially domestic nature of the Neolithic pottery industry in Sussex could have resulted in early traditions persisting and help to explain the very low density of late forms derived from elsewhere.

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NEOLITHIC POTTERY STYLES
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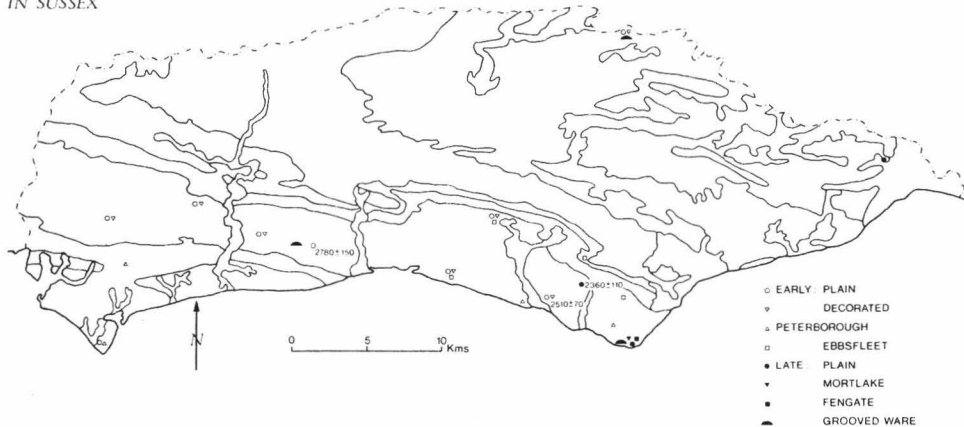


Fig. 8. Distribution of Neolithic pottery styles in Sussex with dated examples in Radiocarbon years b.c.

THE BRONZE AGE

by Ann Ellison

INTRODUCTION

The study of Bronze Age pottery in Sussex has benefited greatly from the publication by Musson of an illustrated catalogue of most of the vessels known before 1954 in the *Sussex Archaeological Collections*. Although the main principles of the typology of Bronze Age pottery had been established by Abercromby in 1912, Musson did not attempt a rigorous classification of the Sussex material. However the vessel types were grouped numerically in rough chronological order. Since 1954 many general studies of Bronze Age pottery styles have been prepared and these may now be related to the Sussex material. As the typology of the Middle and Late Bronze Age assemblages has been published in detail elsewhere (Ellison 1978), the opportunity will also be taken to present a tentative analysis of the functional and spatial characteristics of the later Bronze Age assemblages and their distributions.

Consideration of the associations and stratigraphic relationships pertaining to certain assemblages throughout England indicates that the main ceramic traditions represented in Sussex occurred in the following chronological order: Beakers, Accessory Cups, Enlarged Food Vessel Urns and Collared Urns, Biconical Urns and, finally, globular jars and bucket urns. Although there are Early Bronze Age radiocarbon dates available from barrows at Hove and West Heath Common, the only date which can directly be related to Bronze Age pottery in Sussex is that of 1000 ± 35 b.c. (GrN 6167; 1330-1220 B.C. according to the Süss calibration curve) from the Itford Hill Middle Bronze Age settlement. Burgess (1969) and Barrett (1976) have emphasised the apparent overlap of many of the traditions listed above during the Early Bronze Age period. However the chronological situation is complicated by the effects of calibration, and the quantity of available radiocarbon dates for the country as a whole is not yet sufficient to test their hypotheses in detail. Meanwhile the chronological spans adopted for the various traditions discussed in this paper must be regarded as tentative.

BEAKERS (c. 3000-1500 B.C.)

Piggott's original classification of Beakers into Cord-Zoned, Bell, Short-Necked and Long-Necked types (Piggott 1963) was superseded in 1970 by the results of Clarke's numerical analysis of the characteristics of all known Beaker vessels from the British Isles (Clarke 1970). According to Clarke's scheme, the earliest imports were All Over Cord and European Bell Beakers followed by a series of types with distinct Dutch or German prototypes: Wessex/Middle Rhine, Northern/Middle Rhine, Northern/North Rhine and Barbed Wire Beakers. Developing from these there were two main series of indigenous Beaker styles which are represented substantially in northern and southern Britain respectively (N1 to N4 and S1 to S4), and a third series in East Anglia which developed primarily from the Northern/North Rhine and Barbed Wire Beakers. The results of Clarke's objective analysis were extensively criticised by Lanting and Van der Waals (1972) who felt that Clarke's classification masked the regional groupings which were apparent in the material. They proposed an alternative classification which involved the definition of seven chronological

'steps' in a series of geographical regions. A compromise solution has recently been provided by Case (1977) who prefers a simple division into three main chronological styles (Early, Middle and Late), and he has published a useful concordance between his scheme and the systems of Piggott, Clarke and Lanting and Van der Waals (Case 1977, 71).

Complete Beaker vessels from Sussex are illustrated in Musson (1954: Nos. 000-081) and the only major assemblage recovered since then is that from the Beaker settlement at Belle Tout (Bradley 1970). The Early Style was best represented in Sussex by the earlier group of Beaker pottery recovered from Belle Tout but the excavator has now reidentified the sherds concerned as deriving from Food Vessels and the ceramic series as previously established should be inverted (Bradley pers. comm.). This means that the Beaker pottery from Belle Tout belongs wholly to the East Anglian style which dates from Case's middle period. Other Middle Style Beakers derive from Whitehawk Camp (European), Beggar's Haven, Hassocks Sand Pit, Rodmell and Selsey (Wessex/Middle Rhine) and from Falmer and Findon (Barbed Wire). Case's Late Style is represented by nine finds of indigenous Southern or East Anglian type and one vessel which relates to the Northern series. Beakers mainly derive from the South Downs and the coastal plain (Fig. 10, upper) but contemporary flintwork has also been found in the Weald.

EARLY BRONZE AGE (c. 1800-1200 B.C.)

Collared Urns

In his study of Collared Urns from England and Wales, Longworth defined a Primary Series of urns which carry stylistically early traits which could be linked to a derivation from late Neolithic Peterborough Ware (Longworth 1961). The Primary Series is current from before the initial phase of the Wessex Culture and lasts into the later phase, while the Secondary Series develops from about 1400 B.C. Traits defining vessels of the Primary Series include internal moulding, a simple rim form, convex or straight collar profiles, internal decoration other than on the rim bevel, decoration extending below the shoulder and decoration executed in the whipped cord technique. Urns of this type have been found at Hassocks, Cliff Hill (Lewes), Lewes Golf Course and Westbourne (Musson nos. 270, 290, 280 and 361 respectively). Of the remaining 49 Collared Urns found in Sussex, 36 can definitely be attributed to the Secondary Series (figures compiled from Dr. Longworth's unpublished catalogue). The Secondary Series urns are characterised by the decline in the use of whipped cord and chain plaited motifs and internal decoration, associated with the development of more complex decorative motifs and a growing diversity of forms (Longworth, forthcoming). By the later stage certain form types and decorative motifs exhibit marked regional distributions and two major geographical styles have been isolated, one in northern and western and the other in southern and eastern England. Eighteen urns in Sussex can firmly be attributed to the south-east style which possesses the following main features: bipartite forms of Longworth's types BI, BII and BIII, the absence of decoration on the neck in tripartite forms, comb-impressed and horizontal lines and the presence of decorative motif M (miniature horseshoes in cord technique) located on the shoulder. The form BII urn from Oxsettle Bottom (Curwen 1954, Fig. 42) was associated with a complex necklace of jet, amber and faience beads and a bronze finger ring which probably date from a late stage in the Wessex Culture. Recent finds of Secondary Series urns have been made at Chanctonbury Ring, Hangleton and Bullock Down (P. Drewett pers. comm.).

Burgess has recently stated that the division of Collared Urns into two typological series which have chronological significance is not supported by some recent radiocarbon dates and excavations 'which show pots of both series, exhibiting wide trait variation, in use contemporaneously' (Burgess

1974, 180). While admitting that the development of Early Bronze Age ceramics must be more complex than has previously been suspected, Longworth's typology provides a sound basis for future study and cannot be refuted until a larger body of well-associated and contradictory radiocarbon dates become available.

Food Vessels and Accessory Vessels

Food Vessels of classic type are rare in southern Britain but Enlarged Food Vessel Urns have a very wide, if sparse, distribution. Cowie (1978) has provided a discussion of the type and a corpus of the known Food Vessel Urns in northern Britain while many of the southern examples have been published in recent years (Annable and Simpson 1964, 62; Forde-Johnston 1965 and Smith 1967). The vessel type is derived from Food Vessels with some influence from Peterborough Ware, Beakers and Collared Urns. Food Vessel Urns in Sussex include the finds from Peppering, Arundel (Musson 200) and Belle Tout (Musson 210) and sherds in the Belle Tout settlement assemblage. The plain ridge urns from Beltout (Musson 240), Cliff Hill, Lewes (Musson 250) and Winterbourne (Musson 260) may also belong to this class. The internal rim decoration in cord technique on urns 200 and 210 can be paralleled in Dorset and Wiltshire (Forde-Johnston 1965, Fig. 16; Smith 1967, Fig. 6, 4) and the rows of circular impressions on the shoulder of the Belle Tout vessel can be matched at Frampton, Friar Mayne, Melcombe Bingham and Amesbury G.71 (Forde-Johnston 1965, Figs. 6, 7 and 13; Smith 1967, Fig. 6, 3).

Miniature vessels bearing incised decoration and complex perforations (e.g. Musson nos. 140, 141 and 160) are similar to those found in Early Bronze Age Wessex. In Sussex such vessels have been found in association with bronze pins, a bronze dagger and beads of amber, shale, jet and faience.

Biconical Urns

In 1956 Butler and Smith examined the grave goods associated with certain biconical urns in England and concluded that the ceramic group probably dated from the period during or immediately following the Wessex Culture. These Wessex Biconical Urns are divisible into clear regional groups and can be derived mainly from late Neolithic Grooved Ware (Ellison 1975, Ch.4). Biconical urns are rare in Sussex, the two best-known examples being those from South Heighton (Musson 380) and Charmandean (Musson 390). However the urn from Telscombe Tye (Musson 351) also belongs to this class and two more examples have recently been rediscovered in Hastings Museum and identified as coming from an urn cemetery at Alfriston (Holden 1972, 117, note 2; illustrated here, Fig. 9). The Telscombe Tye urn may belong to Ellison Type A with cord or pricked decoration, while the Charmandean and smaller Alfriston urn are of Type C2 (relief horseshoes, Wiltshire variant). The large biconical urn from Alfriston belongs to Type D1 which occurs mainly in Dorset but is also represented in the middle Thames Valley.

Fabric and Distribution

Most Early Bronze Age ceramics are characterised by soft soapy fabrics fired at low temperatures. Most fabrics contain sand which was probably present in the clays selected and the most common filling agent was grog, although calcined flint does occur occasionally in Collared Urn and Biconical Urn fabrics. It is unlikely that these fragile and cumbersome vessels were carried any distance and they were probably manufactured on or near to the sites where they were to be used, either by domestic potters or by itinerant seasonal specialists. The regional styles which can be detected in some ceramic classes of this period can best be explained as reflecting the networks of exchange and kinship interaction within and between regional social groupings.

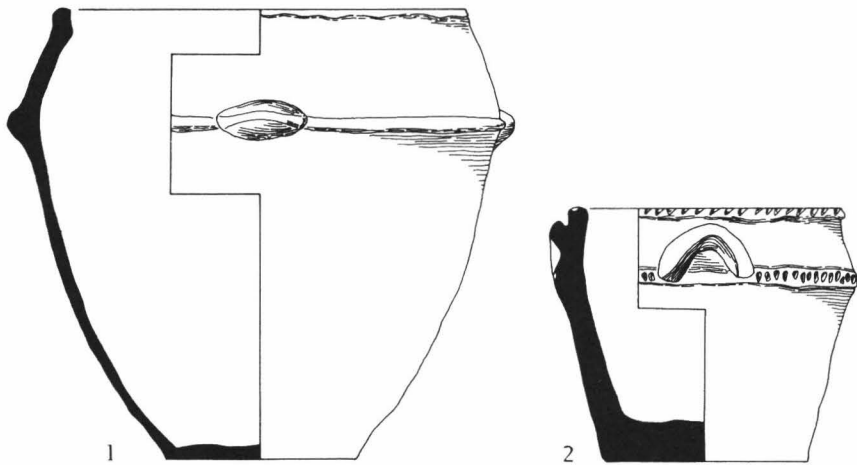


Fig. 9. Biconical urns from Burnt House Farm, Alfriston. Scales: 1 ($\frac{1}{8}$), 2 ($\frac{1}{4}$).

Early Bronze Age pottery in Sussex is distributed only on the South Downs where the vessels mainly derive from barrow excavations during the last century (Fig. 10, upper). However distributions of bronzes and flintwork demonstrate that the Wealden clays and sands were also being exploited in this period (Curwen 1954, Fig. 39 and Tebbutt 1974).

MIDDLE AND LATE BRONZE AGE (c. 1300-700 B.C.)

Pottery Assemblages

The typology and chronology of Middle and Late Bronze Age pottery assemblages from Sussex have been published in Ellison 1978. Since the preparation of that paper, further finds have been made at Cross Lane, Findon (MBA, information from SAFU), Itford Bottom (MBA, information from Martin Bell) and Bishopstone (LBA: Bell 1978, 46-48, Fig. 22), while current excavations at the Black Patch, Alciston settlement site have produced a substantial and well-recorded Middle Bronze Age assemblage. The distribution of the pottery types amongst the larger assemblages in Sussex is summarized in Fig. 11 where types 1-10 are of Middle Bronze Age date and types 10-19 are Late Bronze Age (post-Deverel-Rimbury phase). The type 7 globular jars with bar handles represent a Middle Bronze Age fine ware which occurs exclusively in Sussex. The main decorative motifs employed on vessels of this type are shown in Fig. 11 and several more variations have recently been identified in the Black Patch assemblage.

Detailed macro-examination of the fabrics of Middle and Late Bronze Age pottery in museum collections and in the Black Patch assemblage indicates that there is no clear relationship between form and fabric, vessels of all types being tempered with varying amounts of calcined flint filler. However some of the Middle Bronze Age type 7 jars are characterised by a fine micaceous sandy fabric. It is hoped that petrological or chemical analysis may clarify the significance of this difference. As in the earlier Bronze Age, most of the pottery derives from the South Downs or the coastal plain (Fig. 10, middle and lower), but the distribution maps indicate a substantial shift of settlement from the chalk to the fertile coastal plain in the Late Bronze Age.

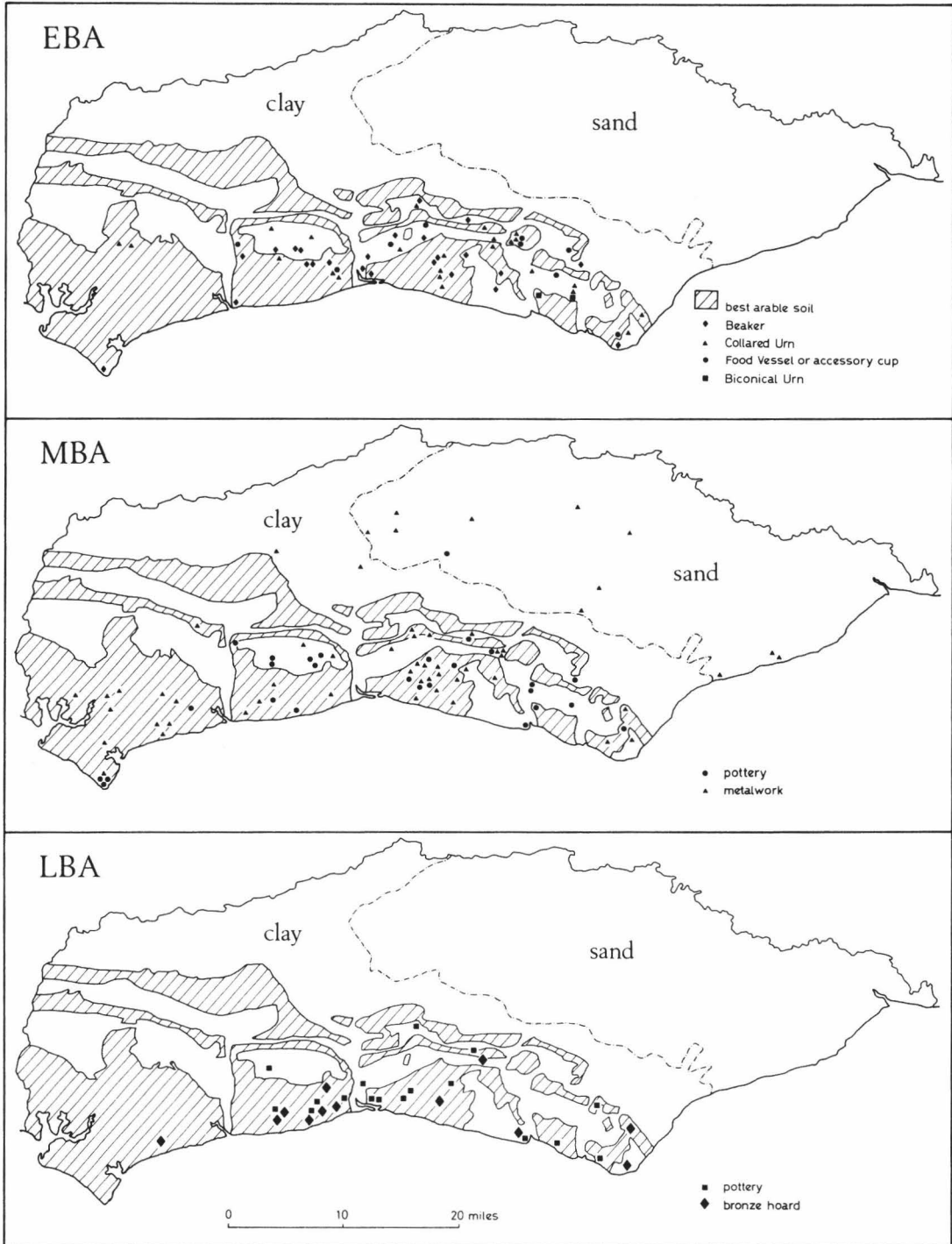


Fig. 10. The distribution of Bronze Age pottery in Sussex.

FUNCTIONAL VARIABILITY AND THE SPATIAL ANALYSIS OF SETTLEMENTS

As long as there has been little disturbance of a site since it was abandoned in prehistory, the patterning of structures and artefacts within a settlement may reflect the economic activity areas and social organisation of that site. Middle Bronze Age settlement sites are characterised by a fairly limited repertoire of archaeological data: banks and ditches, pits, post-holes, relatively large pottery assemblages, flint and stone artefacts, weaving equipment, faunal and floral remains and a few items of bronze. The quantity of pottery from each structure and the relative proportions of fine table wares, cooking vessels and heavy-duty storage jars can be compared with the relative occurrence of other artefact types. A study of the features and artefact types found within each recorded hut in all the known Middle Bronze Age settlement sites in southern England has allowed the definition of four main classes of structure (Ellison forthcoming). These are here defined briefly in relation to examples from settlement sites in Sussex.

A. *Major residential structure*

These huts are characterised by high concentrations of potsherds including a relatively high proportion of fine ware vessels which were most probably used for eating and drinking. The stone assemblages are dominated by items connected with the production and maintenance of tools (e.g. flint flakes, hammerstones and whetstones) and many such huts contain evidence for textile production in the form of loom weights, spindle whorls and loom post-holes. Residential structures are usually circular in shape, larger in size than the other categories and more often possess porches. Where items of bronze and other status indicators have been recovered they repeatedly occur in category A huts.

Examples: *New Barn Down VIII, Plumpton Plain A III:II, Cock Hill I, Itford Hill B, D, K, L, N.*

B. *Ancillary structure*

These huts are characterised by a high proportion of features and artefacts associated with food storage and preparation. The sherd assemblages are relatively smaller than those from category A huts and display a higher percentage of coarse vessels relative to fine wares. They often possess internal pits for storage, querns and scrapers for food preparation and, in some cases, concentrations of animal bones. Category B huts tend to be smaller and more oval in shape than those of category A.

Examples: *Plumpton Plain A II:I, Cock Hill II, III, AIII, Itford Hill A, C, E, F, J, M.*

C. *Animal shelters*

The absence of domestic finds and observations of extensive floor wear have indicated the use of some huts for the sheltering of stock. They are of medium size.

Examples: lean-to annexes to category A and B huts at *Cock Hill* and *Itford Hill*.

D. *Weaving huts*

Some small-sized huts seem to have been specifically designated for textile production. They contain weaving equipment but no evidence for food storage, preparation or consumption.

Examples: *Itford Hill G* and *H*.

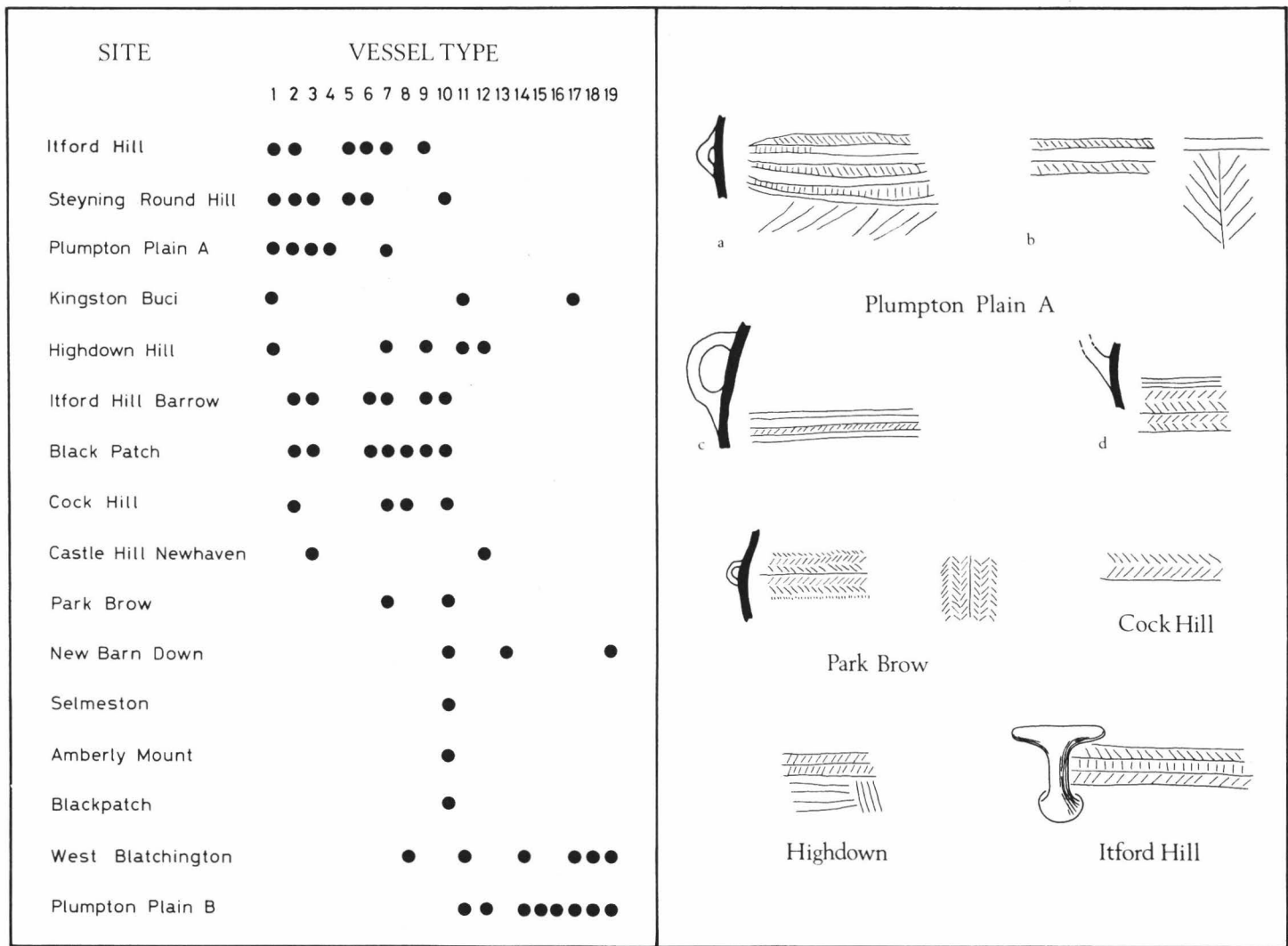


Fig. 11. Left: The occurrence of vessel types in major pottery assemblages of the later Bronze Age; Right: Decorative motifs employed on type 7 Sussex jars (not to scale).

Category A huts seem to have been the major residential units where food consumption and productive activities were practised. These activities included predominantly male tasks (manufacture and maintenance of tools in stone, bone and metal; leatherworking) alongside those more often associated with females (notably weaving). In contrast the smaller category B huts seem to have been primarily designed for the storage and preparation of foodstuffs which were probably female tasks. Study of the spatial relationships between these various categories of structure within individual settlement sites has led to the isolation of significant modular groupings (Ellison forthcoming). The recurring settlement module or unit includes a major residential hut, an ancillary structure, storage facilities and areas for open air activities. A detailed illustrated analysis of the Itford Hill units has been presented elsewhere (Ellison 1978) and may be summarised as follows:

Unit (i) major residential structure: B; ancillary structure: A

Unit (ii) major residential structure: D; ancillary structures: C, E, F; weaving hut: G

Unit (iii) major residential structures: K, L; ancillary structure: J; weaving hut: H

Unit (iv) major residential structure: N; ancillary structure: M

The weaving huts in units (ii) and (iii) were located near to major residential structures and may have been related functionally to them, especially as elsewhere weaving is known to have been carried out within the major structure. A preliminary analysis of the pottery assemblage from Black Patch, Alciston has aided a similar study of the patterning of economic and social arrangements within a single settlement unit (Drewett 1980). The Middle Bronze Age settlement modules discussed above can usefully be compared with the Glastonbury modular unit isolated by Clarke (1972, Fig. 21.1). The main features of this Iron Age module are replicated in the Bronze Age examples, including the important division between major familial, multi-role and male activity areas and the minor largely female and domestic areas.

REGIONAL EXCHANGE

Careful assessment of closed pottery groups and site assemblages should precede the definition of regional assemblages, while further analysis should lead to the recognition of industrial groupings either within or cutting across the regional assemblages (Collis 1977). The later Bronze Age pottery assemblage in Sussex is one of six major regional assemblages which have been defined in southern England (Ellison 1975 and forthcoming). Following Clarke's Model I for Beaker assemblages (Clarke 1976, 464, Fig. 2), the vessel types represented in each regional assemblage can be divided into three functional groups, namely fine wares (for food consumption), everyday wares (for food preparation) and heavyduty wares (for storage purposes). The pottery types belonging to each of these functional groups are characterised by distribution areas of different sizes and this indicates the operation of production on three distinct levels.

Heavyduty wares (Sussex types 8, 9, 10, 12, 13, 14). These comprise large, thick-walled storage vessels which were tempered with large quantities of calcined flint and strengthened with cordons, often bearing finger-impressed decoration. Bearing in mind their great size, weight and fragility it might seem likely that such vessels were made on or very near to the sites where they were used. However evidence for the repairing of such vessels might suggest that some small-scale local, or more probably, seasonal mode of production was involved. In the Middle Bronze Age, types 9 and 10 show marked local distributions within Sussex (Fig. 12).

Everyday wares (Sussex types 1-6, 11, 17, 18). These are medium-sized vessels comprising small versions of bucket urns displaying a tendency towards a biconical or ovoid profile and decorated with a variety of cordons and perforated and plain lugs of varying shape. In Sussex the most common Middle Bronze Age everyday types (2, 3, 6) show a marked localised distribution on the South Downs (Fig. 12).

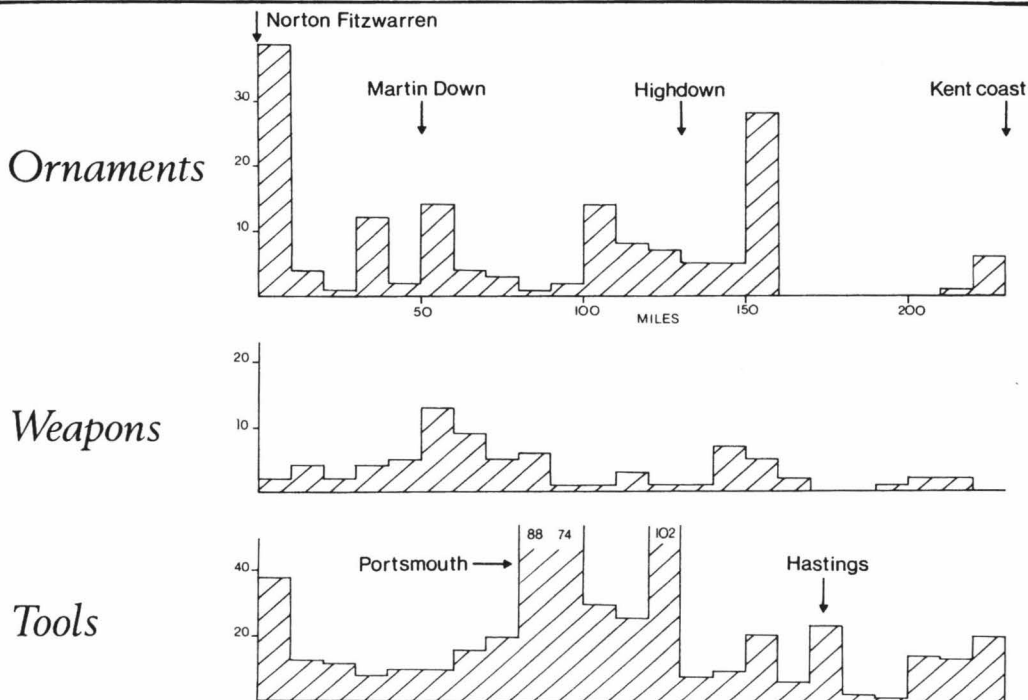
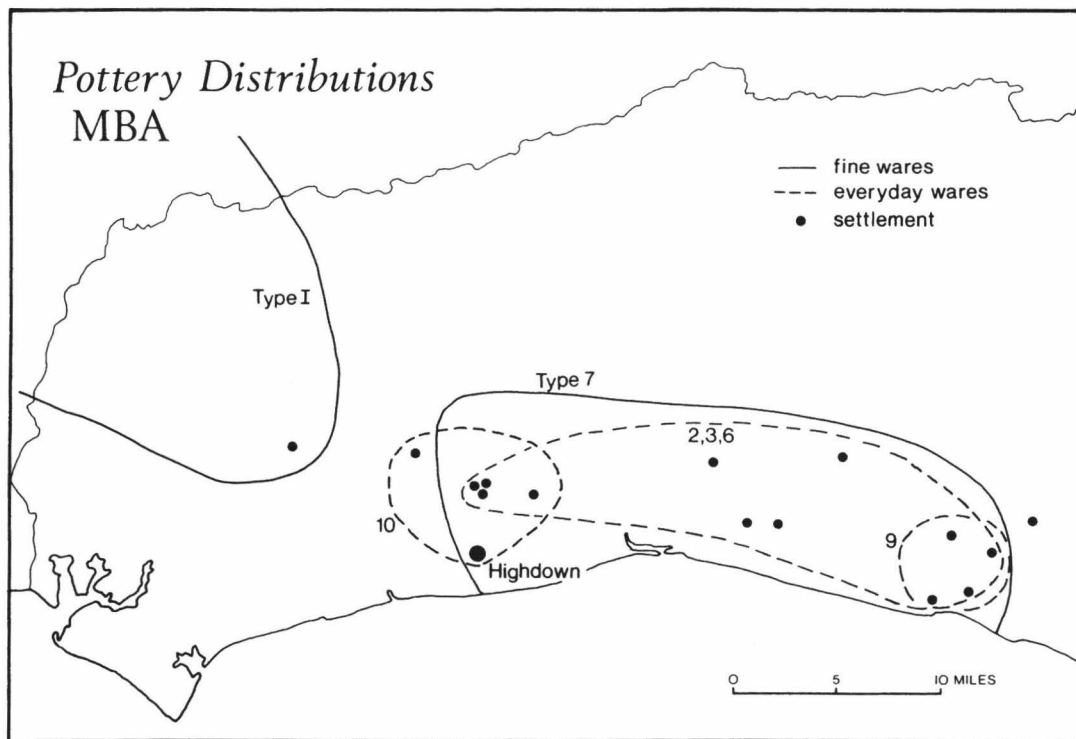


Fig. 12. The distribution of pottery and metalwork types in relation to major enclosures.

Fine wares (Sussex types 7, 15, 16, 19). These 'table wares' include handled jars, globular vessels and the occasional open bowl form. The type 7 globular decorated jars display a tight distribution in south Sussex which is complementary to the other fine ware distributions in southern England. The adjacent fine ware distribution is that of Type I globular urns in central Wessex which reaches as far as Glatting Down in West Sussex (Fig. 12). The fine wares, which are often characterised by diagnostic fabric types, may have been the result of a possibly seasonal industry implemented by part-time specialists working over carefully defined territories. It has previously been noted that the larger Group B enclosures tend to be located at or near the junction of one or more localised pottery distributions (Ellison forthcoming) and these enclosures may have been closely related to the pottery exchange networks, not as foci for production but as centres involved in the control of movement of goods between adjacent production areas. In Sussex the Group B enclosure on Highdown Hill is situated near to the junction between the Type 7 jar and Type I globular urn fine ware distributions (Fig. 12).

Consideration of the distribution of Middle Bronze Age metalwork suggests that bronzes were also produced or distributed on three distinct levels. Tool and ornament types have discrete local distributions while the weapon types are distributed more evenly over southern England (Rowlands 1976; Ellison forthcoming). However the local metalwork distributions seldom coincide with the local and regional pottery distributions, and must reflect a completely different set of spheres of production. In Fig. 12 the graphs demonstrate the variation in the occurrence of ornaments, weapons and tools in a corridor 30 miles wide along lines joining three group B enclosures (Norton Fitzwarren, Martin Down and Highdown Hill) and the Kent coast. The peaks for ornaments and, to a lesser extent, weapons are centred on the locations of the large enclosures and this indicates that these items were distributed from (but not necessarily produced at) these major sites. In contrast the distribution of bronze tools does not relate to the siting of Group B enclosures and must reflect a different set of regional industries with their own local concentrations. The major concentration is in the Portsmouth/Chichester region with lesser centres around Hastings and in east Kent.

The Middle Bronze Age pottery and metalwork distributions represent a complex system of small-scale interlocking exchange networks. Some of the smaller distributions involve artefacts of very specific type which may have served as symbols and thus aided the social cohesion of local population groups while the frequent overlapping and interlocking of artefact distributions may represent a complex of exchange networks which served to minimise friction between adjacent competing groups. The analysis of pottery distributions can lead to the detection of regional industrial groupings but the importance of these industries within the socio-economic system can only be assessed by comparing them with the distributions of other contemporary artefact types and classes of settlement site. However it must be stressed that such studies can only be based on data which has already been subjected to rigorous chronological and typological analysis.

ACKNOWLEDGEMENTS

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POTTERY IN THE FIRST MILLENNIUM B.C.

by Timothy Champion

In the period between the two World Wars Sussex formed a major focus of Iron Age investigations in England; settlement sites such as Park Brow and Findon Park, and hillforts such as the Trundle, Cissbury and the Caburn were being excavated, and these were the pegs on which much of our understanding of the period has been hung. The pottery in particular (Hawkes 1939a) was used as the basis for the reconstruction of the later prehistory of the area, and the same ceramic assemblages from the same sites continued to be of great significance in later reassessments (Kenyon 1951; Hodson 1962, 1964). So important was the role of the pottery that a whole chapter was devoted to it in the first edition of Curwen's *Archaeology of Sussex* (1937), though this was removed from the later edition on the grounds of the technical complexity of the subject; the pottery studies of the inter-war years had by then reached their culmination in the synthesis of Wilson and Burstow (1948).

Since the appearance of that article it is astonishing how little work has been done on the Iron Age pottery of Sussex, and how little new material has been published. Not that Iron Age research was totally neglected; some sites certainly await publication, but the main interest has been in hillforts and their defences, and in that sort of excavation pottery is rare. Only two reasonably large assemblages have been published, and one, that from Stoke Clump (Cunliffe 1966), is a surface collection; otherwise there is only the material from the Bishopstone excavations (Bell 1977). With little new material being published, the quantity of evidence available for any summary of Iron Age pottery is severely restricted; so too is the quality, since there has been little occasion for the application of new methods or the re-interpretation of older finds. Much of the material from older excavations is indeed of limited value; publications are frequently only partial and couched in an outdated terminology, for instance in the ascription of such labels as 'late Bronze Age', and even the value of the original collections is restricted by the reliance that can be placed on the quality of the excavations, the observation of stratigraphy and the care taken with recovery and preservation. In some cases at least it is impossible to be greatly confident in the use of older material.

This stagnation of Iron Age pottery studies in Sussex makes a modern discussion difficult, especially since it has occurred at a time when our understanding of the Iron Age as a whole has been radically transformed, and the aims and methods of ceramic studies in particular have been significantly advanced. The Iron Age has changed almost beyond recognition; in chronology, the beginning of the Iron Age, in strict terms of the Three Age system, has moved back to the seventh century, and the origin of many 'Iron Age' features, such as hillforts and round houses, and now pottery, can be seen to predate the technological change from bronze to iron. There have also been changes in the modes of explanation used in the Iron Age, with less emphasis placed on invasion or migration from the continent and more on the internal development of social and economic processes, and a consequent change in the main interests of Iron Age research. This has been reflected in the particular case of pottery studies, where questions of cultural affinity and interpretation in politico-military terms are now of less interest than research into the organisation of production and distribution and the processes of acquisition, use and loss of pottery. To these ends, a range of new methods has been developed, such as ceramic petrology, to investigate

production areas, quantitative analysis to look at distribution, and spatial studies of patterning within sites to examine usage and disposal.

In all these ways, work on the pottery of Sussex has lagged behind that elsewhere; with the notable exception of the Bishopstone report and the work of Susan Hamilton (Bell 1977, 83-118), petrological examination has scarcely begun, and quantitative assessments have never been made, and would probably not be worth making on evidence of the quality presently available. It is not yet possible, therefore, to give any such detailed account of pottery production for the Iron Age as for the Roman and Medieval periods, or of distribution as for the Bronze Age; nor is there data from an Iron Age site adequate to show the patterns of usage as can be done for the Middle Bronze Age at Itford Hill. The most that can be attempted is to show how the picture presented by Curwen (1937) and Wilson and Burstow (1948) has been revised, and to present a chronological account of the pottery sequence, and to offer interpretation of this data where possible; even these limited aims require the Sussex evidence to be extensively supplemented by work from neighbouring areas.

