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Faculty of Arts

Department of Archaeology

Gallo-Belgic fine wares; a study in characterisation,
distribution and development during the first
centuries B.C. and A.D.

Jane Roberta Timby

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ABSTRACT

FACULTY OF ARTS

ARCHAEOLOGY

Doctor of Philosophy

GALLO-BELGIC FINE WARES: A STUDY IN CHARACTERISATION,
DISTRIBUTION AND DEVELOPMENT DURING THE FIRST
CENTURIES B.C. AND A.D.

by Jane Roberta Timby

This thesis presents the results of a reconsideration of the Gallo-Belgic pottery industry through the application of typological and petrological analyses. Special attention is given to gaining an understanding of the distribution of the industry's products through the late 1st century B.C. into the 1st century A.D. in both Britain and the Continent.

Gallo-Belgic wares are defined here as the fine ware vessels originating from within the province of Gallia Belgica during the period c. 20 B.C. to A.D. 70. Particular emphasis is paid to the two classes of red and black tablewares known as terra rubra and terra nigra. These vessels are among the earliest of the Roman fine wares to be imported into Britain and they appear to have been produced by specialist potters drawing on a pool of skills and traditions much of which can be traced back to the Italian Arretine industry. Previous work on the Gallo-Belgic industry has largely concerned itself only with those aspects directly related to the pottery as a cultural and chronological indicator; the present work tries also to exploit the potential of the pottery as an index of exchange, status differentiation and technological competence during the early Roman period.

The absence of a distinctive mineral assemblage has necessitated the refinement of textural analysis as a tool for discriminating fabrics for the isolation of potential production centres. The general location of the sources largely explains the observable distribution of products. An analysis of the findspots in Britain shows how in the pre-Roman period the distribution was restricted to the south, possibly as a result of elite exchange, while later it became much more extensive as the Roman army provided the mechanism by which the vessels were dispersed.

It is concluded that the prevailing economic and political climate in both Britain and Gaul was important in determining the nature and extent of the distribution of Gallo-Belgic wares. The data base of findspots is presented as a gazetteer covering both Britain and the Continent. A supplementary corpus of known potters' stamps is also included.



Frontispiece,

Gallo-Belgic cup (Cam.56), platter (Cam.3) and
butt beaker (Cam.113).

Courtesy of Colchester Museum.

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CHAPTER ONE

AN INTRODUCTION TO THE STUDY AND A HISTORY OF PREVIOUS WORK

' ... and in addition to Arretine vases, finely designed Belgic copies of Italian platters in grey ware coated with graphite and known as 'terra nigra' are met with.' (Fox 1923, 201).

1.1 Introduction

Gallo-Belgic pottery was first recognised as a distinct regional ceramic tradition belonging to the early Roman period by Hans Dragendorff (1895). In his publication, primarily devoted to a study of terra sigillata, a series of related fine wares were recognised as originating in the province of Gallia Belgica, which were subsequently christened 'vases belges' (or 'Belgischer Waar') after their presumed provenance. Appreciation of the range of forms and the internal chronology of the pottery was gradually extended as a direct result of a series of disparate excavations mostly in France, the Rhineland and Britain. Considerable work was undertaken to catalogue and describe site assemblages usually within a localised and historical framework but no attempts were made to provide a systematic study of the industry as a whole and little attention was given to its relationship with other contemporary pottery production in France. This is a serious omission from our understanding of the early Roman period, because the Gallo-Belgic industry was not only the first Roman fine ware industry to be established in northern Europe, but, in addition, embodies the technological transition between late Iron Age and

Roman ceramic production, with elements derived from both cultures. The research described in this thesis is an attempt to redress previous imbalances by documenting the history of the industry as reconstructable from the evidence currently available. It will consider the origins, development, organisation and decline of the industry in order to answer the basic questions of why, when and where did Gallo-Belgic pottery production occur and who were the potters.

1.2 A Brief History of Previous Work

As already indicated, the first person to define Gallo-Belgic wares was Dragendorff in 1895. Following his seminal work the most important contribution was that of Siegfried Loeschcke (1909) reporting on the pottery from excavations at Haltern, a military fort situated on the river Lippe. Loeschcke adopted Dragendorff's terminology and produced a ceramic type series which has formed the basis for much work subsequently published in continental pottery reports.

Through the 1920's and 1930's a series of excavations were carried out on a number of first century kiln sites concentrated in north-east France. Unfortunately a high proportion of these were never published. Two exceptions are those at Thuisy and Sept Saulx in the Marne, published by Fromols in 1938 and 1939. A further important dump of discarded material, interpreted as being kiln waste was published from Vertault, in the Côte d'Or by Bohn (1922) and Lorimy (1923). This deposit contained a great many wares in black and red fabrics, frequently bearing a potter's stamp.

In 1928, Chenet amended the term 'vases belges' to 'gallo-belges' in order to distinguish these wares from the products of the pre-Roman 'Belgic' wares also found in northern France and southern Britain.

Subsequent reports including Gallo-Belgic material are almost exclusively confined to military and cemetery excavations. Almost every fort excavated to date along the Rhine frontier has yielded Gallo-Belgic material, notably Oberaden (Albrecht 1942), Hofheim (Ritterling 1912) and Neuss (Novaesium) (Filtzinger 1972; Vegas and Bruckner 1975). Cemeteries dating from the Augustan period have been equally prolific, particularly in the Rhineland, for example Wederath (Haffner 1971; 1974; 1978). A major contribution to the study of Gallo-Belgic ware was made in 1941 by Holwerda's 'De Belgischer Waar in Nijmegen' based on a large collection of pottery from a number of cemeteries at Nijmegen, Holland. This material is currently being re-interpreted by Herr Giebels at the Kam museum, Nijmegen, in the light of more recent excavation work.

Beyond extending the known distribution, little further progress has been made into the study of Gallo-Belgic wares on the Continent since the 1940's, although recent excavations in the Reims area promise new information concerning the actual organisation of production. Attention has however been drawn to a collection of related wares by Colette Bemont (1972). In an article publishing an assemblage of 'micaceous terra-nigra' vessels in the St. Germain-en-Laye, museum, Bemont points out some of the problems associated

with the use of the term 'Gallo-Belgic', in particular the recurring use of 'terra nigra' to describe any black polished ware. More recently, in addition to a new understanding of provincial Arretine and early samian production in South and Central Gaul through chemical analysis (Picon and Vertet 1970; Widemann et al. 1975) there has been a renewed interest in both coarse and fine ware production in other parts of Gaul. Of particular note is the work on pottery from the Aquitaine by the Santrots (1979), from the Allier (Vertet 1961; Poncet 1974), Périchon 1964;1974; Cabotse and Périchon 1966) and from East Gaul. Pottery from the latter, described as 'Gallo-Belgic' formed the subject of an unpublished doctoral thesis by Bernadette Schnitzler (1978).

In Britain the principal work to be published on Gallo-Belgic wares is that by C.F.C. Hawkes and M.R. Hull based on the material from their excavations at Sheepen, (Camulodunum) Essex. Published in 1947, the report summarises the development of 'Gallo-Belgic and Allied wares', giving evidence for the continental sources, the typological derivation of the forms and the industry's chronological development. On the basis of the Sheepen material, Hawkes and Hull defined three main fabrics; terra rubra, terra nigra and 'pale wares'. Terra rubra was further divided into four sub-types of which three were imported and one a native imitation. Terra nigra and terra rubra (hereafter referred to as T.N. and T.R. respectively), were noted as occurring in platter, cup and beaker forms, whilst the pale wares featured as jugs, flagons and mortaria, all of which were identified as originating from Belgic Gaul. Recurring forms were assigned type

numbers, the main types being grouped together (ie. all the platters both imported and native constitute Cam. numbers 1 to 33, the cups Cam. 55 to 65 and so on). Discussion of the potters' stamps associated with these wares was undertaken and the stamps themselves alphabetically catalogued, with information on fabric, form, period within the site, other occurrences and place and date of activity of the potter if known. Despite the fact that the Camulodunum report is now well over thirty years old, it is still the standard reference work for Roman pottery and the classification of forms is widely quoted by authors drawing parallels for other sites in both Britain and to a lesser extent on the Continent.

Apart from numerous site reports with catalogue type descriptions, for example Bagendon (Clifford 1961), no further general discussion of Gallo-Belgic wares was undertaken until the publication of a short paper by Lloyd Laing (1966) entitled 'The Distribution of Terra Nigra in Great Britain'. Following a discussion of a group of Flavian T.N. recovered during excavations at Clausentum, Laing, in this paper, calls into question the chronological assumptions made by Hawkes and Hull (1947) as well as suggesting that the material must have been imported to sites other than just Colchester, citing those along the south coast as likely contenders. Little new appeared on Gallo-Belgic wares until 1973 when Valery Rigby's paper 'Potters stamps on Terra Nigra and Terra Rubra found in Britain' presented at a conference in Oxford in 1972 was published (Rigby 1973). This paper summarised work on the identification and distribution

of potters stamps on T.N. and T.R. vessels in Britain. Coupled with this came the identification and analysis of the dies used by each potter in an attempt to 'produce a chronology for the work of each potter', (Rigby 1973,7). Following this, Rigby has published a number of detailed reports on Gallo-Belgic wares from individual sites, notably Chichester (Rigby 1978), Cirencester (Rigby 1977;1982), Exeter (Rigby 1979a), Braughing (Rigby 1979b), Skeleton Green and Gatesbury (Rigby 1981a).

1.3 The Scope for Research

The legacy of knowledge regarding the Gallo-Belgic industry left by former generations has now become inadequate in the light of recent advances in the general field of pottery studies. The questions now being asked of ceramic data have themselves become more complicated, as too have the procedures by which they can be answered. In the following section a brief consideration is given to the nature and potential of ceramic studies as a prelude to formulating in greater detail the aims of the research described in this thesis and the means by which these aims were met.

Analysis of Gallo-Belgic pottery carried out in the earlier years of this century was conducted within the prevailing paradigm of description and the association of cultural material with specific ethnic groups. Recent developments in ceramic study no longer permit simple elaboration of this previous work but rather call into question many of the former assumptions made regarding the nature of the evidence,

and the inferences that can be drawn. In addition technical studies allow greater insight into the techniques of production, the materials used, and the distribution of the products.

Recent developments made in such studies can be divided into the following general fields of enquiry:

(i) Theoretical advances

The availability of larger and better excavated assemblages, accompanied by an increased understanding of the processes which cause variability, development and change within and between ceramic groups, has enabled recent workers to re-examine a number of theoretical issues in this field. Predicting the life expectancy of a vessel and hence its replacement rate is one such approach. Webster (1973,1) has calculated, perhaps somewhat generously, that a Roman vessel will be broken and discarded within 10 or 15 years of its manufacture. Specialist or fine wares may well be expected to last this long, but their domestic counterparts were probably not so long lived. Further work in this field has been made by Foster, who after studying four contemporary Mexican village households, noted that the most important factors determining the life expectancy of a pot was the basic strength of the ware, its function, handling practices, relative cost and the kind of breakage, i.e. carelessness, children, domestic animals (Foster 1960).

This leads on to another field of enquiry which has recently received much attention, - the role of post depositional factors, both cultural and non-cultural, on archaeological

material. A major problem encountered in ceramic work is the question of residuality and the ability to distinguish primary from secondary deposits (Schiffer 1976). This paradox has been discussed in more detail with regard to ceramic material by Crummy and Terry (1979) and Bradley and Fulford (1980).

Attention is also being directed towards the explanation of vessel shape and function (Franken 1971) and the changes observed in these through time and space in both inter- and intra-site studies.

Further contributions to recent ceramic studies have been achieved through ethnography. By studying contemporary or well documented examples of pottery production, the ceramic specialist has a greater insight into the various levels of technology and organisation in different parts of the world, enabling a more appreciative view of ancient ceramic production. In addition such study can help provide a variety of possible explanations for observed archaeological patterns. A successful example of such a study is that by Dean Arnold who analysed the inter-relationships of environment and ceramic specialisation of a modern pot making community in the Ayacucho Basin, Peru. The information derived from this study was subsequently applied to the prehistoric situation in the same area (Arnold 1975).

(ii) Scientific approaches

The application of scientific techniques has permitted a more sophisticated analysis of ceramic material in physical and chemical terms. This has allowed a greater insight into

the technology involved in vessel manufacture as well as aiding the identification of potential production sources or regions. One of the main problems to date with such provenance work is the high incidence of fabrics containing non-distinctive mineral suites which do not allow the identification of a source area, except in a very general sense, i.e. a region of sedimentary geology. This was a problem encountered in this research and an attempt is made to resolve it by using a programme of textural analysis.

Fine wares are particularly amenable to chemical analysis, although it should be stressed that this in no way invalidates the use of thin-section analysis at a preliminary stage, see for example William's (1978) work on Arretine ware. Chemical provenance work has recently been successfully applied to a study of Arretine and early samian production in France by Picon and his colleagues (Picon and Vertet 1974; Widemann et al. 1975). This work has necessitated a complete re-appraisal of the distribution and chronology of the early production of these wares (Wells 1977a; 1977b).

(iii) Applicational studies

Pottery has become one of the most widely used tools for the dating of archaeological horizons. In the past this led to a preoccupation with the study of vessel shape and other visual traits in an effort to trace their development through time. Fine wares have been singled out for this purpose since they are specialist products which often became exchanged over wide geographical areas, which combined

with their susceptibility to changes in fashion ensures a rapid development of styles over short periods of time, making them exceptionally useful as a means of relative dating.