The most dramatic alteration in our view of the first millennium B.C. is the greatly extended time scale now given to what has been traditionally regarded as 'Iron Age' pottery, though it has taken a very long time to come to terms with the evidence that has accumulated during the last twenty years. Margaret Smith's demonstration (1959) that the ceramics of the Deverel-Rimbury culture belonged to the Middle Bronze Age, not the Late Bronze Age, has been amply substantiated by further evidence of associations and radiocarbon dates (Barrett 1976); Deverel-Rimbury can now be seen to end by about 1000 b.c. in radiocarbon years, or about 1200 B.C. in absolute calendar years. It has, however, not been easy to fill the consequent gap in the non-metal archaeology of the Bronze Age. Harding's critical examination (1974, 129-133) failed to identify much material, while Cunliffe (1978, 11-30) preferred to envisage a much later survival of Deverel-Rimbury pottery to the seventh or even sixth century B.C. It is now clear, however, mainly through the work of John Barrett, that there is plenty of pottery already excavated but unrecognised in the mass of allegedly early Iron Age material, which should be assigned to this period. Only two recent excavations have shown stratigraphic sequences through this period, South Cadbury, Somerset (Alcock 1972, 114-130) and Ram's Hill, Berkshire (Barrett 1975), but these form an essential framework for the sequence. Ironically, the problem could have been greatly enlightened by Sussex sites, if the pottery evidence had been of better quality and more critically assessed, since there are a higher number of excavated sites with pottery in potential association with Late Bronze Age metalwork than anywhere else. Plumpton Plain B produced a median winged axe now dated to the seventh century B.C., and a tanged knife (Holleyman and Curwen 1940, Figs. 15-16), West Blatchington two palstaves and a winged axe (Norris and Burstow 1950, Fig. 2), Castle Hill, Newhaven a hoard of carpenter's tools (Curwen 1954, Fig. 61), New Barn Down fragments of a knife and a spearhead (Curwen 1934, Figs. 39-40), and at Charleston Brow, a site usually regarded as of Roman date, a fragment of a Late Bronze Age sword and a bronze three-ringed object (*Dreipassanhänger*) possibly of the same date were found (Parsons and Curwen 1933, Figs. 3 and 7). Probably the most important site is Highdown Hill, where sporadic excavation since the mid-nineteenth century has produced a range of Late Bronze Age metalwork, including tanged and socketed knives, a socketed gouge, a tanged chisel, and a socketed axe and a palstave, as well as a gold penannular ring (Curwen 1954, 186-7; Wilson 1940; 1950). Despite considerable disturbance, it is clear that the site originally had stratified deposits from the Middle Bronze Age to Early Iron Age, and could thus have provided a sequence of pottery comparable with South Cadbury or Ram's Hill, but with better metal associations; unfortunately it is not now possible to reconstruct

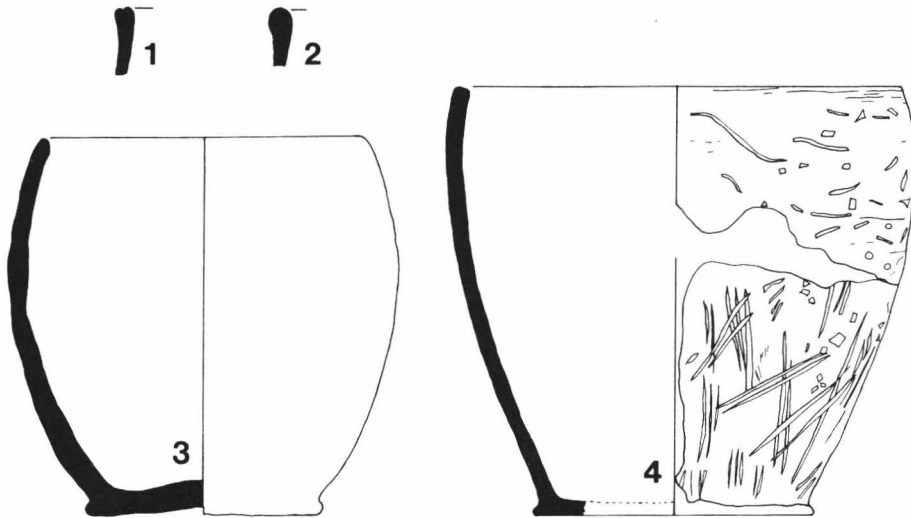


Fig. 13. 1, 2 Plumpton Plain (after Hawkes 1940); 3 Kingston Buci (after Wilson and Burstow 1948); 4 Bishopstone (after Bell 1977). ($\frac{1}{2}$).

this stratigraphic sequence with sufficient accuracy, but Highdown and the other sites of the early first millennium still offer a good quantity of post-Deverel-Rimbury pottery. Several of these sites, however, contain a mixture of Deverel-Rimbury and post-Deverel-Rimbury ceramics, and it is impossible yet to decide whether this is because of poor excavation, extensive survival of older Deverel-Rimbury rubbish into post-Deverel-Rimbury levels, or a genuine contemporaneity of the two traditions. Nevertheless, with additional evidence from outside Sussex, a picture can be built up.

The most distinctive feature of the immediately post-Deverel-Rimbury phase is the restricted range of vessel types, consisting almost entirely of jar forms which perhaps perpetuate the Middle Bronze Age barrel jar tradition, but with rather different techniques. The forms are either straight-sided or hook-rimmed jars, frequently with marked splaying of the base (Fig. 13). These post-Deverel-Rimbury vessels are distinguished from earlier ones by the techniques of slab-building and surface-smearing. Other forms are also found, though it is not yet clear whether they were made from the start or were later introductions; they include rather round-bodied jars with a similar smeared finish and an applied decorated band at the widest part (Fig. 14, 1), and tall, straight-sided jars with constricted necks and short, out-turned rims, decorated with finger-tip impressions either on an applied band in the neck or on the shoulder immediately below (Fig. 14, 2-3). Detailed study of the fabric of these vessels has scarcely begun, but many have the tempering of crushed, calcined flint typical of the Middle Bronze Age pottery, while at least at Bishopstone a shell-tempered fabric was also used for the production of similar forms (Bell 1977, Figs. 40 and 46). Sherds of this shell-tempered ware have yielded thermoluminescent dates of 1030 B.C. and 850 B.C. (Bell 1977, 290).

Perhaps in the tenth and ninth centuries the range of vessel forms began to grow, possibly as pottery itself began to assume a more important role in society. Shouldered jars occur, such as those at Bishopstone (Bell 1977, Fig. 48, no. 53) or the one from Worthing found containing a bronze hoard (Powell-Cotton and Crawford 1924, Pl. 30) (Fig. 15, 1). New departures are bowls (Fig. 15, 2-3), including angular bipartite forms, as at West Blatchington (Norris and Burstow 1950,

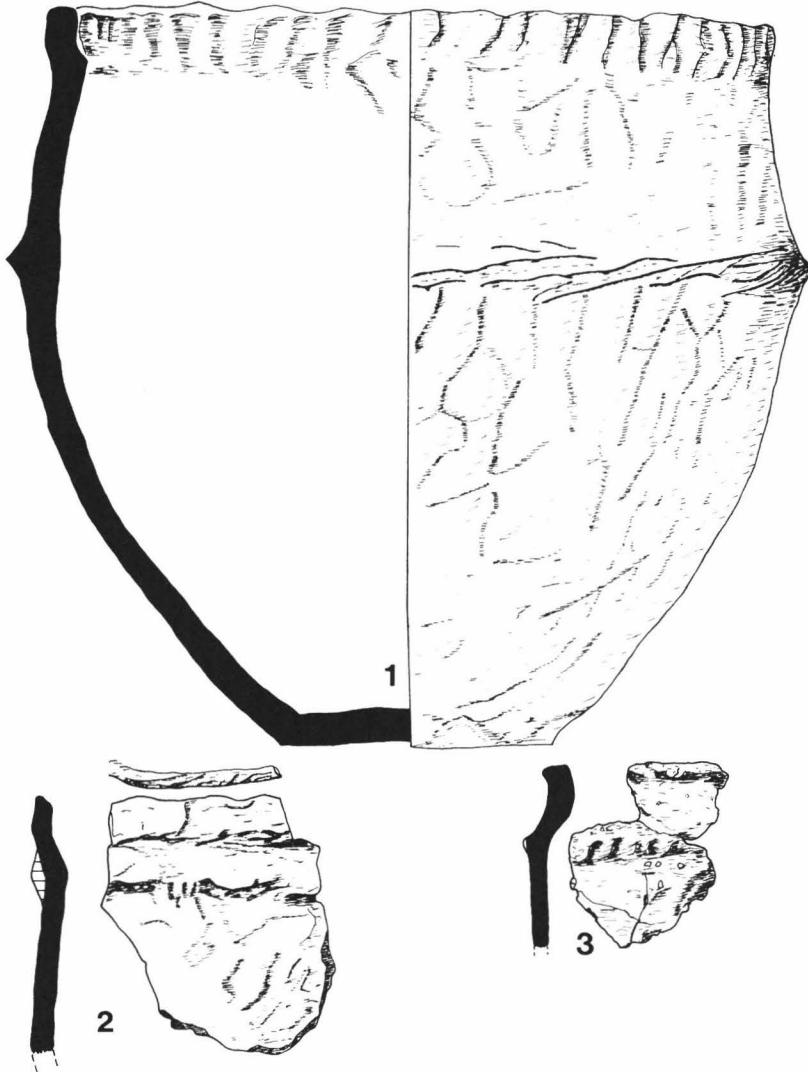


Fig. 14. 1, 2 Plumpton Plain (after Hawkes 1940); 3 New Barn Down (after Curwen 1934). ($\frac{1}{4}$).

Pl. 1, no. 7) and hemispherical ones, as at Bishopstone (Bell 1977, Fig. 47, No. 44). Shallower dishes are occasionally found, and also lids, as at Plumpton Plain B (Hawkes 1940, Fig. 13).

At a later date, but still within what is technologically the Late Bronze Age, a new range of fine wares was introduced, comprising some of the forms usually thought of as our earliest Iron Age pottery. In Sussex these are best seen at the Caburn, where they were called Caburn I ware (Hawkes 1939a, 217-30), though similar vessels occur at other sites such as Stoke Clump and Hollingbury (Cunliffe 1966). Sharply angular bipartite bowls (Fig. 16, 1-2) and tripartite jars (Fig. 16, 3) are found, but there is also a new interest in high quality products, with the use of denser fabrics, elaborate finishes such as haematite coating and carefully executed ornament consisting of

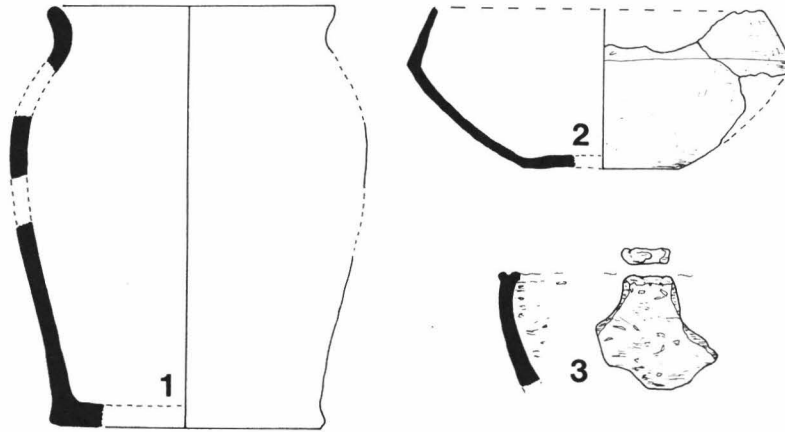


Fig. 15. 1 Worthing (after Powell Cotton and Crawford 1924); 2 West Blatchington (after Norris and Burstow 1950); 3 Bishopstone (after Bell 1977). ($\frac{1}{4}$).

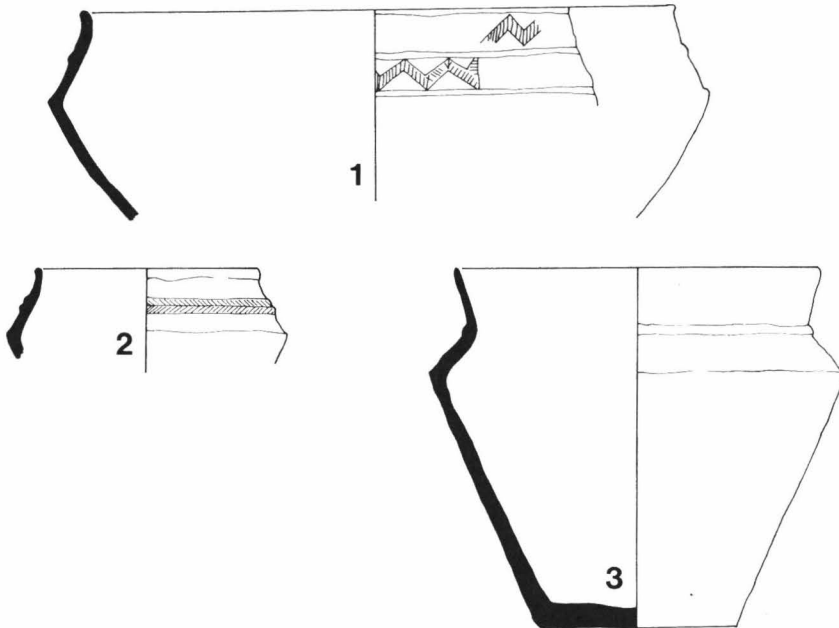


Fig. 16. 1-3 The Caburn (after Hawkes 1939). ($\frac{1}{4}$).

fine geometric designs and decorated cordons. Because of a lack of good associations with datable material, it is difficult to date this phase on the evidence from Sussex alone, but by comparison with other areas it may belong to the eighth and seventh centuries B.C., for the fine angular bowls are one regional expression of a very wide-spread fashion for bowls, both in pottery and in bronze, common in later Bronze Age Britain and Europe. The Sussex examples can be seen as the counterpart of the furrowed bowls of Wessex. It is these very fine wares of high technical skill that characterise this phase, and it is less clear what coarse wares were also being produced, though many of the jar forms seem to persist.

The following period in the middle of the first millennium B.C., from the sixth to the fourth century, is one of the most problematic, for there are few sites which provide stratified sequences, associations with datable metalwork are rare, and radiocarbon dating has been applied less in Sussex than, for example, further west in Wessex. The most useful collections are from the classic sites of Park Brow (Smith 1927) and Findon Park (Fox and Wolseley 1928), for although they are old finds and the pottery is neither extensive nor securely stratified, they do both have datable objects in some sort of association. At Findon Park a La Tène I brooch was discovered, dating from 400-300 B.C., while at Park Brow a bent silver ring was found, which was an import from

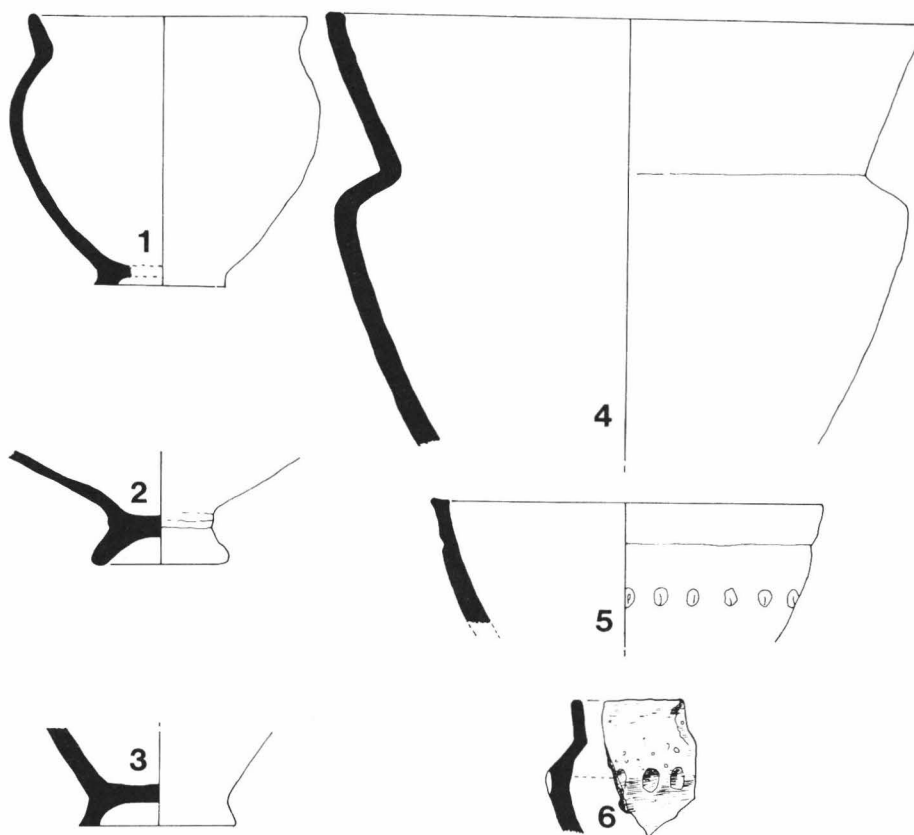


Fig. 17. 1 The Caburn (after Hawkes 1939); 2, 4 Park Brow (after Smith 1927); 3, 5 Findon Park (after Fox and Wolseley 1928); 6 Highdown (after Wilson 1940). ($\frac{1}{4}$).

Switzerland of the La Tène Ic period, or about 300 B.C. To these sites can now be added Bishopstone, for although occupation at this period was not intense, one pit has provided a radiocarbon date of 270 ± 80 b.c. (Bell 1977, 63, 291).

The angular bowls of the previous phase have disappeared, and the dominant fine ware forms are small bowls with S-shaped profiles (Fig. 17, 1) and a variety of bowl and jar forms with pedestal bases (Fig. 17, 2-3). The coarser wares have almost inevitably attracted much less attention, but there are large jar forms, some with tall flaring rims (Fig. 17, 4), and also smaller bowls (Fig. 17, 5-6). Decoration is not common, but finger-tip impressions are found. There is a wide range of fabrics, especially flint-gritted and sand-tempered, which may well prove to have significant regional variations.

In the next phase the pottery of southern England is marked by a much greater degree of uniformity than at any previous time. Sussex's affinities are now to the west in southern central England, and links across the Weald to the ceramics of Kent are almost non-existent. The characteristic form is now the saucepan pot, a straight-sided fine-ware bowl, frequently decorated in a series of regional styles (Cunliffe 1978, 45-8). Until recently this material was thought to begin in the first century B.C., but with the gradual lengthening of the Iron Age chronology it has been moved back, though with few certain indications of absolute chronology; radiocarbon dates, mainly from Wessex, such as those from Gussage All Saints, Dorset (Wainwright and Switsur 1976), are now beginning to support the suggestion that this pottery may span a period as long as three hundred years or more from the fourth to the first century.

In Sussex the saucepan pots belong to the group termed the 'Caburn-Cissbury style' in Cunliffe's terminology (1978, 45). The vessels (Fig. 18, 1-5) are mainly straight-sided with occasional more convex profiles, and frequently have somewhat squat proportions, bead-rims and splayed bases. Decoration is rather varied, employing predominantly simple curvilinear patterns with rarer geometric designs. On the western fringe of the county a few sites have produced saucepan vessels with decoration more akin to Cunliffe's 'St. Catharine's Hill-Worthy Down style' centred in Hampshire, which used a different range of motifs, in particular bands of diagonal lines and impressed dots (Cunliffe 1978, 46; Fig. 18, 6 here). As in other periods, it is the easily recognisable fine wares that have been given most attention, and few large assemblages are known from anywhere in Sussex, but by comparison with other areas there ought to be large plain jars with barrel-like profiles and wide mouths. Fabrics, which are frequently not as dense as those of earlier periods, appear to vary regionally, with flint-tempering commonest, but sand-tempered wares known in East Sussex.

This is a most significant phase in the development of Iron Age pottery. There were changes in the techniques of manufacture, including general use of burnishing and of linear tooling for decoration, and a new standardisation of shape and fabric quality. A larger proportion of the total pottery was decorated than ever before, and the application of burnishing all over the body and of complex ornamental designs, occasionally on the base as well as on the sides, suggests the greater social importance of pottery and its production. The broad homogeneity of form and the regional styles of decoration may mean that there was a new organisation of production, but more evidence is needed. Current research in Hampshire is showing that a number of different fabrics can be discerned in the broad fabric groups, and a thorough analysis of form, fabric and design is necessary before the organisation of production and distribution will be understood. Nevertheless, the impression remains that the scale of pottery production has changed, and it is interesting that this development is taking place at the same time as changes in other industries, such as salt and iron, and also when actual weights are first found, demonstrating the increasing importance of

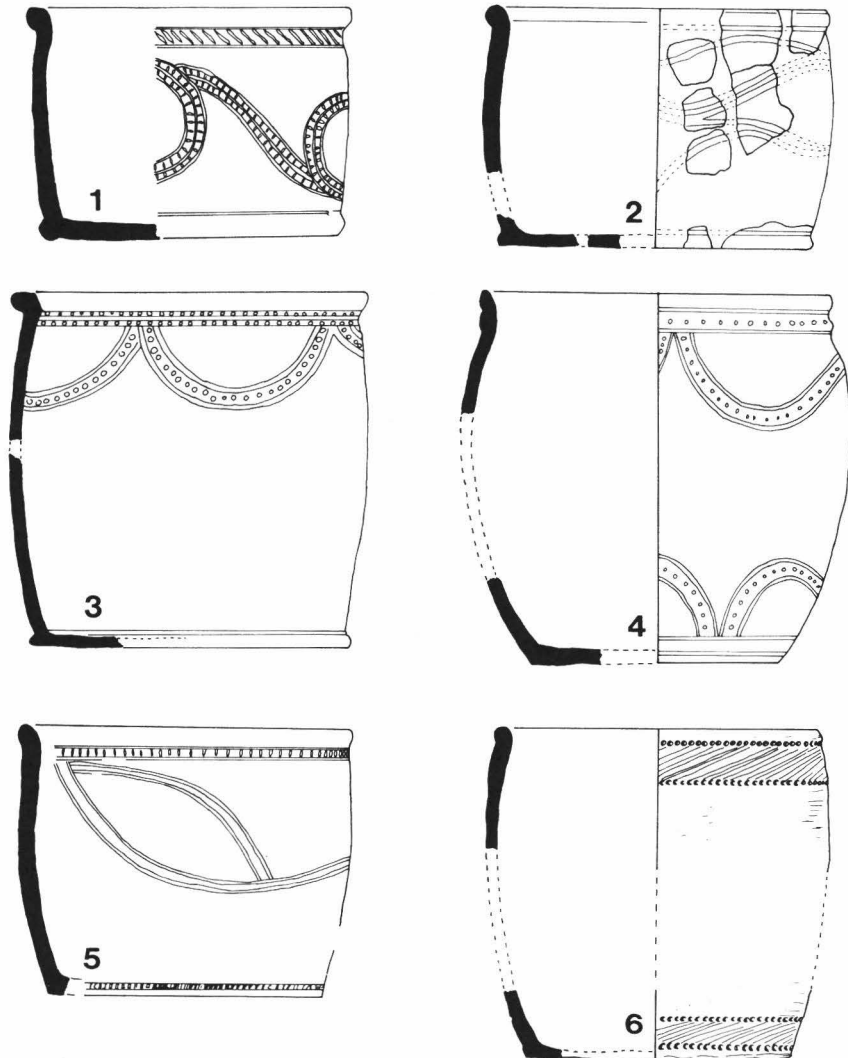


Fig. 18. 1 The Caburn (after Hawkes 1939); 2 Bishopstone (after Bell 1977); 3 The Trundle (after Wilson and Burstow 1948); 4 Park Brow (after Smith 1927); 5 Elm Grove, Brighton (after Cunliffe 1978); 6 Torberry (after Cunliffe 1976). ($\frac{1}{4}$).

exchange and the need to regulate it. Perhaps the pottery evidence also reflects this growing complexity of Iron Age society and economy.

One of the biggest gaps in our knowledge concerns the development of the pottery industry in the late Iron Age. In much of central and western Sussex there is a total dearth of deposits of the last century before the Roman conquest. Early Roman pottery can be well seen in Chichester and at Fishbourne, and indeed the recent excavation of kilns at Chichester (Down 1978, 204-10) shows the transformation of the industry with new forms, new fabrics and new techniques for throwing

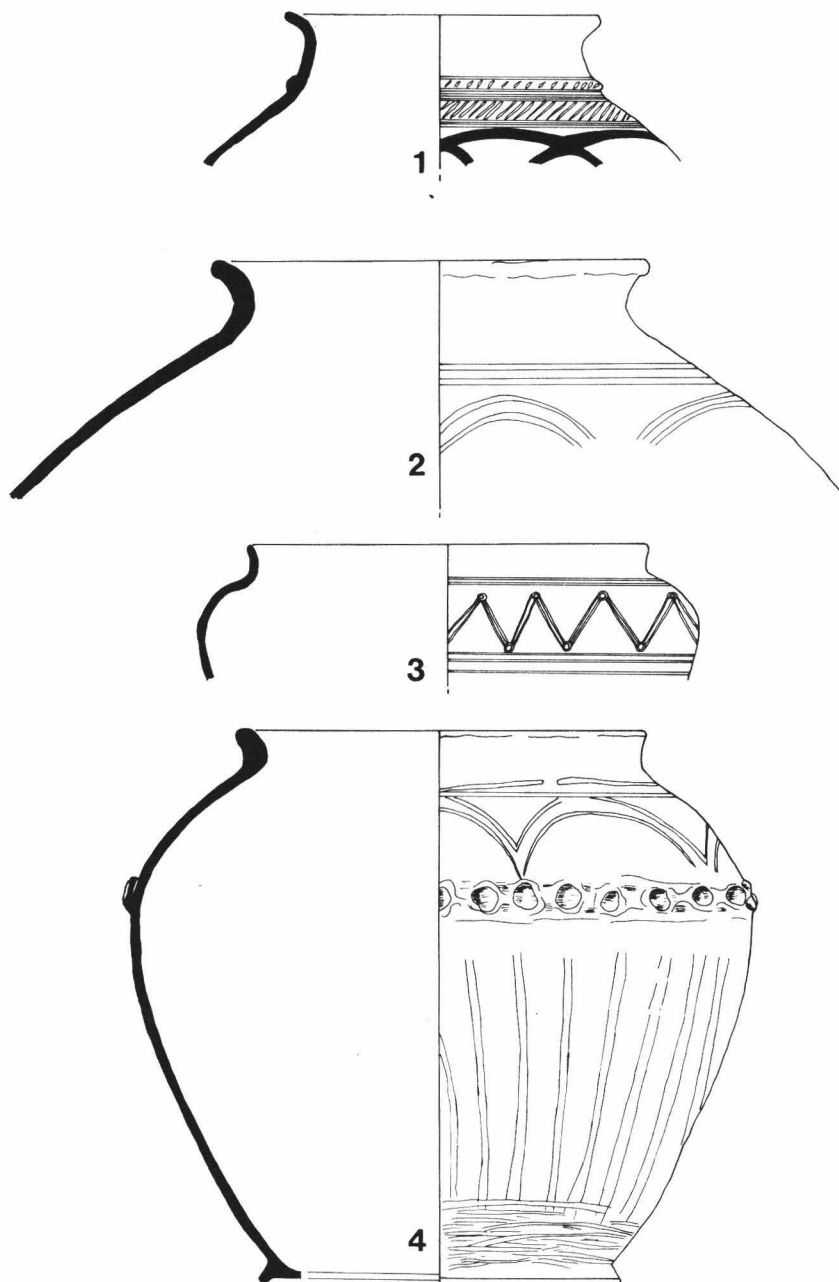


Fig. 19. 1 Horsted Keynes (after Hardy 1937); 2, 4 Bishopstone (after Bell 1977); 3 Charleston Brow (after Parsons and Curwen 1933). ($\frac{1}{4}$).

and firing. Even if these are atypical products for a brief military presence, the mass of mid-first-century A.D. pottery could hardly form a greater contrast to the saucepan phase. Unfortunately it is not yet possible to describe even when, let alone how, these new forms and new technology were introduced. Much light would no doubt be shed on ceramic advances in this period if an Iron Age predecessor to Roman Chichester were eventually recognised.

The picture is a little clearer in East Sussex, where a late Iron Age pottery industry has been recognised for some time. It is characterised by a distinctive fabric, with predominant grog tempering, by hand-made production, by a range of decoration using mainly applied cordons and incised standing arc designs, sometimes enhanced by painting, and a set of forms including jars and in particular large globular-bodied jars with narrow necks (Fig. 19). The decorated wares were first recognised by Ward Perkins (1938), who included them in his 'South-Eastern B' group, together with some allegedly similar vessels from Kent and Essex. This group was later renamed 'Eastern Atrebat' by Cunliffe (1974a, 89). Later still, Cunliffe somewhat arbitrarily separated off some of the decorated Sussex vessels into a 'Late Caburn-Saltdean style', contrasted with the rather different decoration used in the 'Mucking-Crayford style' of Kent and Essex; the term 'Eastern Atrebat' was, however, retained for the pottery of the late Iron Age in Sussex, Kent and Essex, and the 'Late Caburn-Saltdean style' was given a suggested start in the second century B.C., though without any firm evidence (Cunliffe 1978, 52-3, 97-100, Fig. 7:2 and A:32).

This pottery can now in fact be seen as the product of a well defined and surprisingly long lasting regional industry. The grog-tempered fabric, termed 'East Sussex ware' (C. M. Green, in Bell 1977, 154-6) lasts from the late Iron Age to the fourth century A.D.; the handmade technology, the vessel forms and the use of applied cordons all show similar longevity. The distribution of the products is also very restricted, examples being rare west of the Adur; they are rightly distinguished from those of Kent and Essex with which they had been combined in Ward Perkins' 'South-Eastern B' and Cunliffe's 'Eastern Atrebat', for the decorated pedestal urns and bowls and interlocking arc designs and stamps of the Lower Thames region are very different from the globular jars and standing arcs of East Sussex (Champion 1976, 230-6).

The beginning of this industry is difficult to date; there are no stratigraphical sequences to show the relationship with saucepan wares, and there are very few useful associations. At West Blatchington (Norris and Burstow 1951-2, 221), these wares were found with Gallo-Belgic pottery and an imitation samian form 27, at Horsted Keynes (Hardy 1937) with Gallo-Belgic pottery and a real samian form 27, and at Bishopstone with two brooches, one a Nauheim-related type and the other possibly an iron Colchester brooch (Bell 1977, 131 and Fig. 63, nos. 29 and 30). Though the associations at both the former sites could scarcely be pre-Claudian, the Bishopstone brooches should belong to the first half of the first century A.D. The evidence thus suggests that this industry began shortly before the conquest, and there is nothing to support a date as early as the second century B.C. Perhaps this very conservative and restricted potting tradition reflects the isolation of East Sussex, and began in the late Iron Age as this area became remote from the industrial and urban developments taking place further west.

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APPROACHES TO THE STUDY OF ROMAN POTTERY

by C. J. Young

Most pottery is studied by most archaeologists for the information it can shed on the society in which it was made and used, rather than for its intrinsic value as an art object. Any archaeologist will approach his material with one or more questions in mind, even if they are formulated subconsciously, and this approach will inevitably influence and direct the design of recording system used. To that extent any recording system will be subjective.

The most recent discussion of the uses of pottery for the archaeologist is that by Peacock (1977a) to which the reader is referred. The principal uses may be summarised as chronological—the dating of the site or feature by the pottery found therein; functional—the use of the site or feature as indicated by pottery; and economic—the use of the pottery by identification of its source as an indicator of the development and organisation of trading contacts. In itself this last use tells only of trade in ceramics, and pottery does not seem to have been among the more important traded commodities in the eyes of the ancient world. It is however the only major artefact to survive in sufficient quantities to be of use, which can also be identified to source, and its evidence can be interpreted to shed light on wider aspects of trade (Fulford 1978a).

The importance of pottery to the archaeologist has long been recognised. It was stated in general terms as long ago as 1846 by C. Roach Smith. He said that it was of the first importance 'to be able to classify and appropriate these various kinds of pottery; because, apart from the interest they afford as illustrations of an early art, they often serve to direct research, encourage the investigation of ancient remains, and contribute towards forming correct opinions upon objects less known which may be discovered in conjunction with them. A simple urn, or even a fragment of an urn, insignificant as in itself it may be, and even useless when dissociated, gains an importance when placed in juxtaposition with authenticated facts, and may supply a link in a chain of evidence. (Roach Smith 1846, 2).

As early as 1851, Llewellyn Jewitt had recognised most of the possibilities of pottery as a tool for the archaeologist. In 1850 he had excavated the Roman villa and kiln site at Headington Wick, near Oxford, and in his report he discussed both the Roman pottery industry of that area and also the products of the pottery itself. This report still merits consideration. He noted the large quantities of pottery found, particularly the mortaria, which are illustrated in a surprisingly modern style. He showed himself aware of the significance of both fabric and form:-

'The most remarkable feature is the immense assemblage of at least 200 [mortaria], varying in diameter from 7½ inches to nearly 2 feet. Their form and the material of which they are composed differ considerably from any which are found in London . . . They are principally formed of a fine clear clay, extremely hard and close in texture . . . and are of a light buff colour . . .

'Comparison of specimens from various localities may assist us in appropriating the varieties to the potteries where they were manufactured . . . If a collection of the rims themselves, from all parts of the country, could be made, and arranged together, we should then be enabled to localise them at a glance'. (Jewitt 1851, 57-9).

There can be no doubt that he was fully aware of the importance of the pottery as an indicator of trading patterns, and his report was ended by a clarion call to excavators to study pottery properly:

‘There is little doubt that, with proper attention on the part of excavators, many other facts tending to prove the existence of certain patterns and forms in particular manufactories, might be brought to light; and we might ultimately be able to arrive at a correct conclusion regarding the state of the fictile arts in our own country, and to fix definitely on the localities where many of these beautiful productions . . . have been produced’ (1851, 59).

If his approach had been widely adopted there is little doubt that the present position of Romano-British pottery studies would have been much advanced. Regrettably in the remainder of the nineteenth century little attention was paid to pottery from excavations. Interest was only re-aroused by the work of Thomas May and J. P. Bushe-Fox in the early years of this century. Their interest in pottery was primarily chronological, as may be seen from the latter’s comments in the first Richborough report:

‘The specimens chosen for illustration are those which either can be dated with some certainty by their association with other objects, throw some light on the history of the site, or are in themselves interesting examples. Types already well known . . . have not been dealt with’ (Bushe-Fox 1926, 88).

However he was aware of the importance of fabric and decoration as a determinant of origin, and used this type of evidence to demonstrate that the late red-slip ware from Richborough was not from the New Forest, but probably from the Upper Thames Valley. (Bushe-Fox 1926, 89-92).

Nevertheless subsequent work on pottery was primarily directed towards the dating of sites and the establishment of ceramic chronological frameworks, for example at Jewry Wall, Leicester (Kenyon 1948), and in many reports the pottery was not treated adequately in any terms at all. The chronological approach reaches its apogee in Marion Wilson’s publication of the pottery from the post-war excavations at Verulamium, in which nearly 1300 pots are illustrated in a series of phased, stratified groups, to present very clearly the dating evidence for the site (Wilson 1972).

However, in recent years interest in the wider aspects of pottery studies has risen once again, and considerable attention is now being directed towards pottery as evidence for trade, manufacturing industry and site function, though chronological aspects of ceramic studies have not been forgotten (e.g. Fulford 1975a, Green 1978, Peacock 1977, Young 1977). All this work is based upon the characterisation of the pottery by fabric and form, and on careful analysis of the available evidence.

The results of this kind of work are important and exciting but it is still severely limited by the lack of evidence. Much has not been published at all. Much that has been published has been done inadequately. Frequently there has been little attempt to characterise fabrics and attribute them to source. Much has been omitted from published reports without any indication that it exists at all, and there have been few attempts to quantify pottery.

The necessity for adequate fabric and form identification, for quantification, and for appropriate methods of publication, is obvious if the present trends of ceramic studies are to be pursued fruitfully. Identification of fabric is needed to indicate source and often date also, that of form is needed for dating, site function and evidence of industrial specialisation, and quantification is needed for objective assessment of results.

Two examples will indicate this clearly. Oxfordshire wares have been found at a number of places on the continent and at first sight a distribution map might give an impressive indication of littoral trade. If, however, occurrences are quantified it is clear that only along the Straits of Dover

is actual trade a possibility. Elsewhere single vessels only have been found. (Fulford 1977, 77-82).

In Sussex it is already clear that the pattern of supply of late Roman fine wares was changing and complex throughout the fourth century. At least four sources of supply existed—the New Forest, Oxfordshire, Pevensey and at least one small-scale producer in the Chichester area. Quantification of the pottery has demonstrated that in the west of the county New Forest wares were largely supplanted by Oxfordshire products (Young 1979), while in the east the New Forest was always less important than Oxfordshire, which itself was increasingly supplanted in the later fourth century by Pevensey products (Green 1977, 177-8). Further work is needed to confirm and fill out this picture.

If pottery is to be of full value to the archaeologist and to answer the questions now being posed, it must be published and processed in a manner designed to answer those questions. Such adequate publications must be based on a full quantified catalogue of the pottery, classified according to fabric and form and tied securely to the contexts in which it is found. The increasing expense of publication and the vast volume of pottery from excavations may mean that full publication of such catalogues is not normally possible. It is essential, however, that the published report of any site should summarise fully the information of the full catalogue and should act as a signpost to the main archive, so that the interested student can know that he should pursue matters further. It is also essential that the main catalogue should be readily available on request (DOE 1975). It is desirable that similar methods of quantification and classification should be widely used so that like information can be compared with like, in studies of pottery and its wider implications.

Regrettably such reports are still most uncommon and many published reports are quite inadequate, and appear to have little or no supporting archive. It is not the purpose of this paper to present a detailed blueprint of how this situation might be remedied. Increasing concern over the problems and needs discussed above has been felt both among those working on Roman pottery and within the Department of the Environment. This has resulted in the establishment of the Steering Committee on Roman Pottery which has produced guidelines on the processing and publication of Roman pottery (Young 1980).

Finally it must be said that no set of guidelines can be a substitute for thought and hard work. Pottery can and should produce much information on wider aspects of archaeology, but this will only be forthcoming as the result of considerable effort and experience, which can only be gained by working with pottery. Neither are the guidelines a final solution to pottery studies—they are designed to meet the academic needs of the present generation. In the future different problems may need study, and different approaches will then be needed. It is therefore essential not only that the pottery should be properly studied in terms of today's questions, but that all of it should be kept so that it can be used to answer those asked by our successors.

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ASPECTS OF ROMANO-BRITISH POTTERY IN WEST SUSSEX

by *Martin Millett*

In contrast to other periods Romano-British pottery is well known: it has a well established, although by no means perfect chronology, and most of the more common fabrics have been identified. This makes some Roman pottery specialists complacent about the development of their subject as their aim is the reconstruction of history and thus chronology their main interest. As one who sees archaeology as broader than this, such a view is inadequate. In this review my aim is to point to the potential in the material for answering more wide ranging questions which may be of interest to those working in other periods and areas.

It is a commonplace in archaeology that any two groups of pottery, either on the level of individual layers, or total site assemblages, will be different in various ways, and that the definition and explanation of these differences is the proper subject for archaeological research. The usual problem is that variation is so vast, and the pottery and its chronology so crudely known that explanation remains no more than a pious aim. The advantage the Romanist has over other periods, at least until the post-medieval, is that the variability is more controlled as the pottery was largely mass-produced by separate and distinct industries which distributed it over wide areas. This, together with its occurrence in datable contexts makes it possible to look at short time spans and examine not only aggregate patterns of variability, but changes in those patterns through time. In the study of Romano-British pottery, chronology should not be our main *aim*: it should be our main *tool*, a necessary precondition for the examination of variability and the reconstruction of the mechanisms which led to it.