Pottery can also be used to investigate other aspects of the life of extinct communities. Firstly it allows the ethnic identification of social groups on the basis of type, decorative style and perhaps function. Secondly it allows patterns of social behaviour to be investigated, for example eating and drinking habits, methods of food preparation and storage, and discard. Ceramics also provide evidence of contact between different cultural groups through trade or exchange by the distribution patterns left by particular vessels. They may also be a means of looking at status differentiation within social groups, reflected perhaps in the burials belonging to that group and the choice of grave goods, or the pattern of incidence of particular vessel types within or between settlements. Finally pottery may be the means of identifying the function of a particular site or area of a site, for example a workshop, domestic quarters, a market or shop.

1.4 Aims of the research

The aims of the research can be summarised as follows:

1. Definition of the Gallo-Belgic industry, with an assessment of its validity as a descriptive term and an appraisal of its products from a typological standpoint.

2. To place the Gallo-Belgic industry within the historical context of the development of pottery industries in Gaul and to examine its relationship with contemporary regional developments.
3. Assessment of the chronological variables displayed in the pottery in an attempt to produce a typological progression through time and to relate this to the chronology of the period as established by alternative evidence.
4. To gain insights into the technology and organisation of production through production debris and the vessels themselves.
5. Through technical studies to attempt to characterise the products of different potters and production centres and to assess the distribution in space, time and context.
6. To consider the changes in the industry in the light of the prevailing economic, social and political systems and to attempt to model mechanisms bringing about the observable changes in the Gallo-Belgic industry in the light of these enquiries.

1.5 Resolution of aims - the data base

In resolving the above aims, three lines of enquiry were followed to provide the basic data with which to work. It should be emphasised that the assembly of information was constrained by the resources and the time available, as well as by the technical limitations imposed by the scientific analyses used.

1. Library work to compile a catalogue of British and Continental material and to consider other literature relevant to the study.

2. Fieldwork, including visits to museums, excavation units and individuals to look at both published and unpublished material and for the collection of samples.

3. Technical work to develop and execute suitable petrological and statistical analysis of the material collected.

The results of these endeavours are presented as nine chapters each dealing with a specific theme and each covering one or more of the aforementioned aims. Following this introduction is a chapter concerned with the definition of the Gallo-Belgic industry and its products. This is extended to include a discussion of the typology of the vessels and their possible proto-types. Chapter three briefly summarizes the development of provincial pottery production in France and the Mediterranean, both preceding and contemporary with that of Gallo-Belgic production. This represents a brief synthesis of widely scattered publications to review first century fine ware production and its possible influence on Gallo-Belgic development. Chapter four reviews the evidence for the chronology of the period of production, namely the late first century B.C. up to the later first century A.D. One of the greatest potential uses of Gallo-Belgic ware is the dating of early Roman horizons. Unfortunately this cannot be as precise as it might be due to the lack of absolute dates to which examples can be related. This is followed by a chapter on the techniques and technology of

production which includes a gazetteer of known kiln sites. In chapter six the distributional aspects of Gallo-Belgic wares are considered and the vessels classified according to the contexts in which they occur. These are divided into the three main classes of temples, cemeteries and settlement, which are further sub-divided.

Characterisation of the fabrics through petrological and petrographical analysis is described in chapter seven. This was undertaken with a number of aims in mind; firstly to establish the range of variation in the mineralogical composition of the wares and to look for any changes in this between different forms or the products of different potters. Secondly it was hoped that groups of products could be identified which may perhaps be tied down to a specific area or even centre of production. Thirdly by identifying the clays chosen by the potters and the techniques of manufacture employed, a greater understanding of the origins of the potters and thus the antecedence of the Gallo-Belgic industry may be possible. In addition to studying Gallo-Belgic fine wares, some petrological analysis was undertaken of a group of wares known as 'micaceous terra nigra' with a view to identifying their source(s) of manufacture and establishing its relationship, if any, with Gallo-Belgic wares proper. Finally a section of this same chapter is devoted to the imitations made of Gallo-Belgic and Arretine imports in Britain in the first century A.D. This includes coarseware cups and platters and butt beakers.

The information collated in the preceding chapters is

analysed in chapter eight in terms of the social, political and economic organisation of the period. Possible mechanisms are proposed to explain the observed distribution patterns of products as described in chapter six.

The final chapter summarises the conclusions reached in the course of this research regarding the Gallo-Belgic industry and concludes with thoughts on avenues worthy of investigation in the future.

CHAPTER TWO

A DEFINITION OF THE GALLO-BELGIC INDUSTRY, AND A DESCRIPTION OF ITS PRODUCTS

'Dans les deux premiers fours furent rencontrées des assiettes en belle terre rouge à surface lisse, bien polie et brillante, ressemblant fort à la terre sigillée aretine ... ' (Fromols 1938,49).

2.1 Introduction

Typologically Gallo-Belgic pottery includes forms derived from numerous influences, the most marked contribution being from sigillata. Despite the apparent variety, most of the vessels can be classified as fine table wares incorporating cups, platters, beakers and flagons. The same diversity in form is also reflected in production techniques. Within the group however, three generalised fabric types may be identified, primarily on the basis of colour: terra nigra (T.N.) which is black or grey, terra rubra (T.R.) which is orange or red and the pale or white wares. The latter feature mainly as flagons and beakers and only form a subsidiary aspect of this study which is primarily concerned with T.N. and T.R.

One of the earliest descriptions of Gallo-Belgic wares where both T.N. and T.R. are mentioned is that by Loeschcke describing the wares found in the excavations of Haltern (Loeschcke 1909). His description is entirely concerned with typology and derivation of form although he did recognise that Dragendorff had only singled out the fine wares

for attention and that there were in addition many Gallo-Belgic coarsewares (Loeschcke 1909,258). Loeschcke further identified the Gallo-Belgic vessels as the outcome of two very different traditions; Roman and indigeneous native. He also saw Gallo-Belgic production as, 'a substitute for Italian sigillata for the 'barbarians', - a 'Belgic sigillata'' which disappeared with the influx of South Gaulish wares against which it could not compete after the Neronian period.

Perhaps the most detailed definition of Gallo-Belgic ware to date is that by De Laet and Thoen (1968) who used a set of criteria based on a microscopic analysis of the fabric. In their report on the pottery from Blicquy, Hainaut in Belgium, they describe the fabric as being composed of a fine microcrystalline clay with a weak macro-porosity. Tempering of quartz is abundant forming 20-25% of the volume. 6% of the quartz grains are described as long and elongate and in the 0.05-0.3mm size range, whilst the remaining 94% fell within the 0.007 to 0.03mm range. Some of the vessels are fired in a reducing atmosphere (T.N.) and others in an oxidising atmosphere (T.R.). T.R. is well fired at a temperature exceeding 700°C and the upper surface usually covered with a fine red slip, which is polished. T.N. on the other hand is thought to have been fired at slightly lower temperatures, equal to or below 700°C. The fabric is light grey and the surface polished to a light or dark grey and in some cases black finish. Despite the colour contrast, analysis of the material from Blicquy demonstrated that in this case, both types were derived from clays of similar

composition (De Laet and Thoen 1968). This observation of clay similarity can be corroborated elsewhere by the incidence of some potters stamps on both types of ware (for example Inductios, Sollos, Atta). Many of the Gallo-Belgic potters not only imitated Arretine forms but also the practice of placing name stamps on the finished products. These were either placed centrally or radially on the upper surface of the finished vessel before firing. Many of the stamps are proper names although a good many are completely senseless or simply ornamental. One potter may have used several different dies throughout his working life and one die cutter may have worked for several different potters. A catalogue of potters' stamps can be found in Appendix 4. The definition produced by De Laet and Thoen is by no means rigid, some T.R. for example, is self-coloured whilst some of the T.N. wares have been slipped. Hawkes and Hull define one variety of T.N. and three main varieties of imported T.R. (Hawkes and Hull 1947,204). Of the latter, the first type (TR 1) is described as having a pale buff, cream or nearly white fabric with a red slip usually applied to the upper visible surface only. TR 2 is characterised by a hard, brick-red or orange fabric with a polished red-coated surface whilst TR 3 has an orange-red fine, hard fabric with a red polished surface often fumed chocolate-brown. The last type was used exclusively for beakers whilst the first two were used for cups, platters, pedestal beakers and more rarely flagons. A fourth T.R. fabric is mentioned by Hawkes and Hull which was considered to be a local copy of the imported fabrics (Hawkes and Hull *ibid*).

Rigby (1973) considered that the above definition needed some refinement and as a result defined four varieties of imported T.R.: TR 1(A), TR 1(B), TR 1(C) and TR 2 in addition to the more acceptable TR 3. TR 1(A) remained the same as Hawkes and Hull's TR 1 but TR 1(B) is characterised by a dense red slip covering the whole of the completed pot, not just the upper or outer visible surfaces. TR 1(C) is similar to TR 1(A) except that the fabric is red or orange in colour. TR 2 is orange with a self-coloured surface. A section of a T.R. platter showing the slipped surface can be found in Plate IX.

T.N. is less easy to classify due to the even greater number of variations in colour, texture and hardness and for this reason has no sub-groups. The range of vessels published as T.N. is considerable, covering a number of types not produced in the province of Gallia Belgica thus causing additional possible confusion in identification. The term T.N. is used in Holland to describe a range of vessels which continued in production well after the end of the first century A.D. It is for this reason that the range of pots described by Holwerda (1941) from the collections at the Museum Kam at Nijmegen include a much greater variety than those described and classified for example by Hawkes and Hull (1947). In recent years a few vessels not present at the Sheepen site have been found, which could well be considered as later products of the Gallo-Belgic industry and which are particularly prevalent in the Rhineland, but very scarce in Britain. These include vessels such as Holwerda's types 20-23, globular jars (Holwerda 1941,30), a sherd of which has

recently been discovered at Chester (Ward 1981, fig 4.1.1.7), These and other vessels constituting oddities within the normal Gallo-Belgic repertoire produce many problems. Firstly it has to be decided whether such vessels are acceptable as part of the 'Gallo-Belgic' tradition and thus by implication produced in Gallia Belgica. Secondly, if this is accepted, why are there so few, particularly in Britain? Is it lack of recognition combined with a lack of field work on the Continent to identify source areas for these products? Do these vessels represent the last phases of the industry and have thus already been overtaken on the export market? Alternatively are they part of a separate regional tradition and not 'Gallo-Belgic'? This confusion of terminology on what and which vessels are T.N. is not confined to the Rhineland; several regions of France are reputed to be producing T.N. Prominent amongst these are Brittany, Aquitaine, Eastern and Central France. The problem has arisen due to the looseness of the term T.N. such that it is now taken to describe any fine black polished pottery of first century date which in turn has led to the current controversy on terminology by such people as Bemont (1972). All these areas were undoubtedly producing black wares but each should be regarded as a separate regional development partly in response to the introduction of Roman techniques and wares and partly a reflection of the prevailing native traditions in each region. The potting traditions in all these areas remain distinct entities throughout the Roman and Medieval periods. This does not preclude the possibility of there being connections between areas. Many of the developments

in Central Gaul probably had a direct bearing on the development of the Gallo-Belgic industry in northern France.

East Gaul constitutes more of a problem since technically it falls within the limits of the province of Gallia Belgica as defined by Caesar (B.G.I.1) (see Figure 1). Several production centres have been identified with first century origins, for example Daspich-Ebange, Ehl and Boucheporn, the latter perhaps being better known for its sigillata production. The products confined to black wares locally referred to as T.N. include some of the accepted T.N. repertoire; cups and platters, together with several other types, and a grey ware known as 'gallo-belge ardoisée'. This area therefore will be considered as part of the 'Gallo-Belgic' tradition.

To summarise, both typological and technological criteria have been used here to define the term T.N. in addition to the geographic constraints implicit by using the term 'Gallo-Belgic'. These criteria are as follows:

- a. - a fine grey (or very occasionally brownish), hard, sandy fabric with no macroscopically visible inclusions apart from occasional ironstone grits.
- b. - reduced firing.
- c. - is either slipped or 'fumed' to produce the surface coloration.
- d. - is usually carefully burnished or polished to give a lustre.
- e. - consists of forms derived from indigeneous Gallic and imported Roman types.

- f. - are sometimes stamped with the potter's name or mark.
- g. - are restricted chronologically from the late first century B.C. to the late first century A.D.

T.R. is a less widely used term and the products therefore easier to characterise. Rigby's amended version of Hawke's and Hull's fabric divisions are retained here as described on p. 17 (Rigby 1973,11). T.R. similarly conforms with criteria d - g defined above for T.N. Recent German reports have slightly confused the issue by adopting the term 'sigillata imitationen' (imitation sigillata) for T.R. (for example Schönberger and Simon 1976).

2.2 Typology

One of the pre-requisites of any pottery study is the formulation of an objective typology for the presentation of ceramic descriptions. Since the turn of this century Gallo-Belgic wares have been incorporated into many different typological schemes ranging from that of Loeschcke (1909) based on the material from Haltern, Holwerda's (1941) based on the Nijmegen cemetery material, Hawkes and Hull's (1947) from the Sheepen, Colchester material and Gose's (1950) on vessels found in the Rhineland. Of these Loeschcke's is probably the most quoted for continental work and Hawkes and Hull's ^{for} British material. The two classifications can for the most part be cross-related, Hawkes and Hull's perhaps being the most comprehensive of the two. The Camulodunum sequence has yet to be superseded by a better one despite the fact that it is now over 30 years old. One obvious

reason for this is its size; it is certainly the largest collection in Britain and, with the exception of Nijmegen, the largest published collection in Europe.

Obviously any sequence established at one particular site, despite the fact that many other parallels have been quoted, is open to criticism, especially when new forms or variants are found which do not appear to fit into the existing scheme. Similarly the somewhat subjective and often intuitive basis upon which any such system is founded is always open to criticism directed at the choice of forms and associated variants by other archaeologists.