We must not assume that the solution of these problems is easy, indeed the complexity in sorting-out the mesh of interrelationships may prove too difficult for us. Nevertheless without a conceptual model within which to work we will certainly be lost. The framework that I offer is illustrated in Fig. 20. Three basic groups of variable can be isolated:

- A. **TIME.** Including both simple chronological changes in trade, fabric and form as a result of fashion and historical events and, the previous history of the site involved represented for us by residuality which increases with time and to use the geologists' phrase is 'diachronic' (i.e. it cuts across the usual time dimension).
- B. **INHERENT FACTORS** within one period. These on the left hand-side of our figure are, I trust, self-explanatory, and vary in effect with the social and economic complexity of the society as well as with time.
- C. **ARCHAEOLOGICAL FACTORS.** These effect not only the potential of our evidence, but also the degree to which it is realised or lost.

What, you may ask, is the relevance of this to our Sussex material? The answer lies in the problem we experienced in trying to relate the material from one particular site, Elsted (Redknapp and Millett 1980) to that from other sites in the area, so that background factors common to all the sites in the area could be interpreted on that level, leaving the information relevant to Elsted alone

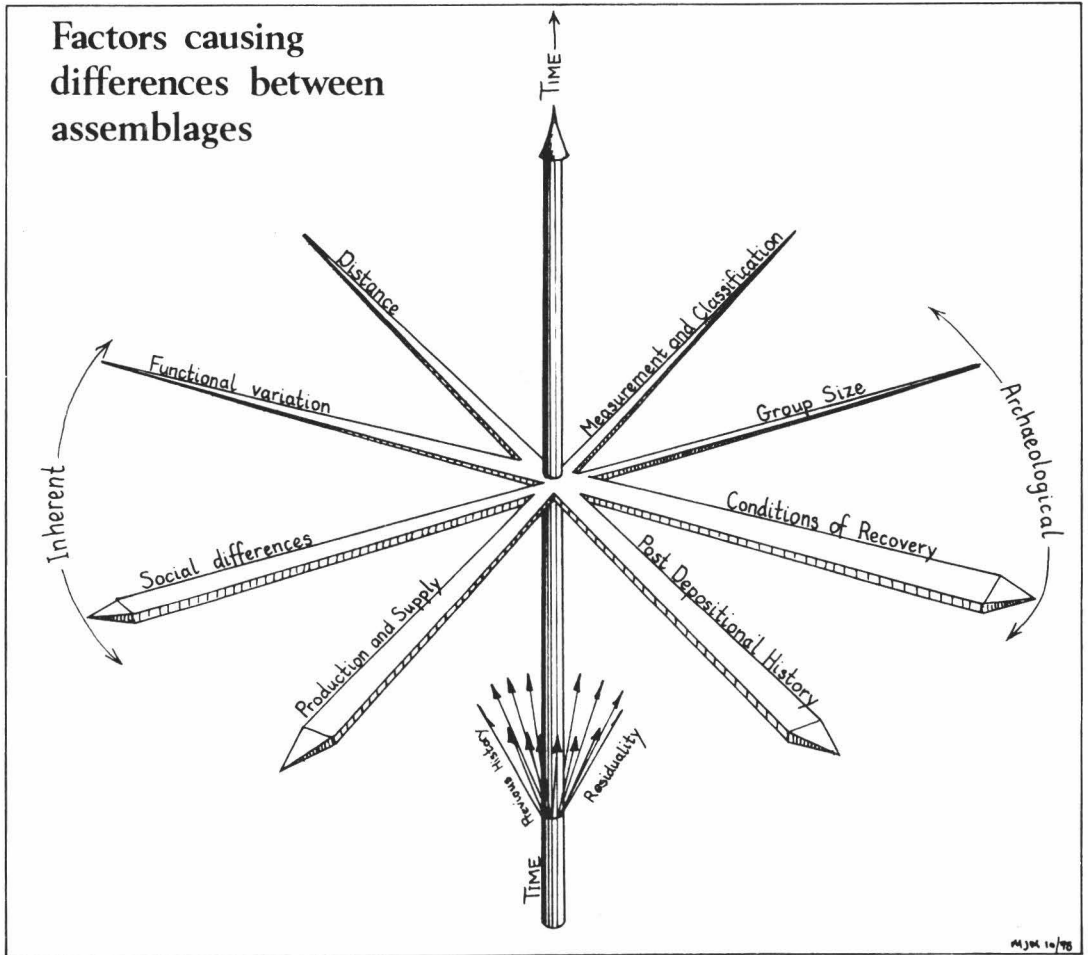


Fig. 20. A conceptual model explaining the factors which cause differences between pottery assemblages.

for interpretation in that context. This approach was frustrated, in terms of the excavation report, by the fact that most of the other sites in West Sussex (of which there are many that have been partially excavated) have not been published to a standard which permits comparison. The result was that it proved impossible to interpret the Elsted pottery against its regional background in the report. It has however been possible since then to collect information which relates to various aspects of the pottery of the area so that hypotheses about the area may now be put forward tentatively on the understanding that they are to represent 'Aunt Sallys': targets to be smashed by the collection of new data and the asking of relevant questions of it.

The coarse pottery industries in West Sussex are poorly known although the general pattern of supply has been summarised on several sites, especially Fishbourne (Cunliffe 1971, II 250-5). This pattern is much as we have come to expect from Lowland British sites with a variety of imports and localised manufacturers flourishing just after the conquest but gradually being superseded by larger

local industries around the *Civitas* Capitals and other centres of population. These are themselves slowly overtaken in importance by the regional industries in the later third and fourth centuries. In the case of West Sussex the main emergent industry of the second and third centuries is at Rowlands Castle, although other kilns at Pulborough (Evans 1974, 105-6), and Chichester (Down 1978, 41ff.) appear earlier and are little known in terms of distribution. In the later period the regional giants, the New Forest and Farnham (Alice Holt) industries become predominant although the rural, decentralised industries (Hodder 1974) producing such things as the 'East Hampshire Grog Tempered ware' (Fulford 1975, Fabric A; Cunliffe 1970) seem to maintain a significant market share.

The only detailed study of a particular distribution is that of Rowlands Castle ware by Dr. Hodder (1974b). This shows that the supply of pottery involved two major mechanisms (Fig. 21):

- i The kilns seem to have been supplying the local needs, surrounding rural sites, by direct contact, either through visits to the manufacturing centre, or perhaps pedlars.
- ii The *Civitas* Capital at Chichester was acting as a marketing centre for consumers further afield. Those consumers on the easiest lines of communication to Chichester (in this case on the roads) were more likely to receive the pottery than those away from them.

These conclusions seem sound on the basis of the evidence he presented, although the apparent 'fit' of the total distribution to the predicted service area of Chichester on the basis of Reilly's breaking point (Hodder and Orton 1976, 192) seems difficult to accept as his calculation was on the basis of the *walled* area of only the *cantonal capitals*. This ignores both the small towns (which on other evidence can be presumed to have served as market centres) and the fact that the walled area of a centre need have no necessary relationship to the economic power of a centre. The alternative service area calculated using the same formula with the inclusion of all the towns, including the 'small towns', and using an estimate of their total occupied area on the basis of our current knowledge. This service area (Fig. 21) shows no clear relationship between the predicted service area of Chichester and the distribution of Rowlands Castle ware. This presents us with a problem of whether we should accept the criterion of walled area as being related to economic strength because the results correlate most closely with that service area (Hodder 1974b, Fig. 6). The inclusion of the 'small towns' makes little difference to the goodness of fit except perhaps towards Pulborough. The most reasonable suggestion would seem to be that the distribution which results from direct access to the kilns is that cause of the poor fit, and this of course should not be affected by the service area of Chichester.

The main question which arises from Dr. Hodder's research is whether the conclusions drawn are applicable to other artifacts and especially different types of pottery. His first conclusion is at present beyond testing as there has been no data collected which is directly relevant, although it appears from the published distribution that the 'East Hampshire Grog Tempered ware' was distributed directly from the kilns over much of its market area (Fulford 1975, Fig. 156) since it seems not to be centred on any known market.

It is commonly presumed that Romano-British towns acted as market centres, and this has been demonstrated in several papers by Dr. Hodder, including that on Rowlands Castle ware. There is however little evidence about how this role may have developed through time, and how it was affected by other of the factors illustrated in Fig. 20. In order to examine the problem of centralised market distribution and how it changed through time it seems valuable to look at the pattern of distribution of pottery with a non-local origin. The most obvious subject for such a study are the fine wares, initially samian ware, and in the later period New Forest and Oxfordshire ware.

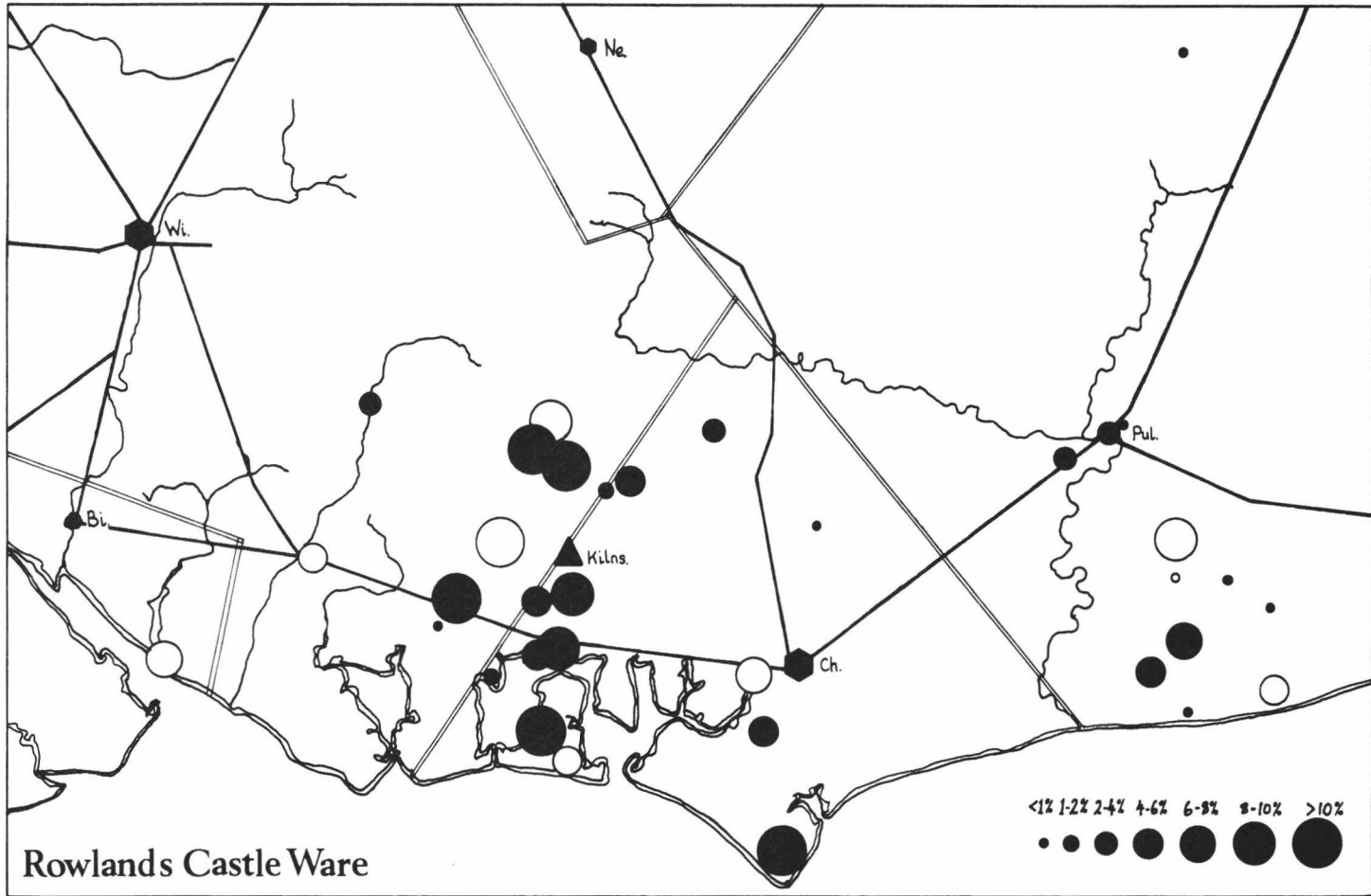


Fig. 21. The distribution of Rowlands Castle ware in relation to weighed theissen polygons drawn using all adjacent towns. Open circles represent assemblages of less than thirty sherds. (Source: Hodder 1974).

The particular advantages are that they are:

- (a) Common enough to show a wide distribution on a variety of different types of site.
- (b) Generally reported upon as they are useful in dating.
- (c) Specific enough for their origin and dating to be reliable.

The information on these wares in Sussex was therefore collected using the published corpora (Fulford 1975a; Young 1977) and samian lists kindly made available by excavators (for a list see acknowledgements). As it proved impossible to find out what percentage of the assemblage was represented by these wares in the majority of cases it is only the wares themselves that are considered here. This information is relatively crude with the samian divided by origin into 'Arretine' (including Provincial Arretine), South Gaulish, Central Gaulish and East Gaulish wares. These may be taken to have a broad chronological significance with ranges of pre c. A.D. 45, c. A.D. 43-100, c. A.D. 100-200 and c. A.D. 150-260 respectively on British sites, with only a tiny proportion of the sherds from these origins falling outside these ranges. The percentages of these fabrics was calculated for the eleven sites with available data (Table 1) and the results represented both graphically (Fig. 22) and on maps (Fig. 23). As the Central and East Gaulish figures are depressed by the massive quantities of early pottery for some sites (e.g. Fishbourne) these figures were also calculated for all the sites on the assumption that Arretine and South Gaulish percentages were as the mean.

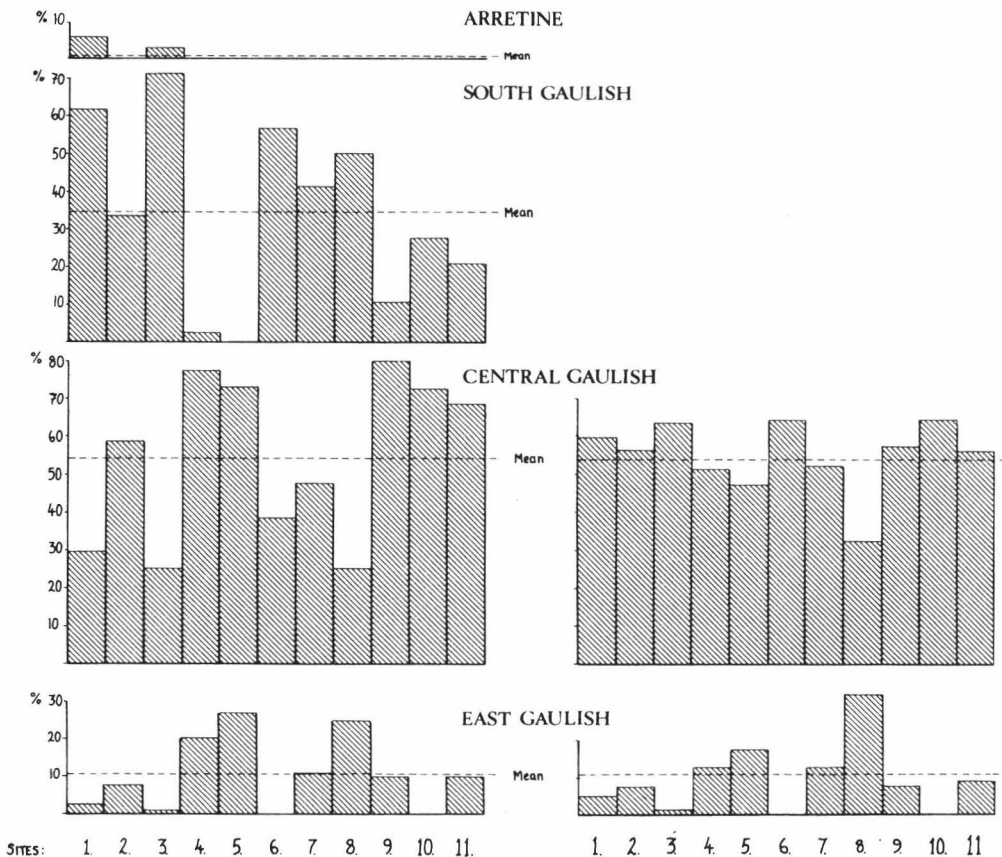


Fig. 22 Graph showing the percentages of the different samian fabrics. For identification of sites, and the figures see Table 1. For the explanation of the adjusted figures see text above.

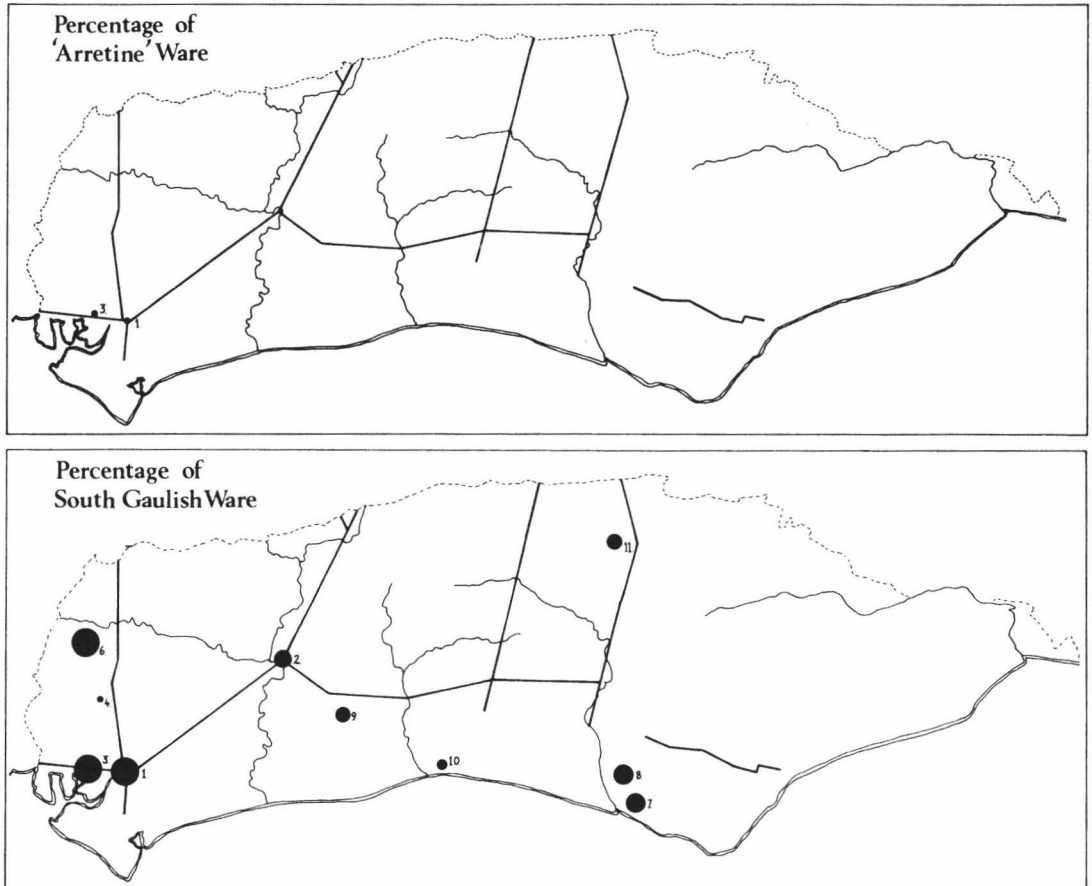


Fig. 23. A-B Maps showing the distribution of the samian fabrics by percentage. For identification of sites and figures see Table 1.

The results, when plotted on the maps, show how the trade in samian ware expanded after the conquest and then contracted during the third century. They show a strong background pattern to which most sites can be expected to conform. The variations from the mean seem in some cases to have significance in terms of supply and site history, although in the case of Ranscombe Hill (site 8) for instance the sample size is obviously responsible. In the earliest period, immediately after the invasion, Arretine was only supplied to Fishbourne and Chichester. In spite of the claim that this material is pre-Roman (Goodburn 1972, 368-9; Rodwell 1976, 306-7), it seems more satisfactory to see it as a result of early military activity as there is an absence of other pre-conquest material in quantity. The coastal inlet here remains of crucial importance for trade throughout the period so despite the apparent abandonment of Fishbourne Palace, pottery continues to be supplied to the end of Roman rule. In the South Gaulish phase most sites, with the exception of the Chilgrove villas which presumably develop later, have ample supplies of samian, although in only three cases are there more than two pre-Flavian types represented (Fig. 24b). Two of these are Fishbourne and Chichester which we have already seen to have military origins. Garden Hill is the third, and this

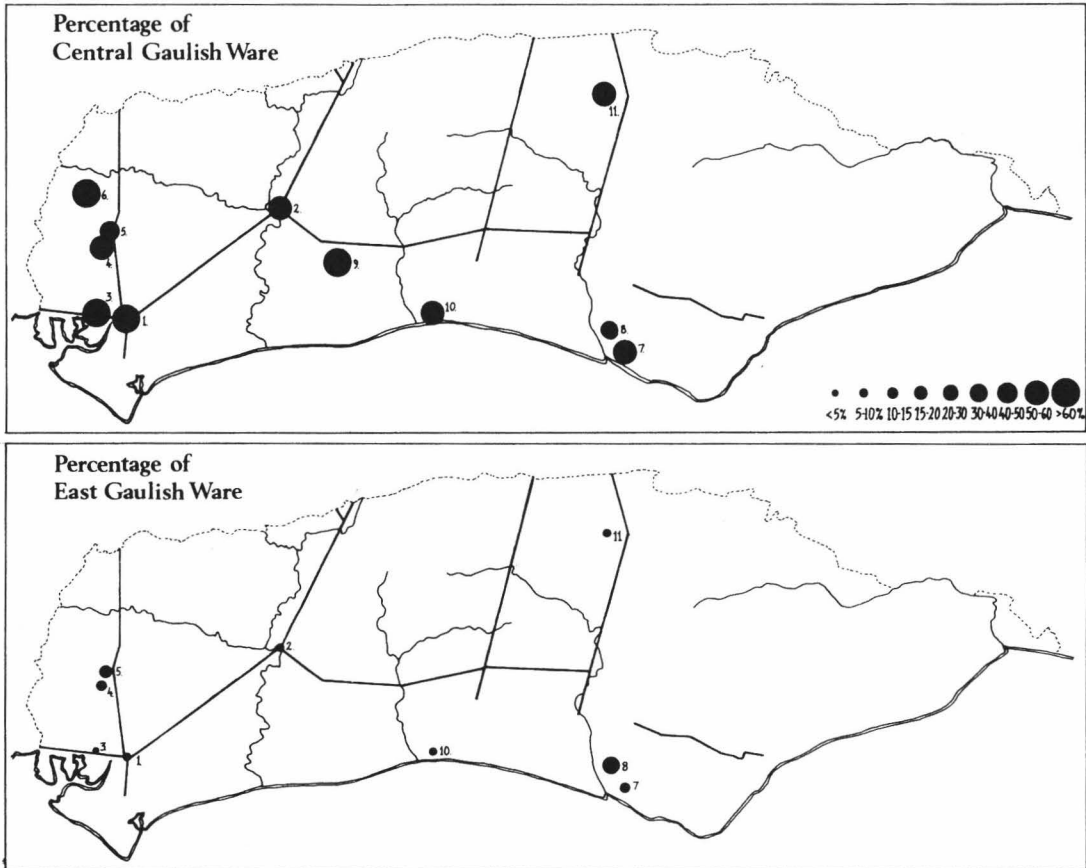


Fig. 23. C-D Maps showing the distribution of the samian fabrics by percentage with adjusted percentage for Central and East Gaulish fabrics. For identification of sites and figures see Table 1.

seems to have been connected with iron working (Money 1977) which in the Weald may have been under official control (Frere 1974, 333), and it is perhaps for this reason that we find pre-Flavian material. In the period of Central Gaulish preeminence there is an even pattern with plentiful supplies reaching all sites. East Gaulish supplies are more restricted and did not reach several rural sites although the towns of Chichester and Pulborough (considered a 'small town' by this author not a Villa as Todd 1978, has suggested) as well as Fishbourne are also well below the mean suggesting a relative decline in comparison with the Central Gaulish period and earlier. The Chilgrove Villas are both above the mean suggesting growth in this period. There are clearly however problems with using these figures in this way as each period is effected by the other periods. Another complementary approach to this is to examine the variation between the different sites at the same time. Since it has been demonstrated in other cases with fine wares (Hodder 1974), one would not expect the quantity of samian ware to vary much between sites over such a small area. However, if towns are acting as centres for redistribution we would expect a wider variety of pottery (more types) to occur in them. Secondly if there are sites of higher status and wealth such as villas, we



Fig. 24. A-B Maps showing the distribution of the samian fabrics by the number of types represented on each site. For figures and site identification see Table 2.

would expect them to have a greater variability in their pottery (i.e. more types) than the other rural sites.

With this in mind the number of forms represented on the eleven sites examined has been counted for each centre supplying it. This has also been done for Oxfordshire and New Forest wares, using the published corpora (Young 1977; Fulford 1975) with the addition of more recent information. There are obvious drawbacks to this approach as excavation, and samples, vary in size and one would expect that larger excavations would mean a larger variety of types. The figures (Table 2) show that this is partially true although there is other variation due to factors such as those shown in Fig. 20. The maps (Fig. 24 and 25) show this to some extent. The towns of Chichester and Pulborough have a wider variety of types throughout than the other, rural sites. In the case of the South Gaulish ware this may be the result of a buildup in sites with a longer period of supply. The sites with more than two pre-Flavian types show that this is not necessarily so as Garden Hill has a pre-Flavian presence but only a small variety of types which is consistent with its rural situation. The other uncertainty is that of the relative importance in the variety of material

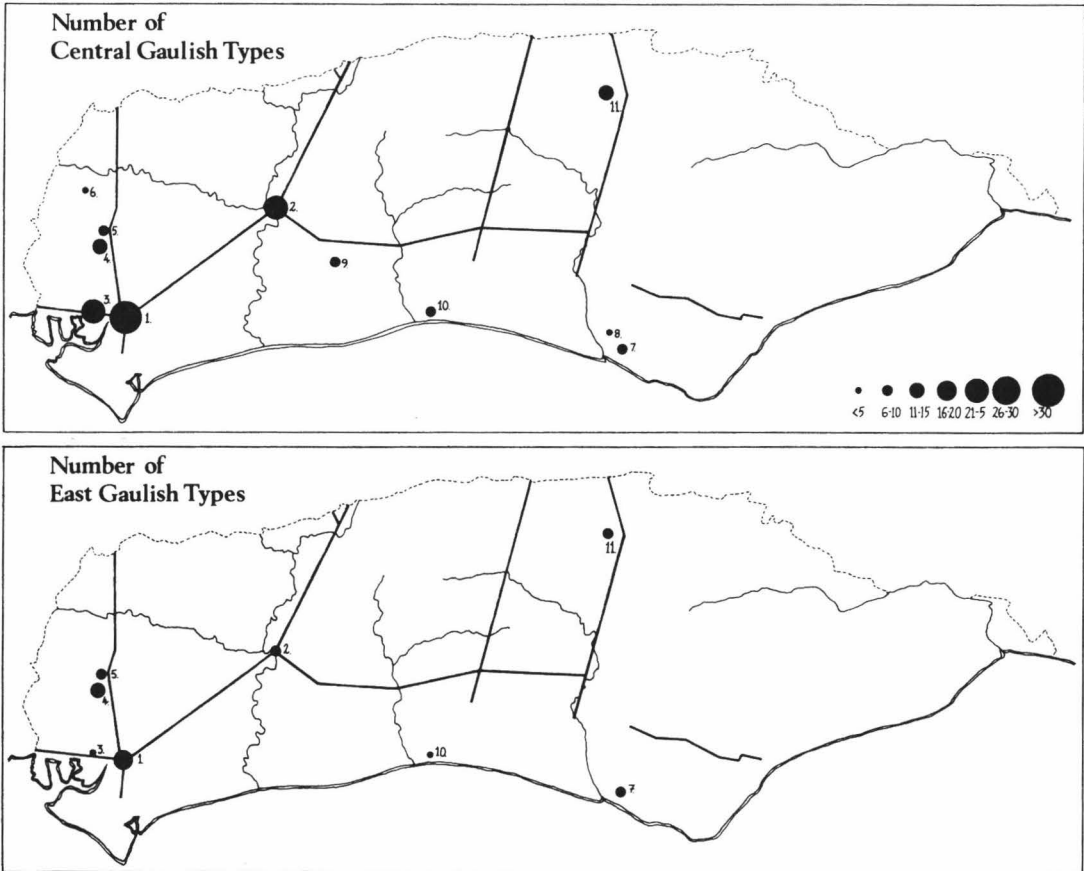


Fig. 24. C-D Maps showing the distribution of the samian fabrics by the number of types represented on each site. For figures and site identification see Table 2.

present of the coastal location of Chichester and Fishbourne and their roles as high status centres, and Chichester's as a centre for redistribution. Even bearing these problems in mind the maps (Figs. 24 and 25) seem to indicate that the towns are redistributive centres in the periods of Central and South Gaulish supply, and during the period of New Forest and Oxfordshire supply. These latter also indicate, at Pevensy, the importance of the military factor in increasing the number of types supplied. The latest types rarely appear away from the towns or roads on the rural sites, perhaps suggesting that a declining industry (Fulford 1979) is contracting and only the powerful sites (the towns, and those with market pull, such as the military, or those with access to the roads) continue to obtain supplies.

A final aspect of the material which may reflect the factors suggested in Fig. 20 is the proportion of decorated material in the samian assemblages. The percentages for the various centres and different sites are given in Table 3. It is immediately clear from these figures that their 'normals' are different for the different suppliers although there is also considerable variation between different types of site. The only site which remains consistently well above the mean is

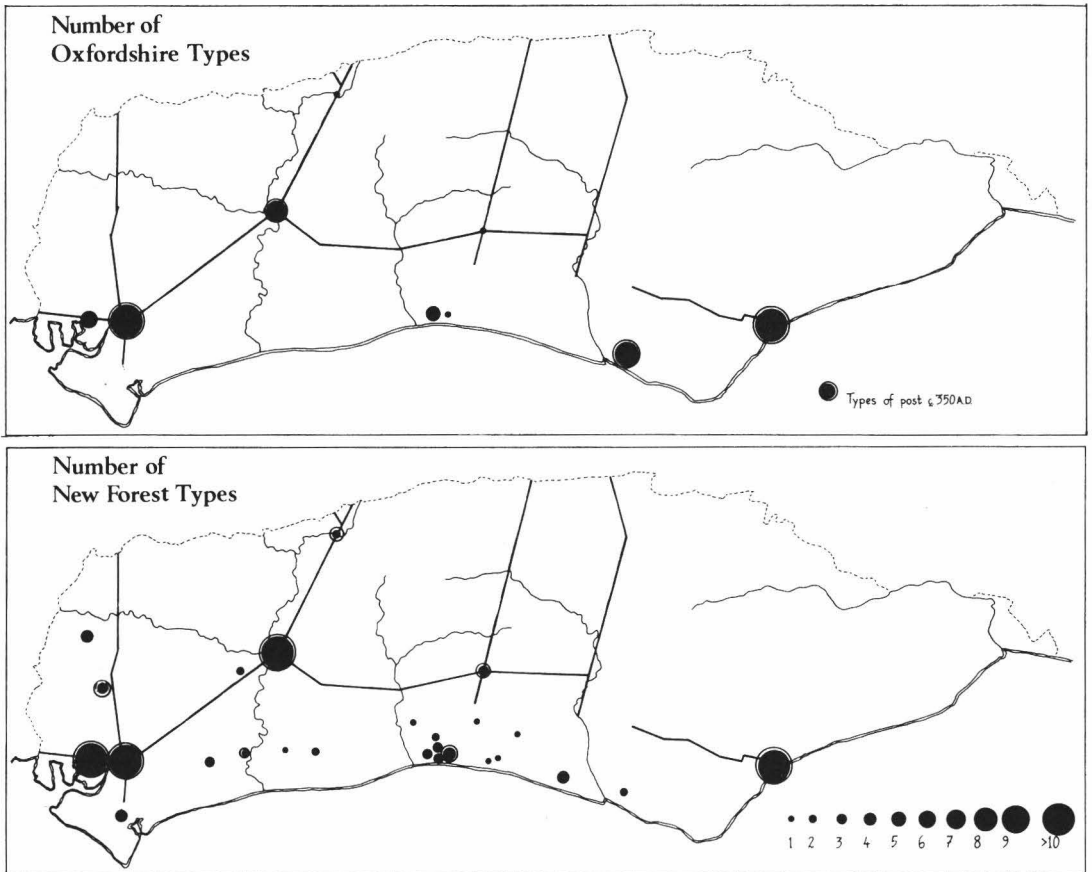


Fig. 25. A-B Maps showing the distribution of Oxfordshire and new Forest Fine wares by the number of types represented on each site. (Sources: Young 1977 and Fulford 1975b).

Pulborough (except that Arretine is absent), and the only one consistently below the mean is Garden Hill, surprising when one considers its privileged position as far as the other figures are concerned. The patterns of the other sites vary with time. Within this variation there are several other features of interest. First there is an absence of decorated East Gaulish wares on all sites but for the two towns of Pulborough and Chichester. With their large biases towards South Gaulish ware Fishbourne and Chichester are both below the mean for decorated material in this period. This may be the result of the large pre-Flavian element in their assemblages, when decorated wares are less common, depressing the overall figures in comparison with sites like, for instance, Elsted and Pulborough which have only Flavian supplies. The idea of a simple relationship between site status and the proportion of decorated materials is thus not upheld by these figures which seem to suggest little differentiation between rural sites and villas. The only differentiation seems to be between the towns, which attract more decorated material than the rural sites. Whether this is a function of social status or their redistributive role is not clear.

The information presented shows the complexity of interpretation in these patterns. What is undoubtedly needed is more control of the variables. The archaeological variability is the easiest to control. What we therefore need is to study and collect our material in a more controlled way. This

TABLE 1: Fabric Divisions

Site	Arretine	South Gaulish	Central Gaulish	East Gaulish
1. Chichester (2287)	143 (6.3%)	1409 (61.6%)	678 (29.6%) (adj. 59.4%)	57 (2.5%) (adj. 5.1%)
2. Pulborough (243)	—	81 (33.3%)	143 (58.8%) (adj. 56.8%)	19 (7.8%) (adj. 7.7%)
3. Fishbourne (1185)	32 (2.7%)	847 (71.5%)	299 (25.2%) (adj. 63.3%)	7 (0.6%) (adj. 1.2%)
4. Chilgrove 1 (175)	—	4 (2.3%)	136 (77.7%) (adj. 51.7%)	35 (20%) (adj. 12.9%)
5. Chilgrove 2 (52)	—	—	38 (73%) (adj. 47.1%)	14 (27%) (adj. 17.4%)
6. Elsted (70)	—	43 (61.4%)	27 (38.6%) (adj. 64.6%)	—
7. Bishopstone (92)	—	38 (41.3%)	44 (47.8%) (adj. 52.3%)	10 (10.9%) (adj. 12.3%)
8. Ranscombe Hill (12)	—	6 (50%)	3 (25%) (adj. 32.3%)	3 (25%) (adj. 32.3%)
9. Chanctonbury Ring (29)	—	8 (27.6%)	21 (72.4%) (adj. 64.6%)	—
10. Slonk Hill (69)	—	6 (10.2%)	47 (79.7%) (adj. 57.5%)	6 (10.2%) (adj. 7.1%)
11. Garden Hill (115)	—	24 (20.9%)	79 (68.7%) (adj. 56.2%)	12 (10.4%) (adj. 8.4%)
Mean	0.8%	34.6%	54.2%	10.4%

Notes:

Numbers in margin refer to maps and figure 22; sample size given below site name; adj. = adjusted percentage assuming that Arretine and South Gaulish figures are on mean.

information needs to be made available for other regions in a similar way. West Sussex provides a valuable area where a comparatively small project, on the lines of those already run by the Sussex Archaeological Field Unit, could provide invaluable information. The potential in West Sussex is exceptional as it has a wide range of types of site of military and non-military origin and a history of continuous occupation, without interruption, from A.D. 43 to the fifth century. I would therefore suggest that a selective field survey and excavation programme could be tied-in with that already underway under Alec Down's direction at the Chilgrove villas and Chichester. This project should examine total assemblages variability through time over a limited area and could be of extreme importance for our understanding of both the County and the subject of pottery itself.

ACKNOWLEDGEMENTS

The following people have kindly made material available to me; (the name in parentheses is that of the Samian expert who wrote the report): Alec Down, Chichester and the Chilgrove villas (Geoff Dannell); Jane Evans, Pulborough (Peter Webster); Barry Cunliffe, Fishbourne (Geoff Dannell); Elsted (Geoff Marsh); Martin Bell, Bishopstone (Joanna Bird); David Rudling, Chanctonbury Ring and Ranscombe Hill (Catherine Johns and Joanna Bird respectively); and Mike Fulford, Slonk Hill and Garden Hill (Joanna Bird). I am also very grateful to Richard Reece, Simon Key and Mike Fulford for discussing the ideas and reading an earlier version of this paper.

Author: Martin Millett, Merton College, Oxford.

TABLE 2: Numbers of types represented

Site	Arretine	South Gaulish	Central Gaulish	East Gaulish
1. Chichester	15 (9.5)	33 (42.7)	31 (21.9)	16 (3.6)
2. Pulborough	—	10 (8.1)	20 (7.2)	6 (3.2)
3. Fishbourne	8 (4)	22 (38.5)	21 (14.2)	3 (2.3)
4. Chilgrove 1	—	4 (1.0)	13 (10.5)	10 (3.5)
5. Chilgrove 2	—	—	6 (6.3)	6 (2.3)
6. Elsted	—	5 (8.6)	2 (13.5)	—
7. Bishopstone	—	10 (3.8)	9 (4.9)	5 (2.0)
8. Ranscombe Hill	—	3 (2.0)	3 (1.0)	—
9. Chanctonbury Ring	—	4 (2.0)	8 (2.6)	—
10. Slonk Hill	—	5 (1.2)	9 (5.2)	2 (3.0)
11. Garden Hill	—	8 (3.0)	11 (7.2)	6 (2.0)

Notes:

Numbers in parentheses are the average number of examples per type, but as the figures given in Table 1 represent sherd numbers, including unidentifiable types, the no. of types, no. of examples per type need not equal figures in table 1.

TABLE 3: Percentage of Decorated ware in Fabric Groups

Site	Arretine	South Gaulish	Central Gaulish	East Gaulish
1. Chichester	2%	17%	17%	25%
2. Pulborough	—	38%	23%	41%+
3. Fishbourne	3%	16%	18%	0%
4. Chilgrove 1	—	25%	13%	6%
5. Chilgrove 2	—	—	11%	0%
6. Elsted	—	43%	0%	—
7. Bishopstone	—	7%	14%	0%
8. Ranscombe Hill	—	17%	33%	0%
9. Chanctonbury Ring	—	13%	19%	—
10. Slonk Hill	—	33%	34%	0%
11. Garden Hill	—	21%	14%	0%
Mean:	2.5%	23%	17.8%	8%

Notes:

Pulborough East Gaulish figure includes the products of the Aldgate-Pulborough Potter.