The Hawkes and Hull system is devised on a numerical sequence; the primary vessel classes of which, are grouped together with variants, for example platters Cam.1-17, cups Cam.53-63 and so on. Both imported and local forms are considered. There seems little reason at this stage to discard a system so widely used, although obviously certain revisions are necessary and perhaps some of the typological associations treated with caution. Rigby (1973,10) has criticised the scheme for its oversimplicity and considers that many of the '... important differences of detail in the moulding of their (the platter) walls ...' are unaccounted for. This is perhaps not important at this stage and may only prove useful when certain forms can be associated with specific potters. Even then, many of these minor variations may simply reflect the inevitable range of variability expected within the work of one potter. Orton (1980,27-8) quotes an example where six Welsh hand-thrown stoneware mugs

purchased from a single craftsman showed considerable differences in the rim and handle forms, despite the fact that they were all made within a short period of time. Orton's warning that in the classification of artifacts there is too frequently '.. a danger of losing the wood for the trees ..' should be borne in mind (Orton 1980,28). In fact, a fully comprehensive system cannot be evolved until more information is forthcoming on both production sources and their various ranges of wares and further well stratified assemblages are excavated which can be independently dated. It should also be remembered that each site sequence is strictly valid for intra-site comparisons and that inter-site contrasts and similarities must be treated with due circumspection.

For the purpose of this study therefore, the Hawkes and Hull numerical classification is adhered to, but supplemented by other references where necessary. Forms for which no published parallel can be found are described at the end of the chapter.

Gallo-Belgic wares are derived from two main sources of inspiration; indigeneous native wares and imported Roman types. The resulting distinctiveness of the vessel forms remains one of the keystones for the identification of true T.N. and T.R. products, (hence the hesitation in accepting new forms not previously recognised!).

The imitation of imported Italian (Arretine) tablewares is perhaps the more distinctive of the two traditions. Arretine, a fine 'red gloss' tableware first appeared in

Italy in the late first century B.C. It was initially produced in the workshops at Arrezzo but rapidly spread to other production centres in Italy including Puteoli and Pisa. From about 30 B.C. vessels were imported into Gaul, shortly to be followed by the potters themselves attracted perhaps by the north-western military market. This migration of potters is typified by one of the better known of the Arretine producers - Ateius. Once in Gaul the potters continued, at least initially to use Italian moulds and techniques at centres such as La Murette, Lyon, La Graufesenque and Lezoux (Williams and Dannell 1978). The range of vessels produced included a large number of new types, considered to have evolved at Arezzo (Wells 1972). These included both relief decorated and plain wares often stamped with the potter's name, - a practice very little used previously.

Arretine ware has inspired many of the cup and platter forms found in the 'Gallo-Belgic' repertoire. Not all the forms acted as prototypes and none of the Gallo-Belgic wares are decorated beyond simple rouletting or incised concentric circles. The similarity between T.R. and some of these proto-types is so close that there has been some confusion in terminology in past reports where T.R. is referred to as 'orange-red sigillata', (for example Koenen 1880, 160). Other features were also adopted from the Arretine potters, notably the practice of placing potters stamps or marks on the finished products. Not all the vessels were stamped and some forms tend to have more stamped examples than others. All the main platter types (Cam. 3, 5, 7, 8, 9, 12, 13 and 16)

contain stamped examples as do the cups Cam.56 and 58. Beakers (pedestal, butt and girth), cups Cam.52-54 and platters Cam.1,2,4,6,10,11,14 and 15 are rarely, if ever, stamped. 19% of the total number of vessel forms identified with stamps are platters of Cam.form 8 (27% if this is combined with Cam. form 7); 13% are found on platters Cam. form 5 and 30% on cups Cam. form 56. The stamps were generally impressed either centrally (usually one), or radially (usually three or four times) on the upper visible surface of the base of the vessel. Occasionally examples occur with both radial and central stamps. Generally speaking the radial stamps are confined to the larger platters, presumably because they were easier to manipulate and the central stamps to the smaller platters (Cam. 7 and 8) and cups. Both these methods were also used by the Arretine potters. The stamps can be divided into double line, single line and circular forms which can be further divided into legible names (sometimes abbreviated or retrograde), illegible or senseless names or marks and geometric impressions. Each potter probably had more than one die and the die makers probably worked for several potters, evidenced by certain similarities in style between names. The legible names are usually considered to be the potters own name; occasionally when two names occur one is thought to be the servant or apprentice to the other. The construction of the name is usually partly romanised in form although few adopted the latin ending - us, preferring the Celtic - os, (for example Julios, Andecos, Sollos, etc.). In some cases, the word 'avot' (or the abbreviation - 'av') followed the name, this

being the Celtic (or 'Gallic') equivalent to the latin 'fecit' meaning 'made by' (Bemont 1972,158). 'Fecit' (or - 'fe') is very occasionally found but is better known on samian products. Sometimes the potters name appears in a retrograde form, i.e. reading backwards. Occasionally the cups are marked with circular or rosette stamps whilst the stamps of geometrical design are particularly common on native imitations of 'Gallo-Belgic' products. Illegible names occur on all the stamped wares and these proportionally increase throughout the Claudian period. Both the practice of radial stamps and the use of double-line names did not persist in the succeeding South Gaulish samian industries, which also owed much of their inspiration to Arretine.

Although the 'Gallo-Belgic' potters were apparently very careful in their imitation of detail from Arretine some features were not adopted. The tall footrings for example, characteristics of the Italian products, degenerated into plain shallow ones on the Gallo-Belgic vessels.

Contemporary with this development of fine table wares in Italy and Gaul were the indigeneous industries of Gaul displaying their own distinctive regional styles and traditions some of which are reflected in the 'Gallo-Belgic' tradition. Many of these forms can be traced back to the early Iron Age (Hallstatt period), notably ovoid jars and carinated bowls. From the early La Tène period, many new types, including pedestalled vessels appear, some surviving into the late first century A.D. after which they became eclipsed by the proliferation of Roman forms. From the early Gallo-Roman

period the indigeneous native wares begin to show a noticeable improvement in quality, mainly due to improved firing techniques and the introduction of the fast wheel. Many other Roman features also begin to appear influencing both vessel shape and decoration, for example the use of barbotine and rouletting.

2.3 Comments on the Typology of Individual Forms and their possible prototypes

(i) Platters

a. Simple walled platters Cam. 1 - 2 (Fig.2;1-6)

Cam. 1 (Gose 284)

This platter form is rarely found in T.N. and never in T.R. It is more commonly known in a fine black micaceous ware originating from South and Central France (see chapter six for discussion of Central Gaulish wares). It usually has a high footstand reminiscent of Italian types but is not stamped. It appears to owe its inspiration more to pre-Arretine types particularly those of Campanian origin as the illustrated example from the Maison des Griffons, Palatin (Goudineau 1968,280) (Fig.3;1) rather than Arretine itself. A few vessels have been found in Britain, for example at Silchester (Fulford pers.comm.) and Verulamium (Wheeler 1936, Fig.12;17) and these are generally regarded as pre-conquest imports. The Welwyn Garden City platters (Stead 1967, Fig.8: 29,30), although not black in colour, do have a micaceous fabric and may well be related to this type (Fig.40).

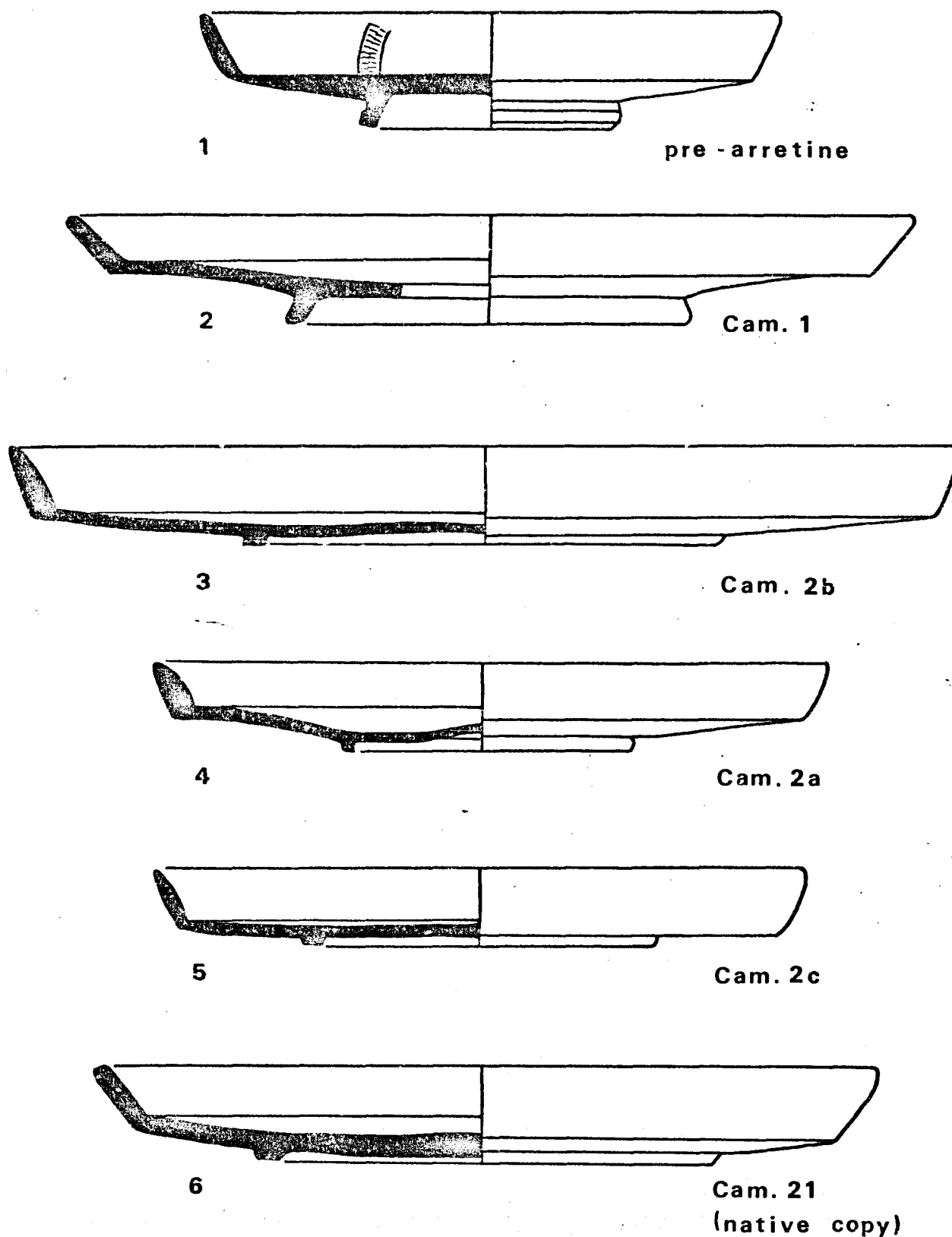


Figure 2. Platters.

Scale 1:2

1. Palatin, Maison des Griffons (after Goudineau 1968).
- 2-5. Camulodunum (Hawkes and Hull 1947, pl. XLIX).
6. Camulodunum (Hawkes and Hull 1947, pl. L).

Cam. 2 (Haltern 73 A/B, Gose 283, Koethe 1A) (Fig.2:3-5)

This form is more commonly found in T.N. Again it was not made in T.R. and like Cam. 1 it has several micaceous counterparts undoubtedly originating from Central Gaul. It is distinguished from Cam. form 1 by its lower footstand and convex inner wall face. Hawkes and Hull subdivide the form into a, b, and c according to the degree of convexity of the wall and the flatness of the base; 2A has a dished base and is fairly rare. Stamped examples do occur but are uncommon, although the interior surface is often decorated with a rouletted wreath. The platter is found in both pre-conquest and immediately post-conquest deposits in Britain.

b. Moulded platters

Cam. 3-10 (Figs.4 and 5)

The range of platters classified as Cam. 3 to 10 in Hawkes and Hull demonstrate clearly their affinities with the Arretine wares. Service 1 in particular has many similar rim features and wall mouldings, (see Fig.3). Although each form defined and described below seems fairly clear cut, in reality a greater number of minor variations occur particularly in the Cam. 5 to 8 range which makes classification difficult. Examples from Haltern (72A and 72B) demonstrate some of the variation, neither matching perfectly the Camulodunum forms. Cam. 3 and 4 remain fairly standardised. Cam. 7 and 8 are perhaps closest to their Arretine prototypes, although these too exhibit a great range of minor variation reflected particularly in the details of the internal moulding. It has been suggested that these minor