HANDMADE POTTERY AND SOCIETY IN LATE IRON AGE AND ROMAN EAST SUSSEX

by Chris Green

INTRODUCTION

Excavators on Romano-British sites in East Sussex are unlikely to fail to find quantities of handmade black or dark brown pottery with a distinctly 'soapy' feel, much of which will appear quite uninformative. The purpose of this paper is firstly to describe typical specimens of this material (largely by illustration), with a brief account of vessels in similar fabrics which occur from pre-conquest times until the late first century A.D., and secondly to speculate on its implications for our knowledge of the society that produced it. Wheelthrown pottery is not described in detail, however, for no definite kilns have been excavated in the area. The interest of this region's ceramics lies not in its typically 'Roman' pottery, but in the fact that until c. A.D. 300, at least, over half of all the vessels used were produced by the techniques of the late Iron Age, a proportion probably unparalleled elsewhere in south east England.

I. POTTERY OF THE LATE IRON AGE, FIRST CENTURY B.C. TO c. A.D. 70

(For reasons which will become apparent, this section 'ignores' the invasion of A.D. 43. A very limited selection of pottery, all in the fabric described below, is illustrated in Figs. 27 and 28; for further examples see Bishopstone (Hamilton 1977), Charleston Brow (Parsons and Curwen 1933), Glynde (Wilson 1955), Crowhurst Park (Piggott 1938), Horsted Keynes (Hardy et al. 1937), Castle Hill, Newhaven (Hawkes 1939, Bell 1974), and Kingston Buci (E. Curwen 1933).)

Typology and date

East Sussex vessels of this period have received some attention, perhaps since many of them are decorated. They failed to conform to the 'Belgic C' of Hawkes' ABC scheme and were subsequently grouped with a scarcely coherent selection of pots from Essex and Kent as 'South Eastern B' (Ward Perkins 1938), a classification substantially retained in Cunliffe's 'Eastern Atrebat' style (Cunliffe 1974a, 89-92, 344). Wilson and Burstow's (1948) analysis is much better, as it is more closely related to the material and ignores the non-Sussex finds, but such schemes have aimed largely at the definition of cultural groupings, at best a risky undertaking. It is as well to point out the general dangers, and the shortcomings in this particular case.

Firstly, pottery moves, either in trade or by 'informal' channels. Thus the eyebrow-decorated vessel reputedly found in Fetter Lane, London (Fig. 27.3) was almost certainly *made* in Sussex and is not therefore an indication of a cultural grouping spreading to the London area. (In this case even the Fetter Lane provenance seems a little doubtful). A study of the fabric may resolve such difficulties, and elsewhere has exhibited a well-established trade in pottery in late Iron Age times (Peacock 1969). Secondly, it is rarely clear that we are dealing with vessels of the same date. Most examples selected for cultural-typology purposes are museum specimens without recorded stratigraphic context, and East Sussex can in any case offer *only two* fairly well associated groups

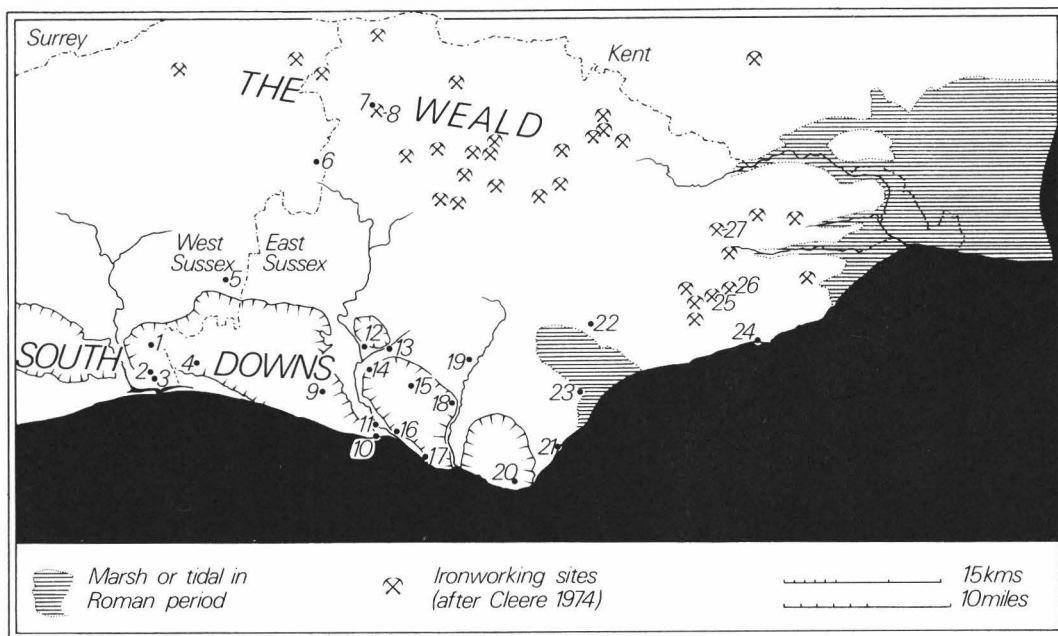


Fig. 26. East Sussex sites mentioned in the text: 1 Thundersbarrow Hill; 2 Slonk Hill; 3 Kingston Bucu; 4 West Blatchington; 5 Hassocks; 6 Horsted Keynes; 7 Garden Hill; 8 Pippingford; 9 Highdole, Telscombe; 10 Castle Hill, Newhaven; 11 Newhaven (villa); 12 Ranscombe Hill; 13 Glynde; 14 Asham; 15 Charleston Brow; 16 Bishopstone; 17 Seaford; 18 Alfriston; 19 Arlington; 20 Bullock Down; 21 Eastbourne; 22 Herstmonceux Castle; 23 Pevensey; 24 Hastings; 25 Crowhurst Park; 26 Beauport Park; 27 Sedlescombe.

(see below). Thirdly, most of these museum specimens are cremation urns, selected at the expense of more fragmentary vessels from occupation sites. Figs. 27 and 28 are an attempt to remedy this by illustrating mainly non-burial material, while omitting much-published vessels like the Horsted Keynes group. Fourthly, selection, while inevitable, may be carried to extremes, as in Ward Perkins' compilation (1938), which includes a pagan Saxon urn (from Plaxtol, Kent) and pottery from Kent and Essex whose curvilinear decoration bears little resemblance to the East Sussex material. Finally, and generally, we do not know that ceramic grouping equals cultural (ethnic? tribal?) entity (see also Collis 1977). It may or may not, but this at least requires the examination of other types of evidence, some of which will be reviewed below.

What, then, *can* be said of the hard typological evidence? A ceramic grouping in East Sussex is undeniable, and obviously differs both from its predecessor, the 'Caburn-Cissbury' style of 'saucepan' pots of the ?third to ?first centuries B.C. (Cunliffe 1974a, 329; Champion, this volume), and from the assemblages of surrounding areas. In north Kent the 'Aylesford-Swarling' and later 'Belgic' styles are immediately distinguishable. So too are the few comparable groups from West Sussex, and mid-first-century A.D. types from the London area, Hampshire, Hertfordshire and Essex. Most of the surrounding areas, in fact, developed 'bead-rimmed' styles in the first century A.D., in contrast to their rarity in East Sussex. Some groups from east Surrey contain vessels of more similar form and fabric, but still no really obvious parallels with Sussex types emerge (see Walton-on-the-Hill, Lowther 1949; Beddington, Orton and Perry, forthcoming). The most characteristic feature of late Iron Age styles in East Sussex is the occurrence of 'eyebrow' decoration on a sizeable proportion of pots. Since this feature is so rarely found outside the vice-

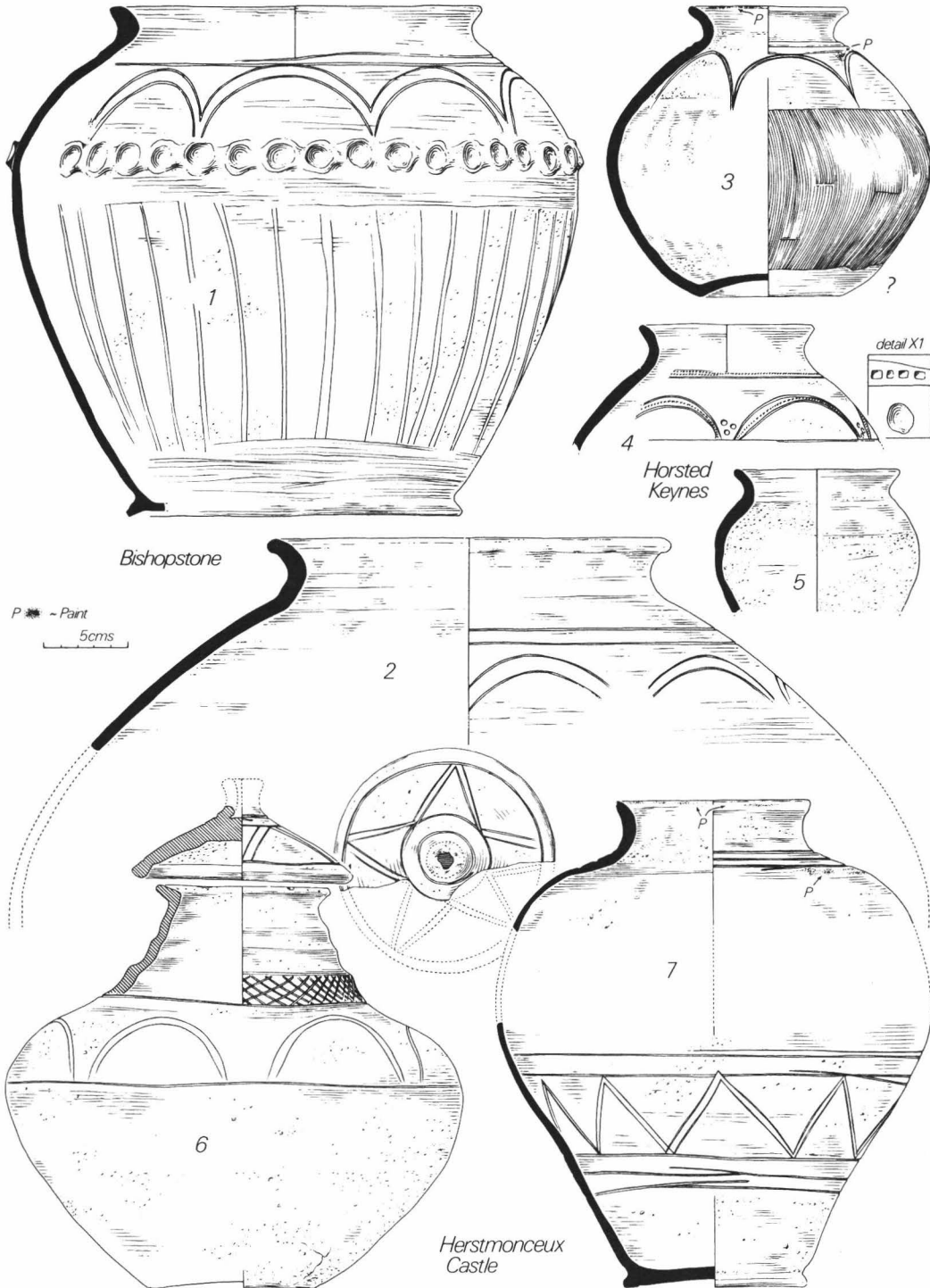


Fig. 27. East Sussex 'eyebrow' pots and related types: 1-2 Bishopstone; 3 ?Fetter Lane, London EC4 (Museum of London); 4-5 Horsted Keynes, all probably late first century B.C. to mid first century A.D.; 6-7 Herstmonceux Castle, Tiberio-Claudian period. (Scale $\frac{1}{2}$; detail of 4 actual size).

county there is every reason for thinking that the ceramic 'style-region' is much smaller than that envisaged by Ward Perkins and Cunliffe. The distribution is in fact roughly that of the 'East Sussex Ware' of the Roman period (see below and Fig. 32e; also E. C. Curwen 1937, 281 and Wilson and Burstow 1948).

Dating is difficult, not least because we ideally need a chronological nicety for this 'proto-historic' period that physical dating methods such as C-14 cannot yet supply. In East Sussex this is compounded by a desperate shortage of imported pottery, coinage and metalwork. It seems reasonable to assume that 'eyebrow' pottery emerged at some time during the first century B.C., in parallel with the late Iron Age styles of Kent ('Aylesford-Swarling' group) and the west of England ('Glastonbury Ware'), but there are no examples that can definitely be dated so early. In post-conquest times, it is known from excavations at Newhaven (Green 1976; Fig. 29.1-7 here), Bishopstone (Green 1977), Garden Hill (Fulford and Eade 1977), and at early ironworking sites such as Sedlescombe (Fig. 28.1-15), Beauport Park (inf. G. Brodribb) and Pippingford (Tebbutt and Cleere 1973). Romano-British cemeteries have produced further 'eyebrow' pots: at Seaford (Lower 1854, material in Hastings and Lewes Museums) and Hassocks, where a relevant vessel (though lacking the 'eyebrow' motif) is reported to have been found with a samian Drag. 33 bowl in its mouth (Couchman 1925; material in Lewes Museum). Intermediate fixed points of a sort are provided by Bishopstone pit 920, which produced an associated Colchester-type fibula of pre-conquest date (Bell 1977, 131), and by the small cemetery at Herstmonceux Castle, where two fineware vessels and the stylistic unity of the coarse pottery suggests a Tiberian or (more probably Claudian) date for the whole (Norris 1956). Horsted Keynes (Hardy *et al.* 1937) yielded first-century samian and butt-beaker sherds, but, sadly, the degree of association is far from clear.

Some inferences about development can be drawn despite the lack of well-dated material. Stamped and rouletted vessels are likely to be 'early', if only because they are not found on wholly Roman sites like Newhaven (e.g. Fig. 27.4; see also Elsdon 1975, 13-18 and Figs. 11-12 for further material). Plainer types invariably accompany them, though (e.g., possibly, Fig. 27.5). Conversely, sub-biconical 'Asham' pots (E. and E. C. Curwen 1930) seem to be late, since examples are known from Newhaven and from the Romano-British cemetery at Seaford (Figs. 28.16-18). One suspects, too, that the more highly decorated vessels ceased to be made not long after the conquest, but at this point we revert to speculation. There is, however, much firmer evidence for extremely localized production of distinct types, and in the past this has undoubtedly been taken for chronological development. Asham pots may be 'late', but equally they have only been found in the 3 mile (5 km) radius covering Asham Combe, Newhaven, Seaford and Alfriston. Jars with tall stepped necks are found further to the east, at Herstmonceux (Fig. 27.6), Sedlescombe (Fig. 28.6), Crowhurst Park (Piggott 1938, Fig. 1) and Beauport Park. Jars decorated with slashed or thumbbed 'raised bands' (e.g. Fig. 27.1) seem to occur only west of the Cuckmere (Wilson and Burstow 1948, 105-6 and table viii for distribution). Nor must possible functional differences be mistaken for chronological development: special-purpose vessels are likely to have been made, and it seems probable that the very poorly fired Herstmonceux vessels, for instance, were made for the dead rather than the living.

At the eastern and northern boundaries of our area there are interesting signs of a more radical change. A number of the Sedlescombe pots (Fig. 28.7-11) would be stylistically at home with contemporary pottery from Kent, although their fabrics are indistinguishable in thin-section from those of 'eyebrow' vessels from the same site (e.g. Fig. 28.1-3). There is thus the likelihood of a gradual transition towards the 'Belgic' styles of the North Downs (as at Cheriton, Folkestone, for instance—Tester and Bing 1950), rather than a hard and fast boundary. Money has also noted local copies of 'Belgic' forms alongside 'eyebrow' types in the High Weald (Money 1978, 39).

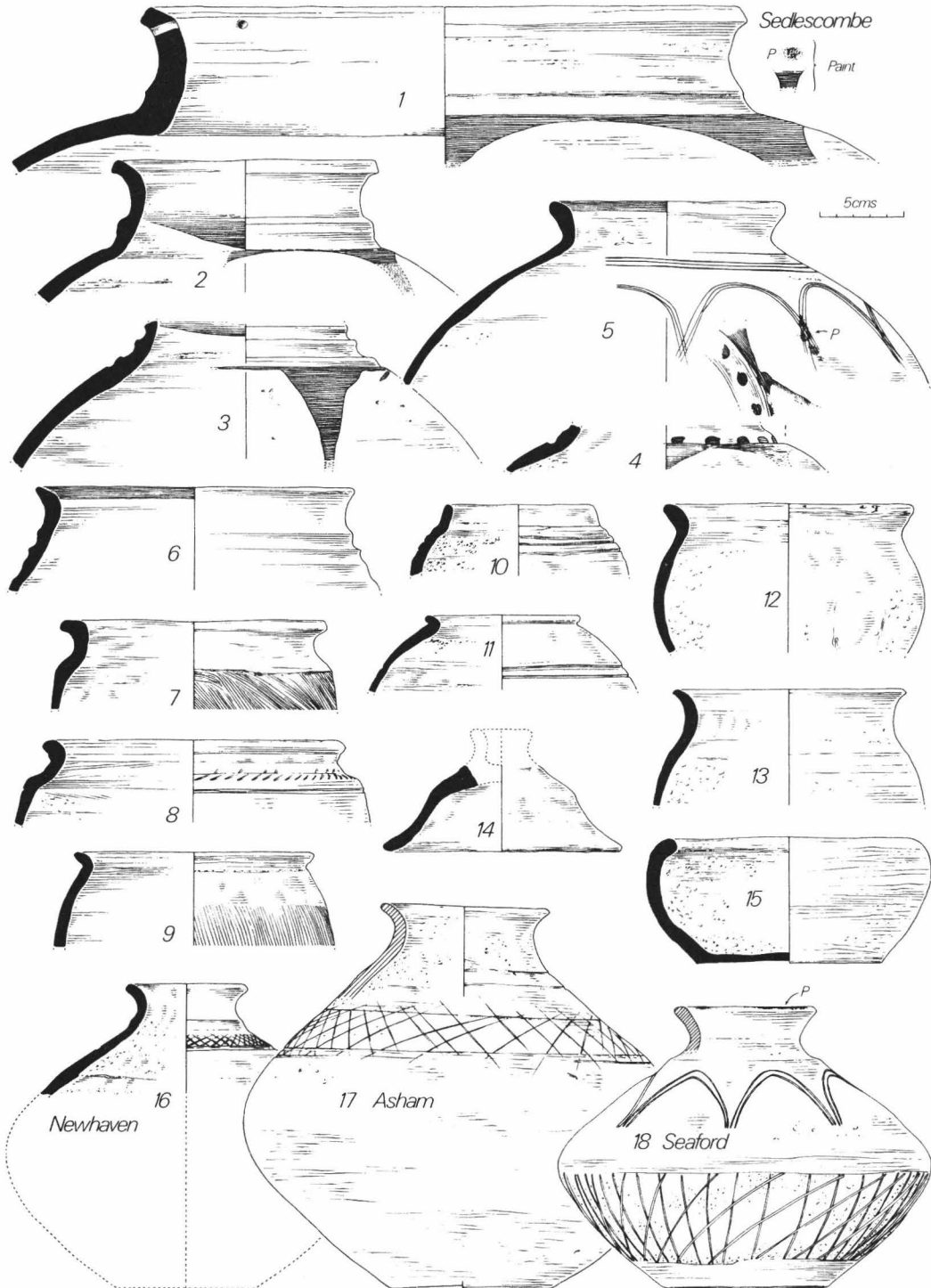


Fig. 28. East Sussex Ware vessels, all probably mid to late first century A.D.: 1-15 Sedlescombe; 16-18 'Asham' pots from Newhaven, Asham and Seaford. (½).

However, these areas of the Weald remain too poorly known for valid conclusions to be drawn, and it is again unclear whether pots of similar date are involved.

As with so much ancient pottery, it is difficult to assign specific functions to particular forms. For the 'pre-Roman' period, though, we should note: a) the high proportion of large vessels with more or less narrow mouths, only some of which need be non-portable storage jars, and b) a scarcity of bowl forms (the use of wooden bowls or broken jars seems possible).

Fabric and technique

Here we move to firmer ground, for the vessels under consideration show an essential unity throughout East Sussex regardless of the details of date, form and decoration.

E. C. Curwen noted as long ago as 1937 (p. 277) that the transformation of potting technique seems to have been dramatic and complete. The earlier Iron Age pottery of the region, whatever its quality, tends to have an appreciably sandy texture (i.e. it is tempered with quartz sand, which may have occurred naturally in the clay or have been added to reduce plasticity). Coarser vessels contain additional major inclusions of shell, calcined flint or vegetable matter, but 'grog' (i.e. crushed sherds or other baked clay) is only of accidental occurrence. It is more or less soft and easily disaggregated, and entirely handmade. 'Eyebrow' pots and associated vessels are quite different. The fabric is considerably harder and tougher. The fabric and surface colour is black, brown-black, reddish or grey and often variable across the vessel, as a result of uneven firing conditions. Sherds that have been subsequently burnt may be oxidised bright red or orange. A fresh fracture is rather like that of cork, and reveals red, brown or grey to black 'grog' fragments, normally in some abundance and up to 1.5 or 2 mm in diameter. Only rarely is it clear that this 'grog' is actually crushed pottery, however, and in view of the quantities required to build a single vessel, it seems possible that clay may have been specially baked for the purpose, while other grog-like inclusions are seen in thin-section to be laminae of shale or mudstone. White inclusions of similar shape, but usually smaller size, occur, and generally prove to be a siltstone composed of quartz grains *c.* 0.01 mm in diameter with a little muscovite mica. Red-black ironstones are the only other prominent inclusion, seen as crushed or naturally rounded grains up to 2 mm in diameter, sometimes with smaller grains showing spheroidal structure (for instance in the Herstmonceux vessels). Macroscopically visible quartz and mica are very rare indeed, although quartz of 0.04 mm and less is scattered throughout the matrix, with ironstone splinters of similar size. The absence of larger quartz accounts for the markedly 'soapy' feel of the pottery of this period, in contrast to the abrasive qualities of earlier Iron Age fabrics and Roman sandy 'greywares'.

The pots are always hand-built, and coiling is often in evidence. Frequently the rim is trued up, but as simple a turntable as an old sherd placed beneath the pot might have served for this. Before firing, the vessels were normally burnished in horizontal zones, typically around the base, above the girth and over the rim, other areas being left rather rough (see illustrations). Decoration, where present, is interesting, for the very faintly inscribed 'eyebrows' or other designs (chevrons are quite common) are often seen to have been augmented with paint. All too often this has disappeared with time and the archaeologist's scrubbing brush, but the Horsted Keynes group and several Sedlescombe vessels (Chown 1947; Fig. 28.1-6 here) show painted arcs, which would have had round terminals (e.g. Fig. 29.5). Many others show traces of paint (Figs. 27.3,7; 28.18), and it is tempting to think that late Iron Age pottery received this treatment as a matter of course in East Sussex. The result must have been striking. The paint employed (now black and pitch-like) has not been analysed, but may have been a natural resin or wood tar. An intriguing detail is that casual, but repeated, observation has always shown that odd numbers of 'eyebrows' were drawn (5,7,9 and sometimes more).

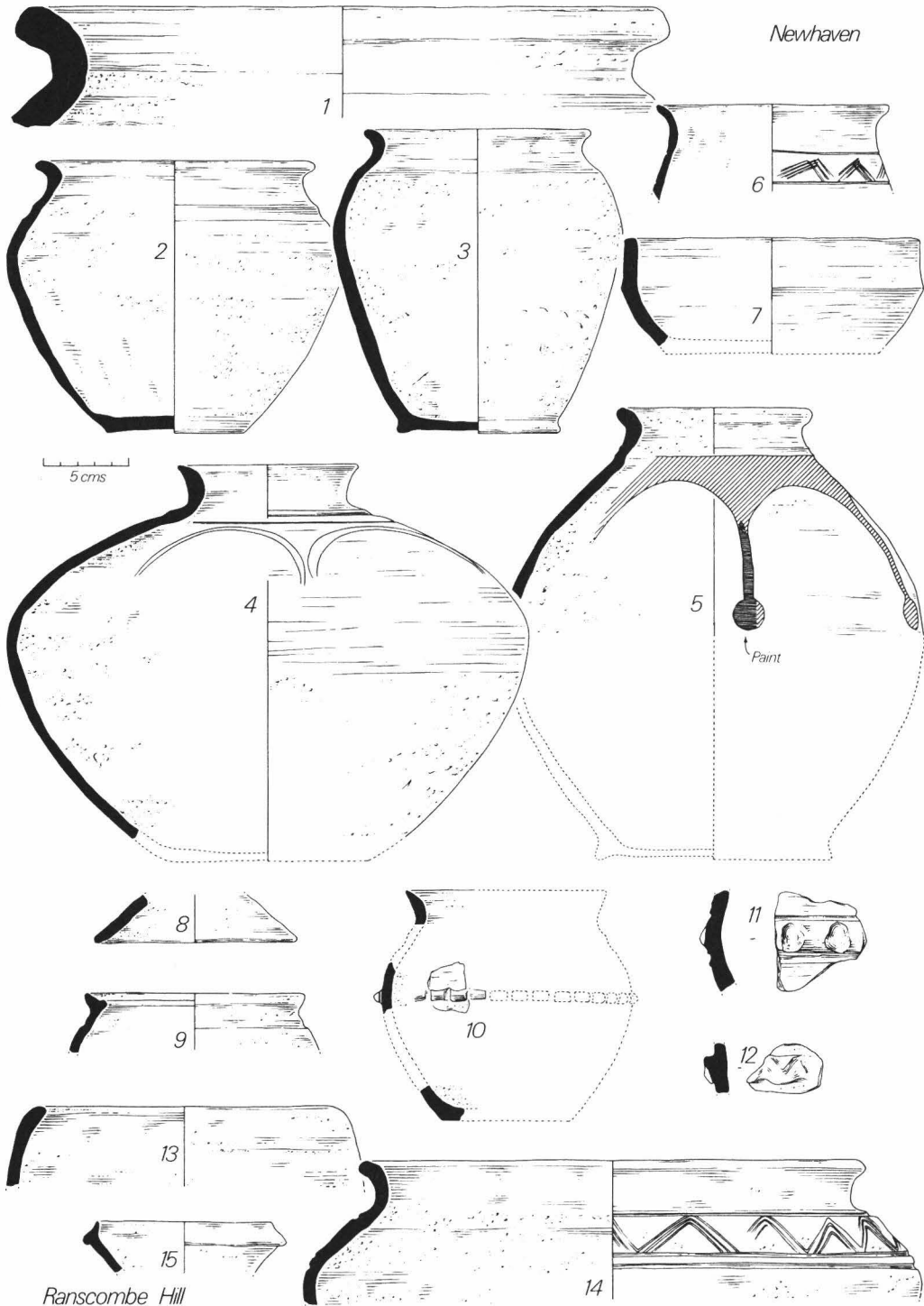


Fig. 29: East Sussex Ware: 1-7 Newhaven group i, c A.D. 70; 8-12 Newhaven and 13-15 Ranscombe Hill all late first to early second centuries A.D. (½).

These changes are not unique to East Sussex, but apply at least in part to large areas of south and east England, such as Surrey, the London area (though here only post-conquest material is available for study), and Hertfordshire. Equally there are many exceptions: Aylesford-Swarling pots are often sandy, while flint-tempering was used around Silchester and in parts of the Thames Estuary area, and shell-tempering is found in Surrey and parts of Kent. In north Kent, Hertfordshire and Essex technical innovation went further, and wheel-throwing was introduced in the pre-conquest period. In the absence of good dating evidence, and above all of systematic fabric studies, it is difficult to chart these developments. Fortunately Bishopstone, in the centre of our area, is the only site in southern England for which such a study has yet been made (Hamilton 1977); it shows a very complete transformation of fabric with the introduction of 'eyebrow' vessels. Bishopstone fabric 5, identical in its essentials to that described here, is associated with 'eyebrow' pottery and allied types, and with the latest Iron Age pits, virtually to the exclusion of other fabrics.

The fabric of the late Iron Age pottery of the region indicates some advances in potting technique: firstly grog-tempering, while laborious, may have produced a more controllable potting clay than the naturally occurring tempers used in the earlier Iron Age. The size and abundance of the 'grog' could be matched to a size of vessel. One suspects that this was also a more suitable technique for relatively high temperature firings than shell- or flint-tempering. Secondly, the general increase in the hardness of the finished product strongly suggests that something more than a simple bonfire was regularly used to fire it. A turf dome may have been added, as has been suggested for late Iron Age pottery in the Nene Valley (Woods 1974), though experiment with copies of Romano-British kilns shows that the simple expedient of stacking the pots upside-down in layers is another way of raising the temperature quickly (Bryant 1973). On the other hand, permanent or semi-permanent kilns are most unlikely to have been used. Not only is there no archaeological evidence for them in Iron Age Britain, but thin-sections of the vessels in question usually show an optically anisotropic clay matrix. Only in the case of some of the Sedlescombe vessels (e.g. Fig. 28.1), which are clearly exceptionally well-fired, is a (partially) isotropic matrix seen, indicating a firing temperature approaching 850°C. This condition is quite common in Roman kiln-fired pottery, however, and it is clear that some Roman potters could control firings in excess of 1000°C.

Between them, these points account for the late Iron Age potters' ability to build larger pots than any hitherto made in East Sussex (e.g. Figs. 27.2, 28.1), and their competence with difficult forms such as globular or sub-biconical pots with small mouths.

Archaeological evidence of this type of pottery production will naturally be meagre or non-existent. Nonetheless it can be assumed that it was practised at many centres, if not domestically, since the details of fabric (e.g. the presence or absence of siltstone) varies from site to site. The Lower Cretaceous clays of the Weald must have been the major clay source, but the clays of the Eocene outlier at Newhaven were no doubt used locally.

Other types of pottery found in the late Iron Age

Wheelthrown pottery in classical styles is remarkably rare before the Roman period. There is a minor distribution of mainly mid-first century A.D. *terra nigra* and some *terra rubra* on Downland sites, mainly from Roman contexts (Rigby 1973; examples from Newhaven, Bishopstone, Ranscombe Hill (Green 1978), Castle Hill, Newhaven (Hawkes 1939) and Seaford (Smith 1939)). Gallo-Belgic flagons of Camulodunum type 161 (Hawkes and Hull 1947) are known from Herstmonceux and Bullock Down (inf. D. Rudling), while the Herstmonceux cemetery also produced a butt-beaker identical in form and fabric to Camulodunum 113 (inf. V. Rigby). Both

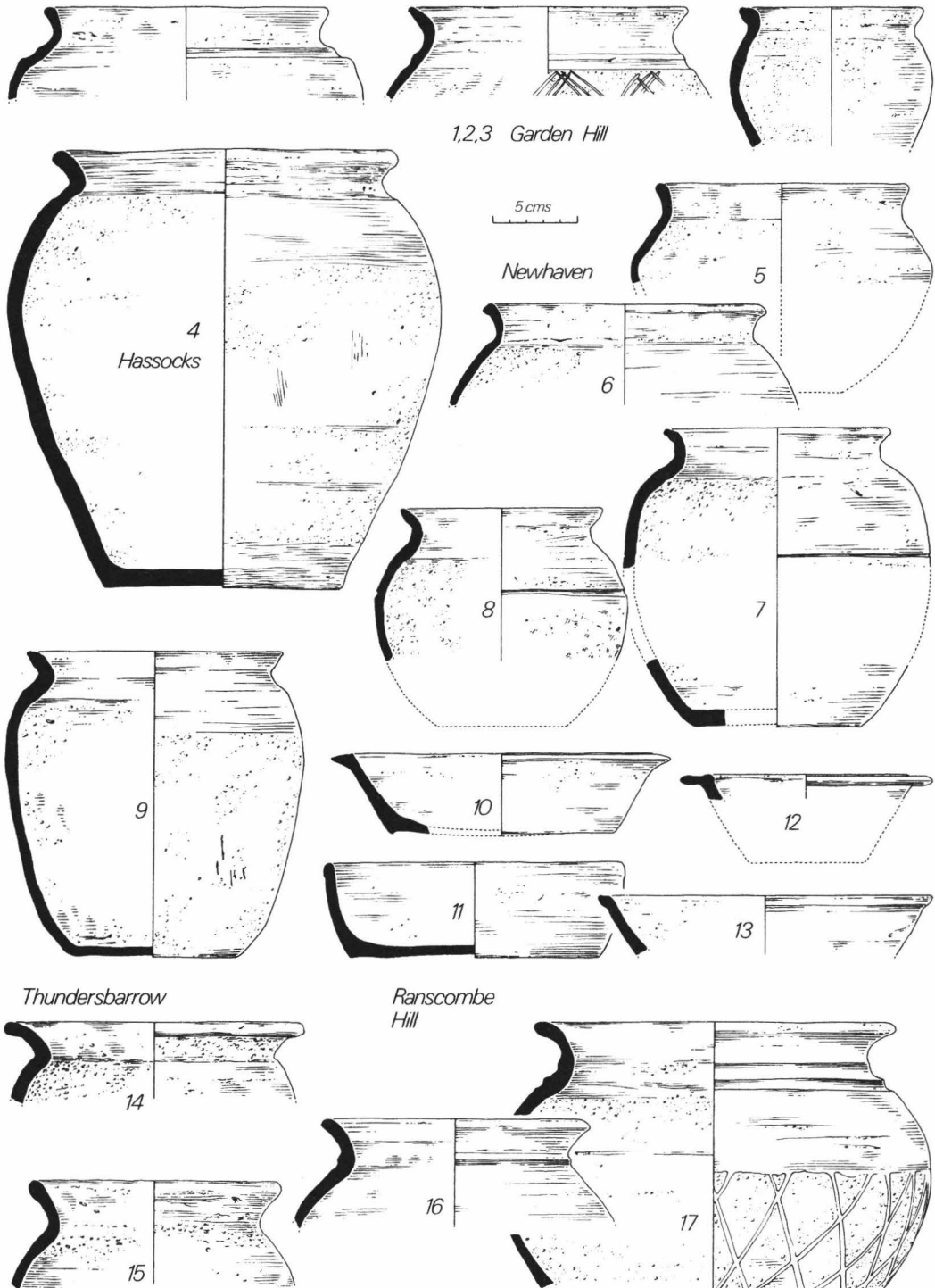


Fig. 30. East Sussex Ware: 1-3 Garden Hill and 4 Hassocks, late first or second centuries A.D.; 5-11 Newhaven group viii (?late) Antonine; 12-13 Newhaven second century A.D.; 14-17 fourth century grog-tempered types: 14-5 Thundersbarrow, 16-7 Ranscombe Hill. (½).

these types have a date range *c.* A.D. 25-60. However, Mediterranean amphorae are still unknown from pre-conquest Sussex, in contrast with the considerable numbers known from elsewhere in south and east England (*inf.* D. P. S. Peacock; see Fig. 32c).

II. THE ROMANO-BRITISH PERIOD, *c.* A.D. 70-400+

(The pottery illustrated in Figs. 29-31 is in broadly chronological order and centres around the best-dated early Flavian and (? later) Antonine groups from the area, both from Newhaven (Green 1976, here Figs. 29.1-12 and 30.5-13). For further material see Bishopstone (Green 1977), West Blatchington (Norris and Burstow 1952), Telscombe (Preston 1936), Ranscombe Hill (Green 1978), and Slonk Hill (Fulford 1978). Third century pottery is very poorly understood, and is not illustrated here, but see Bishopstone (Green 1977, group iv) and West Blatchington (in part). The largest published fourth century groups are from Bishopstone (*ibid.*, groups v-viii); see also Thundersbarrow (Oakley 1933), Ranscombe Hill, Slonk Hill, and the unpublished material from Pevensey (Lewes and Hastings Museums)).

For the present purpose, the Romano-British period may be taken as beginning *c.* A.D. 70, since (with the exception of Herstmonceux cemetery) no site in East Sussex has produced more than the most meagre supply of recognisably Roman pre-Flavian artifacts. As pointed out by Cleere (1974), some easterly ironworking sites, notably Sedlescombe and Crowhurst Park, may have pre-Flavian or even pre-conquest beginnings, but there is nonetheless a dearth of classical material to demonstrate the point, and Sedlescombe has accordingly been dealt with above, though some of the examples in Fig. 28 may even be of second century date.

Development, c. A.D. 70-?250+

The most obvious point to be made is how little our picture of late Iron Age pottery production needs to be qualified for the bulk of pottery used in East Sussex in the following 200 years. The same fabric, methods of construction, clamp firing and finish were used, even to the extent of burnishing the same zones of the pots. It seems that the fabric is in general a little less coarse than in the Iron Age, perhaps because of the normally smaller size of the Romano-British vessels, and there is also an appreciably higher proportion of jet-black pots, presumably the result of deliberately sooty firings (a technique also used in the making of black-burnished wares—Farrar 1973). In no case, then, can an East Sussex hand-made pot of this period be distinguished from earlier material on other than stylistic grounds. I have applied the term 'East Sussex Ware' to the Romano-British pottery of this region which is thus technically identical to Iron Age types (Green 1977).

Nor does vessel type alter. The wholly classical types—amphorae, flagons, mortaria, tazze, and so on, are never found in East Sussex Ware, a point which adds strength to the view that this is basically prehistoric pottery. 'Cooking jars' are by far the most abundant form until the fourth century, though there are more bowls than hitherto; conversely large vessels and storage jars become rarer (Fig. 29.1 is exceptional). Occasionally finewares were copied in this fabric, for example Figs 29.6 (a carinated beaker) and probably 29.15 (?a *terra nigra* bowl). The potters were conservative in matters of form and decoration, so that intrinsic dating must be very rough and ready. 'Eyebrows' and paint were probably employed until *c.* A.D. 100, and 'raised band' thumbed or slashed girth decoration (Figs. 29.10-12, *cf.* 27.1) may well survive into the third century, on the evidence of Bishopstone group iv (Green 1977). Fortunately, though, by the mid-second-century East Sussex Ware begins to share some of the general stylistic trends of southern Romano-British pottery. Antonine vessels from Newhaven (especially Fig. 30.6-7, 10, 12) very broadly resemble the contemporary Black-burnished Ware 1 of Dorset, for instance. The point at which characteristically 'late' forms develop is uncertain, but may not be much earlier than the end of the third century.

Development, c. A.D. 250-400+

A number of reasonably well dated late Roman groups are known, but unfortunately nearly all are from Downland sites. The Wealden ironworking sites, in particular, had apparently all ceased operation by this time (Cleere 1974). Furthermore these groups tend to be of late fourth century date, often representing 'terminal' deposits in disused corn-driers and pits.

As throughout the south of England, there is a tendency for local late jar forms to develop a strongly everted rim (e.g. Fig. 30.14-16). Flanged bowls appear (Fig. 31.1,3), and along with plainer forms (Fig. 31.2,4) tend to outnumber jars. Copies of finewares are unknown, doubtless since there were good supplies from major production centres.

Fabric and technique *does* change in the late period. While some late examples (e.g. Figs. 30.16, 31.1,3) show little apparent alteration from the earlier East Sussex Ware vessels, as many (such as Figs. 30.14-15,17 and 31.2,4) are visually distinct, and are best designated on an *ad hoc* basis until further work has clarified any possible groupings. The most obvious feature is that the inclusions are noticeably coarser than in earlier vessels (up to 3 mm), and very often only a perfunctory attempt has been made to finish the pots by burnishing. Some (e.g. Fig. 31.2) are very poorly constructed. There *may* be evidence for some centralised production centres, for the fabrics of vessels from Thundersbarrow and Ranscombe Hill, which lie 18 miles (29 km) apart, look suspiciously similar in the hand and in thin section, but given the technique used and the likely distribution of clay sources this may be fortuitous (Fig. 30.14-5,17). In these and some other examples the baked clay 'grog' is very homogeneous. Small fragments of flint or chert are additionally seen in a number of these late types.