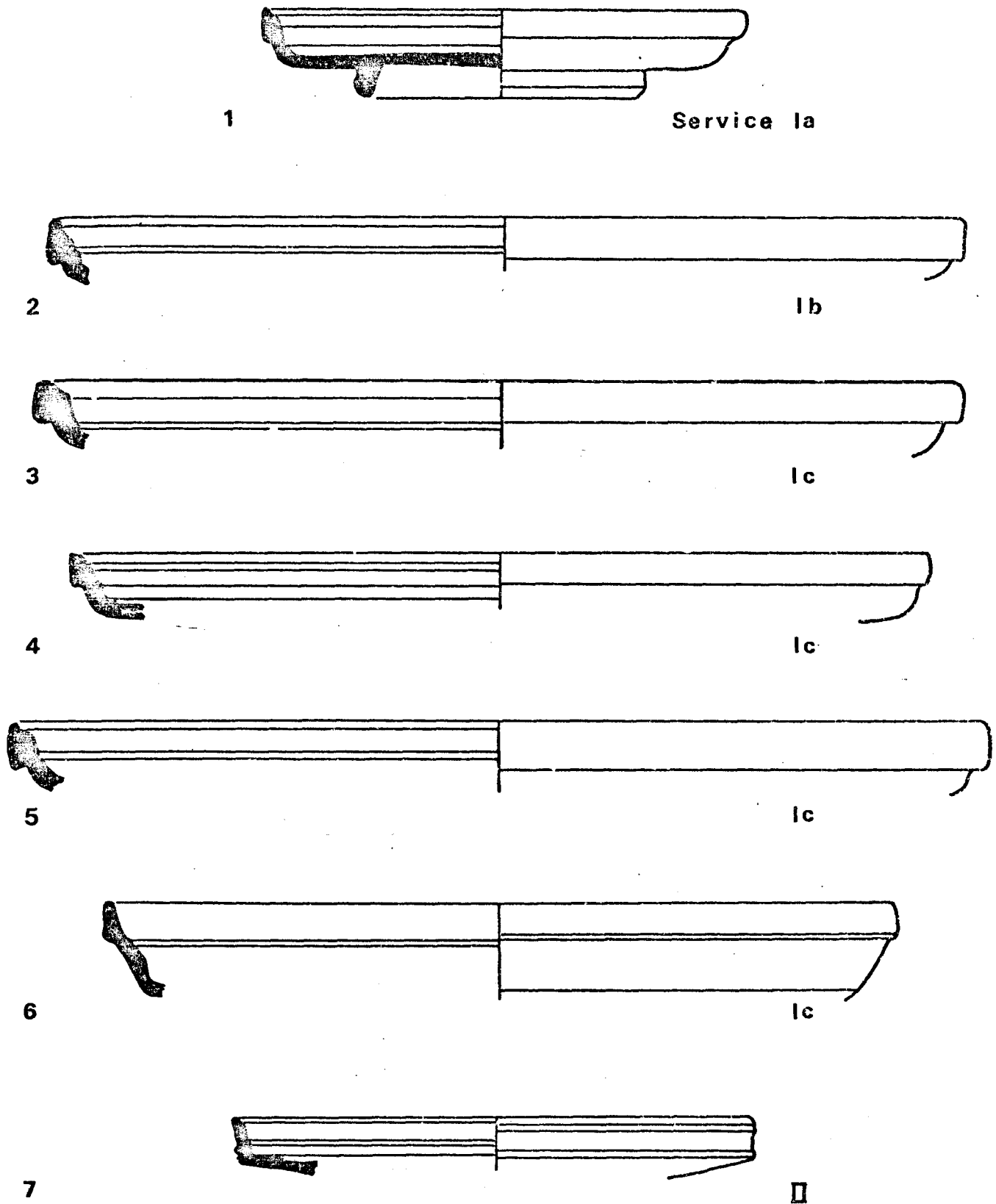


Figure 3. Arretine platters, Services I and II.

1. Haltern (after Loeschcke 1909, Taf. X).

2-7. Augsburg-Oberhausen (after Ulbert 1960, Taf. 2-5).

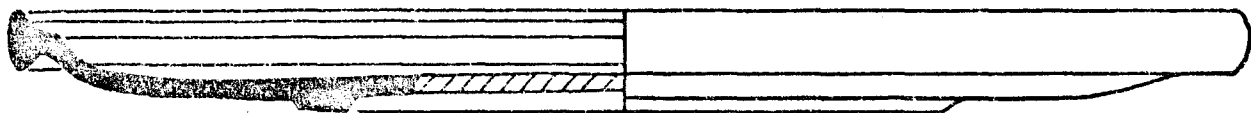
differences between vessels might be of chronological importance (Rigby 1973,10) but since so many variations occur in such a small sample, much of which cannot be that closely dated, this theme cannot be developed at present. In dealing with such a short time-span for the 'rise and decline' of the Gallo-Belgic industry, dating would have to be very precise to form a basis from which to work. Certain recurrent features may be seen to be the style of a particular potter which may eventually help to identify unstamped products although, all too frequently the stamped base is recovered without the rest of the platter, so that much information is lost. This variety in moulding is also reflected in the Arretine platters, which are basically characterised solely on rim form.

Cam. form 3 (Halter 72, Gose 293, Hofheim 97) (Fig.4;1)

Large platters with overhanging rims marked by two shallow concave inner mouldings. This form was made in both T.N. and T.R. (T.R.1 and 2) and was frequently stamped, either centrally or radially. The interior surface is occasionally decorated with a rouletted wreath.

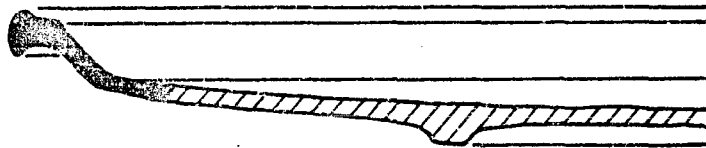
Cam. form 4 (Fig.4;2,3)

Subdivided into a and b by Hawkes and Hull; this platter is similar to Cam. 3 but has a straight wall surmounted by a single concave inner moulding. It is similarly produced in T.N. and T.R. but stamped examples are rare. Form 4b is distinguished from 4a by having a higher footstand and thicker wall and rim, and is considered by Hawkes and Hull to be an earlier version of the form.



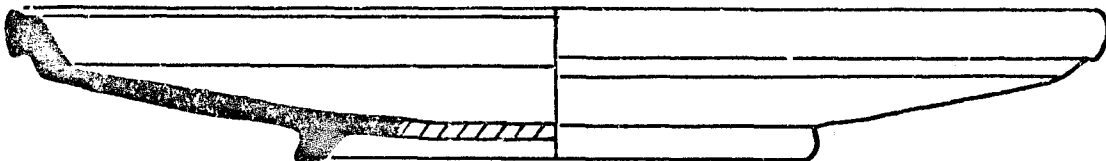
1

Cam. 3



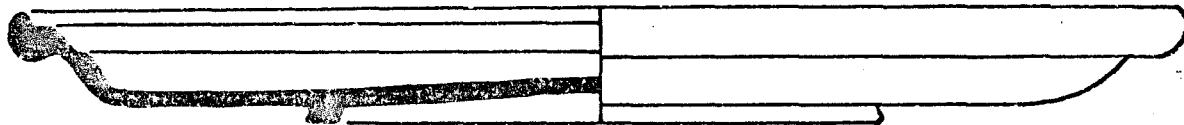
2

Cam. 4a



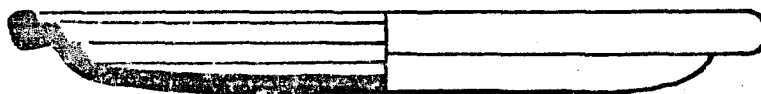
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Cam. 4b



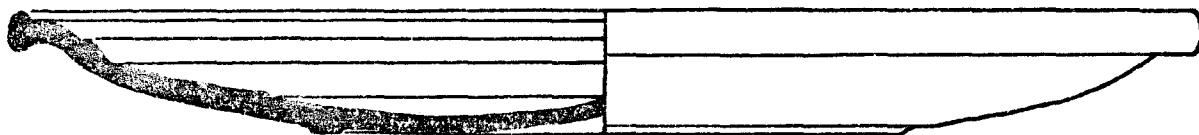
4

Cam. 5a



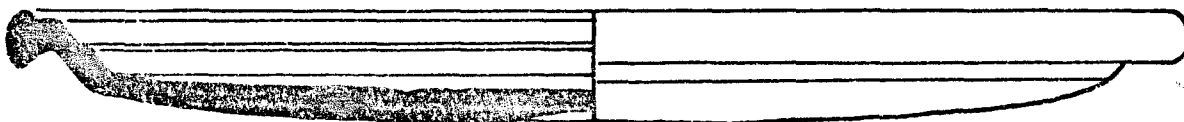
5

Cam. 5b



6

Haltern 72 b



7

Haltern 72 A

Scale 1:2

Figure 4. Platters.

1-5. Camulodunum (after Hawkes and Hull 1947, pl. XLIX).
6-7. Haltern (after Loeschcke 1909, Taf. XIV).

Cam. form 5 (Haltern 72A, Hofheim 97a, Gose 292 and 294, Blicquy form I) (Fig.4;4,5)

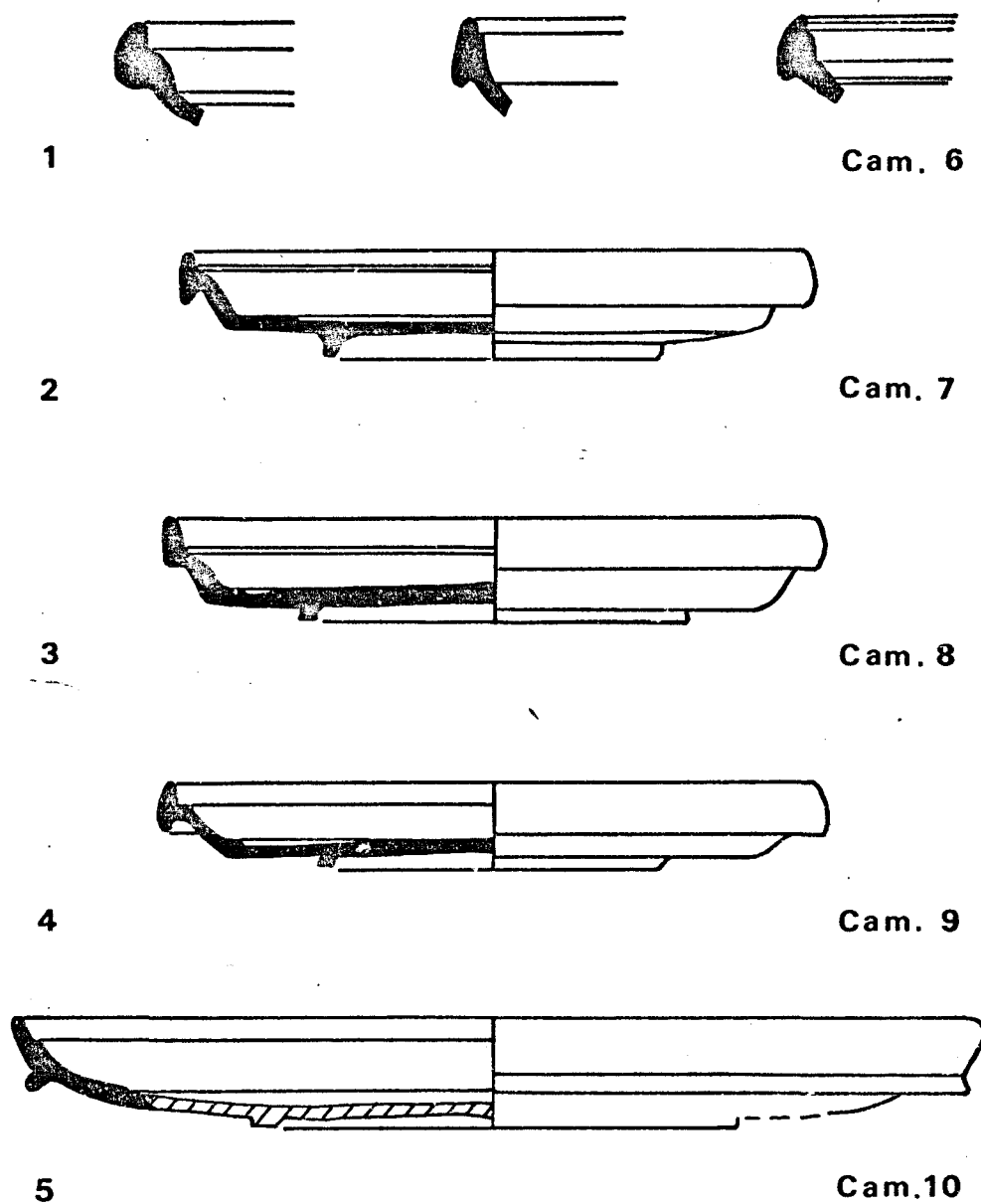
Platter with an overhanging rim and two internal ledge mouldings on the inner wall face. Produced in T.N. and T.R. (T.R.1 and 2). The rim consists of a half-round moulding sometimes with an offset at the base of the inner wall. 5b is a smaller version with no footring. Many examples bear potters stamps and are often decorated with rouletted wreaths or concentric circles. A total of 376 examples were recovered in the Sheepen excavations of which 65% were T.N., 10% T.R.1 and 25% T.R.2. The form is also widely distributed on the Continent. The prototype is thought to be Arretine type 1b and the earliest Gallo-Belgic imitations of this go back to the Augustan period.

Cam. form 6 (Fig.5.1)

Similar platter to Cam. 5 found mainly in T.R. fabrics. Characterised by a heavy overhanging rim and a steep side, variously moulded.

Cam. form 7 (Haltern 72Ba and b, Hofheim 97Ab, Gose 297) (Fig.5.2)

A small platter with a steep moulded side and vertical overhanging rim. It was produced in both T.N. and T.R., the latter predominating at Camulodunum. Often centrally stamped and decorated with a rouletted wreath. Cam. 7, more than any other form appears in a wide variety of variants reflected in the details of internal moulding and degree of overhang. A range of such variants has recently been published from Skeleton Green, Hertfordshire (Rigby 1981, types 8 to 17).



Scale 1:2

Figure 5. Platters.

1-5. Camulodunum (after Hawkes and Hull 1947,
pl.XLIV and fig. 46).

Cam. 8 (Blicquy form 2, Gose 296, Haltern 72B, Hofheim 97Ab)
(Fig.5.3)

Similar in all respects to Cam. 7, the only difference being the absence of overhang in the rim. In some cases this is so slight that it is difficult to distinguish one from the other. The form is very close to its prototypes in the Arretine Haltern service IA vessels and is among the commonest Gallo-Belgic forms to be produced. A total of 393 + examples were recovered from Camulodunum of which 66% were T.N. and c. 34% T.R.2.

Cam. 9 (Fig.5.4)

A small platter with a curved wall and overhanging rim. The form is uncommon and usually only found in T.N., although recently two examples in T.R. have been found at Chichester (Rigby 1978). Stamped examples are rare. The form is not represented at either Haltern or Hofheim, although it is present in several cremation cemeteries in the Lower Rhine: Chantemelle, Fouches, Blicquy and Nijmegen which date it approximately to the Claudian period. Two further examples in T.N. have recently come to light at the postulated Claudian fort at Burgh-by-Woodside, Suffolk.

Cam.10 (Fig.5.5)

This form is considered to be a development of Cam. 9 where the curved wall has developed a flange. It is again rare with only four examples identified at Camulodunum and none at Haltern or Hofheim.

c) Cam. 11 - 16 (Fig.6)

With the exception of Cam. form 11 which is only found in pre-conquest deposits, this range of platters appear to be a

slightly later development compared with the moulded examples. Generally speaking most of them were not in production before the Claudian period but, unlike the moulded platters, they continued to be produced up to the Flavian period. Prototypes for the forms are less easy to identify and it is likely that they represent a fusion of different influences both in vessel shape and techniques employed.

Cam. 11 (Haltern 74) (Fig.6.1)

A rare form characterised by a straight wall with a slight internal offset near the lip. It appears to have been only produced in T.R. Examples from Haltern are dated to the Augustan - early Tiberian period (Loeschcke 1909,267), whilst at Camulodunum they are only stratified in pre-conquest deposits. It is thought to be the predecessor to the Cam. 12-14 types.

Cam. 12 and 13 (Haltern 73A/B, 74; Blicquy form 4) (Fig.6.2,3)

The differences between Cam. 12 and 13 are often so slight that it seems more appropriate to amalgamate the two. These platters are particularly common in both Britain and the Continent. They were exclusively produced in T.N. and stamped examples are fairly common. Cam. 12 has 'a straight wall divided internally by an offset in the upper third of the height' (Hawkes and Hull 1947,219). The footring is low and slight and the base is sometimes slightly domed to the centre. 409 examples were recovered from Camulodunum. Cam. 13 is identical to Cam. 12, the main difference being the increased concave curvature of the wall which slightly swells internally above and below the offset.

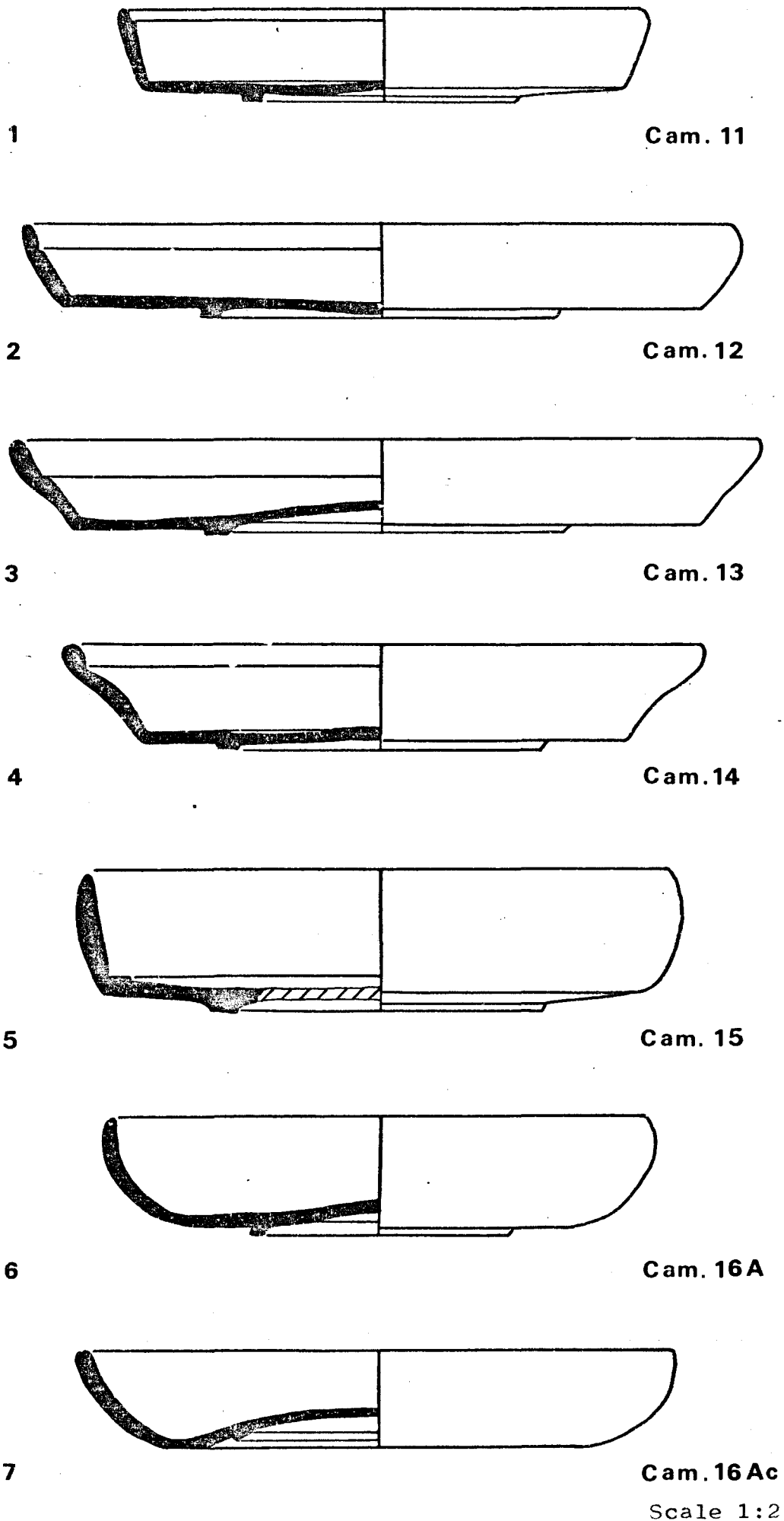


Figure 6. Platters.

1-7. Camulodunum (after Hawkes and Hull 1947, pl. XLIX).

Cam. 14 (Fig.6.4)

This platter represents a further development of the above with a markedly concave exterior wall. It is not as common as the Cam. 12/13 varieties and is rarely stamped. The development was too late for the platter to be present at Haltern and probably dates from the Claudian period onwards.

Cam. 15 (Fig.6.5)

A very deep platter, almost a dish by definition with straight sided walls and an almost flat base. There are no offsets but usually a small footring. Again only produced in T.N. Stamped examples are rare.

Cam. 16 (Hofheim 99A-B, Gose 288-289, Blicquy form 5)
(Fig.6.6,7)

A concave walled platter with a number of minor variants. The finest examples have a pronounced domed base with quarter-circle concave walls usually with an internal offset at the base, and a footring. In many examples the footring is functionless and this later disappears altogether. Several examples are stamped usually with single line central impressions, a large percentage of which are senseless or illegible. Mainly produced in T.N. although one or two T.R. examples are quoted. The form is also well known in other contemporary wares, notably coarse wares and Pompeian Red. It can be traced back to dishes of the La Tène period (late 1st century B.C.) and was probably produced from the early Claudian period up until the last quarter of the 1st century A.D. The form was particularly common in the Flavian period and shows the widest distribution both spatially and chronologically of all the Gallo-Belgic products.

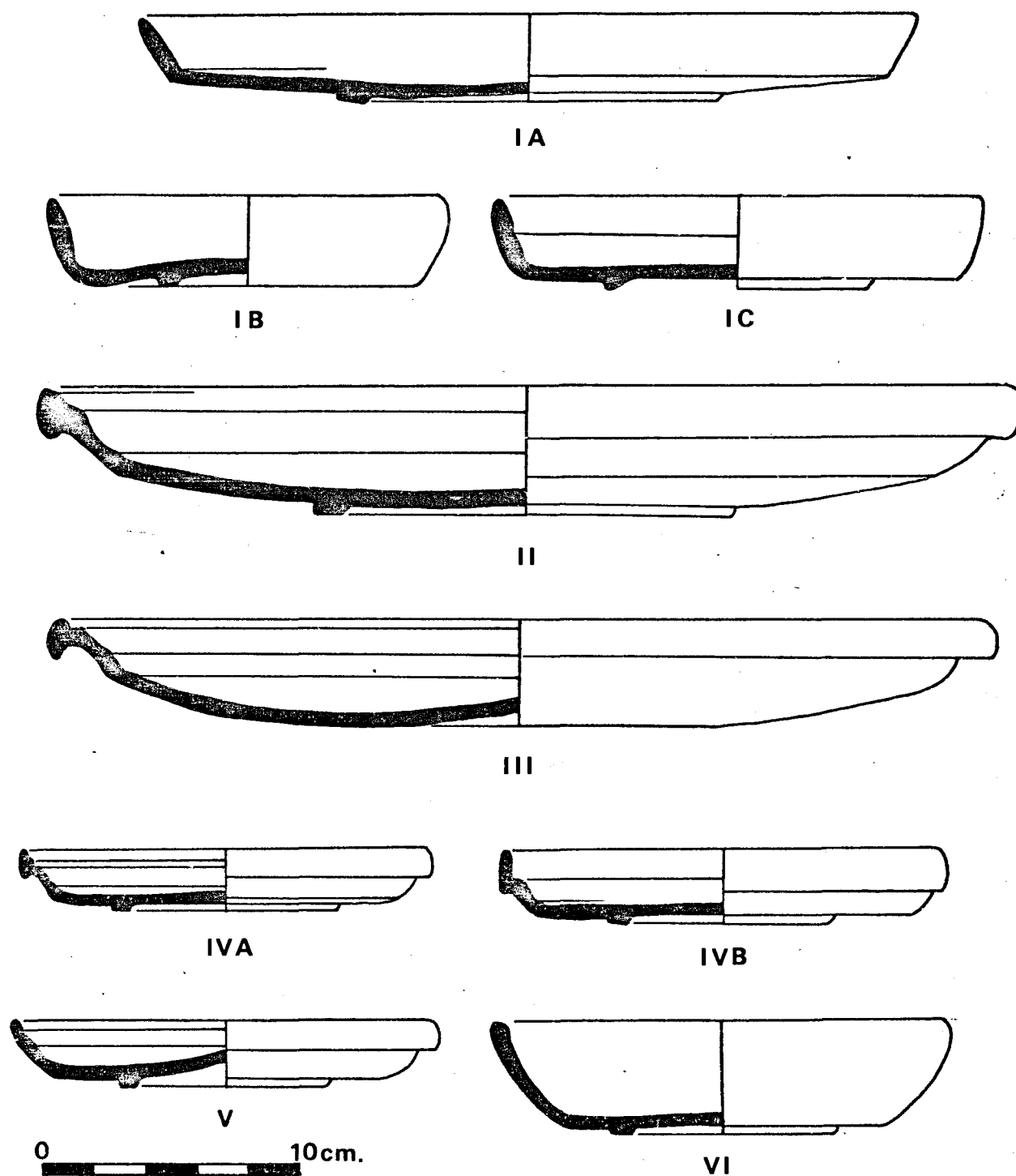


Figure 7.

Platter type series from the Rhineland (after Koethe 1938).

d. Platter imitations in 'native' wares

The 'native wares, i.e. those vessels made by potters in Britain and which are therefore not imported from the Continent, fall into two main types; on the one hand there are the 'coarser' pre-Romanised wares produced by techniques more affiliated to the late Iron age and on the other there are the 'finer' sandy 'Romanised' wares produced on a fast wheel and fired using more sophisticated techniques. Hawkes and Hull (1947, 221 ff.) have isolated twelve 'sub-Belgic (native) platters' from the enormous range present at Camulodunum as types, (Cam. 21-33). Some of these appear to be obvious copies of imported 'Gallo-Belgic' platters whilst others have become so devolved that any connection would be tenuous. The platter forms that seem to be the most commonly imitated are Cam. 1/2, 7/8 and 12-14. These native imitations are fairly widespread in southern England but for the most part do not appear to travel around remaining fairly localised to their production sources which are small and numerous. The result therefore is a large variety of forms and fabrics influenced by the prevailing local traditions and demand. The platters from East Kent, for example, are invariably found in a dense grog tempered fabric whereas those of West Kent tend to be sand tempered. The copied platters rarely show the angularity of the imported types; footrings and mouldings tend to be rounded.

After the conquest the same and similar forms appear in grey sandy wares lighter in texture but well fired and very hard. By the end of the 1st century A.D. the forms become less recognisable in the general development of standard Roman

pottery types. Hawkes and Hull's Cam. 21-33 therefore, must be looked at as typical of the Essex area immediately around Colchester and of limited use to other areas in Southern Britain.

This imitation in form and style of the Gallo-Belgic wares was not only confined to Britain but can be found in many of the contemporary continental industries particularly those in Belgium, for example Howardries (Amand 1971), and Hambresart-Virton (Martin 1939), where the products similarly appear to have fairly localised distribution.

(ii) Bowls

Bowls and dishes do not feature extensively in the Gallo-Belgic potters' repertoire and most of the examples can be paralleled more commonly in other fabrics. Many of the forms can be traced back to La Tène III types particularly those emanating from the Upper Rhine which may imply that some of the forms were produced outside the confines of Gallia Belgica. Certainly bowls do not seem to feature amongst the assemblages recovered from the few kilns that have been excavated in the Marne where the vessels seem to be mainly cups and platters, but do appear more commonly towards the Rhine and feature, for example, amongst the products from the kilns around Strasbourg.