Distribution and quantity

The known distribution of first and second century East Sussex Ware is shown in Fig. 32e, but need only be valid towards the west. To the north and east the near-total lack of known Roman Wealden sites prevents us from seeing a probable continuum into Kentish (? and Surrey) handmade types. To date the best published groups north of the Weald are from the Darenth Valley area of west Kent, where handmade grog-tempered pottery broadly similar to that from East Sussex certainly survives into the second century, and where a distinct production centre may have made the well-fired orange-surfaced 'Patchgrove Ware' into the third century (Philp 1973, 60-1). It is not yet clear whether all Kentish and East Sussex types are readily distinguishable, and in any case this may be an academic point, since the techniques used are often similar and the differences should merely reflect local styles and clay sources. A more important difference between East Sussex Ware and its counterparts elsewhere in the south-east would seem to be that it forms such a high proportion of a given 'population' of pottery. Philp's statistics (from small groups) show a decline of all handmade fabrics to perhaps 20% or less of all the pottery by the early second century. In East Sussex, however, the local hand-made product may account for as much as 80 or 90% of a second-century assemblage, and usually more than 50% in its 'core' area (e.g. 89% for an admittedly small group of first- to second-century material at Ranscombe Hill—Green (1978), and 78% of all pottery from Garden Hill, a largely first and second century site—Fulford and Eade 1977). East Sussex Ware is obviously just one aspect of a more widespread tradition of Romano-British pottery production, but on the present evidence it would seem that we have to go as far afield as Dorset to find comparable proportions of handmade pottery after the first century A.D.

In the later third and fourth centuries it is now clear that grog-tempered handmade pottery was also used on a large scale in Kent (e.g. Johnston 1972), Hampshire and part of Wiltshire (Fulford 1975) and perhaps elsewhere. (The position in Surrey is uncertain at present, but such material is known to be much rarer to the north in London and, for example, Hertfordshire). In general all

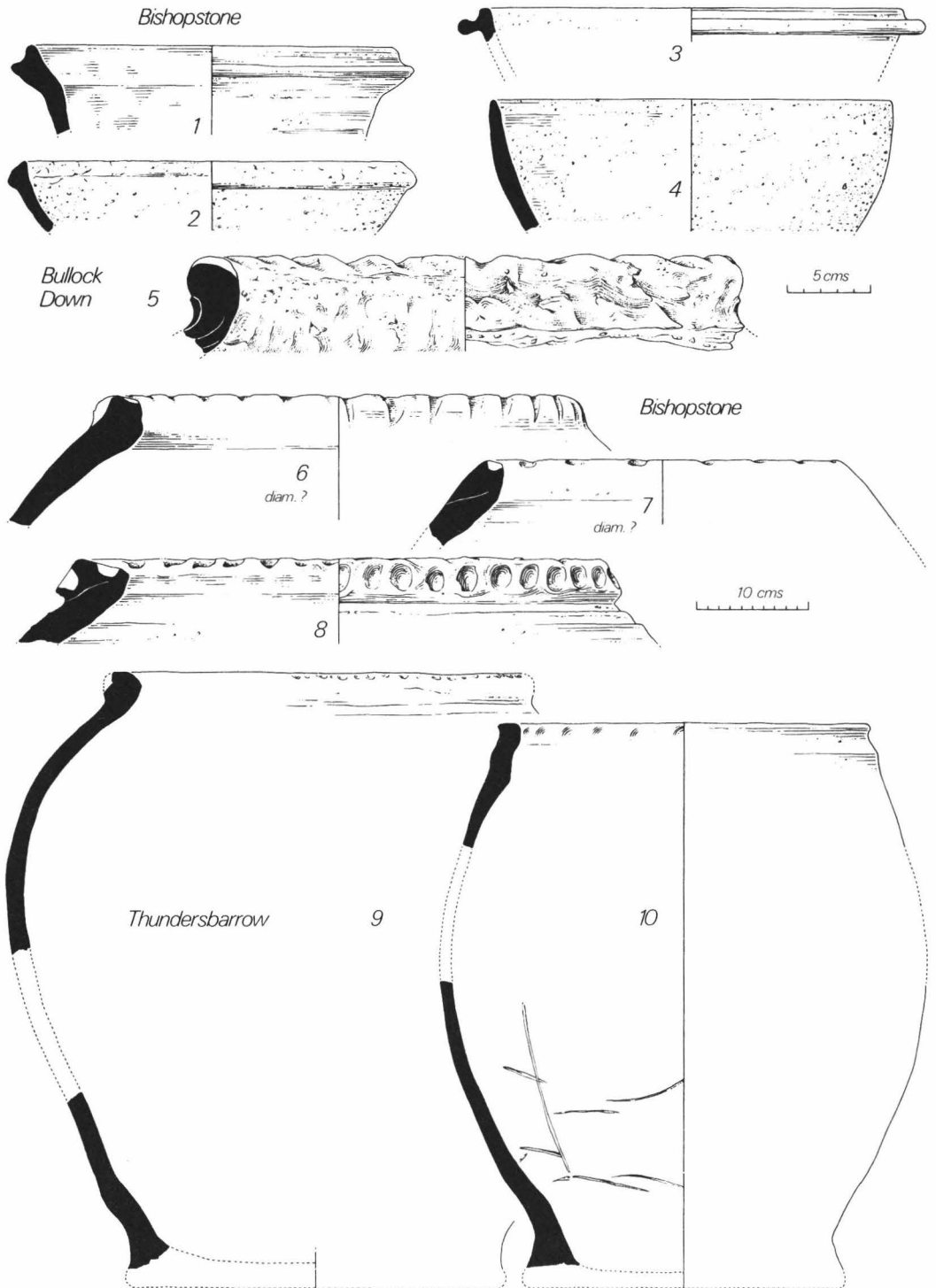


Fig. 31. 1-4 fourth century A.D. grog-tempered pottery from Bishopstone. 5-10 Thundersbarrow Ware: 5 Bullock Down, 6-8 Bishopstone, 9-10 Thundersbarrow (after Oakley 1933). (Scale 1-5 $\frac{1}{4}$; 6-10 $\frac{1}{2}$).

these late varieties share the coarse manufacture of the East Sussex vessels, and those from east Kent are not always distinguishable in the hand (e.g. from the Canterbury area, Richborough, and from late third and early fourth century deposits at Lympne; inf. C. J. Young). In Hampshire, the handmade Portchester fabric A (Fulford 1975) *may* derive from distinct production centres, but this is not conclusively shown, and wider study throughout south and south-east England is required.

Quantitative information on the later East Sussex types is difficult to gather, but there is an initial impression that handmade pottery was in a *relative* decline from the later third century, while it increased in importance elsewhere.

Thundersbarrow Ware

This is the East Sussex variety of a widespread southern 'family' of very large handmade storage jars, usually with 'roped' rims, which are common in fourth century contexts, although vessels in a similar style, but of different fabrics (often wheelmade) occasionally turn up in much earlier deposits (e.g. Newhaven type 89—Green 1976).

The type specimens are from the fourth century features at Thundersbarrow Hill, near Shoreham, and have the distinction of being the first British pots to be subjected to an (inconclusive) heavy mineral examination (Oakley 1933). The range of forms is shown in Fig. 31.5-10 (31.5 at $\frac{1}{4}$ scale; the rest at $\frac{1}{2}$ scale). The fabric was obviously prepared with the sole intention of reducing the plasticity of the clay, as it consists of a coarse aggregate of grog (both crushed pottery and crushed clay), calcined flint and some ironstone and chalk in a rather sparse and clear orange-brown clay matrix. Inclusions of up to 10 mm in diameter are the rule rather than the exception. Coil building is evident, and the vessels are unburnished and poorly fired. The absence of bases has suggested that the pots were fired upside-down (*ibid.*).

The mystery of Thundersbarrow Ware jars lies in their use and distribution. Even if bound in straw like a Chianti bottle they must have tended to fall apart under their own weight, and the idea of transporting them, with contents, seems inconceivable at first sight. Their use as *dolia* (storage vats permanently buried in the ground) seems more plausible, although none have been found *in situ* thus, and their volume (Fig. 6.9 as reconstructed would hold 75 litres) is very much less than that of a continental *dolium*. Yet the vessels examined (from Thundersbarrow, Bishopstone and Bullock Down; Portchester 179 is apparently very similar, see Fulford 1975—inf. M. Fulford) are so strikingly close in fabric that their use in a centralised commodity trade (presumably for dry goods) must be seriously considered.

Wheelthrown Roman pottery in East Sussex

A brief note must be made of the more typically 'Roman' pottery available in the area. Hassocks almost certainly produced grey sandy wares, as there are distorted and severely cracked examples from the cremation cemetery there (material in Lewes Museum), but no kilns have yet been found and thus the range of types made is unknown. An obviously local kiln (again unlocated) produced rough mortaria and fineware copies for the *Classis Britannica* site at Beauport Park, probably in the second century (inf. G. Brodribb). A fired structure, possibly a pottery kiln with opposed flues, has been excavated at Arlington (Holden 1979). Finally, finewares provisionally named 'Pevensey Ware' were produced from c. A.D. 350 in the coastal Weald, perhaps near Pevensey. The products (excellent copies of Oxfordshire redwares) are fully described elsewhere (Fulford 1973 and 1975; Green 1977).

This is the sum total of the direct evidence for pottery production. It is remarkably slight. Sources outside the vice-county were of course available, but were relatively little used before the fourth century. From early Flavian times onwards greywares are found in some quantity, but only

make up 50% or more of assemblages towards the western fringes of our area. Much of the first-century fineware comes from a West Sussex (?Chichester) source (Newhaven types 54-62—Green 1976), but imported fineware, other than a moderate supply of samian, is very sporadic in occurrence. First-century mortaria are most uncommon; in the second century a ?West Sussex source provided much of the supply. Imported amphorae remain rarities, with the exception of the common globular oil amphora, *Dressel 20*, a few sherds of which turn up on most sites.

By the fourth century, this isolation from the mainstream of Romano-British pottery supply had largely ended, and the products of the Alice Holt/Farnham industry, the Dorset Blackburnish ware centres, the New Forest, and above all the Oxfordshire and Pevensey Ware industries are all represented at Bishopstone (Green 1977). Nonetheless, handmade pottery may still have accounted for 50% or so of all late vessels there.

III. POTTERY AND SOCIETY

In reviewing the Thundersbarrow finds, Oakley (1933) was perhaps the first archaeologist to concern himself with the presence of obviously handmade pottery alongside 'typical' Romano-British material. He had no difficulty in explaining the matter away: such pottery was produced at two periods—the immediately post-conquest phase, before Roman Civilization had fully diffused, and in the years approaching A.D. 410+, when the population slipped back into a barbaric 'Dark Age'. Today it has long been realised that prehistoric potting techniques persisted for much of the first century A.D., but the notion that handmade pottery found in association with late Roman finewares is necessarily 'sub-Roman' is only just being dispelled (*cf.* Alcock 1971, 182-3). We are now faced with hard evidence that in East Sussex (not to speak of other areas) such pottery was made continuously from the late Iron Age until, in all probability, the early fifth century, and in such quantity as to demand a more serious explanation. The fact that the East Sussex Ware of the Roman period coincides in fabric, technique and distribution with the 'eyebrow' pottery of late prehistory suggests that we need to examine East Sussex in the broader context of south and east England for both periods.

In the earlier Iron Age there is little evidence to suggest that society in East Sussex differed radically from that of wide tracts of southern England, though if anything the archaeological record appears to be rather richer than in many areas (e.g. as expressed by finds of fine metalwork—Champion, this volume). The later Iron Age, however, remains a shadowy and obviously rather impoverished period. A settlement site definitely of this period remains to be thoroughly investigated, and wherever modern excavation has taken place on multi-period sites (notably Bishopstone—Bell 1977) the evidence of occupation for the late Iron Age has consisted merely of pits containing pottery and little else.

The distribution of late Iron Age artifacts provides more helpful, if negative, evidence. This part of Sussex seems never to have formalised the use of money. A scatter of first-century B.C. Gallo-Belgic and British coins is known, but by the first century A.D. the pre-Roman coinage of East Sussex is virtually non-existent (see Fig. 32a, b). The area is clearly outside the main distribution of the gold coinage of Verica, and the fact that bronze coins are even rarer than silver and gold issues is certain indication that money was not used in exchange, i.e. as currency. A similar point can be made with reference to foreign trade and graphically illustrated by the non-occurrence of Mediterranean amphorae in pre-Roman Sussex (Fig. 32c). East Sussex accordingly lacks large *oppida* (although there are possibilities on a smaller scale, for example the now destroyed hillfort at Castle Hill, Newhaven). Amongst other signs of material 'deprivation', metalwork of the period is obviously scarce. All this is in stark contrast to the rich 'Belgic' areas of

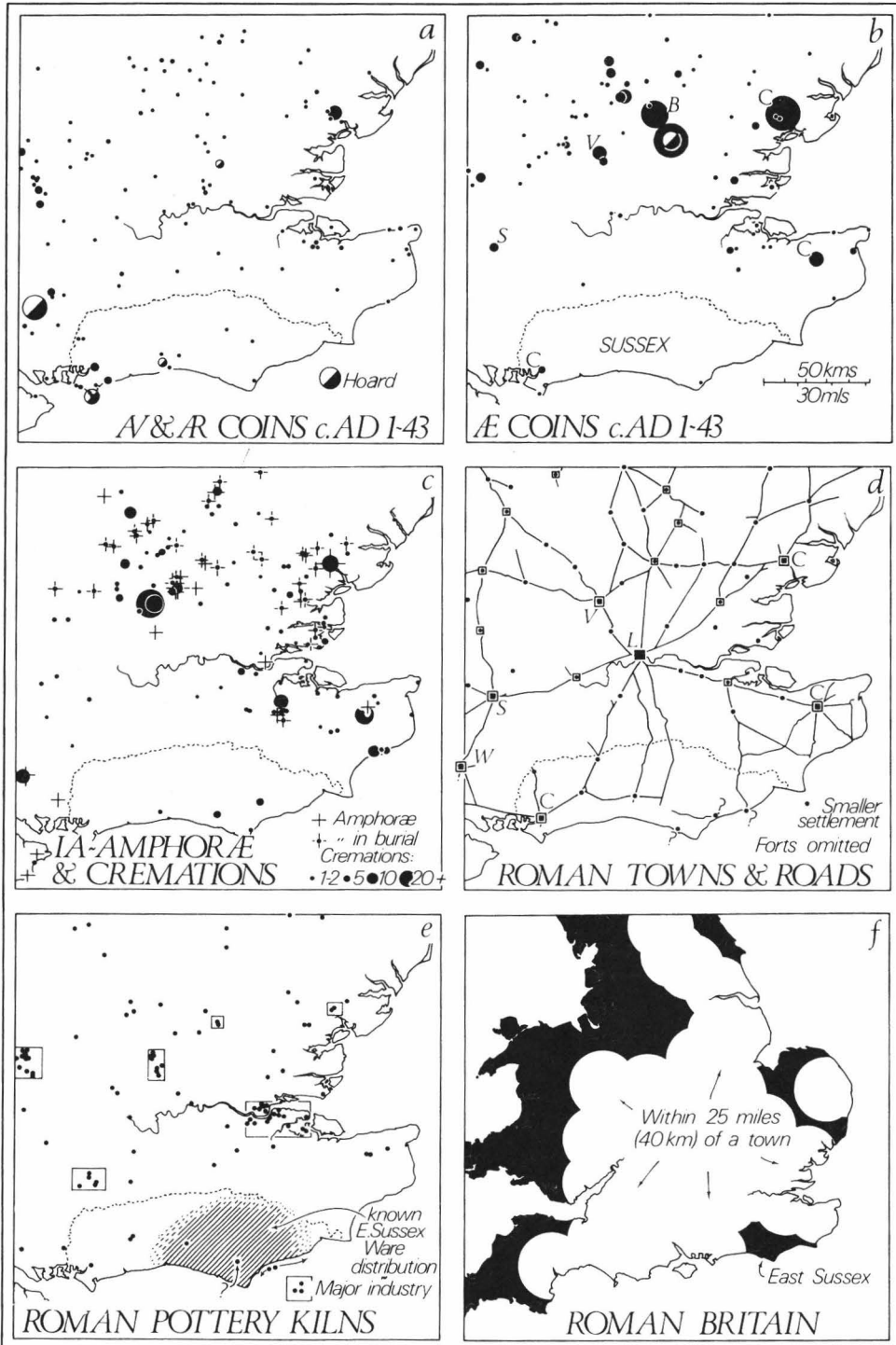


Fig. 32. *a* and *b* finds of gold, silver and (where appropriate) bronze issues of first century A.D. dynasts: Eppillus, Cunobelinus, Verica, Epaticcus and Caratacus (after Allen 1960 and Haselgrove 1978). *Oppida* and Roman towns with substantial finds are initialled in *b*; *c* Distribution of amphorae in pre-Roman contexts (after Peacock 1971 with additions) and pre-Roman cremation burials (inf. R. Whimster); *d* Roman towns and roads; *e* Distribution of Roman pottery kilns, first-fourth centuries A.D. (mainly after Marsh and Tyers 1978 with additions; information is incomplete for the northern edge of the area shown), and distribution of first-second century A.D. Romano-British East Sussex Ware; *f* the isolation of East Sussex from the nearest Roman towns.

north Kent, Essex, Hertfordshire, Bedfordshire and Hampshire, with their developed currencies, foreign trade and major centres of wealth and power (on the other hand it is equally clear that the area was not totally isolated from the rest of south and east England; we have seen that potting techniques and styles changed dramatically at this time, much as they did elsewhere. The change in burial practice to cremation is another shared characteristic, although in East Sussex the known examples are probably all mid-first century in date, and there are no large cemeteries (Fig. 32c; also Whimster 1977)).

The impression of late Iron Age East Sussex as an economic and political poor relation to the surrounding 'Belgic' kingdoms is scarcely modified in the Roman period. Material evidence for pre-Flavian Roman occupation is quite remarkably thin, especially when compared with the Chichester-Fishbourne complex in the west of the county. Thereafter there are outward signs of a healthy period of 'Romanization' with the establishment of early *villas*, some small 'semi-urban' settlements (Hassocks, Seaford), and the activities of the *Classis Britannica* amongst the Wealden ironworks. Nonetheless, the area continues to show an arrested development, for it boasted neither a regular currency nor a town.

a) Currency Systematic data is not available for Roman coin finds, but it seems likely that a plot of first and second century issues would produce a pattern similar to that of Fig. 32a and b. Modern excavations on some scale in this region have produced a very small number of coins when compared with apparently similar sites in, say, Hertfordshire or Essex. Newhaven (Bell 1976) yielded three (including one third century issue); Bishopstone (Bell 1977, 187) nine, seven of which were third or fourth century; only a dozen were found in the near-total excavation of the Beauport Park bath house (inf. G. Brodribb). Bullock Down, site 16, has yielded some thousands of hoarded third-century issues, but only sixteen of the second century and none of the first century, despite search with a metal detector (Rudling 1978). The conclusion must be that there was too little coinage in East Sussex to serve as a regular currency before the third century, and it should be remembered that even in the later period finds from hoards may reflect wealth, but not necessarily the use of coinage as a medium of exchange.

b) Towns The Roman towns of Britain are in general spaced at intervals of about 30 miles or less (often with an intermediate minor settlement), and connected by a 'lattice' of roads (Fig. 32d). In East Sussex and the rest of the Weald the resulting pattern disintegrates, so that modern Eastbourne is actually 48 miles (77 km) from its nearest Roman town: to be more remote from a Roman town one must travel to Swansea! (Fig. 32f). The largest known settlement (with the possible exception of the mid-fourth-century fort at Pevensey) was the apparently diffuse crossroads settlement of Hassocks. Other first- to second-century settlements existed at Seaford (Smith 1939), probably Pevensey, and (on the Saxon place name evidence alone) *possibly* Hastings (Hill 1978, 174-7). None seem likely to have been of even 'small town' magnitude. The major roads of the area can be interpreted as trans-Wealden routes simply intended to assist the removal of East Sussex's surplus of iron and wheat to London (Cleere 1974; Cunliffe 1973, 42-3).

The failure of East Sussex to develop more than the smallest industries producing wheelthrown pottery is reflected in the near absence of the kilns in which such vessels (but *not* normally handmade pots) were fired (Fig. 32e). They occur widely elsewhere in south and east England, alongside Roman towns and currency. Such an interconnection is unlikely to be fortuitous. The towns, rather than the countryside, were the main users of currency in the early Empire (Crawford 1970), and so we should perhaps expect to see so few coins in an area with only small settlements. Currency would surely have encouraged the development of wheelthrown pottery production, since

this involved specialised and time-consuming work—the building and maintenance of a kiln, digging, weathering and preparing large amounts of clay, and cutting fuel, quite apart from the potting and firing processes. But while this might have been accomplished with few cash transactions, the presence of a centre of population (a town or fort) would be crucial. A town would act, if not as a market place and centre of distribution (*cf.* Hodder 1974a and b) then simply as a steady source of demand (Romano-British pottery kilns were frequently sited close to, though rarely inside, towns). Conversely it is difficult to visualise a potter successfully operating a kiln in the absence of settlements of any size, as all transactions would have to be small ones made with more or less distant places, and would be particularly awkward if made in kind. In such an area, the continuation of late Iron Age potting techniques on a very small scale seems much more appropriate, since no special permanent structures were involved, and batches of pots could be made as and when they were needed. Finally, two empirical observations suggest that the production of wheelthrown pottery *is* dependent on the presence of towns and currency. Firstly the introduction of the potters' wheel in eastern England in the early first century A.D., apparently abrupt abandonment in the early fifth century, and re-emergence in late Saxon times synchronises neatly with the rise and fall of both. Secondly, a point of more local relevance is that the only East Sussex settlement which even approached the status of a town, Hassocks, is also the only one likely to have produced significant quantities of wheelthrown 'greywares'.

These remarks apply particularly to the first and second centuries A.D. The later Romano-British period is now known to have been a time of considerable change, in which wealth shifted from the towns to large *villa* estates in many parts of the country. Pottery production, too, underwent dramatic changes with the virtual cessation of imported supplies and the development of major regional industries. The place of handmade pottery production in this picture remains to be assessed, but at least it can be shown that there is no evidence that it coincides with a decline of wheelthrown supplies in a 'sub-Roman' period (Fulford 1975, 291).

CONCLUSION

It is helpful to see the handmade pottery of East Sussex in its context, if only as a corrective to the widely held impression that all Romano-British pottery is like that from the rich Romano-British sites published in the classic reports of the Society of Antiquaries—Richborough, Camulodunum, Verulamium, and so on. Future publications of allied types from other parts of the south east should modify this impression still further. But although it has been possible to suggest why the pottery of this area continued to be prehistoric in character, the general status of East Sussex and the Weald as a backwater in the 'Romanization' of Britain remains difficult to explain. Surely a poverty of natural resources cannot be argued. Recently it has been suggested, very plausibly, that Wealden East Sussex was an Imperial Estate, superintended by the *Classis Britannica*, since it was such an important source of iron (Cleere 1974, 1978). Normal settlement would thus have been forbidden and we should expect towns to be absent. However, it can be argued that East Sussex was a backwater *before* the conquest, as Fig. 32a-c illustrates. We can merely reflect that in south east England the balance of wealth established by the early first century A.D. was relatively unaltered by the Roman occupation, and that as an aspect of material culture the handmade pottery of East Sussex reflects the fact.

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PAGAN SAXON POTTERY IN SUSSEX

by Caroline Dudley

Most of the pieces of pagan Saxon pottery known from Sussex come from burials, mainly from three cemeteries, Highdown, Alfriston and Hassocks. Other pagan cemeteries have yielded small quantities of pottery: for example, Kingston-near Lewes, Selmeston, South Malling and probably Ocklynge Hill, where a pot is recorded as having been found in 1909, but has since been lost (Budgen 1922). The Saxon cemetery at Bishopstone also contained pottery, which was not available for examination at the time of writing.

The circumstance that most of our examples come from burials is a common phenomenon, but almost certainly misleading. Bearing in mind that we are dealing with a period of nearly 300 years of occupation, the quantity of acknowledged pagan Saxon pottery from this area is very small and concentrated in a very few sites. It has been suggested that this is a true reflection of the state of affairs at the time. Professor J. N. L. Myres once suggested (Myres 1969, 111) that the absence of certain decorative schemes, particularly panel-style pottery, which is common elsewhere in the sixth century A.D., might mean that Sussex was lost to the Britons after the battle of Mons Badonicus. However, even disregarding the fact that sixth century metalwork is found in Sussex, the number of pots admittedly thrown or given away (Read 1895, 1896; Couchman 1925) or simply not found, make that a difficult hypothesis to support. The absence of particular forms may simply indicate a lack of contact with other areas of the country at this time. There is also the possibility that missing sixth century forms will be found among the pottery previously classed with the Iron Age material from the Highdown hill-fort investigations (Wilson 1940, 1950) drawn to our attention by Martin Bell (Bell 1977) when he found large quantities of his Fabrics 1 and 2 amongst it. It may well be that similar circumstances will also turn out to obtain elsewhere.

It might prove useful, therefore, to examine the criteria used to distinguish the pagan pottery from that which precedes and succeeds it. Most of the Sussex pottery has been assigned to this period through the circumstance of its being found in a pagan burial context. So far undisputed is the fact that it is hand-made, which sets it apart from most Roman and some types of late Saxon ware. It is also generally held to be rather clumsily made. The excavators at Mucking have gone on record as saying that they had no difficulty in separating the Saxon pottery from the Iron Age material, chiefly because the Iron Age examples were so much better potted (Jones 1975). It is questionable whether this is always true in Sussex—certainly there has been confusion in the past.

The remaining criteria employed are basically stylistic, because other evidence such as stratification or datable associated finds is either absent or very rare in the case of the Sussex pottery. Is it possible to evaluate whether these stylistic criteria are reliable guides to date and provenance?

A group of pots from the cemeteries at Alfriston, Highdown and Selmeston have been assigned to the early fifth century by Professor Myres (1969 & 1978) on the grounds of their similarity to Continental forms. Sussex is traditionally the kingdom of the South Saxons, and appropriately it is in their homeland of Lower Saxony, particularly in the district between the Elbe and Weser estuaries, that the closest parallels are found.

The first type of vessel which emerges as of very early date in the fifth century is the shallow carinated bowl with oval facets scooped or pinched out all around the pot on the point of carination. Two of these vessels were found at Highdown, one larger than the other but otherwise extremely similar. A slightly different type was found at Alfriston. Similar pots are most commonly found on sites in East Holstein c. 400 A.D. (Myres 1969) and have also been found on other English sites in contexts which confirm an early fifth-century date, such as Mucking, Essex (Jones 1975) and West Stow (West 1969).

Very close in design to these vessels is a slightly different type of sharply carinated bowl without facets. Two examples of this type of Schalenurne, one with three and the other with four grooved lines running around the top half of the pot, were found at Highdown and are also found in fourth- early fifth-century contexts on the Continent. Other pots found in Sussex have similarly been dated to the earliest period of settlement by comparison with Continental forms and forms found elsewhere in Britain.

The likelihood that these are very early pottery forms at Alfriston and Highdown is upheld by the presence of material in other graves, such as late Roman articles, military belt fittings and metalwork decorated in the Quoit Brooch style, all of which are consistent with an early to mid-fifth-century date for at least part of each cemetery, and all of which are unlikely to have been made on site. Especially interesting is the direct association of one of the Highdown carinated bowls with a cone-beaker of a type current in Egypt in the fourth/fifth century (Welch 1976).

It seems, therefore, as though at least some of the pottery dated primarily on stylistic grounds has been correctly assigned, although of course it does not guarantee the accuracy of later criteria.

Attempts to classify the remaining pottery of the period depend largely on typological analysis of form and decoration, supplemented by what evidence there is from associated finds. Few of the other pots from Alfriston or Highdown were found with many grave goods at all, and none were found with the Hassocks urns. It is reported that two of the cremation urns from Highdown contained the remains of circular brooches (Griffith 1925 and Wilson 1940), which presumably means disc brooches, but as we have neither the brooches nor know which the urns were we are not much farther forward. On the other hand, the presence of brooches and pins which belong to later Saxon periods in graves at Highdown and Alfriston indicates that both cemeteries continued in use for some time after the currency of the earliest pottery forms, which makes it likely that some at least of the remaining pottery is of a later date. However, as we have seen, Professor Myres believes that sixth-century pottery is largely absent from Sussex (and indeed from Kent) (Myres 1969, 111). Do we conclude, therefore, that pottery ceased to be made in Sussex during the sixth century, that Sussex was deserted by the Saxons during that period, that further cemeteries and sites remain undiscovered, or that we have the pottery in front of us and are failing to recognise it?

This is an appropriate point at which to acknowledge the debt that any student of pagan Saxon pottery must owe to Professor Myres, who in his latest publication, *A corpus of Anglo-Saxon Pottery of the Pagan Period*, illustrates and comments on most of the extant examples of the period from Britain. Both in these volumes and in his earlier book, *Anglo-Saxon Pottery & the Settlement of England*, Professor Myres suggests certain dating criteria which have emerged as a result of a life-time's study of pagan Saxon pottery, and these I propose to use as guidelines in this paper. The underlined numbers are Myres' Corpus numbers. Site names and numbers are museum accession numbers.

First, to recap on the information provided by the faceted carinated bowls, Highdown 4598 (5) Highdown 4563 (Myres 1969, Fig. 37 no. 5) and Alfriston (Myres 1969, Fig. 37 no. 11). These,

together with Highdown 4602 (3838) without facets are dated to around 400 A.D. by Myres from Continental parallels. Obviously they may well have continued to be popular for some time after that date, and their presence in Sussex need not imply such an early date. These forms are absent from the Bishopstone settlement and the other cemeteries, and are totally distinct from the bulk of Sussex pottery in their size, angular profile and the skill with which they have been made. Only one other vessel bears a clear relationship to the faceted group, Hassocks 161 (Fig. 33a). It too has a ring of facets around the body, but the profile has changed. With its more rounded contours and dropped waistline, it is much closer in shape to the majority of Hassocks pots, which are typically round-bodied and smooth in profile. It must be later, but how much later?

Another pot which poses a similar problem is Alfriston Grave D (Myres 1969, Fig. 17 no. 13). Its shape is again based on the carinated bowl but with slacker contours, and it carries a scheme of decoration which echoes earlier Continental *stehende bogen* motifs, but in such an abbreviated style that the swags are merely sketched in, unlike the original patterns which were more formal and complicated. Highdown 4595 (3839) also has a less sharply carinated profile, but with a scheme of stamped decoration. All three of these pots give the impression of being later copies of the earlier forms, but how late is impossible to say. They do indicate that later potters were obliged to draw their inspiration from old-fashioned models when they aspired to something more ambitious than a plain pot, perhaps because of a lack of more up-to-date imports.

Probably the two best known Saxon pots from Sussex are the two zoomorphic bossed urns from Grave 52, Alfriston (12) and Highdown 4567 (2438). The closest parallel to this type of pot, which Myres believes is the product of the same potter who also made pots found at Mucking (3866 & 3867), London (4199) and Northfleet (346) is an urn dated c. 400 A.D. from southern Norway (Myres 1969). The use of the bosses, which are unique amongst the Sussex pottery, and the broad tooling and the finger-tip dimples combine to support a fifth-century date for these pots. The quality and distribution of these pots make it unlikely that they were local Sussex products, but not improbable that they were made elsewhere in the south of England, which, if true, would imply that Sussex settlements were secondary in nature, as the historical sources state (A.S.C., Nennius). It also supports the impression that the earlier material from Sussex shows more contact with its neighbours than in later periods.

On the other hand, three pots from Highdown, 4562 (4), 4596 (3) and 4590 (3180) are of very high quality, and so alike in profile and decoration that Myres plausibly identifies them as the product of the same workshop. The fact that three are found on the same site might be taken to support the view that they were local products. Again, the evidence of the decoration points to a fifth-century date—broad tooling, dimples like spots on a domino and an elaborate, formal overall pattern. A few sherds from Alfriston Grave 65 (Fig. 33b) appear to share the same type of chevron decoration in combination with particularly broad horizontal grooves and the same fine hard black burnished surface finish as the Highdown examples. Grave 65 was in fact one of the most productive from the point of view of associated finds; amongst other items it contained a fine bronze pin and a single saucer brooch, together with three amber beads, suggesting that this grave was not among the oldest in the cemetery. On the other hand the sherds from this grave were a mixed bag, representing at least ten different pots (Griffith and Salzmänn 1914) which may have been antique when they were thrown in.

The consistent links between Highdown and Alfriston are very marked, and it would be interesting to know whether it was a special relationship or one shared by more early Saxon sites. Unfortunately the pottery does not help a great deal here. It is certainly true that none of these early forms were found at Bishopstone, and yet the cemetery metalwork here includes a Quoit Brooch

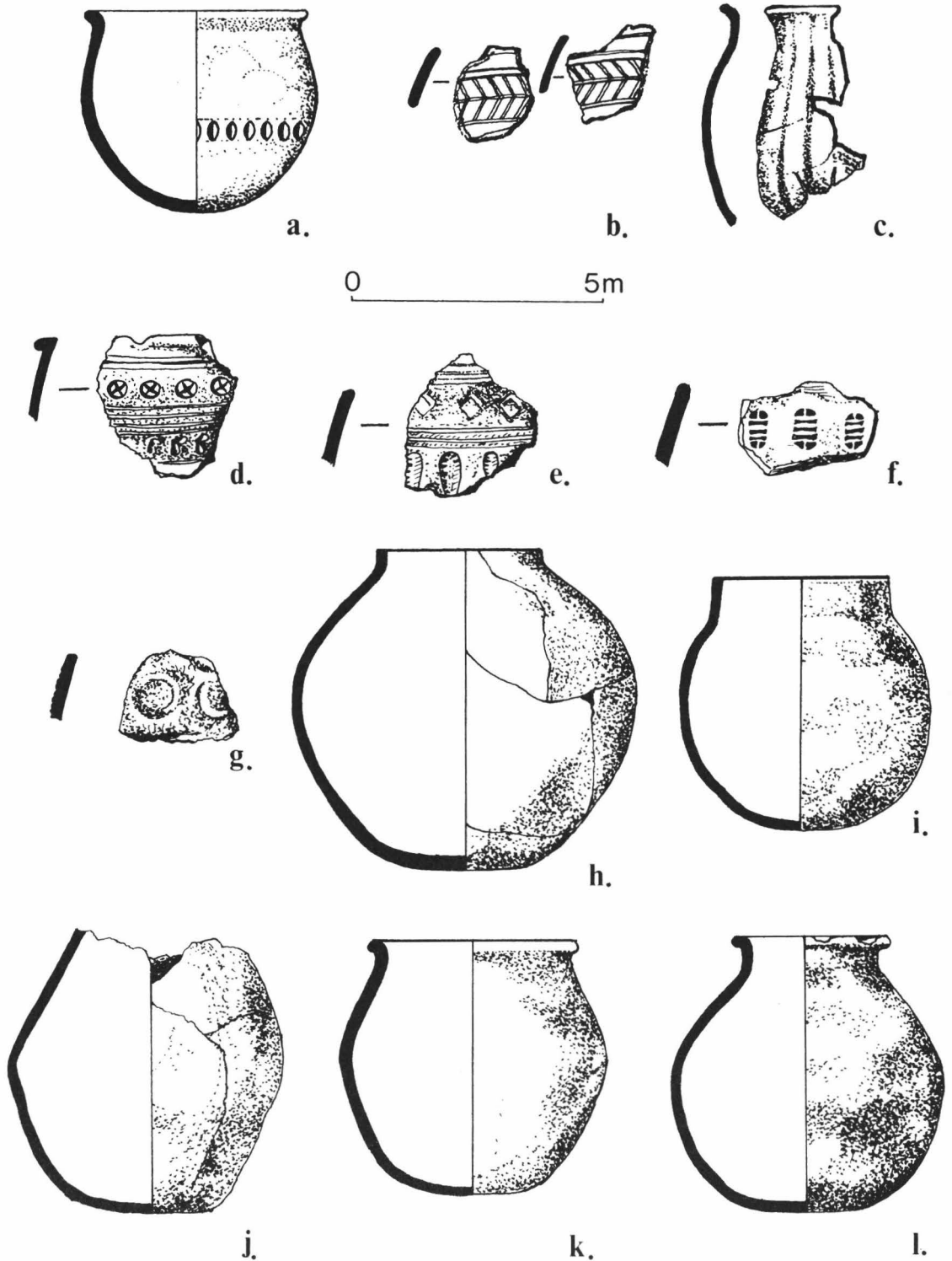


Fig. 33. Pagan Saxon pottery in Sussex. (x-1).

style buckle (Evison 1968) which should belong to the early fifth century. The settlement site did yield one piece of pottery of particular interest, however—a fragment of a tall, fluted vessel quite unlike anything else from Sussex (Fig. 33c) although paralleled in Kent and on the Continent (Myres 1969, 30 & 1978). Myres suggests that this surface modelling is based on imitation of late Roman fluted metal vessels, and its presence at Bishopstone would seem to be an indication that the settlement is contemporary with the early fifth-century phase at Alfriston & Highdown. Other cemeteries in East Sussex are also known to have begun in the fifth century but do not provide any relevant pottery links, except perhaps in fabrics.

Apart from the early fifth-century pottery and its derivatives, however, only a small proportion of the remaining pieces can be dated with any certainty. The trend that one would expect to see is the growth in popularity of stamped decoration, culminating in a predominantly 'stamps combined with linear decoration' fashion by the mid-sixth century. There are only a few pots which fall into this category from Sussex. Two sherds found at Highdown are stamped and grooved—Worthing Museum nos. 72/1170 and 72/1171. The first has the common cross-in-circle stamp and broad tooled lines (Fig. 33d) and the other is more interesting in having a well-cut fern-leaf stamp combined with horizontal grooves (Fig. 33e), which bears a distant resemblance to a barred stamp on a sherd from Bishopstone (Fig. 33c). An unusually elaborate pot from Hassocks (Lewes Museum 210, 8) has parallel grooves filled with small serrated crescent-shaped stamps around the neck, forming a collar, above a zig-zag row of the same crescent stamps and large individual rosette stamps, above a further row of 5-petalled stamps. The scarcity of linear guidelines, which Myres notes as a feature of late stamped pottery, combined with the large size and the profile of its rim probably puts this pot in the seventh century.

Another pot with a decorative scheme consisting mainly of stamps with a lightly grooved collar around the neck is Hassocks 160 (7). It shares the cross-in-circle and circular stamps with a stamped-only pot, Highdown 4566 (2437) combined with toothed comb impressions on the upper part of the body. Hassocks 201 (9) and Highdown 4566 (2437) have similar cross-in-circle stamps, and the latter has a similar circular stamp to that on Bishopstone Fabric 3 (Fig. 33g), where it occurs in conjunction with grooved lines. Only fourteen decorated sherds were found at Bishopstone, and the stamps represented are mainly rosette types with triangular or rectangular segments, the circular stamps on Fabric 3 and the barred stamp already mentioned. Highdown 4565 (6) is neatly stamped all over, mostly with a cartwheel stamp with occasional patches of cross-in-circle stamps. The decoration on all this group of pots is consistent with a date in the later sixth to seventh centuries on the basis of stylistic trends elsewhere in England. The profiles of the pots tend to support this—the taller narrow-necked vessels are typical of later pagan Saxon pottery, and the rounded body of Highdown 4566 is very close to the plain round-bodied pots of the later Hassocks cemetery.