Cam. 46 (Hofheim 129, Usk form 9) (Fig.8.1,2)

A hemispherical bowl with a projecting flange immediately below the rim. The form is rare and was not found at Camulodunum in T.N. although subsequent finds have been made in Britain, notably at Usk (Green's type 9) (Greene 1979,114)

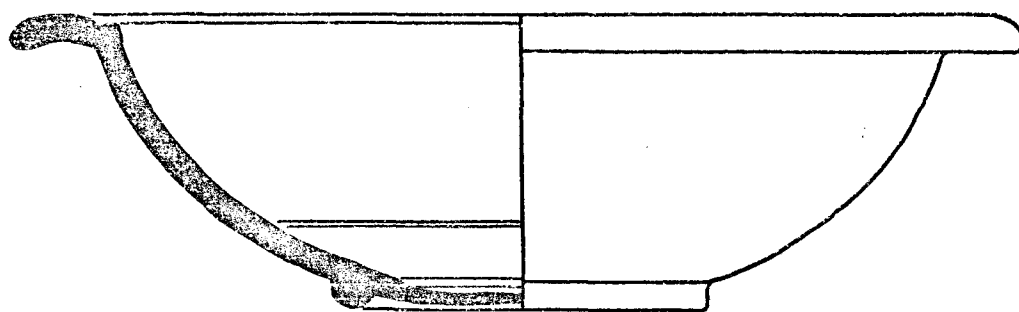
and Clausentum (Rogers and Laing 1966, Fig.8.10 and unpub. material, Southampton Museum). In each case the vessels date to the second half of the 1st century A.D. The form is perhaps better known on the Continent, particularly in the Rhineland, for example at Hofheim (Ritterling 1912) and Vindonissa (Ettlinger and Simonett 1952, Taf.18,414).

Cam. 49 (Fig.8.3)

A deep bowl rarely made in T.N. None have been identified yet in Britain and the Hawkes and Hull type figure is taken from an example found at Mainz. The date is also uncertain.

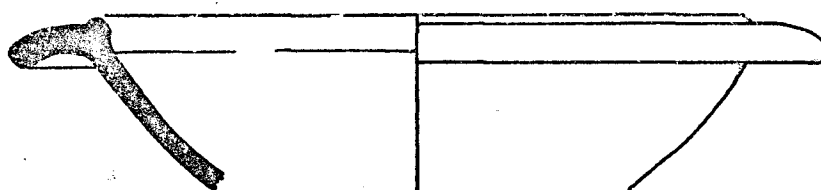
Cam. 50 (Hofheim 109B, Usk type 6) (Fig.8.4)

A deep bowl, carinated, with a plain flared rim and pronounced conical base. This form was particularly prevalent at Hofheim where over 100 vessels were recorded. Ritterling divided these into two variants (a and b) based on the presence or absence of an external rim moulding. Hawkes and Hull have added a third variant in the example found at Camulodunum in Roman coarse ware but paralleled by an example in T.N. from Weisenau. Carinated bowls are common in the late Iron Age and Ritterling compares the form to a late La Tène form found at Mont Beuvray (Bulliot 1899, pl.XXVI,11;XXVIII,4,12;XXX,8,13,18) drawing attention to the continuation of the style as samian bowls of Dragendorff form 29 (Ritterling 1912,342). Greene (1979,110) links the development of this form with that of the red-coated 'Helvetische knickshale' found in the Upper Rhine (South Germany and Switzerland) in the first half of the 1st century A.D. Grey bowls of similar form are found on most of the military sites in this area throughout the 1st century,



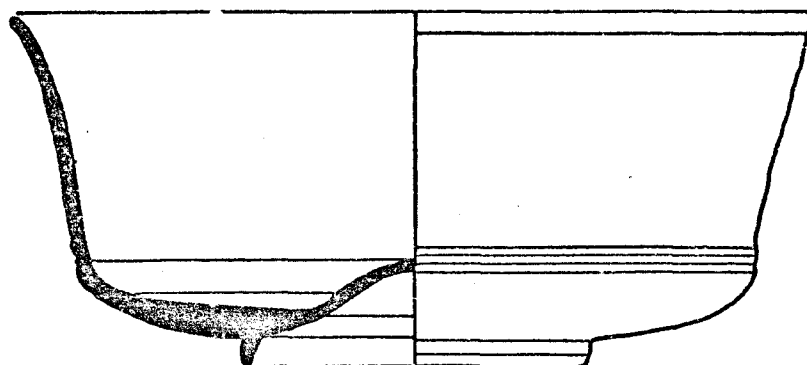
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Cam. 46



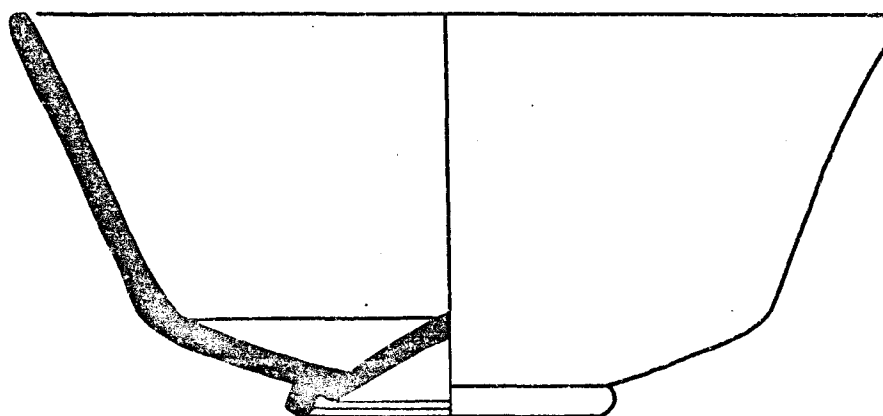
2

Usk type 9



3

Cam. 49



4

Cam. 50c

Figure 8. Bowls

Scale 1:2

1. Camulodunum (after Hawkes and Hull 1947, pl. LII).
2. Usk (after Greene 1979, fig. 48.45).
3. Andernach (after Hawkes and Hull 1947, pl. LI).
4. Weissenau (after Hawkes and Hull 1947, pl. LI).

for example, Vindonissa (Ettlinger and Simonett 1952, Taf. 18,424-426). They are less common in the Lower Rhineland and Britain where they generally date to the second half of the 1st century A.D.

Cam. 51 (Hofheim 108) (Fig.9)

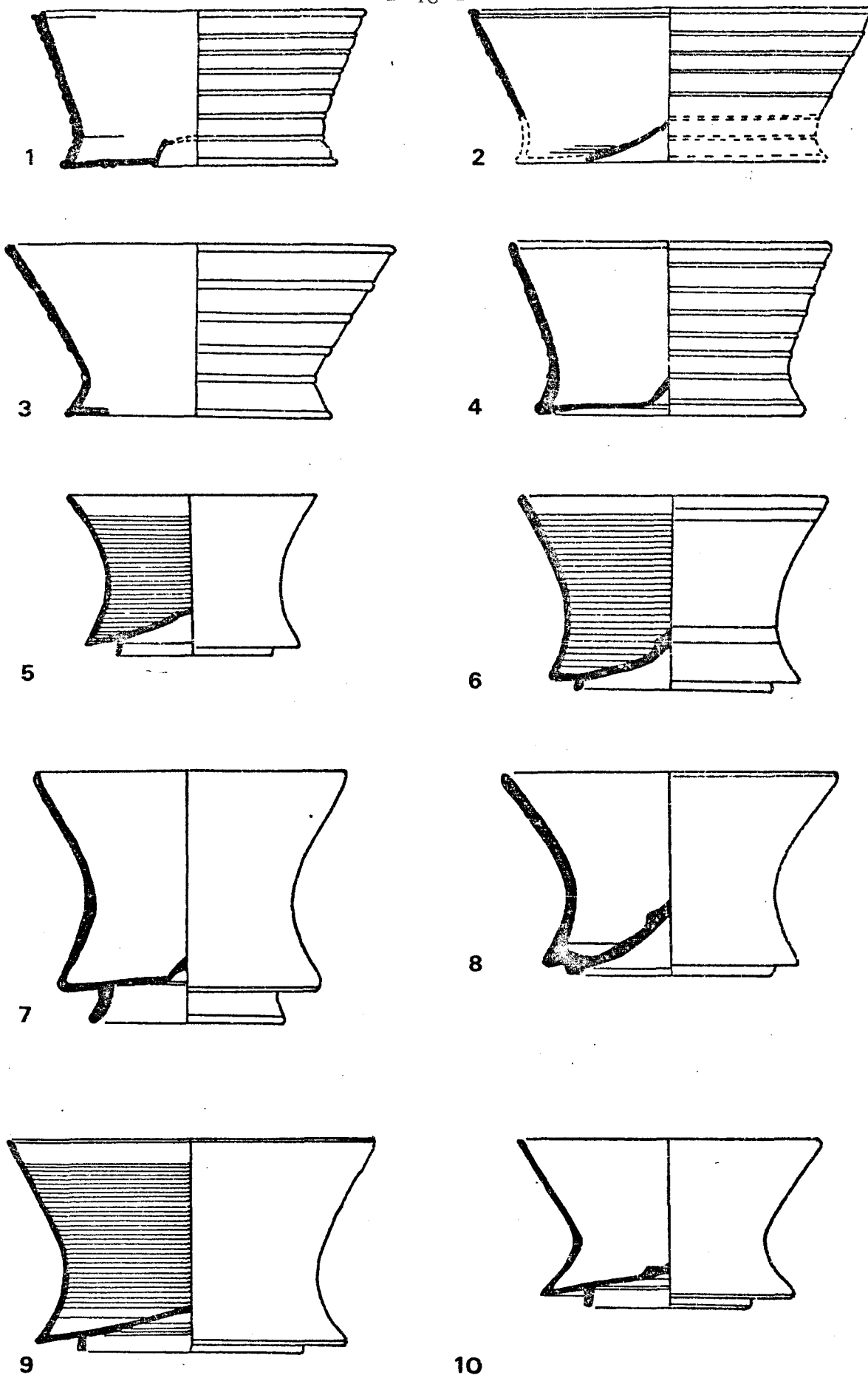
Bobbin shaped or hour-glass vessels known as 'vase bobine' in France and 'morser bechers' in Germany. This somewhat unusually shaped vessel was made in a number of areas in France notably Saintes in the Aquitaine (Santrot and Santrot 1979, fm.172-175), and probably Central Gaul. The fine, black polished finish and pale grey fabric of some examples have encouraged the use of the term T.N. for these which may or may not be correct. None have been identified with a production source in northern France. Hawkes and Hull identified three variants: a) characterised by horizontal cordons, b) characterised by bands at the top and waist only, and c) which has a completely plain exterior. Each type has a pronounced omphalos base and is marked by fine horizontal lines on the interior. The function of these vessels is not clear but it is unlikely that as the german name suggests, they were mortars since they are fairly fragile. One alternative suggestion made by J. Gourvest (pers. comm.) is that they were used in the preparation of cheese, for the straining of the whey from the curds or some similar process. At Saintes the form was apparently in production during the last quarter of the 1st century B.C. (Santrot and Santrot 1979, 104).

Cam. 52

For some reason Hawkes and Hull grouped all their remaining

Figure 9. Tazzas (Vase Bobine).

1. Sarran, Corrèze (after Ward-Perkins 1941,fig.22.1).
2. Angers (after Ward-Perkins 1941,fig.23.1).
3. Mont Beuvray (after Ward-Perkins 1941,fig.23.8).
4. Saintes, Aquitaine (after Santrot and Santrot 1979,form 175a).
5. Mainz (after Behrens 1912,Abb.10.6).
6. Haltern (after Loeschcke 1909, Taf.XV.88).
7. Saintes, Aquitaine (after Santrot and Santrot 1979, form 172).
8. Novaesium (Neuss) (after Filtzinger 1972,Taf.75.4).
9. Nijmegen (after Holwerda 1941,pl.X.507).
10. Wederath (after Haffner 1974,grave 697).



Scale 1:4

Figure 9.

bowls under this one heading. These include three very different vessels which should be regarded as three separate unconnected forms:

Cam. 52A (Hofheim 127) (Fig.10.1)

Defined by Hawkes and Hull (1947,226) as a carinated bowl with an everted rim. The form is probably affiliated to the particularly prevalent grey ware beakers found on the Continent with the same rim form but with a slightly more elongate globular body. These beakers do not quite fit into the Cam. 112 butt beaker category and are rarely found in Britain. Only one bowl/beaker was recovered at Camulodunum. The body is decorated with a band of rouletting similar to the beakers.