Besides the stamped-only pots, there are also some with linear decoration only. Hassocks 29.147 (10) has a typical Hassocks profile with six pairs of rather deep vertical lines down the body, while a Hassocks pot in Brighton Museum (No. R2481 Fig. 33h) has finer vertical lines in groups running down the body from a horizontal line around the neck. Finer lines are also held to be a trend in later decorative schemes (Myres 1969) and the profile of the Brighton example, while not paralleled amongst the rest of the pottery, is consistent with a later sixth-century date. A sherd from Bishopstone has lines pricked out in a rectangular design (Bell 1977, Fig. 104 no. 46) but the fragment is too small to form any conclusions from it.

The decorated pottery accounts for just over a third of the pagan Saxon pottery from Sussex. The rest of the material is completely plain, and in attempting to classify it, one has to bear in mind

Distribution of pagan Saxon pottery in Sussex

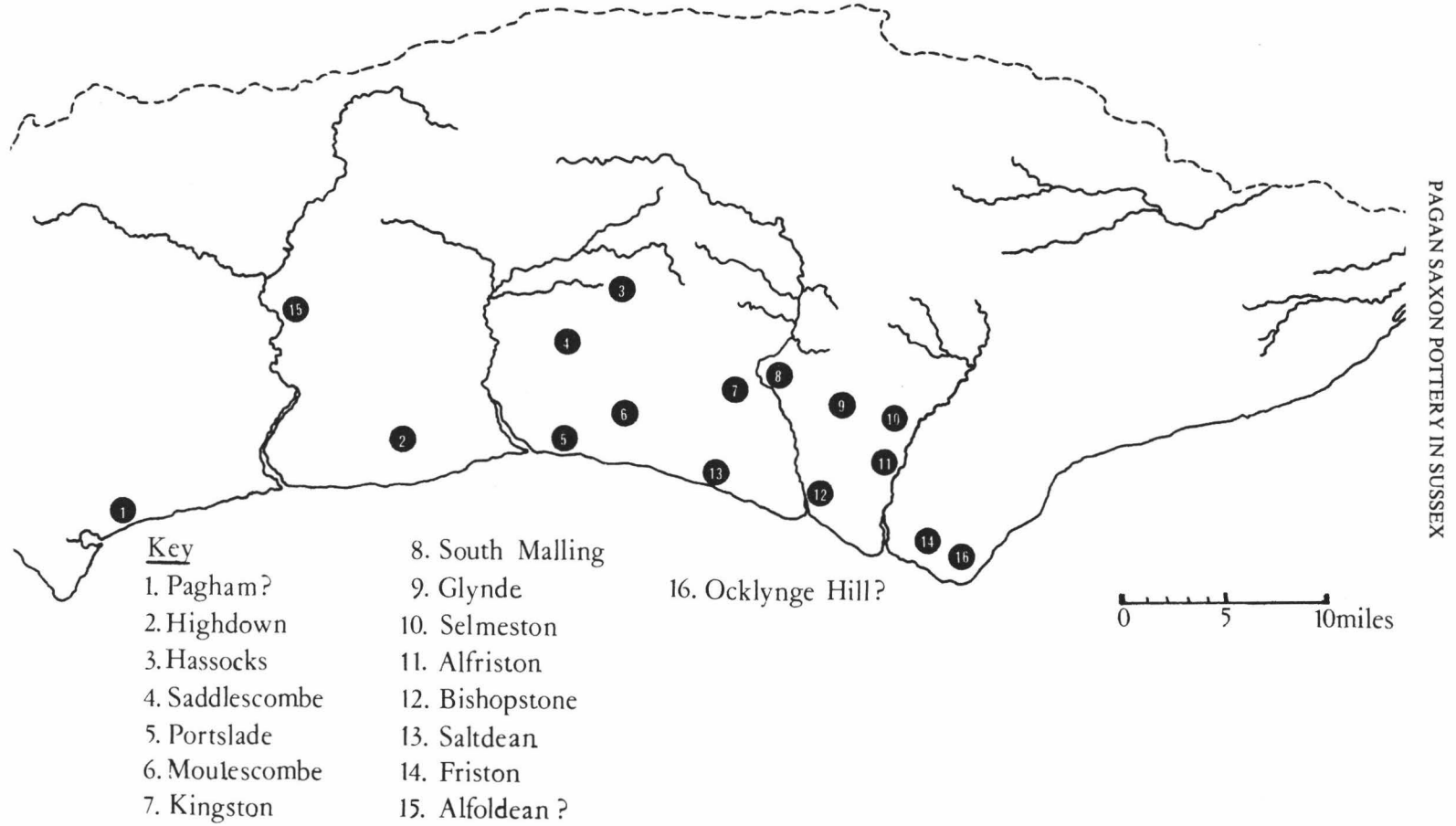


Fig. 34. Distribution of pagan Saxon pottery in Sussex.

Myres' observation that practically any form can occur in early or late contexts, and that forms can occur simultaneously. Nevertheless, it is worth looking for what evidence there is by way of form or fabric.

Myres isolates the following forms as deriving directly from Continental types of the fourth century or earlier: sharply biconical forms, the hollow-necked series with pronounced shoulders or carinations and some globular urns, especially those with upright rims, a type which was Anglian rather than Saxon. After the initial period of settlement, these forms tend to lose definition and merge into a wide variety of mixed types with slacker contours. Scarcely any of the plain forms from Sussex can confidently be placed in the earliest category. In the bi-conical series the only possible example is Highdown 72/1169 (3846) which has already been noted for its similarity to Hassocks 161 (Fig. 33a) and thus indirectly related to the Schalurne series.

Shouldered hollow-necked plain pots do not appear amongst the Hassocks, Alfriston or Highdown funerary vessels, nor in the Bishopstone settlement. The only truly shouldered pots are one from Selmeston (4111: unseen, in private collection) and one from Saltdean, Lewes Museum 51.31 (3658), which Myres regards as sub-Roman.

In the case of the globular pots, so many of the Sussex examples might fall into this category that it is most likely that in this area the form persisted throughout the pagan period with minor variations. One group of vessels which comes under this heading is the group from Hassocks with deep upright rims, of which Hassocks R595b/2 (Brighton Museum: Fig. 33i) is a good example. As Hassocks cemetery has been assigned a date-span of between c. 550 and 650 A.D., (Cunliffe 1974) this presumably precludes these forms being any earlier, and in fact the deep rims do not seem to occur on any of the other Sussex sites.

Two other categories with good claims to an earlier sixth-century date are the widemouthed bowls and those intermediate forms which are basically globular but with varying proportions and rim forms. Highdown 4597 (3842) is a representative example, and there are others from Hassocks. The low bulbous types and those with tall narrow necks, which Myres ascribes to the late sixth century or later, are rare in completely plain form—in fact, the type only appears in an unprovenanced pot in Lewes Museum (Fig. 33j) and in miniature in the beaker from Glynde. The form occurs in decorated examples, however, in conjunction with schemes of late stamped ornament.

We are left with few more clues and quite a few pots unaccounted for, although what evidence there is indicates a later rather than earlier date. The largest remaining category comes mainly from Hassocks: a group of six attractively curved if rather thick walled pots with smoothly everted rims (R595b/1; Fig. 33k) which seem to be partly related to the common globular shapes and partly to the taller narrow-necked profiles of the later pagan period. One vessel which seems to occupy an intermediate position in this progression is Brighton Museum R675/114 (Fig. 33l), noticeable for the care with which it has been smoothed and burnished to quite a high gloss.

On balance, therefore, an analysis of the extant material by stylistic criteria leaves one with the impression that the pottery from Sussex is not representative of the entire Saxon period. On the other hand, if one questions the validity of even some of these criteria, it would be possible to re-assess the picture in quite a different way. My own view is that such a re-assessment is unjustified at present, because many of the apparent anomalies could so easily be removed by the recovery of a larger sample of adequately stratified local material. Without Hassocks, for example, and its useful collection of later types, the picture of pagan Saxon occupation of Sussex, if based on the evidence of the pottery, would be one of almost total inactivity in the sixth and seventh centuries. As it is, the

Hassocks pots offer us a valuable clue as to what we might look for in pottery to fill the gap between the mid-fifth century and the later sixth century. Plain forms predominate, profiles are simpler and more rounded, and where decoration occurs it is sparser and less structured than in the earliest pottery. The 'missing' sixth-century pottery, if found in a fragmented condition, could thus be difficult to recognise, and here it is worth bearing in mind Martin Bell's discoveries of previously unrecognised Saxon fabric at Highdown, which suggest to him that buildings previously regarded as Roman or Iron Age are in fact connected with the cemetery. This points to the conclusion that even without further excavation, a programme of scientific fabric analysis on the material we have and a greater familiarity with the reserve collections in our museums might well provide significant results.

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POTTERS, POTTERY AND MARKETING, A.D. 700-1000

by *Richard Hodges*

The scarcity of Middle Saxon pottery from Sussex and the significant accumulation of Late Saxon pottery from the county urges me not to summarize data but to evaluate it as evidence of one well-documented craft in a period of economic change. For this reason my paper is in two parts. The first is concerned with the pottery as evidence of potters and with the distribution of these wares. Much in this part is to be found amplified in my monograph on the Hamwih pottery (Hodges 1980a). The second part is concerned with economic models drawn from economic geography and anthropology. Their relevance can now no longer be questioned as archaeology strides towards becoming an inter-disciplinary subject. In this instance these models are particularly apt as there is the distinct possibility that they may be tested in the field, a phenomenon all too rare in British archaeology.

1.

Middle Saxon Pottery

The Middle Saxon pottery from southern England can be briefly summarized (Hodges 1979a for all details). Disregarding Cornwall there is little or nothing from Devon and Dorset; the few hand-made sherds from Cheddar comprises the Somerset group (Rahtz 1974) while as few sherds have been found in Wiltshire. The massive collection of grass-tempered pottery from Old Windsor attests to one or more specialists operating in this area, but at present the evidence is particularly localized. London poses a complex problem that has been considered elsewhere, while from Kent there are several good groups. Two major assemblages have been found at Canterbury (possibly continuing the important Early Saxon sequence) and at Sandton on the coast. Individual vessels have also been found at Dover, Ospringe and Richborough. From Sussex there are similar groups though none of them are very large. White (1934) published the first from Medmerry Farm; Gregory (1976) has published an assemblage from nearby Pagham; Down (1978) has published a collection from Chichester though these wares are clearly absent on most of the many sites examined to date; and a small group have recently come to light at Selmeston (pers. comm. D. J. Freke). The pottery from the first three sites would certainly appear to be the modest products of specialists operating within the local potting tradition (Hodges 1980a, chapter 6).

Only from Hamwih, Saxon Southampton is there evidence of major pottery production, and here we are concerned with a site excavated on a massive scale (Addyman and Hill 1969; Holdsworth 1976). Seriation analyses have revealed the emergence of specialist potters in the first phase of the settlement early in the eighth century. These analyses have suggested that the early grass-tempered wares, which were very crude, were superseded by a sandy ware, class 3, that in turn was largely superseded by the flint and chalk-tempered wares that dominate the later eighth to early ninth-century features (Hodges 1977a; Cherry and Hodges 1978). These wares have been related to the other large assemblages of Middle Saxon pottery from southern Hampshire: from the excavations at Winchester, Chalton and Portchester. There are also several smaller groups, most of them coastal like the Sussex assemblages, that have been reviewed by Cunliffe (1974; 1976).

These southern English groups would seem to continue the Early Saxon forms. The plain wares, for example, from the Bishopstone settlement are paralleled in Middle Saxon domestic contexts (Bell 1977: 227-235); undecorated funerary wares from Bowcombe Down on the Isle of Wight and from Knockdean, Hampshire (Knocker 1957, Fig. 17, no. 1) are clearly typologically ancestral to many of the Hamwih forms. These forms essentially comprise globular cooking-pots some with shoulders and a very few with pierced lugs; high-necked jars and bowls. Pitchers from Hampshire and Sussex are very rare, and we may wonder if the Richborough vessel is not the exception in the Kent groups. None are known from the Canterbury and Sandton assemblages.

Very few of these Middle Saxon wares are decorated as is the case from England generally, and as in the Early Saxon period the ornamentation tends to be on the finest vessels. Indeed, both Dunning (1959: 50) and Cunliffe (1974: 133) have in the past suggested some of these to be Continental imports. These fine decorated vessels have been found only at Pagham in Sussex (Gregory 1976), continuing a tradition attested by the well-known Early Saxon vessel found in the churchyard (Myres 1978: 209). Decorated vessels have also been found in the Hampshire assemblages. From Hamwih, for example, we can get a clear impression of this expression of individualism by particular potters. Sixteen decorative styles had been identified by 1976 on forty-five sherds representing a minimum of twenty-three vessels. (Two stamps have also been found.)

There is so little Early Saxon pottery from southern England to the west of Kent that we may seriously speculate whether the industry neither developed nor changed between 500 and about 900 A.D. If, indeed, this is the case it contrasts with that in Kent and elsewhere in eastern England where the demise of the pagan burial rite in particular has a dramatic effect on the output and standards of Middle Saxon potting.

From southern England we can propose that pottery was seldom and most probably specifically made in the Middle Saxon period. We have evidence of specialists whose output was not massive and whom, we may suspect, were potters only 'part-time'. We have a little evidence of localized trading, though nothing that compares, for example, with the extensive distribution of (Middle Saxon) Ipswich ware in eastern England (Dunmore, Gray, Loader and Wade 1975, Fig. 33). In all these cases there is some real consistency in the modest range of forms. By contrast the few sherds from sites like Wareham, Cheddar, Whittington and Downton exhibit great typological and fabric variability. Many of the small groups of grass-tempered pottery from the Hampshire basin, such as those from Hamwih, also fall into this category. In these instances the crudity of the wares conforming to Anglo-Saxon styles, suggests that the pots were made in domestic contexts for occasions when and if they were required.

Late Saxon Pottery

There is good reason to debate the origins of the potter's wheel in East Anglia: was it introduced before or after the Danes arrived (Hurst 1976: 314, 318)? In southern England no such debate is needed, nor is it necessary to consider either Rhenish or northern French influences on the Late Saxon typology as in East Anglia. In ceramic terms two quite different cultures appear to exist: to what extent this initially reflects the creation of the Danelaw is still not clear. In southern England the wheel was evidently introduced after 878 A.D., the date that divides Middle and Late Saxon England. It was a tool that was slowly mastered and to which Middle Saxon 'hand-made' forms were often horribly adapted. This typological development, repeated in Denmark about a century later, can be easily documented.

The late ninth- or early tenth-century wares from southern England are mostly characterized by the half hand-made, half wheel-made, wholly and crudely trimmed vessels that bring the Middle

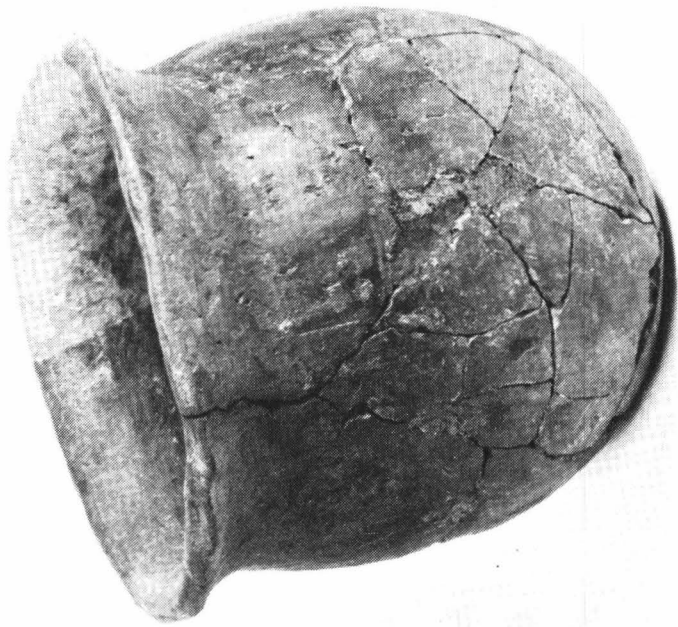


Plate I. Two class 3 vessels from Hamwih, Saxon Southampton, c.720-c.750 A.D. (Photo: Nick Bradford).

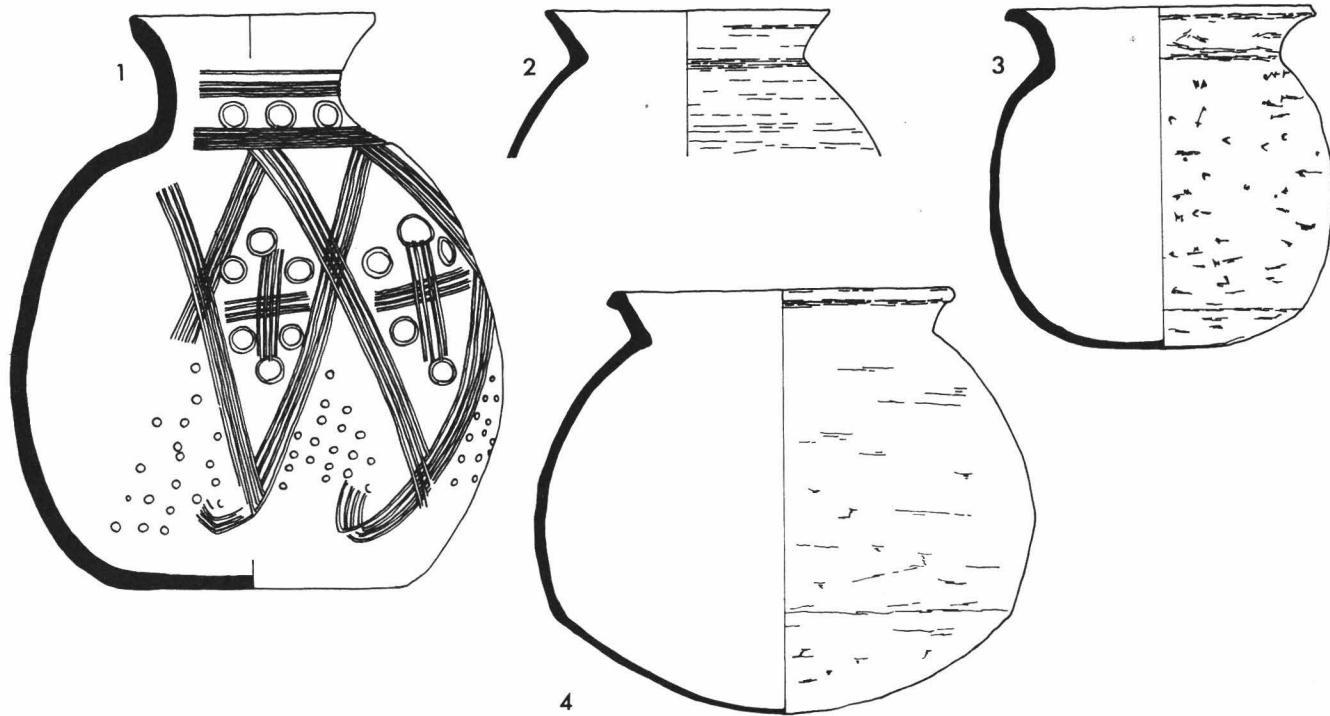


Fig. 35. A range of Sussex pots from the seventh to the eleventh centuries. 1 Pagham: seventh century/early eighth century? (after Cunliffe); 2 Chichester: early tenth century; 3 Chichester: tenth century; 4 Chichester: eleventh century (after Down). ($\frac{1}{4}$).

Saxon forms into a new age and to a larger populace. Good groups of this pottery 'in transition' exist from Canterbury (pers. comm. Ailsa Mainman), and from Chichester (Down 1978: 341-352 and refs, therein). The wares from Burpham (Sutermeister 1976) appear to be similar, while the well-studied Portchester assemblage provides an illuminating contrast being late tenth-century (at earliest) in date (Cunliffe 1976: 191). We have demonstrated this ceramic development at Wareham, Dorset where on a High Street site the pottery attains quality as the site changes from an essentially rural one through to one that is in many respects urban by the eleventh century (Hinton and Hodges 1977). By the latter date the three or four intervening generations of local potters had mastered the wheel and were producing wholly (or very nearly so) wheel-made wares in a range of forms.

By the eleventh century in Sussex several proficiently-made wares were being made. Portchester ware was probably produced near that site possibly at Wickham: these include elegantly decorated roller-stamped vessels (Cunliffe 1976: 190); the recent discovery of six eleventh-century clamp kilns in Chichester (pers. comm. A. Down) increases the evidence for that urban industry and may demonstrate its association with the West Sussex stamped wares in that distinctive oxidized fabric (e.g. Down 1978, Fig. 11.4); lastly there is the accumulated evidence of an industry operating in the Lewes area (Freke 1974: 78).

Glaze production does not strictly concern the Sussex industries. However, the important industry associated with Winchester, Winchester ware (Biddle and Barclay 1974), demands a brief note. An early tenth-century date for this industry, in view of its developed forms and decorations, must suggest that it was initiated in Alfred's or Edward's capital by alien potters. However, as most of the finds listed in the review paper by Biddle and Barclay are later in date we may more satisfactorily conclude that it owes its origin to the indigenous tradition we have just traced and commenced no earlier than Edgar's reign. The few glazed sherds from late ninth- or early tenth-century contexts in Canterbury emphasize this point. These wares are bungled attempts to apply glaze to Middle Saxon fabrics. The experiment clearly failed (Hodges 1980a). The one elegantly glazed Portchester ware pitcher (Cunliffe 1976: 189) lends still more weight to a later tenth-century date for Winchester ware. We may possibly speculate, therefore, whether it was a technique derived from the Stamford ware potters.

Imported Pottery

There is little evidence of Continental influences on the local traditions. Indeed, one obvious early Norman imitation from Hastings (Barker and Barton 1977, Fig. 11, no. 1) stands out as an exception. Similarly it is unlikely that the ornamentation on the West Sussex wares or the Portchester wares, for example, owe their origins to imported French pottery.

There are very few imports from Sussex from either the Middle or Late Saxon periods. However, from Hamwih, Saxon Southampton there is, of course, the major assemblage of Carolingian wares. More than thirty fabrics have been identified in this substantial collection with scarcely one form being duplicated in the extensive excavations across the settlement. These wares were mostly made in northern France though their precise origins are for the most part unknown. Very few of these classes have been identified in Middle Saxon contexts outside of Southampton. One class, class 14—Black wares, is the exception (Hodges 1977b). These have been found on most major Middle Saxon sites in southern and eastern England, while the tradition seems to have been occasionally imitated by the Ipswich ware potters (Hodges 1980a; 1980b). Of the sample c.270 imported vessels studied from Hamwih these represented about twenty per cent; it seems possible that they were originally traded as accoutrements to the wine trade (Hodges 1977b). Two vessels

were found at Portchester (Cunliffe 1976: 187) and one at Chichester (Hodges in Down 1978: 352-353) while a class 15, Grey ware pitcher was also found at Portchester Castle (Cunliffe 1976: 187).

A clear contrast is now apparent between the number of imports from Middle Saxon England and those from the Late Saxon period. Very obvious quantitative differences exist, for example, between the numbers for both periods at Southampton (Hodges 1977a) and at Ipswich (Hodges 1980b). This is discussed in part 2 below. It is difficult to substantiate this contrast from Sussex where few Middle Saxon and no Late Saxon imports have been found. In brief, from the Late Saxon period in southern England sherds of Beauvaisis and class 11 (Rouen region wares) have been found at Winchester, Wareham, Portchester (Cunliffe 1976: 187) and Southampton. Class 15 Grey wares have been identified at Sandton and Dover in Kent (Hodges 1976), while a class 13 (Meuse valley ware) sherd has been found in a late ninth- or early tenth-century context at Canterbury. Furthermore, from Winchester there are also some sherds of Badorf-type relief-band amphorae (Dunning 1962).

Exports

The question of Middle Saxon exports from this region has recently been raised (Leman and Cousin 1977). This might appear very curious especially as the Saxon hand-made wares are obviously very crude in comparison with the Carolingian pottery of the same period, yet a group of vessels have recently been found in the river Canche near Montreuil-sur-Mer and other vessels of this kind have been identified in the Pas-de-Calais and Nord (Hodges 1980a). Leman and Cousin (1977: 49) have indicated the similarity of these wares to those published from Hamwih and Portchester, suggesting that these might be related to traders from those sites visiting the now lost trading settlement of Quentovic which, it is usually believed, lies somewhere in the Canche valley (Dhondt 1962). Equally it might be argued that the vessels indicate the presence of the Anglo-Saxons who are thought to have emigrated to the Pas-de-Calais as well as to Britain. The discovery of hand-made wares in other northern French contexts to a certain extent supports this latter view. However, there are as yet no decorated wares and no such vessels from the numerous cemeteries excavated in this region. If a late (sixth-century) settlement is suggested we still have to demonstrate the post-Carolingian development of this pottery. For the moment, at least, it might be claimed that these vessels were associated with the poor English merchants who sought to avoid Charlemagne's tolls by passing themselves off as pilgrims.

Summary

The Middle Saxon pottery groups from southern England indicate the existence of a few craft-specialists who were probably operating for their own and perhaps neighbouring (kin-linked?) settlements (Vierck 1976). The pottery was crude and limited in typological variability, continuing certain of the forms known from Early Saxon contexts. This pottery production was translated into the new market-places at the end of the ninth or early tenth centuries. At this time the potters adapted the Middle Saxon fabrics and forms to the wheel in a bid to increase production and quality. It is quite clear that by the end of the tenth century proficiency in this new technique had been achieved. However, the integration of new forms and decorative motifs can be attributed for the most part to a strong indigenous tradition.

2.

The absence of a major mass-producing pottery centre in southern England during the eighth and ninth centuries fully corroborates the negative evidence for market places. The economy would

appear to have been primarily a redistributive one focused on central persons, either secular or ecclesiastical, rather than on central places as in classic marketing systems. However, the presence of certain localized distributions of Middle Saxon pottery might suggest the irregular existence of the market principle perhaps in a *peripheral* form (Bohannon and Dalton 1961) at fairs held at periodic intervals or possibly in the emporium at Southampton. (Metcalf has been proposing certain hillforts as the loci for Middle Saxon exchange following the discovery of sceatta finds in them or close by (1977: 91).) Equally, these minor distributions may simply relate to craft-patronage whereby peripatetic kings redistributed pots as bridewealth or in other gift forms.

Hamwih, Saxon Southampton, I have argued, is the external node (a 'gateway' perhaps (Hirth 1978)) in what has been termed a dendritic central-place system (Smith 1976). This is a partially commercialized trading system which operates through an external monopolistic market that exists on the periphery of a complex economic system. In essence, its purpose was to obtain vital goods from an underdeveloped (in our terminology) neighbour, Saxon England. Meanwhile the West Saxon kings regarded it as a means of acquiring prestigious goods vital to sustaining their central role where alliance-making elements both within the territory and beyond were important. Furthermore, the system brought useful goods for increasing agrarian production like schist hones and quern stones (Hodges 1980). The nature of this administered trade, and its controversial complexities both in theoretical and historical terms I have discussed elsewhere (Hodges 1980). It has significance for Sussex, however, as the few imported Middle Saxon vessels must have been obtained through this network rather than from the traders themselves. Hence, the existence of imports at Portchester may relate to the Bishop of Winchester who held a manor there (Cunliffe 1976: 3) and who, like other clerics, may have operated within this hierarchically organized long-distance trading system (Hodges 1980, on the church in this trade). Similarly, Metcalf and Welch have tentatively suggested the existence of a sub-king's *villa regalis* early in the eighth century at Chichester where Black wares have been found (Metcalf 1972: 65; Welch 1978: 27).

The new chronology that we have proposed for Hamwih has led me to further review the demise of this trading system (Cherry and Hodges 1978; Hodges 1980a). In this respect I have argued for the gradual emergence of new central places which began to function as market places during the middle of the ninth century (Hodges 1978). The appearance of new phases at Winchester, Canterbury and London seems to be a transitory stage between the redistributive system and the emergence of the central-placed competitive markets. Carol Smith's marketing typology might suggest these isolated settlements, functioning I believe, as primarily bureaucratic loci, to be nodes in a solar central-place system where the level of marketing is still fairly low and is certainly not significant (Smith 1976). To corroborate this model (discussed in greater length in Hodges 1980), there is little or no evidence of a significant development in the pottery industry.

The emergence of the competitive market was quite clearly encouraged in southern England by successive kings, Alfred, Edward and Athelstan, from the last decades of the ninth century. The laws of Edward the Elder, followed by those of Athelstan (with caveat) re-iterate the initial problems they faced with what had become illegal marketing outside the market-place (Attenborough 1922: 115; 135). It is possible to reconstruct the developments of the marketing system in southern England using mints and so have some impression of its penetration and importance. This has considerable significance for our understanding of the pottery industry.

In brief (Hodges 1980 for a full account), the first and major tier of markets in the later tenth century are those that were already operative more than a century before when the Danes invaded Wessex. They are, of course, Winchester, Canterbury and London. By Edward's death, Oxford had

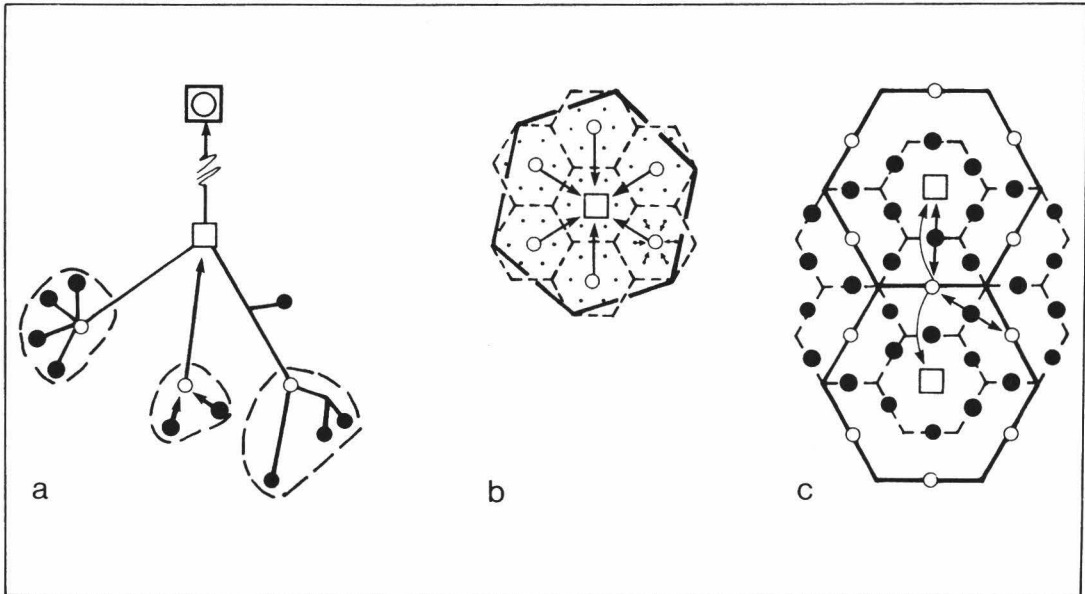


Fig. 36. Spatial models after Smith. *a* dendritic system; *b* solar central place system; *c* competitive market system.

clearly joined this major tier having eight moneyers. The second tier were mostly set within the burhs founded by Alfred. In the area with which we are concerned, moneyers are to be found in Athelstan's markets at Southampton (2), Chichester (1), and Lewes (2) (Stewart 1978). The lowest and third tier of market-places must owe their origins to the inefficient distances that lay between those already listed, thus accounting in the first place for the strictures on illegal marketing in Edward's and Athelstan's laws. These were villages on the peripheries of the extant market system and consequently poorly serviced. (Their local location may be predicted using Reilly's Law of Retail Gravitation in the manner employed by Hodder (1974: 183-4.)) So we discover that by King Edgar's reign a third tier of market-places or at least places with minting-places (Stewart 1978) have emerged. Local demand would appear to have warranted this fully market-orientated economy and the kings were as concerned to control it using coinage (Petersson 1969). Before turning to consider the relevance of pottery, it should be affirmed that this latter tier was probably a most insubstantial market-place and possibly the location of no more than a weekly market as well as being the base of a few artisans (Hill 1978: 187). Alcock's work at South Cadbury, Somerset (1972) is an extensively excavated example of a comparable site.

This model is explicitly founded on an explicitly functional interpretation of coinage where it is used to mobilize the local economy. The strict control of moneyers through Athelstan's Gately Laws and then in Edgar's reformation (Blunt 1976; Dolley and Metcalf 1961; Petersson 1969) tends to support this appraisal.

As in several African societies, potters tend to be some of the first occupants of the newly founded marketing system (Hodder 1965). There is, then, an important task to be undertaken in

rationalizing the sequence of potters in these new Sussex markets. In particular, unlike many other primitive marketing systems, there is a clear evidence that one centre specializing in this artifact for the entire region was a later medieval development. (This ethnographically documented pattern is, however, the case in Carolingia: Hodges 1980a.) In southern England there would appear to be potters as there are moneyers, though unlike moneyers whose raw materials are modest in quantity, a potter had to determine his place of activity with the practical variables of his production in mind: e.g. clays, wood, water etc.

The local pottery industries at Winchester, Canterbury and London were already substantial by the beginning of the tenth century. The origins of pottery production at Southampton itself are less clear, but the recent discovery of several clamp kilns at Chichester (Down 1978: 158; pers. comm. Alec Down 1978) and the recognition of a local industry in or around Lewes are the first evidence of the second tier of markets. In each case a finer chronology consistent with the monetary outline is vital. The Portchester ware products provide considerable information pertaining to a late tenth- or early eleventh-century pottery industry possibly located near Wickham or ? Bishop's Waltham (Cunliffe 1976: 188 for the former suggestion). To amplify this, fabric analysis of the Burpham pottery (Sutermeister 1976) is quite clearly required.

There are, of course, elements that do not *fit* the model. Predictably, Winchester ware like Stamford ware was traded over substantial area until local glazed wares were produced in the twelfth or thirteenth centuries. Similarly, odd vessels of the local centres stray beyond their catchments. Hence, there are reports of Portchester ware in north Hampshire and in West Sussex at Lancing (pers. comm. D. J. Freke).

The development of local industries will have negated the prestigious values of imported pottery, hence perhaps their scarcity in Late Saxon England. However, the modest nature of Late Saxon Southampton, for example, points to a modest concern with long-distance trade (Sawyer 1965: 160-2) which contrasts with the rapid expansion of the internal economy. A cursory comparison with the development of the Romano-British marketing system as analyzed by Hodder (1972) emphasizes the alacrity with which the local agrarian economy was articulated in the Late Saxon period.

The pottery industry, then, would seem to be an expressive index of the emergence of Late Saxon markets. If we come to understand its development in conjunction with the transformation of centrally-placed villages sustaining the market-principle into medieval market-places, then we have at hand appreciable data for modelling markets and their artisan aspects. This obviously necessitates satisfactory characterization of the ceramics to distinguish centres so that we may compare like with like rather than with a few sherds from here with a few from there. Moreover, it calls for greater emphasis on sampling procedures so that we possess a scientific understanding of distribution and its relationship to the settlement hierarchy (cf. Cherry, Gamble and Shennan 1978). Finally, we need to reflect on two points. First, the historian has less opportunity to examine economic models of this kind lacking, as he does, the quantitative data essential to test his results. Similarly, we must bear in mind the patchy qualities of the anthropological material often examined in unsatisfactory time-depth. It is when considered with archaeological models that these models will possess greatest validity. Thus we may concur with Robert Adams 'that important conceptual advances in the study of trade are more likely to emerge and be adequately tested in fields in which the archaeological remains can be joined to a historical chronology and written economic records' (1975: 458). Middle and Late Saxon pottery from Sussex, therefore, has considerable implications for our generalized understanding of potters and their context within early marketing systems.

ACKNOWLEDGEMENTS

In writing this essay I have greatly benefited from conversations and correspondence with Alec Down, David Freke and Robin Torrence. While they have greatly helped to clarify several of the issues raised here, the final responsibility lies with my interpretation.

Note

The very important series of papers in David Hill (ed.), *Ethelred the Unready*, B.A.R. 59, Oxford, 1978 appeared too late to consider in this paper. David Hill's contribution to this symposium clearly takes a similar course to the one discussed here.

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POTTERS, KILNS AND MARKETS IN MEDIEVAL SUSSEX: A PRELIMINARY STUDY

Anthony D. F. Streeten, B.A.

The analysis of regional variations in style and fabric has superseded an earlier preoccupation with chronology (Moorhouse 1975, 165), but definition of 'ceramic regions' is clearly secondary to the identification of marketed products from specific kilns. Unlike metalwork, pottery and other ceramic materials are among the few household objects found in the archaeological record which are potentially capable of being linked with a source or area of production. Once the problems of identification have been overcome, not only will the evidence reflect local geology and style, but, as a traded commodity, the products may also give insight into the economic organisation of the pottery industry.

Several medieval kilns have been excavated in the county, and other centres such as Brede, E. Sussex (Austin 1946, 94-5) are known from wasters; indeed, the kilns at Bohemia, Hastings, E. Sussex are among the earliest recorded discoveries in Britain (Lower 1859 and Ross 1860). Archaeological evidence can be supplemented from documentary sources (V.C.H. 1907, 251-2) and the coincidence of early personal- and place-names may indicate other workshops. Some of the material has been summarised (Le Patourel 1968, 125) but a detailed evaluation of the archaeological evidence, documentary sources, personal- and place-names is being prepared by the writer. Many place- or field-names containing the element *pot-* are of recent origin, for instance Potter's Barn at Thakeham, W. Sussex probably takes its name from a local family (Mawer 1929, 182); others relate to post-medieval pottery manufacture; and even *crook-* or *pot-* names of proven antiquity may be derived from *crōc-* OE (crook) or *potte-* ME (pit) (Smith 1956, I, 112 and II, 72). Likewise, early personal names are not necessarily occupational, although those recorded before c. 1300 or containing the element *le* may be significant (Fransson 1935, 29). An important distinction must be made between specific documentary references to occupation, clay rent, or marketing of products, and the circumstantial evidence of personal- and place-names; but where, for instance at Framfield, E. Sussex, both *pot-* and *crook-* personal names occur in the same parish (Hudson 1910, 198 and 309) an association with pottery manufacture seems probable.

In south-west Sussex early place-names coincide with outcrops of Reading Beds and London Clay south of the Downs, and kilns have been excavated at Binsted and Chichester, W. Sussex (see p. 00); as expected, *pot-* and *crook-* names have not been found on the chalklands, but on the fringes of the Weald there is evidence for pottery production at Graffham and Midhurst, W. Sussex (V.C.H. 1907, 251) and suggestive place-names occur at Harting, W. Sussex (V.C.H. 1907, 252) and elsewhere. This close relationship to geology is also reflected on the north side of the Weald in south-east Surrey where kilns exploiting Tertiary clay sources have been found north of the Chalk at Ashted (Frere 1941) and Cheam, Surrey (Marshall 1924). Kilns are known on the borders of the Weald at Limpsfield (Prendergast 1973 and 1974) and Earlswood, Surrey (Turner 1974), and there are a number of personal- and place-names associated with other villages in the area.

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. Thirteenth-century wares no longer have the mottled surface colours characteristic of earlier types, some of which are known to have been fired in clamp kilns (Down 1978, 158). The technological innovation of updraught kilns in south-east England, possibly during the thirteenth century, implies specialisation and at least seasonal investment of labour; this could account for the emergence of rural craft names. For the archaeologist, however, the change is even more significant: tangible evidence of kiln wasters can give an independent indication of the source of certain products quite apart from analysis of the raw materials.

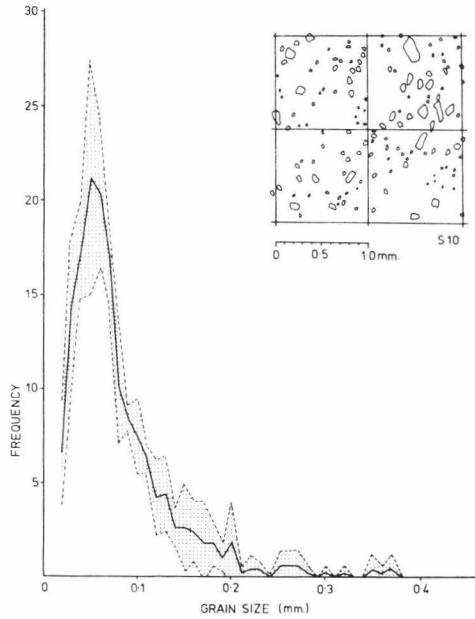
Diagnostic inclusions in the fabric of pottery from an area of varied geology will demonstrate the use of clays which occur in a restricted outcrop (Vince 1977) but other methods are required for the study of sedimentary clay sources in south-east England. Rigorous standardisation of fabric descriptions (Peacock 1977a) and the establishment of a fabric type-series for direct comparison (Rhodes 1977) provides a starting point for more detailed analysis. Heavy mineral separation may help to identify the origin of some raw materials, but the technique is time-consuming and sometimes impractical (Peacock 1977b). Detailed examination of the fabric texture in thin-section is quicker, and is particularly suitable for comparison of marketed vessels with the products of known kilns. The technique, based on the principles of sedimentology, was applied to a collection of Romano-British sherds found at Fishbourne, W. Sussex (Peacock 1971) and a modified approach has been used to group the products of Romano-British kilns at Rowlands Castle, Hants. and elsewhere (Hodder 1974a). Preliminary results from medieval wasters in south-east England show that different centres of manufacture are characterised by a distinctive range of quartz grain sizes in the fabric of their products.

Graphical representation of the size-frequency has been adopted in preference to statistical measures of mean size, skewness and kurtosis, and detailed assessment of the revised methodology will form the subject of a separate paper. The prepared thin-section is examined first under the petrological microscope to identify the quartz and any other inclusions. A projected magnification is then used to measure, at 0.01 mm intervals, a sample of 160 grains which are plotted on a graph according to size-frequency. A pilot sample of five sherds from each kiln establishes the degree of variation, and the results can be plotted to show the mean frequency \pm one standard deviation for each size group. By this method, the subtle differences in texture between the hard-fired products of three early sixteenth-century kilns in Kent and E. Sussex can be clearly distinguished (Fig. 37), and the technique has been used to confirm the identification of their marketed products (Streeten 1979).

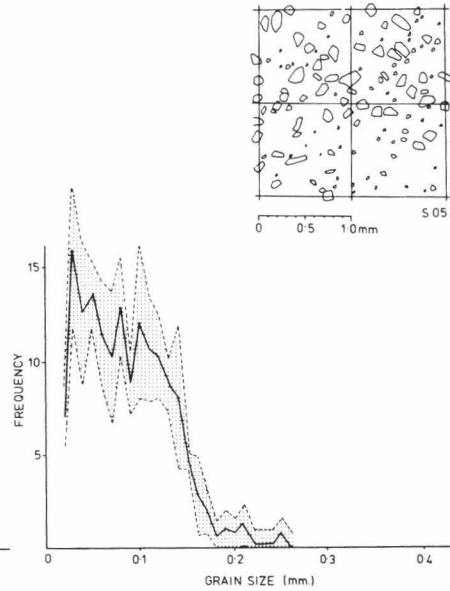
Coarser medieval wares can be distinguished in the same way (Fig. 38), but textural analysis must not be isolated from diagnostic traits visible to the naked eye. The intention is to provide an objective standard against which visual identifications can be tested. Practical limitations govern the number of sherds which are sampled, but results from the Binsted kiln show that the initial graph derived from just three sherds is little altered by the addition of subsequent sections; further tests with larger samples are being undertaken. Consistency has also been observed, for instance at Tyler Hill, Kent, between different kilns in the same industry. Clearly, the number of distinct size-frequency curves is finite, and it is doubtful whether the method can be applied successfully to long-distance distributions where there is a possibility that nearer unknown kilns could produce a similar graph. The technique is best suited to definition of the often local market supplied from medieval kilns, and it may help to illustrate changing patterns at different periods. In west Sussex the evidence permits just such an approach.

TEXTURAL ANALYSIS

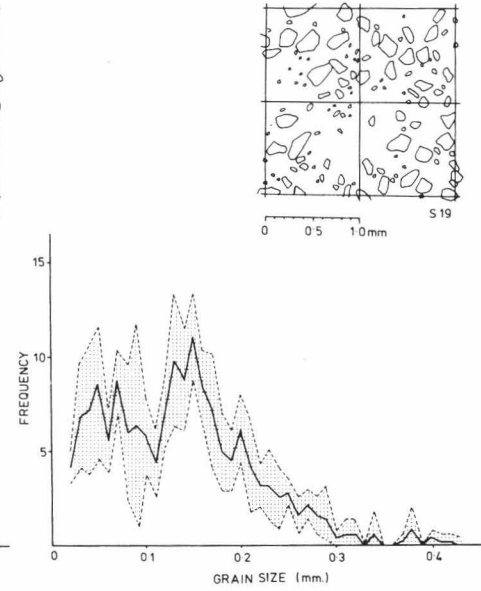
Parrock



Boreham Street



Hareplain



Sample: 160 grains per sherd;
 $\bar{x} \pm 1\sigma$ for 5 sherds from each kiln

Fig. 37. Textural analysis: early sixteenth-century kilns.

Saxo-Norman wares were manufactured in Chichester, although the scale of early production is not yet certain (Down 1978, 158) and a possible early origin has also been suggested for an industry in the Midhurst area on the basis of contemporary terminology *potteresgavel* used to describe the thirteenth-century clay rent (Le Patourel 1968, 104); but this is yet unsubstantiated by the archaeological evidence. Later production is attested in both areas: thirteenth-century kilns have been excavated in different parts of Chichester (Down and Rule 1971, 153-64 and Down 1978, 10-160) and, although none of the wasters so far discovered at Graffham can be confidently dated earlier than the fourteenth century (Aldsworth and Down 1976), the 'composition from the men who made clay pots', held by the vicar of Graffham in 1341 (V.C.H. 1907, 252) and the *potteresgavel* of 36s 8d at Midhurst in 1283 (V.C.H. 1907, 251) imply the existence of an industry, perhaps of some size, in this part of the Weald. A thirteenth-/fourteenth-century date has also been proposed by Mr. C. Ainsworth for the kiln at Binsted (Wilson and Hurst 1967, 316) and the names of both Willo atte Potte and John le Tighelar appear in the taxation returns for 'Tortiton and Biensted' in 1332 (Hudson 1910, 256). In this part of the county at least, the evidence begins to demonstrate the density of production which is likely to have existed in other areas where raw materials were available.

The products of kilns in Chichester are distinctive, and it was clearly the intention of the Orchard Street and Southgate potters to produce red oxidised vessels (Barton 1971, 140), presumably from the London Clay. At Binsted on the other hand, use of the Reading Beds outcrop generally gives a paler fabric, although pockets of red clay in the deposit will fire to deeper colours. Flint- and sand-tempered fabrics are found at both Binsted and Chichester, but the sparse medium-sized flints in some of the Binsted wares occur naturally in the clay and need not therefore specifically represent the potter's technology. Some of the buff-coloured Graffham wasters are barely distinguishable from the sand-tempered Binsted products, but the Graffham fabric has greater variation and is generally coarser. Samples of the sand-tempered wares from Chichester, Binsted, Graffham and other Sussex kilns have been analysed for comparison (Fig. 38), but the differences are sufficient to permit tentative *visual* identification of marketed products.

Fieldwork of varied intensity, and the lack of finds from the vicinity of Chichester hinders precise definition of the distributions, but Binsted products have been found at a number of sites in the Worthing area, and a similar source has been suggested for finds further east at Stretham (Mr. A. Barr-Hamilton, pers. comm.) and Portslade, W. Sussex (the late Dr. G. C. Dunning, pers. comm.). Thin-section analysis, however, does not confirm this source for the Portslade vessels. If other identifications are correct, there is some indication of a possible riverine distribution inland where Binsted and Graffham wares seem to be found in the same area. Exotic items ascribed to the Binsted potters have also been found in Chichester (Down 1978, 353) but products of the Orchard Street kilns have not until recently been recognised outside the city (Gregory 1976, 216). Future finds must surely indicate more contact with the hinterland.

At present there is no evidence for continuity of either the Chichester or Binsted industries beyond the end of the medieval period. Pioneer work on the ceramic development of the region (Barton 1972 and 1979) highlights the difficulties of identifying late fourteenth-/fifteenth-century types, but the stratified sequence at Bramber Castle, W. Sussex (Barton and Holden 1977, 56) and coin associations at Tarring, W. Sussex (Barton 1963, 30 and 1964, 24 and 30) point to the emergence of new forms c. 1450-1500. These white-painted wares in a distinctive fabric (Barton and Holden 1977, 55) occur at a number of sites in Sussex and form part of a wider south-coast tradition (Cunliffe 1973, 46). Wasters found at Graffham (Down 1978, 363) indicate continuity

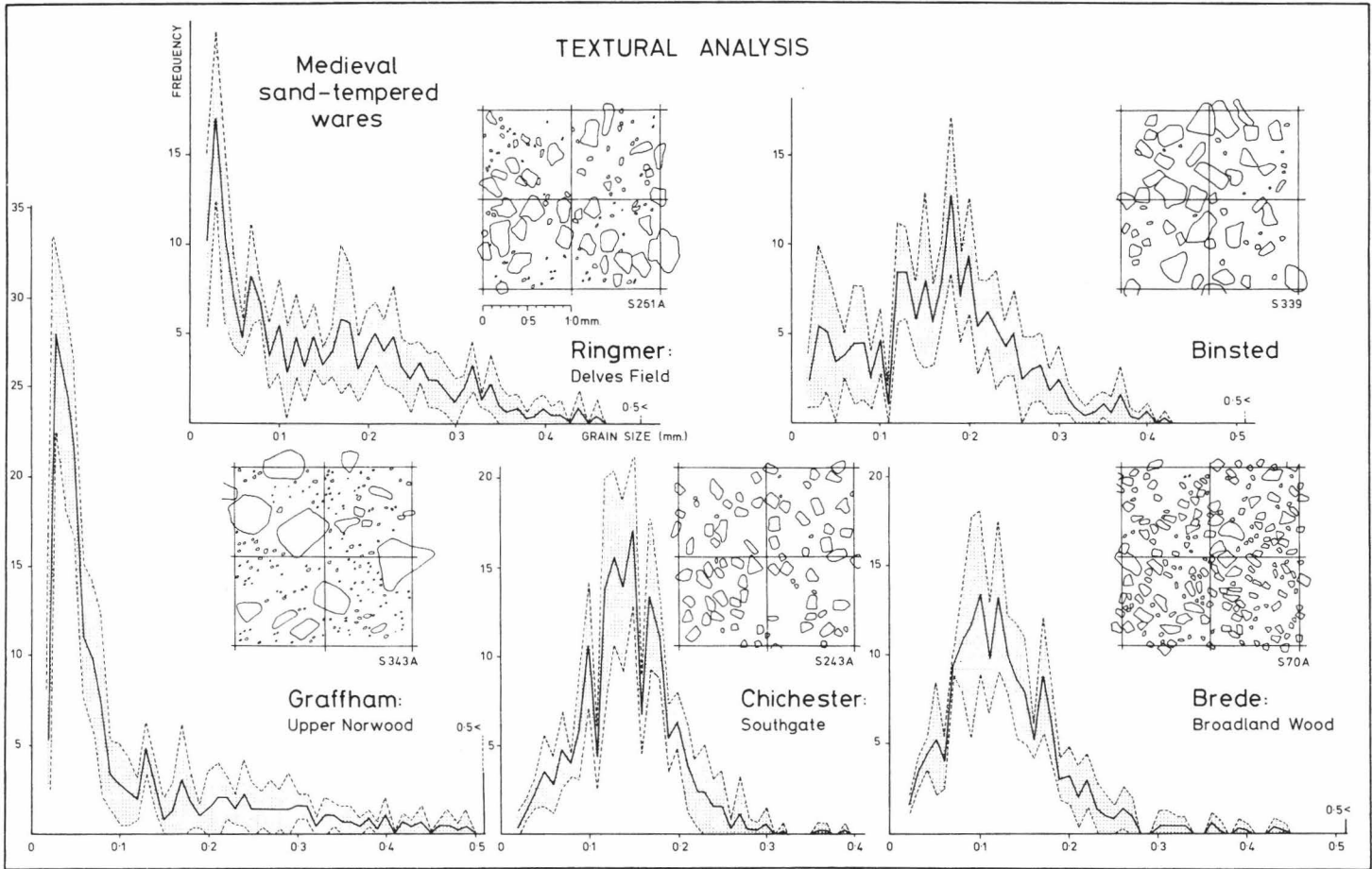


Fig. 38. Textural analysis: medieval kilns.

there between the medieval and well-documented post-medieval industry (Barrett 1953, n.p.), but it has been suggested that vessels with white-painted decoration in the area are the products of more than one centre (Down 1978, 363).

Textural analysis, however, shows that white-painted wares from a wide geographical area conform to the quartz grain size-frequency of the Graffham products (Fig. 40). These were clearly being marketed in Chichester and a large group has also been found at Bramber Castle; a number of similar sherds from Pulborough, W. Sussex has also been sampled, and, in addition, the Worthing-area market, previously supplied from Binsted, seems to have been taken over by the Graffham white-painted wares (Fig. 41). West of Graffham, products have been recognised at Harting, and Idsworth, Hants.; and sherds from Chalton, Hants., hitherto suspected to be from a different source, conform to the Graffham pattern (Fig. 40, graph G). Further afield, complete characteristic bung-hole pitchers have been found at Wolvesey Palace, Winchester, Hants. and at Oyster Street, Portsmouth, Hants., but quantities here are small and probably represent subsidiary markets rather than the regular trade implied at Chichester. Known white-painted wares attributed to Graffham are listed in Table 1, and the sample of a roof-tile with white-painted decoration from Chichester (Down 1974, 92) (Fig. 40, graph F) may indicate that roof furniture was also manufactured there.

Many of the finds are from small-scale or salvage excavations which cannot permit reliable quantification of the material (Hodder 1974b, 340) and it is difficult to assess the significance of residual sherds in stratified assemblages. Some of the 'fourteenth-century' types may in fact continue into the fifteenth. Textural analysis has, however, enabled isolation of the products of a specific industry from a wider tradition of ceramic decoration (Fig. 40, graph H). Although alternative sources cannot be ruled out, the implication must be that some time after production at the medieval kilns in Chichester and Binsted had ceased, the Graffham industry captured these markets, and by *c.* 1500 was supplying a new range of wares to a large part of west Sussex and the Hampshire border. It remains to be seen whether such an interpretation can stand the test of continued fieldwork and excavation.

This pattern also seems to have continued into the later post-medieval period. Some Graffham products have characteristic stamped decoration (Wilson and Hurst 1964), a diagnostic feature which has not so far been recognised at other Sussex kilns, and the fabrics, too, are distinctive. The majority of vessels is in a smooth red fabric with green or brown glaze, but white wares with green or yellow glaze were also manufactured (Aldsworth and Down 1976) (Fig. 43, graphs A and C). Graffham types have been found at Chichester (Down 1978, 365), although there is also evidence for production of similar wares within the City itself (Mr. A. G. Down, pers. comm.) (Fig. 43, graph F), and a group of vessels from Old House, Pulborough, includes white wares and a large pan with stamped rim (Worthing Museum). Textural analysis of a sample from Dominion Road, Worthing, W. Sussex (Fig. 43, graph D) confirms visual identification of the fabric at other sites in the area, and a stamped sherd from Tortington, W. Sussex, only 2 km from the former medieval kiln at Binsted, indicates continuity of the coastal market now supplied from Graffham (Fig. 42). Further afield, small quantities of later wares reached Winchester (Fig. 43, graph E) but, as at Wickham, Hants., the bulk of the pottery was from elsewhere.

The apparent dominance of a single centre over large parts of the west Sussex market from *c.* 1500 or earlier, does not occur at the eastern end of the County. Archaeological evidence hints at a comparable density of medieval production, with kilns at Ringmer, E. Sussex (Martin 1902), Abbots Wood, Michelham, E. Sussex (Barton and Holden 1967, 7), Bohemia, Hastings (Lower

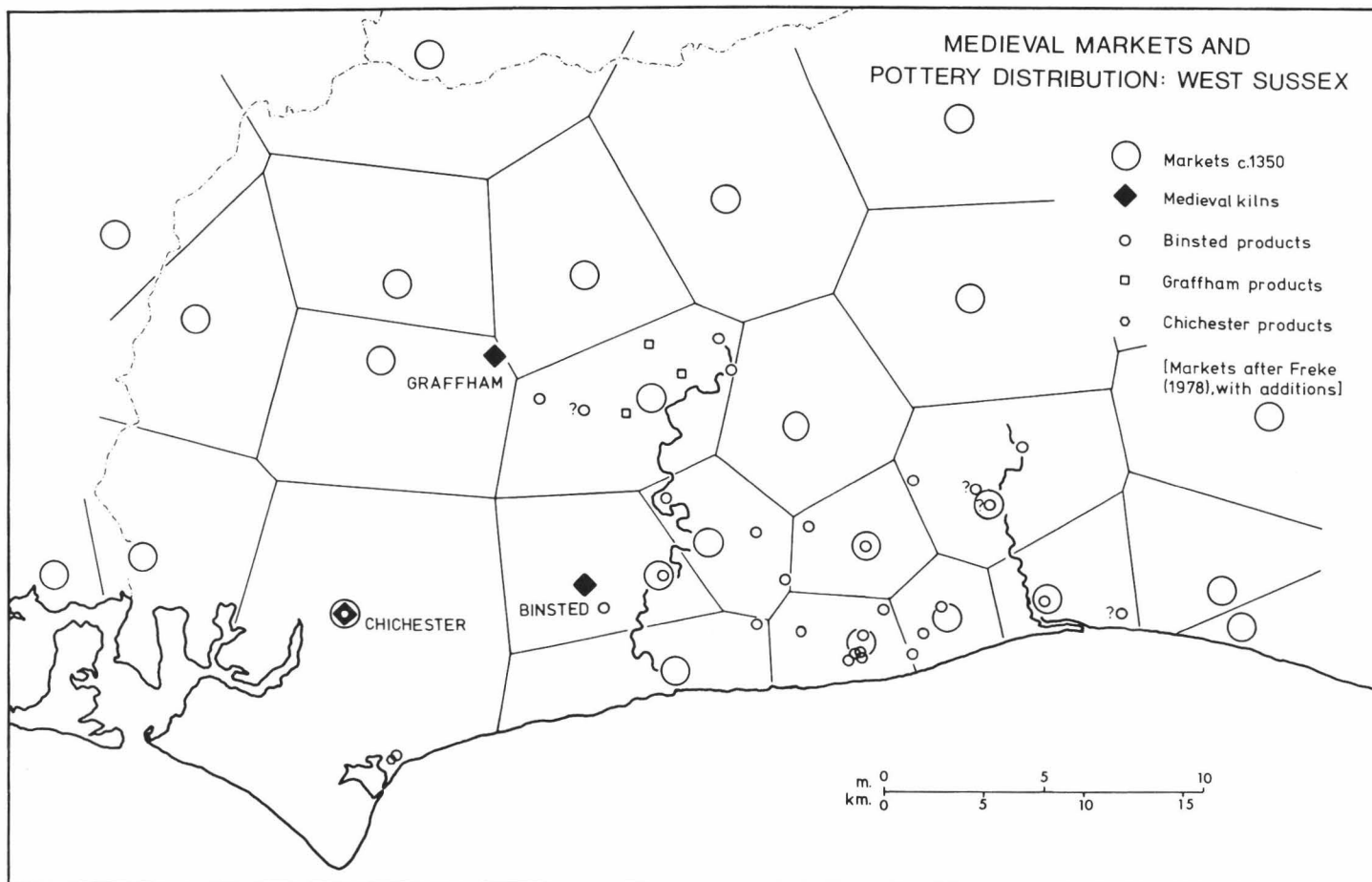


Fig. 39. Medieval markets and pottery distribution in West Sussex.

1859 and Ross 1860), Brede (Austin 1946, 94-5), and Rye (Vidler 1932; 1933; 1936), and documentary references to potters in 1533 (V.C.H. 1907, 251) demonstrate that the industry at Ringmer, like Graffham, remained in existence after *c.* 1500. Possible wasters from Brede may also be ascribed to this period, but the limited evidence from Abbots Wood suggests that production here was short-lived, and members of the Potten family at Rye, who may have been potters at an earlier date (Vidler 1932, 86), by the sixteenth century are recorded as fishermen (Hamilton Hall 1910, 10). In addition to Ringmer, and perhaps Brede, early sixteenth-century pottery manufacture is attested at Boreham Street, E. Sussex (Crossley 1972, 40) and at Lower Parrock, Hartfield, E. Sussex (Freke 1979). Products of the contemporary kiln at Hareplain, Biddenden, Kent (Kelly 1972) have been identified in association with a Parrock vessel at Bayham Abbey, E. Sussex, and other kilns can be inferred from analysis of marketed products elsewhere (Streeten, forthcoming). At High Hurstwood, E. Sussex, for instance, textural analysis has failed to identify hard-fired wares with known kilns at either Boreham Street (20 km) or Parrock (12 km), although the discovery of possible wasters near Buxted may indicate production in the area. In contrast to west Sussex, therefore, the early sixteenth-century market in east Sussex was evidently supplied from a number of small workshops; identification of the later Ringmer wares might help to establish whether a long tradition of manufacture enabled these potters to maintain a wider market than that served by the smaller kilns.

The sale of vessels could be through a variety of different outlets (Renfrew 1977, 9-10). Some would almost certainly have been sold at the workshop; others, as indicated for glass (Kenyon 1967, 111) might be carried by itinerant salesmen, or dispatched as a specific order. In some areas, requirements may have been met from distant potters operating on manorial lands, but the weekly market must have constituted one of the most important outlets. A close relationship between markets and pottery kilns need not be expected: the market often owed its origin to the whim of an entrepreneur and was intended primarily for the sale of agricultural produce, while the potter was usually tied to his raw materials and the availability of land. Proliferation of market charters granted before *c.* 1350 and the apparently local distribution of earthenware vessels may, therefore, derive quite independently from the general economic and social conditions of the thirteenth and early fourteenth century; but the two could conceivably be related. Even allowing for unsuccessful foundations, none of the population, *c.* 1350, in west Sussex would be far from a market, and pottery was supplied from a number of kilns (Fig. 39); for the post-medieval period, however, theoretical market areas are appreciably larger, and by that time the Graffham kilns had become predominant (Figs. 41 and 42). In east Sussex the medieval picture is the same (Freke 1978, Fig. 42), but perhaps here the post-medieval market, in particular the expanding iron industry, was more conveniently served by small enterprises.

The need for large excavations to establish dated ceramic sequences has become a familiar cry; perhaps a more realistic approach might be further fieldwork coupled with the analysis of pottery fabrics to define the extent of trade from specific kilns.

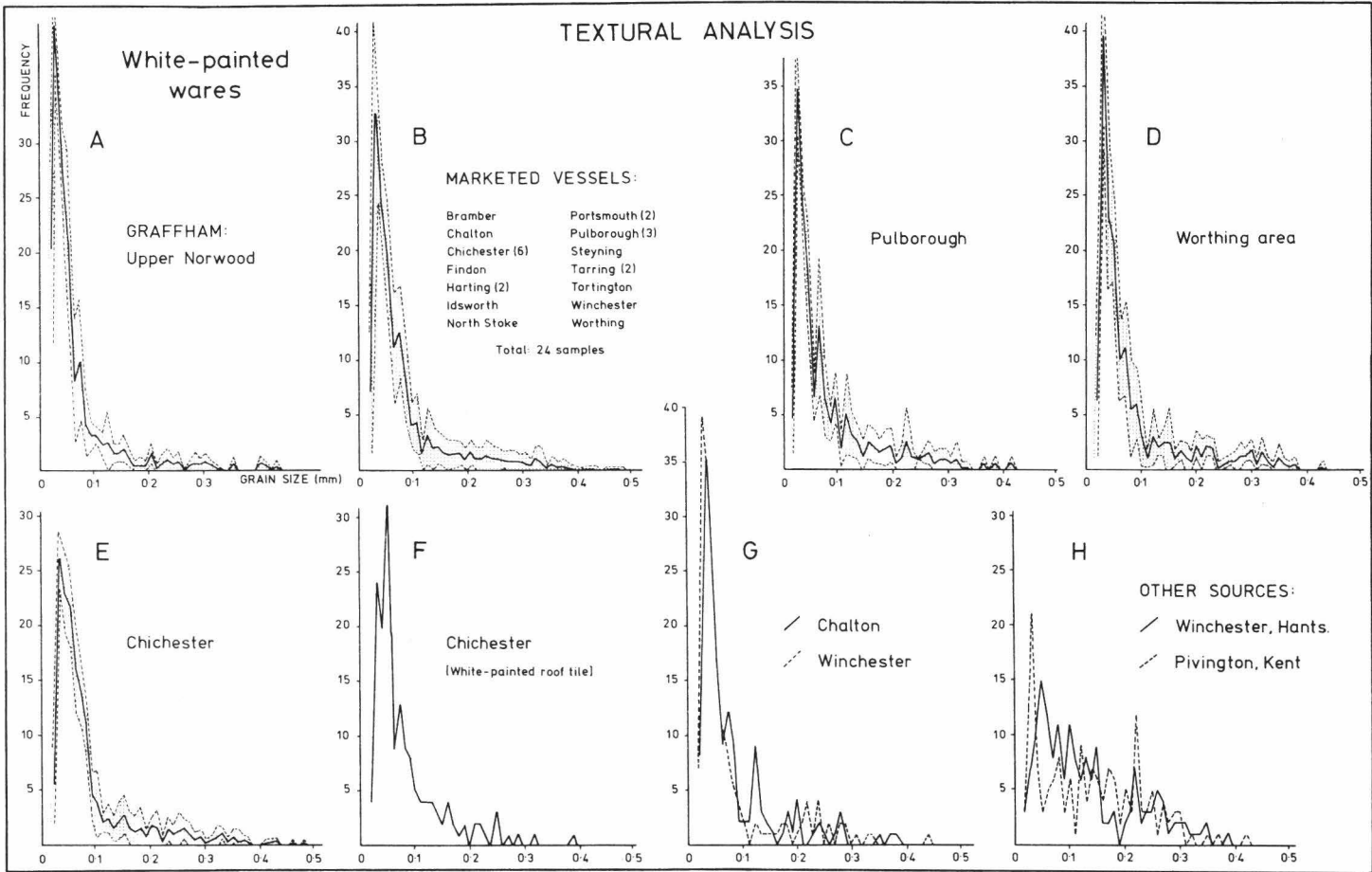


Fig. 40. Textural analysis: white-painted wares.

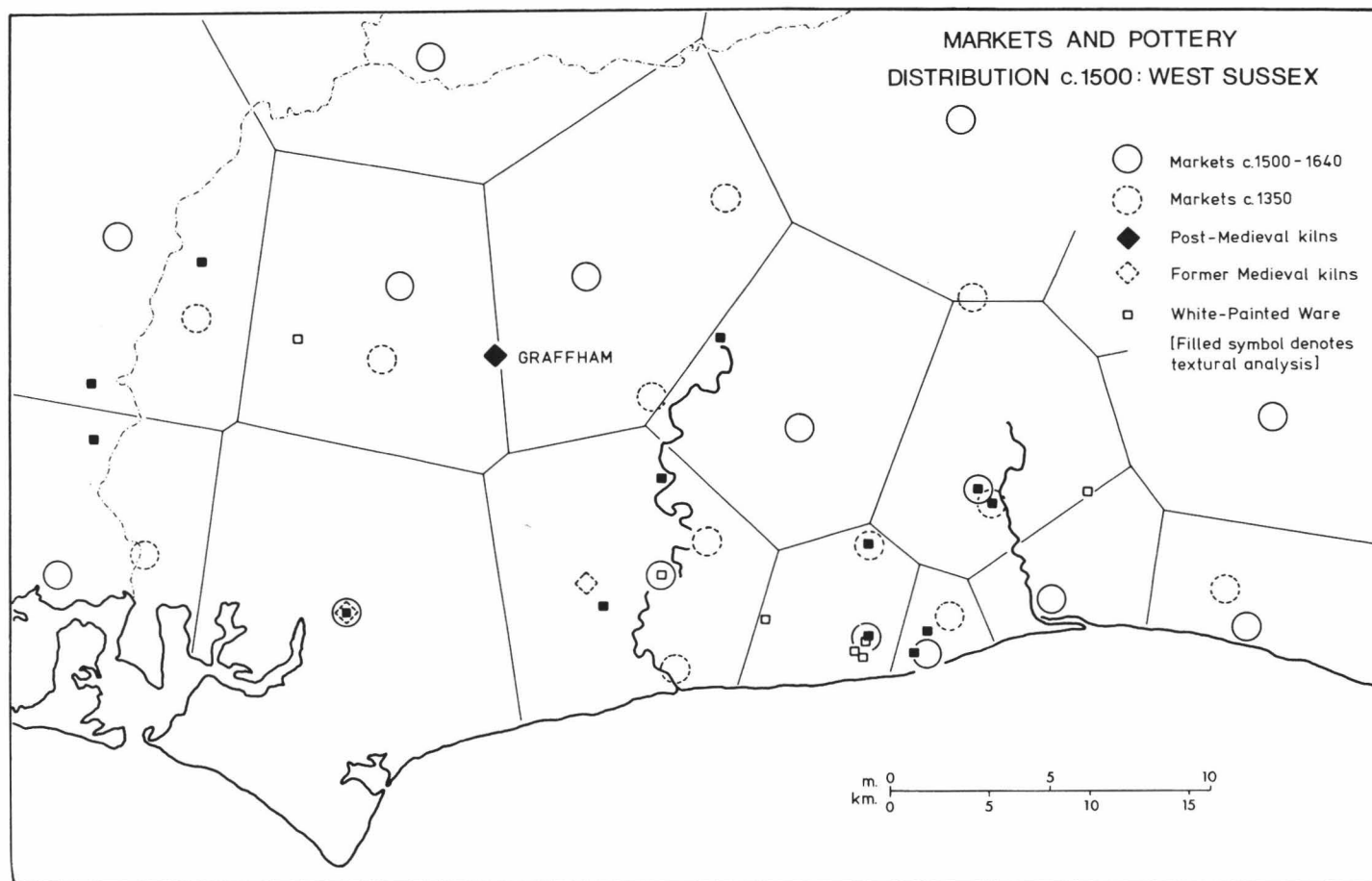


Fig. 41. Markets and pottery distribution in West Sussex c 1500.

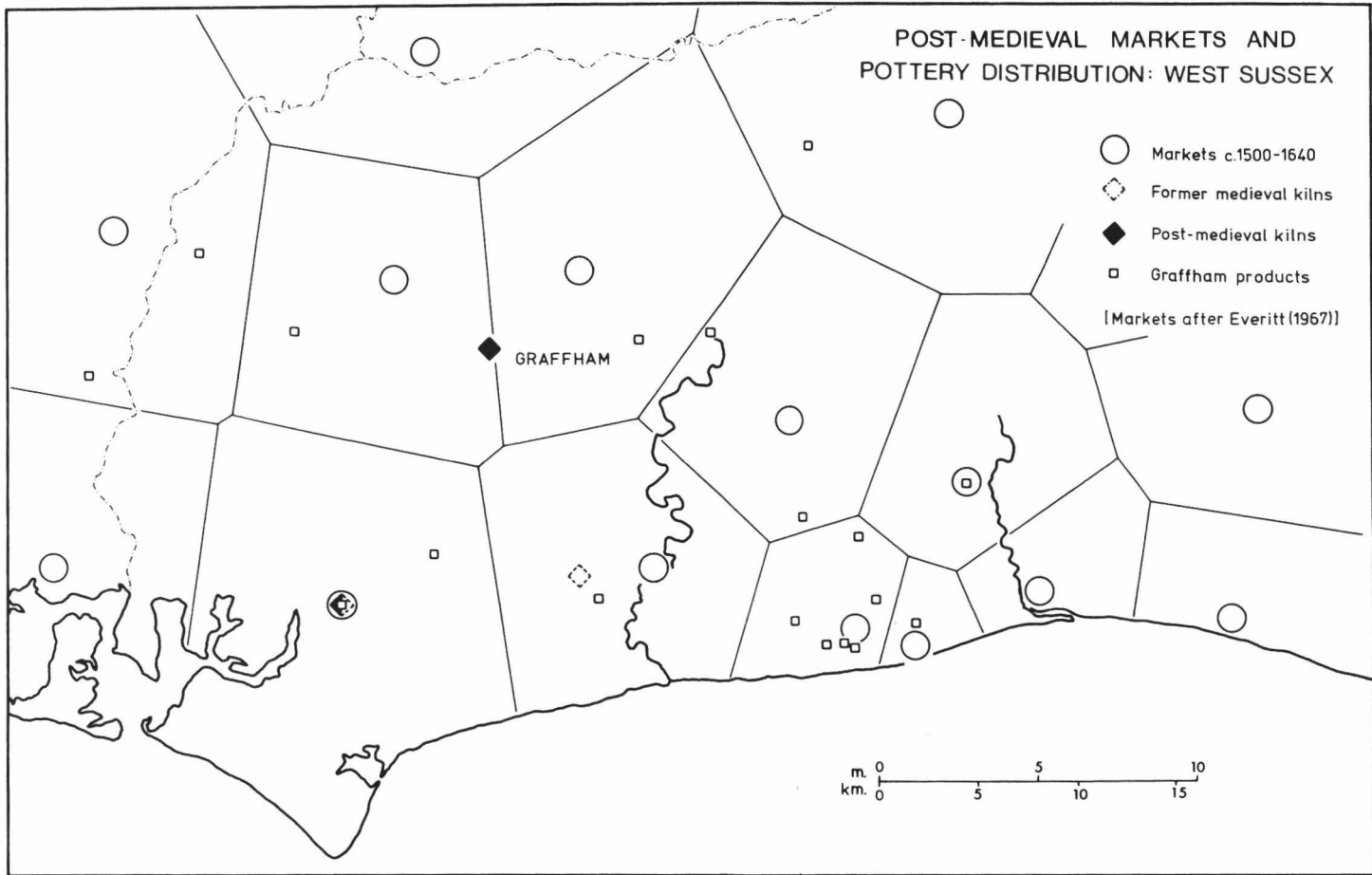


Fig. 42. Post-medieval markets and pottery distribution in West Sussex.

TABLE 1. Provisional list of white-painted wares and contemporary fabrics attributed to the Graffham kilns

- Notes: 1 Grid references are given when available
 2 * denotes number of thin-sections used for textural analysis
 3 Museum accession numbers are listed where appropriate; numbers are not available for unregistered material

Site	N.G.R.	Publication	Textural Analysis	Museum/private collection
<i>Probable kilns</i>				
Lavington Common, EAST LAVINGTON, Sx.	SU 9460 1830	Aldsworth and Down 1976, 333	—	Chichester Excavations Committee
Upper Norwood, EAST LAVINGTON, Sx.	SU 9370 1790	Ditto	*****	Ditto
<i>Marketed vessels</i>				
Church of St. Nicholas, ANGMERING, Sx.	TQ 068 044	Bedwin 1975, 31	—	
Maison Dieu, ARUNDEL, Sx.	TQ 020 071	Evans 1969, 75	—	Worthing Mus. 68/1185-6
Bramber Castle, BRAMBER, Sx.	TQ 184 107	Barton and Holden 1977, 41	—	Worthing Mus.
Ditto (1956)	Ditto	—	*	Barbican Ho., Lewes 57/18
Manor Farm, CHALTON, Hants.	SU 732 162	Cunliffe 1973, 46	*	J. Budden Esq., Chalton
All Saints, CHICHESTER, Sx.	SU 86 04	Down 1974, 80 & 85-98	*	Chichester City Mus.
Central Girls School/ Clemens Yard, CHICHESTER, Sx.	Ditto	Down 1978, 86	—	Ditto
Chapel Street, CHICHESTER, Sx.	Ditto	Down 1978, 51	*	Ditto
David Greig Site, CHICHESTER, Sx.	Ditto	Down 1974, 140 & 152	—	Ditto
Eastgate, CHICHESTER, Sx.	Ditto	Down 1974, 72	**	Ditto
Post Office Site, CHICHESTER, Sx.	Ditto	—	—	Chichester City Mus. 1740 & 1970
St. Mary's Hospital, CHICHESTER, Sx.	Ditto	Down and Rule 1971, 31	*	Chichester City Mus.
41 & 42 Southgate, CHICHESTER, Sx.	Ditto	Down 1974, 21	—	Ditto
Tower Street, CHICHESTER, Sx.	Ditto	Down 1978, 173	—	Ditto
Wool Store Site, CHICHESTER, Sx.	Ditto	Down 1978, 99	—	Ditto
No provenance ? CHICHESTER, Sx.	Ditto	—	—	Chichester City Mus. 1485 & 1856
DIDLING, Sx.		—	—	Chichester City Mus.
Boulevard/ Littlehampton Road, DURRINGTON, Sx.	TQ 122 044	Barton 1965, 84	—	Worthing Mus. 64/—
EDBURTON, Sx. (1925)	c. TQ 23 11	—	—	Brighton Mus. R 2719
North Park, FINDON, Sx.	c. TQ 12 09	—	*	Worthing Mus. 76/133
Primary School, FINDON, Sx.	TQ 122 088	Evans 1968, 136	—	Worthing Mus.