Cam. 52B (Fig.10.2)

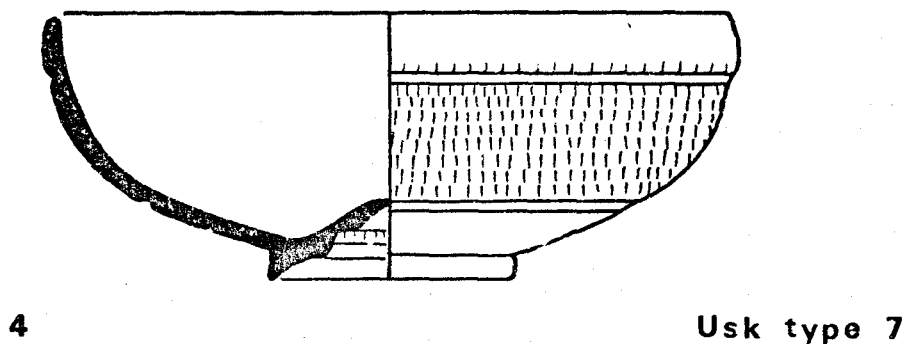
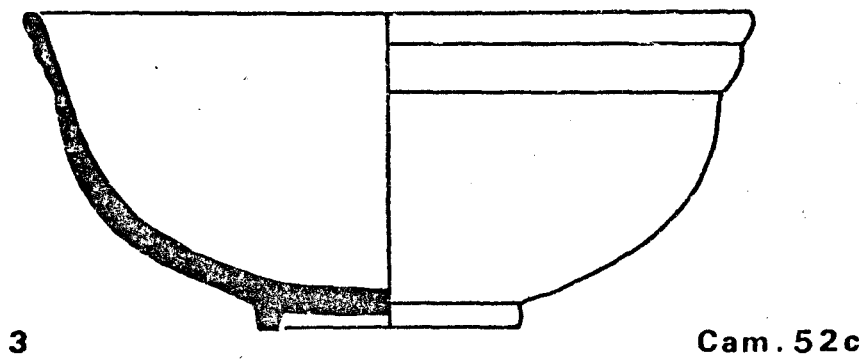
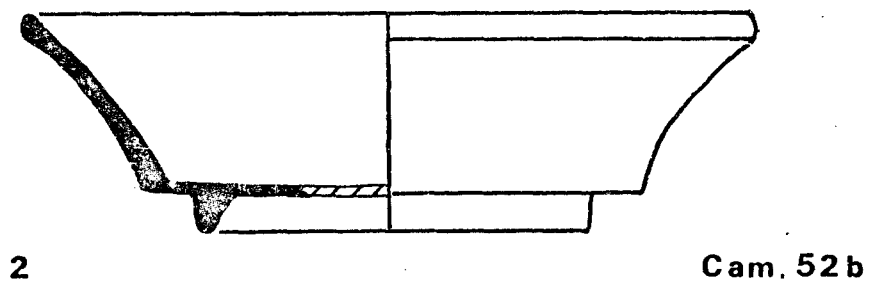
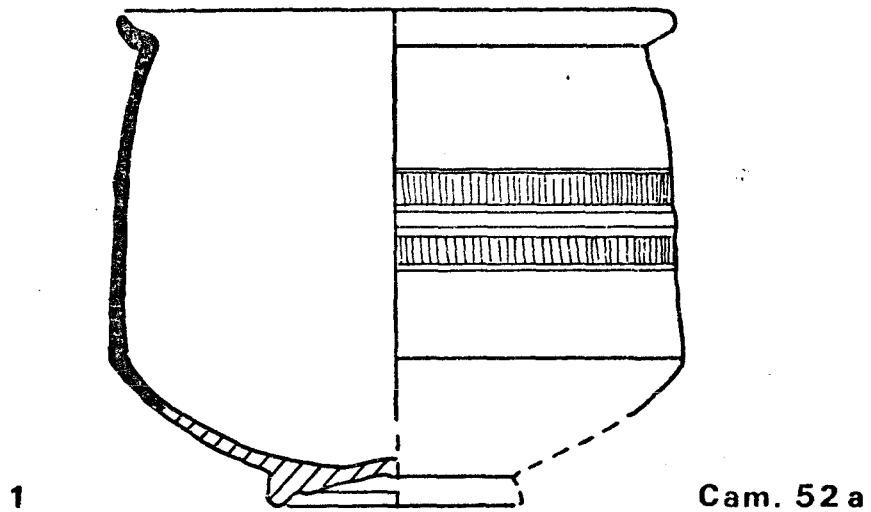
A dish with a slightly flared wall and flat base. The fabric of this particular form described in Camulodunum as a 'slightly micaceous pale grey ware', is unlikely to have been a Gallo-Belgic product but more probably originates from Central France.

Cam. 52C (Fig.10.3)

A hemispherical bowl with a footring and moulded rim, the type figure for which was taken from an example found at Mainz. Only two unstratified rims in a black ware were recovered from Camulodunum.

(iii) Cups

There were four main varieties of cup made by the Gallo-Belgic potters, two of which were particularly common. These may have made up 'sets' or services with some of the platters. All the varieties were made in both T.N. and T.R.



Scale 1:2

Figure 10. Bowls.

1,2. Camulodunum , 3. Mainz (Hawkes and Hull 1947,pl.LI).
4. Usk (Greene 1979,fig.47.34).

and include stamped examples.

Cam. 53 and 54 (Fig.11.1,2)

A bell-shaped cup with an out-curved wall and flat base with a footring. The rim is rounded with an internal offset and the interior wall is marked midway up by a horizontal groove. This form was usually made in a T.R. 3 type fabric with a white core and red-brown surfaces, in true T.R. 3 and in T.N. Cam. 54 differs from 53 in having a deeper slightly narrower form with a pendant lip. The wall is more curved from the base and the rim is usually demarcated on the interior by a double offset. This cup form is a direct imitation of the Arretine cup, Haltern type 7 (Fig.10.3). It seems to have been in production from the Augustan period as it is present in many of the earliest grave groups, for example Goebbingen-Nospelt grave A (Thill 1967), although it is apparently absent at Haltern and Hofheim.

Cam. 55 (Fig.11.4)

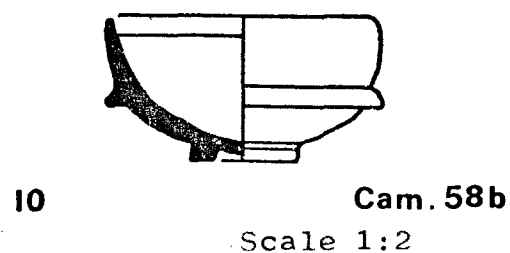
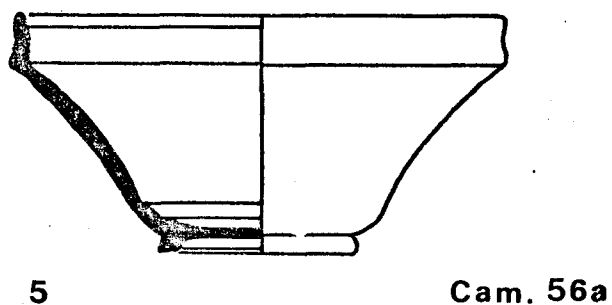
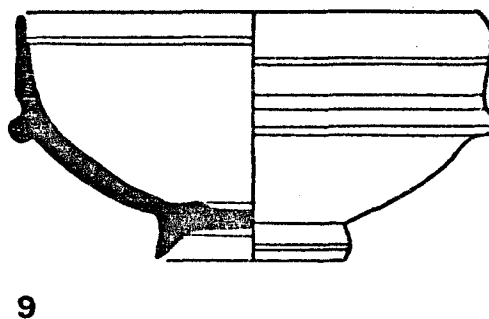
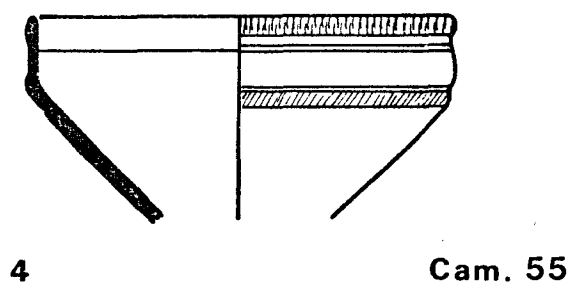
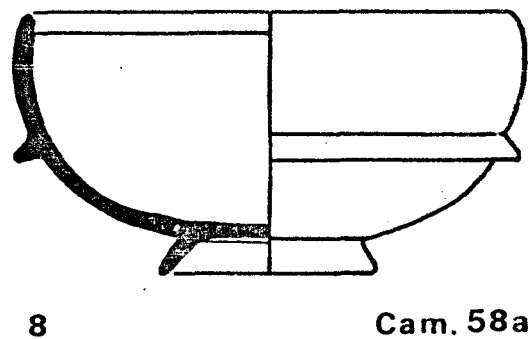
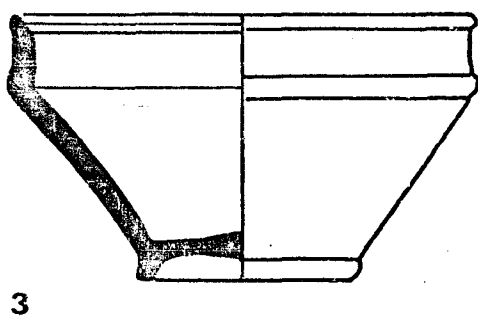
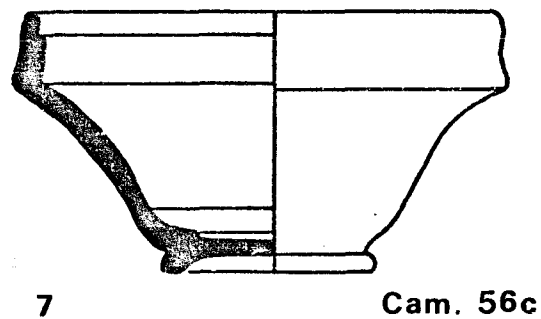
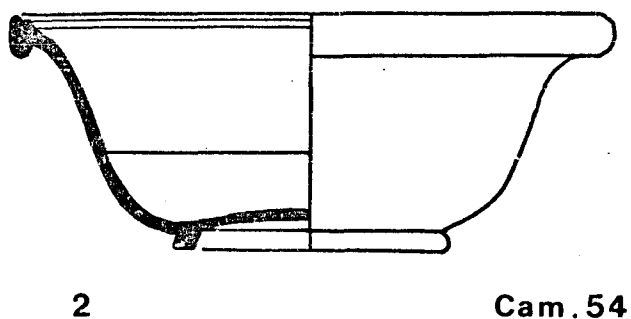
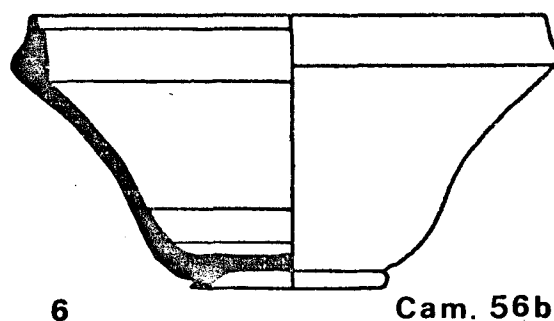
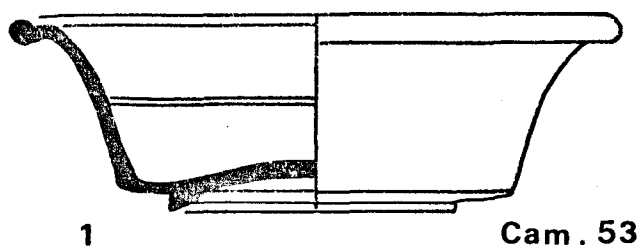
A conical cup with an upright rim frequently rouletted on the exterior. The form is a particularly rare one at Camulodunum, where there is only a single unstratified example in T.R., but is more common on the Continent where it is found in T.N. and T.R., notably at Nijmegen. This form is retained in the later South Gaulish samian products as Haltern type 8 (Loeschcke 1909). An example in T.N. from Nijmegen has an 'in planta pedis' potter's stamp also characteristic of the early samian products suggesting an overlap in development.

Cam. 56 (Ritterling 5, Gose 300,301,302, Haltern 78A/B,79, 80A/B, Hofheim 103Aa,Ab) (Fig.11.5,6,7)

A bell shaped cup carinated just below the upright or slightly sloping rim. It was in production from the Augustan period up until the Neronian and is one of the commonest of all the Gallo-Belgic products. A total of 675 were recovered from Camulodunum. Produced in both T.N. and T.R. it was made in two main sizes, - a large (56A) and a small (56B). There is sometimes an internal lip groove and an offset at the base of the interior wall. The footring is usually applied to the base and frequently becomes detached. Many examples were stamped with the potter's name or mark generally in an abbreviated form. Hawkes and Hull noted three types: A, B and C. 56C again found in both large and small size, is thicker with a more indented internal carination and a slightly higher rim.

Cam. 58 (Hofheim 104, Gose 303, Blicquy form 7) (Fig.11.8)

A hemi-spherical cup with an external flange considered to be derived from the samian prototype Dragendorff 24/25 which is Tiberian in origin. Like Cam. 56 it was produced in T.N. and T.R. and in two main sizes, with many stamped examples. There is usually an internal offset below the rim. Cam. 58's were in production from the later Tiberian period well into the second half of the 1st century A.D. The same form was imitated in a number of other fabrics in both Britain and on the Continent. Although it shows a wider distribution than Cam. 56 and was produced later it is not quite as common. The later examples seem to be only in T.N. and its frequent association with platters of Cam. 16 type have led



Scale 1:2

Figure 11. Cups.

1,2,4-8,10. Camulodunum (Hawkes and Hull 1947,pl.LIII).
3,9. Nijmegen (Holwerda 1941,pl.XVI.1262,pl.XIV.879).

to the suggestion that these formed a set.