Site	N.G.R.	Publication	Textural Analysis	Museum/private collection
Parlour Copse, HARTING, Sx.	TQ 7923 2200	—	**	Barbican Ho., Lewes 53/64/2
IDSWORTH, Hants.	SU 743 137	—	*	J. Budden, Esq., Chalton
NORTH STOKE, Sx.	TQ 024 107	—	*	Worthing Mus. 71/870
Portchester Castle, PORTCHESTER, Hants.	SU 625 029	Cunliffe 1977, 135-7	—	Portsmouth City Mus.
High Street, PORTSMOUTH, Hants.	SZ 64 99	—	**	Portsmouth City Mus. 631/1974
Oyster Street, PORTSMOUTH, Hants.	Ditto	—	—	Portsmouth City Mus. 150/1971
Old House, PULBOROUGH, Sx.	c. TQ 04 18	—	*	Worthing Mus.
Sails Field Manor, PULBOROUGH, Sx.	c. TQ 04 18	—	**	Worthing Mus. 57/363
St. Cuthman's Field, STEYNING, Sx.	TQ 17 11	—	—	Worthing Mus. 71/758; 760; 781; 808; 812; 818-9; 839- 40; 898; 1337; 1342
STEYNING, Sx. (1925)	c. TQ 17 11	—	—	Brighton Mus. R 2702
STEYNING, Sx. (1962)	TQ 178 114	—	*	Worthing Mus. 71/761; 888-9; 431-4
Post Office, TARRING, Sx.	TQ 132 040	Barton 1963, 28-32	*	Worthing Mus. 62/742
Rectory Garden, TARRING, Sx.	Ditto	Barton 1964, 24	*	Worthing Mus. 63/2300
South Street, TARRING (1978)	TQ 133 040	Bedwin forthcoming	—	Worthing Mus.
TORTINGTON, Sx.	c. TQ 00 05	—	*	Worthing Mus. 68/—
Cathedral Green, WINCHESTER, Hants	SU 48 29	—	*	Winchester Research Unit
Wolvesey Palace, WINCHESTER, Hants	Ditto	—	—	Ditto
Offington Hall, WORTHING, Sx.	TQ 135 053	—	*	Worthing Mus.
Warwick Gardens, WORTHING, Sx.	TQ 152 025	Barton 1963, 27	—	Worthing Mus. 61/33
<i>Roof-tiles</i>				
All Saints, CHICHESTER, Sx.	SU 86 04	Down 1974, 92 Fig. 7.12 No.45	*	Chichester City Mus.
Downpark, HARTING, Sx.	SU 792 221	Barton 1963, 32	—	Barbican Ho., Lewes 53/64/2
Post Office, TARRING, Sx.	TQ 132 040	Barton 1963, 32	—	Worthing Mus. 62/742

ACKNOWLEDGEMENTS

The principles of textural analysis were first introduced to me by Dr. David Peacock, and both he and Mr. David Hinton have offered useful advice during development of the work. All the samples examined have been willingly loaned by museums, other archaeological bodies and individuals too numerous to mention, but I am particularly grateful to Mr. Alec Down and Mr. Fred Aldsworth for allowing access to material from the Chichester Excavations Committee research project at Graffham.

Author: Anthony Streeten, University of Southampton.

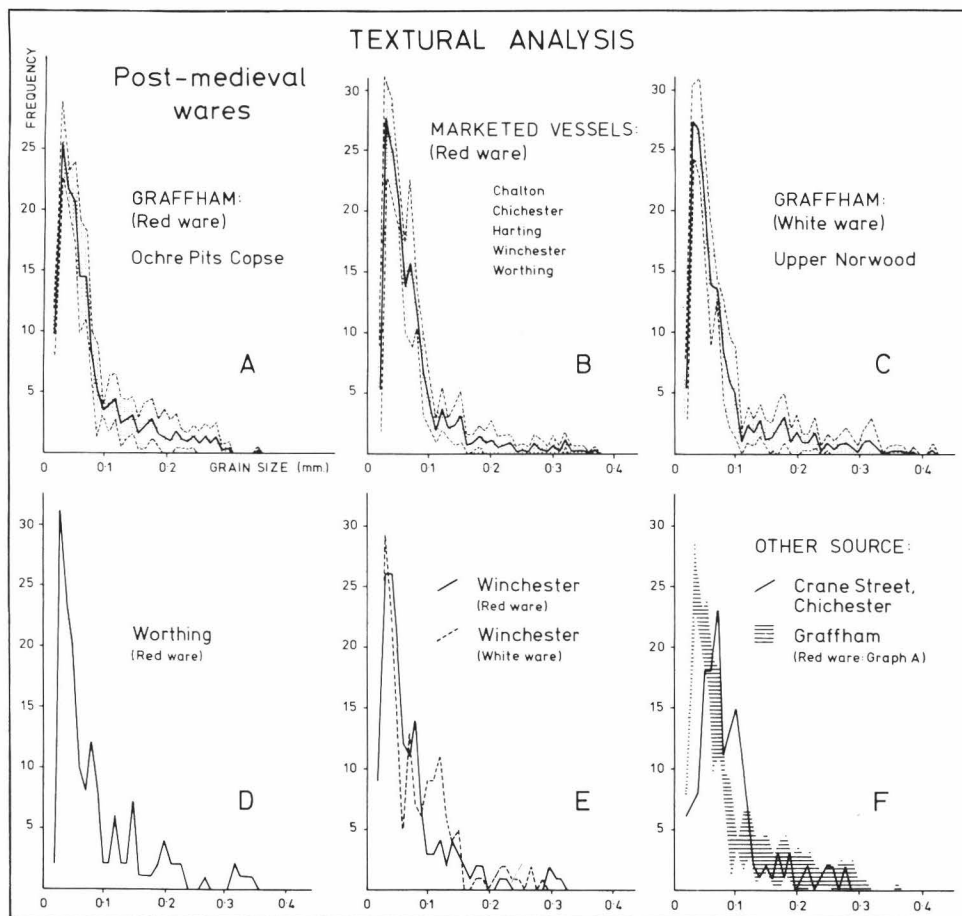


Fig. 43. Textural analysis: post-medieval wares.

MEDIEVAL POTTERY IMPORTS IN SUSSEX

by J. G. Hurst

As Hodges has pointed out above (pp. 95-103) middle and late Saxon pottery imports from the continent are rarely found in Sussex. In contrast to the more than 30 middle Saxon classes known from Hamwih (Saxon Southampton) there is only a single class 14 black ware pitcher from Chichester. There are no definite late Saxon imports (Badorf or Reliefbandamphorae—Dunning 1959, 52-5) as there are in Hampshire to the west and Kent and London to the east and north. The first known group of imported pottery into Sussex may include a few pre-Conquest examples, but all could be later eleventh or twelfth century: these are the red-painted wares of Pingsdorf and northern French types (Dunning 1959, 55 & 62), which are known from six sites (Appendix 1). Most Sussex imported pottery is very fragmentary and only small sherds have been found but of the eleven complete, or almost complete, vessels (illustrated Fig. 44) three are red painted. A complete spouted pitcher of Pingsdorf type comes from Burlough Castle (Fig. 44 No. 1) in a post-Conquest context (Dunning 1959, Fig. 29, No. 9). This is of classic form with a frilled base and comma-type decoration typical of the Rhenish or Limburg kilns. Of different character, with a decoration of parallel lines, is a late Saxon or early medieval pitcher from Chichester (Fig. 44, No. 2), which is typical of Beauvais (Down 1978, Fig. 11, No. 5) and may be compared with another from Ipswich (Dunning 1959, 58, Fig. 29, No. 5).

Of later twelfth century date is the complete Normandy red-painted jug from Pevensey (Dunning 1958, 210, Fig. 2, No. 1). This is in a smooth off-white fabric with decoration of bands of rouletting and red paint (Fig. 44, No. 3). The circumstances of the Pevensey find in a pit, and the black burning on the front of the jug, clearly links this with the wine trade. All the red-painted vessels so far mentioned may be so identified, and show the importation of wine in the early Norman period from both the Rhineland and Normandy. The only other Rhenish import of the twelfth or thirteenth century is a blue-grey ladle, (Dunning 1959, 56) from Chichester. Other Normandy smooth and gritty wares of the twelfth and thirteenth century were found in the same Pevensey pit (Fig. 44, No. 4), (Dunning 1958, Fig. 2, No. 4). From the Low Countries, besides possible red-painted wares from Brunssum/Schinveld, examples of Andenne glazed wares (Borremans 1966) of the twelfth century are found at three Sussex sites.

With the full medieval period from the later thirteenth to fifteenth century, the pottery trade patterns change fundamentally, with the emphasis no longer on northern France, the Low Countries and Germany. There are examples of Alkaline glazed wares and Mediterranean Maiolica at quite a few sites in north-west Europe (Hurst 1968), but none from Sussex. These were likely to be either special imports or brought back by travellers, and are not, therefore, evidence for any extensive trade. The only Mediterranean imports found in Sussex are Spanish lustreware but these are all late medieval, fifteenth or early sixteenth century in date. Until recently there was only a single Valencian sherd from Battle (Hurst 1977, 75), but there have been two recent finds of late fifteenth century types in early sixteenth century contexts. From Eastbourne, associated with Raeren stoneware and Beauvais Sgraffito, is a complete Malaga albarello (Fig. 44, No. 5) with

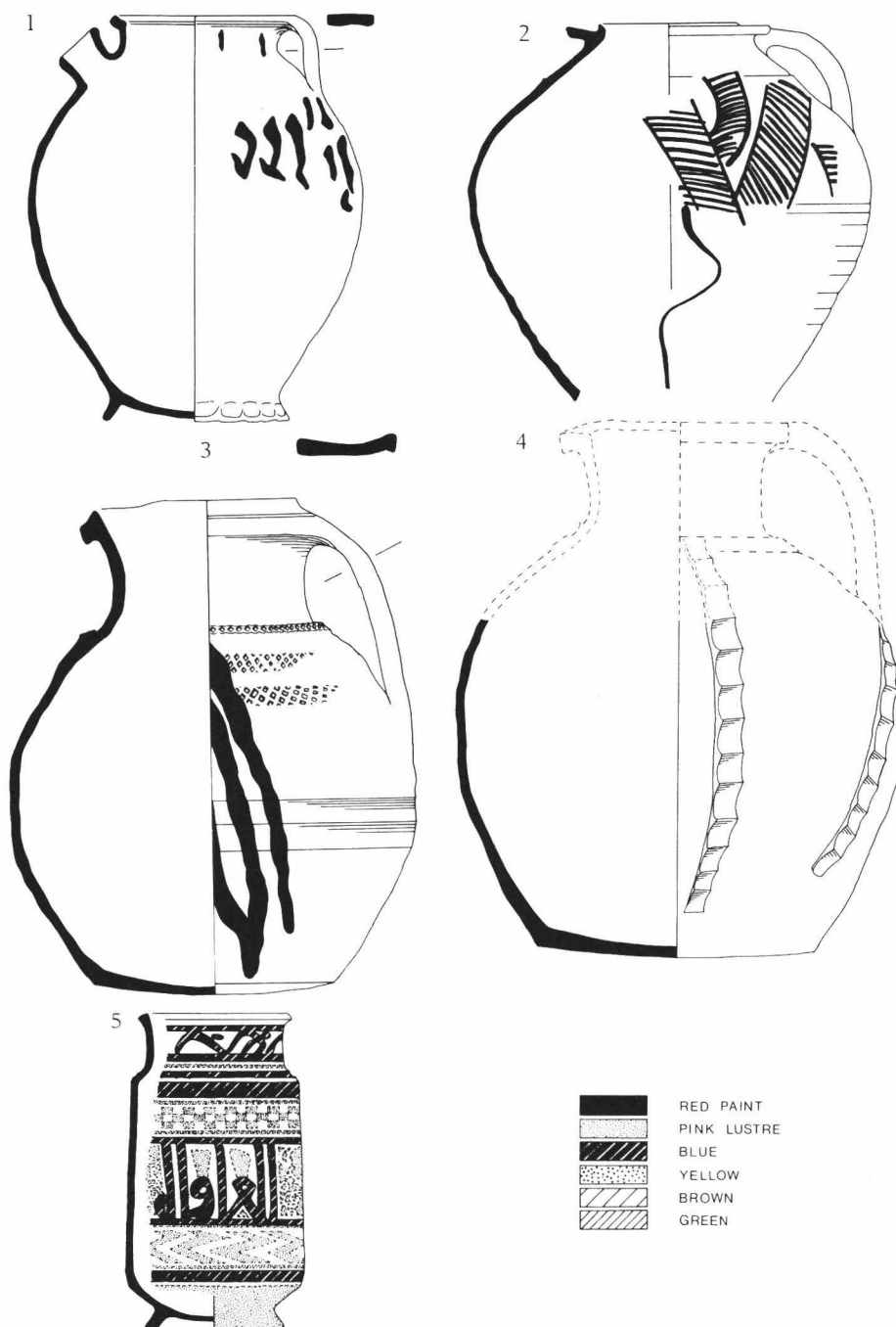


Fig. 44A. Medieval imported pottery in Sussex (re-drawn by D. Freke): 1 Burlough Castle; 2 Chichester; 3, 4 Pevensey; 5 Eastbourne. See text for sources.

bands of decoration and mock arabic writing comparable with other imports (Hurst 1977, 83, Fig. 27, Nos. 14-17), particularly an unpublished example from Southampton (information R. G. Thompson) also in a sixteenth century context. From another sixteenth century site at Icklesham associated with mid sixteenth century Saintonge and Rhenish wares, are two Valencian sherds including a flanged dish also of fifteenth century type. These imports raise many problems of dating and may have been kept as heirlooms because of their unusual nature. These are examples of a luxury trade either for display in the case of dishes or holding special items such as spices as with the albarelli. There are, however, examples of coarse ware Spanish imports including amphorae and costrels which came in as containers (Hurst 1977, 96-103). Examples of the red micaceous Merida ware costrels are being increasingly recognised, but in Sussex so far only a single fragment has been noted, from a fourteenth century level at Glottenham (Martin 1972, 54 & Fig. 30, No. 5).

From the mid-thirteenth century onwards there is an increasing importation of pottery from the Saintonge in South West France which is also closely linked with the wine trade and indicates a shift from Normandy to Gascon wine drinking. The most distinctive examples are the fine ware polychrome jugs (Dunning 1968, 45), of which there are sherds in Sussex from eight sites, including a complete globular jug from Winchelsea with a characteristic decoration of birds, barred shields, a trefoil and applied heads round the rim (Fig. 44, No. 6). The coarser mottled green-glazed Saintonge wares are more common, appearing on twelve sites of thirteenth and fourteenth century date. There is a complete example, of unusual form with a tubular spout, (Fig. 44, No. 7), from Shoreham (Dunning 1969, 84).

This number of find spots raises the question of the manner of import. It is uncertain whether the pottery was brought into major centres like Southampton (Platt 1975) and Stonar, Kent (Grant forthcoming) and then transhipped by the coastal trade, or whether there were direct links between several Sussex ports and the continent. Now that increasing numbers of imports are being found at towns like Hastings, Lewes, Pevensey, Shoreham and Steyning, documentary work is urgently required to elucidate the mechanics of the trade, as little work has been done on this for 40 years. Some coastal trade is clearly indicated by the large quantities of Devon slate imported into Sussex (Holden 1965) but again it is not clear if this came in to one or several ports. Other examples of the coastal trade are the presence of pottery from Wessex in the west (Dulley 1967, 224) and Scarborough in the north (Dunning 1968, 39).

Despite this change in emphasis, pottery was still being imported into England from Normandy in the later thirteenth and fourteenth century. The most distinctive were the Rouen type jugs with yellow pellets on a brown background, hollow spurred rod handles and moulded rims with no spout (Barton 1966). There are examples from seven sites including two almost complete jugs from Pevensey (Fig. 44, No. 8) (Dulley 1967, 266-7). Green-glazed Normandy wares are harder to identify as they may often be confused with the Saintonge green: they have not therefore been separately listed. In addition there were other French wares imported from various parts of northern and central France; some sherds found at Seaford fall into this category, but their origin cannot be pinpointed with our present knowledge. A continuing problem is the origin of lobed cups. These are found not only on major but also on village sites (Hurst 1964, 127). It is not possible to add to the suggestions made in 1974 (Hurst 1974, 250).

There was still contact, too, with the Low Countries, but this was very slight in the thirteenth and fourteenth centuries. There are examples of Aardenburg type (Dunning 1976) and other Flemish highly decorated jugs (Dunning 1976, 190-1) from two sites. Coarse brown-glazed Low Country imports are being increasingly recognised along the east and south coasts (Platt 1975, 153-

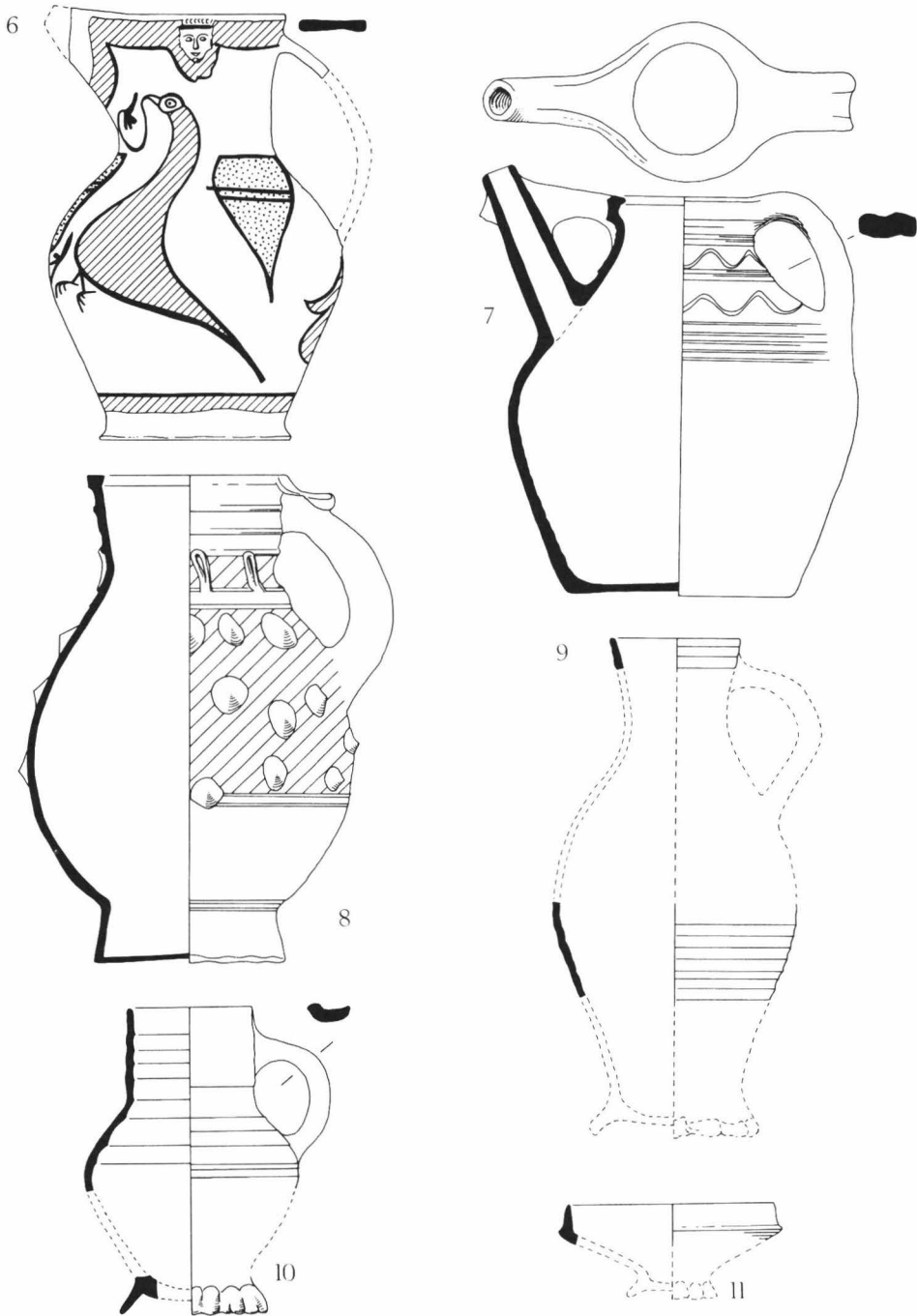


Fig. 44B. 6 Winchelsea; 7 Shoreham; 8 Pevensey; 9 Lewes; 10 Tarring; 11 Seaford. See text for sources. Colour key as Fig. 44A.

9). So far they have only been identified at one Sussex site (Hastings) but there may well be other examples unnoticed in collections.

From the early fourteenth century, Stoneware was made in northern France and the Rhineland. Surprisingly, in view of its closeness, examples of the dark Normandy or light Beauvais stoneware are very rare. There are Normandy sherds from only three sites in Sussex. The early forms are imperfectly understood as so little has been published but recent work in the Channel Islands is at last providing a series of types (Barton 1977). Beauvais stoneware is almost indistinguishable from Siegburg except for the jug shapes. The only possible import is the Seaford bowl (Fig. 44, No. 11, Freke 1978, 211, Fig. 10 No. 23), but these types were made at both centres. Rhenish stoneware is almost as rare, with the light grey Siegburg stoneware (Beckmann 1974) found at six sites and the dark iron-washed Langerwehe stoneware at three (Fig. 44, No. 9).

In the last quarter of the fifteenth century there was another fundamental change in pottery trade patterns. The first maiolica in north-west Europe was made at Antwerp (Hurst 1971), and examples have been found in the Icklesham assemblage. Saintonge pottery was still imported, but in reduced quantities. More was imported in the sixteenth century mainly ornate chafing dishes (Hurst 1974), of which there is a fine example from Icklesham. The most ubiquitous form, though, is the dark grey stoneware drinking mug with grey and brown glaze from Raeren (Hurst 1964a 142-3). This is known from at least twelve sites (for example from Tarring, Fig. 44, No. 10, Barton 1963, 29, Fig. 3, No. 6) and may be regarded as a type fossil of the late fifteenth and early sixteenth century on any site down to the lowliest peasant cottage. This was a period of mass importation of pottery, quite different from the medieval trade, and leads on to the ubiquitous seventeenth century Bellarmines.

Over the years a considerable amount of imported pottery has been found in Sussex, but the quantities are relatively small when compared with examples to the west at Southampton (Platt 1975) or at London. In addition many of the sherds are fragmentary; this can be seen in a typical Pevensey series where there are sherds from nine sources but only the Rouen jugs are anything like complete. The eleven vessels illustrated in Fig. 44 are in fact the total number of complete shapes of imported medieval pottery so far known in Sussex. Now that excavation is in progress in several towns and other centres future research must try to determine the mechanism of the trade, the quantities coming into the various ports, and whether this was a result of direct or coastal trade. Only then will it be possible to draw firm conclusions about patterns of trade as evidenced by the pottery which, in any case, is in any case, only the surviving aspect of a much more extensive economic exercise over a long period of time.

APPENDIX I

SUSSEX MEDIEVAL POTTERY IMPORTS

This list is based on the stencilled list of imported pottery prepared and issued in 1968 by K. J. Barton, G. C. Dunning and J. G. Hurst. It has been brought up to date by J. G. Hurst with the help of D. Freke and R. Hodges and includes further additions made by members at the conference. Numbers refer to Figure 44.

BADORF	EARLY
RELIEF BAND AMPHORAE	None—Examples in Kent and Hampshire
HAMWIIH CLASS 14 BLACK WARE	None—Examples in Hampshire
OTHER HAMWIIH TYPES	Chichester
TATING	None—Examples in Kent and Hampshire
PINGSDORF TYPE	None—Examples in Hampshire
BEAUVAIS RED PAINT	<i>Burlough</i> (1), Chichester, Lewes, Pevensey, Sompting, Steyning
NORMANDY RED PAINT	<i>Chichester</i> (2)
BLUE GREY	<i>Pevensey</i> (3), Steyning
NORMANDY GRITTY AND SMOOTH	Chichester
ANDENNE	Hastings, Lewes, <i>Pevensey</i> (4)
	Hastings, Lewes, Pevensey
	FULL MEDIEVAL
MEDITERRANEAN ALKALINE AND MAIOLICA	None—Examples in Kent and Hampshire
SPANISH LUSTREWARE	Battle, <i>Eastbourne</i> (5), Icklesham
MERIDA	Glottenham, Icklesham
MEDITERRANEAN AMPHORAE	None—Examples in Kent and Hampshire
S W FRENCH POLYCHROME	Battle, Chichester, Erringham, Glottenham, Hastings, Pevensey, Steyning, <i>Winchelsea</i> (6)
S W FRENCH GREEN	Bayham, Bramber, Chichester, Glottenham, Hastings, Pevensey, Rye, Seaford, <i>Shoreham</i> , (7), Saxon Down, Steyning, Tarring
LOBED CUPS	Hangleton
ROUEN	Arundel, Bramber, Chichester, Hastings <i>Pevensey</i> (8), Seaford, Tarring
NORMANDY STONEWARE	Michelham, Panningridge, Steyning
AARDENBURG	Pevensey
LOW COUNTRY ROSETTES	Michelham
LOW COUNTRY BROWN GLAZED	Hastings
SIEGBURG	Bayham, Brookland, Hangleton, <i>Lewes</i> (9), Panningridge, <i>Seaford</i> (11)
LANGERWEHE	Hangleton, Lewes, Seaford
RAEREN	Bayham, Chichester, Eastbourne, Hartfield, Hastings, Icklesham, Lewes, Pevensey, Pulborough, Steyning, <i>Tarring</i> (10)

EIGHTEENTH AND NINETEENTH CENTURY SUSSEX WARE

by J. Manwaring Baines

Most of the pottery used in Sussex was made by local potteries until the coming of the railways in the middle of the nineteenth century brought overwhelming competition from the great industrial works in London and Staffordshire. Some managed to eke out an existence till the end of the century but only by turning from the old traditional wares to new products such as the Rustic and Hop wares at Rye.

However the pottery produced in the eighteenth and nineteenth centuries forms a distinct and recognisable group, which completes the long series started in Neolithic days. The essential ingredient is the local clay but as the Wealden strata extend into Kent and even across to Belgium, the specific name suggested is 'Sussex Pottery', since 'Wealden' ware might be too easily confused with 'Whieldon'. 'Sussex Pottery' is first mentioned in contrast to the more usual and simpler 'brown ware' in 1777 (Drawbridge).

The clay contains iron, which oxidises during the firing to produce small black specks or streaks but only under the glaze. Unglazed ware is a clear flowerpot red. In general the western group of potteries around Chailey and Burgess Hill tended to produce light or even golden brown wares, whilst those at the extreme east of the county as at Rye produced much darker pottery, even in some cases a rich black. The variation was due to the controlled oxidation in the kiln. The red begins to darken after 1000°C.

This old Sussex ware was covered with an honest lead glaze and some potters, such as John Weller at Brede, used to chew orange peel to prevent lead poisoning. His formula for the glaze was a closely guarded family secret and he was justly proud of its reputation for hard wearing qualities. Some of his workmen were lured away to High Halden in Kent in an attempt to discover the mysterious ingredient, which finally proved to be human urine. This was also used for a time at least at the Dicker.

Marks were extremely rare since the potteries supplied the wants of the surrounding countryside and everybody knew them well. No other source of crockery was readily available, though a little might trickle in through nearby markets, especially near the coast. Towards the end of his life, when he had to compete with commercial factories, John Weller sometimes used leaden stamps JOHN WELLER and BREDE POTTERY, as did John Pelling at the much smaller Tivoli works near Silverhill, Hastings, with J. PELLING SILVERHILL POTTERY. The only works to use a stamp consistently from about 1860 was the Dicker, URIAH CLARKE & NEPHEW, and in its later days DICKER SUSSEX (all pieces mentioned are in Hastings Museum unless otherwise stated).

Every now and then a workman would scratch his name on the base of a piece, as 'John Clarke, Brede, 1840': a predecessor with the same name was a potter there from 1404 to 1428.

Many of the harvest flagons and some of the jugs bore three or more incised circles round the neck and shoulder region. It was suspected that this might represent some form of identification or signature. Enoch (Knocker) Weller of Brede, then a very old man, was approached and readily

confirmed this as he had worked in the family pottery at Brede as a boy. He promised to think back for details but unfortunately died before he could do so. Briefly, it seems that three equidistant rings were the mark of the master potter, and the spacing of the other denoted a certain order of precedence below him.

Similarly dates are rarely to be found, since there was no need for them until the gradual increase in documentary wares, such as christening or birthday pieces in the nineteenth century. The earliest known dated piece is a jug in the Worthing museum inscribed 'John Robinson 1707', though this is almost obscured by the thickness of the glaze. Brede however was unique in dating many of its pots in the closing years of the eighteenth and first decade of the nineteenth century. In every case these form part of an inscription and were the work of one man.

Decoration of the traditional ware followed ancient custom:—

- (1) *Incising*. Surprisingly enough this was in general little used, though popular at Rye c. 1350. A few concentric rings on the larger flagons and jars was normal. Rouletting was extremely rare, only two pieces being known and both in the first quarter of the nineteenth century.
- (2) *Slip*. Pipeclay applied with a quill or washed on in more liquid form turned a delightful golden yellow under the glaze. The use of combing and reserved panels added variety. Inscriptions were built up letter by letter by impressing bookbinder's type and filling the holes with slip.
- (3) *Applied casts*. Pressing clay into moulds and then applying to the pot before firing was not generally used, since the ware was utilitarian and this added to both labour and time involved.

Documentary pieces, though often betraying the maker's scholastic ability, give an interesting glimpse of their times. A Rye jug is inscribed THIS CLAY WAS FOUND IN / THE BAPTIS CHAPPEL AT RYE / SUSSEX IN 1822 / W F. And William Jones' flask in the Battle museum (when translated into more orthodox spelling—'girl' was written 'gariel') has a paradisaical ring, possibly prompted by a glimpse of the squire and his lady entertaining. OCEANS OF BRANDY AND RIVERS OF WINE / PLANTATIONS OF TEA AND / A GIRL TO YOUR MIND. Another old piece, much reproduced at the Dicker works (but fortunately stamped) was the Fanny Foster flask from Ditchling, 1800. THIS LITTLE BOTTLE HOLDS A DROP / THAT WILL OUR DROOPING SPIRITS PROP / IT IS GINEVA CHOICE AND GOOD / TWILL CHEER THE HEART AND WARM THE BLOOD. Contrary to general belief it was gin rather than brandy that formed the bulk of smuggled cargoes.

The one thing that Sussex Pottery of the eighteenth and nineteenth centuries had in common with its predecessors in medieval or even in prehistoric times was that it was designed to supply the needs of the immediate neighbourhood, though the range might be extended. It was made to be used and so new shapes appear such as the farmhouse teapot, when the new drink of tea became more available, but even this had an unobtrusive knob added above the rim to prevent the top falling off when pouring. The ubiquitous harvest flagon with its wide belly, slender neck and small rim was admirably designed for a field worker, who might be called upon to mind a horse, while taking refreshment from this balanced on his other arm, raised parallel to the ground and at a level with his mouth. He had to turn his head to drink from it, but the whole achieved the maximum capacity with perfect balance: a sudden movement would not spell total disaster. This piece marked as great an advance in the potter's art in its own way as placing a handle to make the first jug. Other new pieces designed for special purposes were the nightlight to afford comfort to a timid child in the long hours

Old Established
BREDE POTTERY,
SUSSEX.

Wash Pans	1s 9d do.	Ham Pans	Flat Bottom Ditto
24s 0d per dozen	1s 3d do.	3s 6d each	8 gallons 6s 0d each
18s 0d do.	10d do.	2s 6d do.	6 gallons 1s 6d do.
12s 0d do.			5 gallons 3s 6d do.
8s 0d do.	Single Glazed Crocks	Common Ditto	4 gallons 2s 9d do.
	6 gallon 18s 0d per doz.	2s 6d each	
Hand Bowls	13s 0d do.	1s 6d do.	Red Pans
4s 0d per dozen	11s 0d do.		12s per dozen
3s 0d do.	8s 0d do.	Glazed Basins	Chicken Pans
2s 0d do.	6s 0d do.	5s 0d per dozen	2s 6d per dozen
1s 6d do.	4s 0d do.	3s 6d do.	
	3s 0d do.	2s 6d do.	Spittoons
Milk Pans	2s 0d do.	1s 9d do.	3s per dozen
14s 0d per dozen	10 do.	1s 3d do.	
10s 0d do.		10d do.	Stool pans
7s 0d do.	Bottles		6s per dozen
5s 0d do.	6 quarts 12s 0d per doz.	Flower pots & pans	
	4 quarts 9s 0d do.	5s 0d per dozen	Chair pans
Dishes	3 quarts 7s 0d do.	3s 6d do.	1s 0d per dozen
3s 0d per dozen	2 quarts 5s 0d do.	2s 6d do.	Candlesticks
2s 0d do.	1 quart 2s 6d do.	2s 0d do.	1s 6d per dozen
1s 0d do.		1s 3d do.	
10d do.	Glazed Crocks	10d do.	Toney pots
5d do.	6 gallons 24s 0d per doz.	6d do.	1s 6d per dozen
4d do.	5 gallons 16s 0d do.	5d do.	
	4 gallons 14s 0d do.	4d do.	Ointment Jars
Tongue Pans	3 gallons 10s 0d do.		7s 6d per dozen
15s 0d per dozen	2 gallons 8s 0d do.	Beef Pans	5s 0d do.
11s 0d do.	6 quarts 6s 0d do.	4s 6d each	
8s 0d do.	4 quarts 4s 0d do.	2s 9d do.	Seakale pots and covers
5s 0d do.		2s 0d do.	2s 0d each
	Handle Dishes	1s 4d do.	1s 6d do.
Fitchers	2s 0d per dozen		1s 0d do.
10s 0d per dozen	1s 6d do.	Sewer Pipes	9d do.
9s 0d do.		9-inch 3s 0d per dozen	
5s 0d do.	Jars	6-inch 6s 0d do.	Butter Dishes
3s 0d do.	9s 0d per dozen	5-inch 5s 0d do.	8d each
	6s 0d do.	4-inch 4s 0d do.	6d do.
Pipkins	4s 0d do.	3-inch 3s 0d do.	
3s 0d per dozen	2s 0d do.	2-inch 2s 0d do.	Chimney Pots
2s 0d do.	1s 9d do.	1-inch 1s 6d do.	4-feet 6s 6d
1s 3d do.	1s 3d do.		3-feet 5s 0d
10d do.		Crocks & covers	24-feet 3s 6d
5d do.	Glazed Chambers	12 gallons 1s 6d each	2-feet 3 inches 3s 0d
	3s 0d per dozen	8 gallons 3s 6d do.	2-feet 2 inches 2s 6d
Biscuit pans	2s 0d do.	6 gallons 2s 6d do.	
5s 0d per dozen			
3s 6d do.	Common chambers	Glazed Ditto	
2s 6d do.	2s 0d per dozen	6-shel 5s 0d each	
	1s 6d do.	6 gallons 3s 3d do.	
		5 gallons 2s 6d do.	
		4 gallons 2s 9d do.	

Orders Received at Mr. David Smith's Junr., Breda.



b and c Two pieces by Edward Rumens (Photo: J. M. Baines).
 Reproduced with permission Hastings Museum.



Plate II. a Pricelist of The Breda Pottery c. 1840. (Photo: J. M. Baines)

of darkness, or the wide-mouthed spittoon regularly to be seen on the floor of local inns, though now a bygone of the past.

Other farmhouse pieces, whose forerunners may perhaps be traced in earlier centuries, are the churns, pickling jars for hams and even the chicken fountain. But the eighteenth century brought a gradual spread of interest in education and the need for thrift to better one's lot. The traditional insurance for old age was a large family, the only alternative being parish relief or the poorhouse. So moneyboxes became a feature of a labourer's life and the social stratum immediately above him. The most common type was shaped like a turnip but others soon developed such as the three-chambered piece, designed to hold pennies, halfpence and farthings.

One interesting piece made in several works throughout the county was the Sussex pig, which could be taken apart, the head forming a cup or mug and the body a rough jug. Tradition says that this was to enable the timid to drink a hogshead to a bridal couple without unfortunate consequences, whereas a more robust drinker would no doubt prefer the deed to the will. The Mitchells at Rye revived these pigs *c.* 1860 but on a very much larger scale, with the glaze made to resemble tortoiseshell by the addition of manganese. The original pig was very much smaller, a better model of the animal, and the head would not stand up on its own. The later Mitchell model flattened the snout and lengthened the ears.

But every potter at some time must feel an urge to create something of his own, and at one time the Brede works specialised in pottery hedgehogs, which are obviously modelled from life. One example is depicted crouched down in anticipation of danger. Brede also produced a fanciful plaque of the Brede Ogre, depicting that much maligned gentleman, Sir Goddard Oxenbridge of Brede. Tradition says that he used to breakfast on babies, until the children of East Sussex and West Kent combined one evening to waylay him on his return from market and to saw him in two with a wooden saw near the Groaning Bridge (Austen 1946). The Bridge remains to this day to corroborate the story, though his tomb dated 1531 in Brede church does not mention it. The same plaque may be seen on many local firebacks and was probably taken from one.

Attempts to trace local potteries is bedevilled by the fact that many brick and tile works produced pottery for a period and then disappeared, when the clay gave out or building operations were completed. The influence of tilemaking may be seen in many pieces, such as an unwieldy cutlery container and a doorstep in the form of a pig from Staplecross. But it is often possible to trace a potter's career from the later Census returns which show the births of children registered in places which had potteries. One potter at the Dicker, William Mitchell, moved to High Halden where he had a son, also William, born in 1793. The son seems to have returned to the Hellingly area, where he had two sons, but by 1830 he had moved to Rye, where he died in 1871.

Documentary sources are scanty, since records only occur when there is a need to record some particular fact, whether it be a birth or a felony. Potters tended to move about and rarely settled in one place for long, unless they succeeded in owning the works. This was the case of the Wellers, who married into the Richardson family at Brede and later took complete control. Among their workmen, and indeed a relation, was Edward Rumens and a very fine flask with his name and date, 1795, is in the Victoria and Albert Museum. He specialised in one particular type of decoration: interlacing semicircles and tiny stars and a dated inscription, the whole most meticulously done (Plate II b and c). All his known work dates from the last decade of the eighteenth to the first of the nineteenth century, when it suddenly ceased. His style was copied but by no means so skilfully. Inspection of the burial registers for Brede and nearby parishes and also of other places where potteries were known to exist proved fruitless. The solution to the puzzle

appeared by accident in an advertisement in the *Sussex Weekly Advertiser* on the 1st May 1809.

WHEREAS EDWARD RUMMINGS OF THE PARISH OF BREDE was ballotted to serve in the Local Militia for the said parish and has left the same, without being enrolled or paying the penalty; NOTICE IS HEREBY GIVEN that if any person or persons will give information to the Churchwardens or Overseers . . . that he may be apprehended, shall be handsomely rewarded for their trouble.

The said EDWARD RUMMINGS is supposed to have a woman with him of a stout stature. Rummings is about 5ft. 8in. high, rather of a light complexion, full-eyed, brown hair, and is supposed to be working in the neighbourhood of Ditchling in Sussex.

If the last statement were correct, it was evidently not under his own name nor using his own distinctive style of decoration.

Running a local pottery was an everyday run-of-the-mill affair with little need for more than the barest records, so is difficult to trace. Only when new hands were needed or one of the men got into trouble may a few facts be gleaned. Few presumably would care to go down to posterity like William Munnery of Graffham, potter, who was presented by the local churchwardens . . .

‘for that he upon Sunday 21st November 1624 was so exceedinge drunke that he spued in our church most beastly in the time of divine service at evening prayer before all the congregation.’
(Johnstone 1948)

Even bills for the sale of crockery are very rare, most transactions probably being simply conducted in cash from one pocket to another, but the Hastings Museum possesses a price list of the Brede pottery about 1840 which gives a valuable insight into the types of ware made and their cost (Plate IIa).

In conclusion, it must be emphasised that ‘Sussex Pottery’ (defined as that made in the county from local clay and rapidly declining after about 1850) represents the last stage in the logical evolution of the potter’s art which supplied the countryside from Neolithic to Victorian times. It was closely related to and designed to suit the particular needs of its day. It had no need for signatures, though the use of a special decoration has come to light from Brede and something similar may well have been in use elsewhere.

More research is needed into the factors affecting the designs made, and in the case of rims the whole evolutionary process might well repay more detailed investigation. Enormous numbers have been published, covering the whole period of pottery making, but little or no attention has been paid to the human element and the reasons behind particular shapes and reasons for their change.

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INDEX

Note: Two changes have been made from procedure in previous indexes:—

- (a) Period subdivisions under a subject heading are now chronological instead of alphabetical.
 (b) Slight modifications have been made to punctuation in order to assist clarity.

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