(iv) Beakers

Four main types of beaker were produced, mainly in T.R.3 fabrics, but occasionally also in T.N. No Continental centres have yet been positively identified with waste material from beakers although several may be suspected as possibilities from the quantities of material recovered in the vicinity, notably Reims. The beaker, although probably considered a useful auxiliary tableware, was not present in the Campanian or Arretine repertoire of forms which were limited to cups, bowls and platters. The origins of the beakers therefore is slightly problematical and probably represents a fusion of diverse influences.

a. Pedestal Beakers (Cam. 72-9) (Figs.12 and 13)

In 1947 when *Camulodunum* was published this form of vessel was virtually unrecognised owing to the fact that it had previously only been found at Silchester (May 1916). This situation has now changed greatly and finds are known from a number of sites from Dorset across to East Anglia. 230 vessels were identified at *Camulodunum* in a T.R.3 type fabric, - a thin orange polished slip as opposed to the more characteristic chocolate fuming, T.R.1 and T.R.2. Drawing on Continental examples, Hawkes and Hull defined 8 types on purely typological grounds (Hawkes and Hull 1947, pl.LIV). In Britain they occur in both pre-conquest and immediately post conquest deposits.

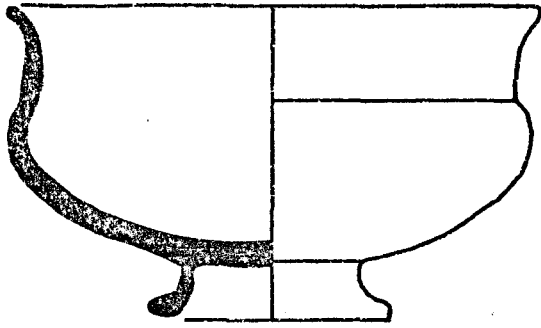
Cam. 81 (Fig.13.9)

This form perhaps deserves special mention since it appears to be one of the earliest forms to be produced by the Gallo-

Figure 12. Pedestalled Beakers.

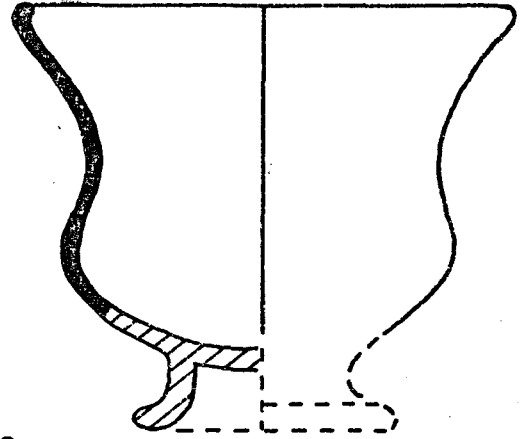
(after Hawkes and Hull 1947,pl.LIV).

1. Andernach
- 2,3,6. Camulodunum
4. Trier
5. Nijmegen



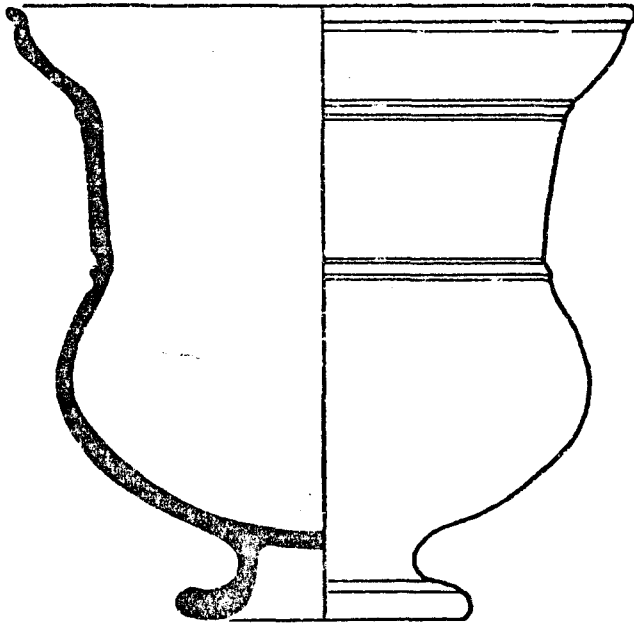
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Cam. 72B



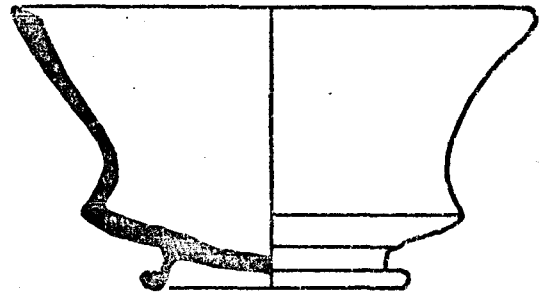
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Cam. 73



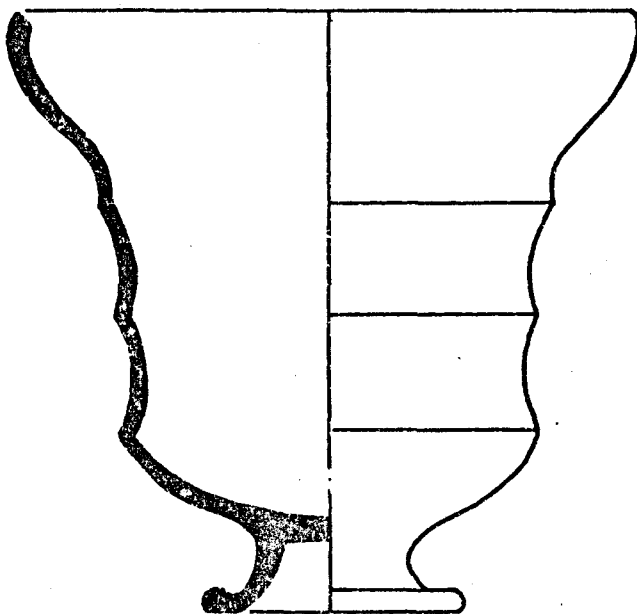
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Cam. 76B



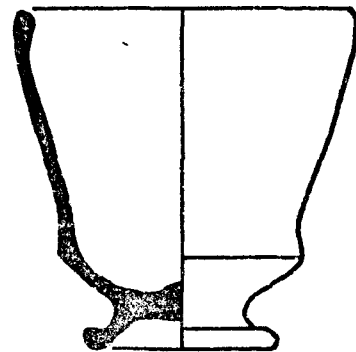
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Cam. 74A



5

Cam. 75

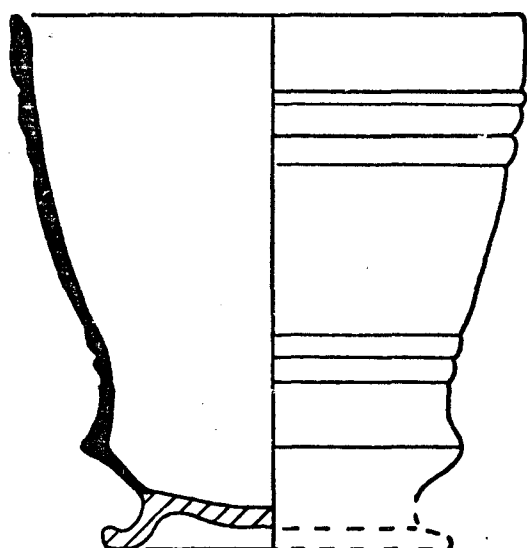
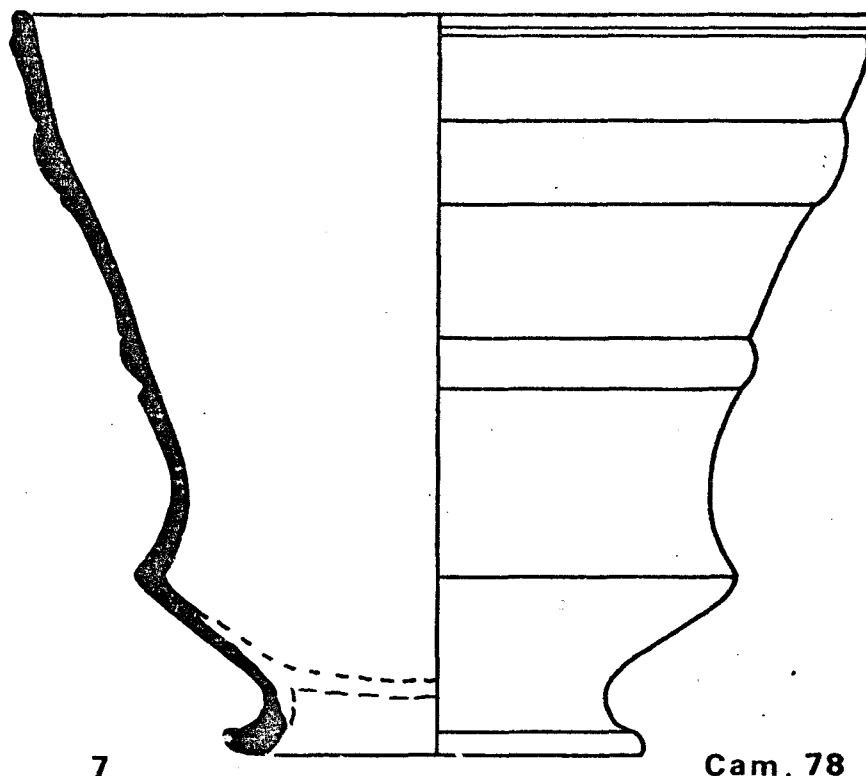


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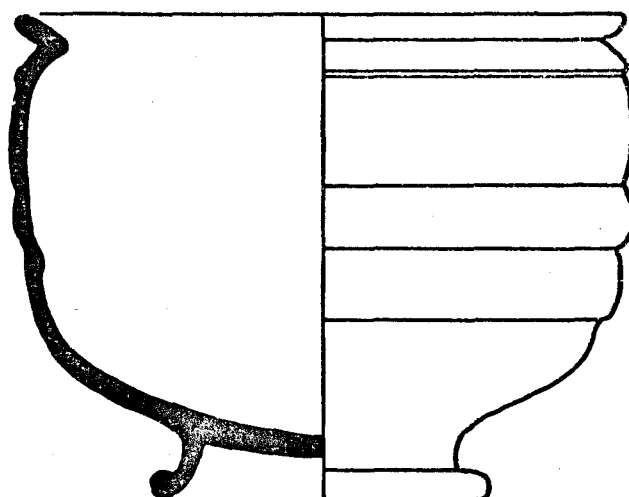
Cam. 74B

Scale 1:2

Figure 12.



Cam.79A



Cam. 81

Scale 1:2

Figure 13.

Pedestalled beakers (after Hawkes and Hull 1947, pl. LIV).

7. Coblenz 8. Camulodunum 9. Rhineland

Belgic potters. Examples have been recovered from the Augustan graves at Wincheringen (Koethe and Kimmig 1937, Abb. 2:3a,b), and Kräckelbiert, Luxembourg (Thill 1970, Taf.1), and from the early military levels of the fort at Friedberg (Schönberger and Simon 1976, Taf.49,19).

b. Girth beakers (Cam. 82-8) (Fig.14.1-3)

Produced only in fumed T.R.3 and as native imitations.

Characterised by an everted rim of lenticular shape similar to the butt beakers Cam. 112. The body consists of a number of cordons with one or more decorated zones. The decoration most commonly consists of fine vertically combed lines or occasionally rouletting. About two-thirds down, the wall curves into a concave profile to the foot. The exterior surface is usually polished. Local copies of girth beakers are quite common and Cam. 83, 85 and 87 represent copies of the imported forms Cam. 82, 84 and 86. Cam. 88 is a further copy, but in a Romanised fabric.

c. Globular beakers (Cam. 91) (Fig.14.4)

Small globular beaker with a slightly everted bead rim, most commonly made in T.R.3 although a single T.N. example has recently turned up at Clausentum (unpub.). The wall is either plain or decorated with fine vertically combed lines or as a single example from Vertault with concentric circles and a wavy design (Hawkes and Hull 1947, pl.LV;91B). The form is fairly rare in Britain although recently examples have been found at Chichester (Down 1978), Ower (Woodward forthcoming) and Dorchester-on-Thames (unpub. Ashmolean mus.). They seem to date to the Tiberio-Claudian period.

d. Butt Beakers (Cam. 111-119)

The butt beaker is the commonest of all the beaker types. Greene (1973) has suggested that the Mediterranean beakers of Vegas type 1 (Vegas 1964) inspired its development. This may in part be true but it is likely that other influences were also involved. One of the main problems with butt beakers is the date from which they were made in Gaul. An early origin is demonstrated by examples on the Celtic oppida sites of Gergovia (Labrousse 1950) and Mont Beuvray (Bulliot 1899) in Central France. Examples from the latter can be paralleled with examples from the Goeblingen-Nospelt graves A and B (Thill 1967) and a beaker from near Dover (Payne 1889). Butt beakers are also present at the oppida site of the Petrisberg near Trier (Loeschcke 1939), demonstrating the distribution of these types before the Augustan consolidation and advance into Germany in 16-15 B.C. Thus, on present evidence butt beaker production is earlier than that of T.R. or T.N. That butt beakers were made in Central Gaul is demonstrated by four examples from Lezoux dated to the Tiberian period (Plicque and Grenier 1961). Lezoux butt beakers also reached Britain as demonstrated by an example in the Lexden tumulus, which has yet to be closely dated (Foster pers. comm.). The Camulodunum classification starts with Cam. 111 of which only base fragments were recovered. These were made in a cream ware decorated with impressed comb designs. The form appears to be very similar to the Cam. 112 type.

Cam. 112 (Fig.14.5)

Characterised with an everted, lenticular rim similar to

Figure 14. Beakers.

1. Urmitz (Hawkes and Hull 1947,pl.LV).
- 2,4,5,6. Camulodunum (Hawkes and Hull 1947,pl.LV).
- 3,7. Nijmegen (Holwerda 1941,pl.II).
8. Dorchester-on-Thames, Oxon.,(Frere 1962,fig.12.9).

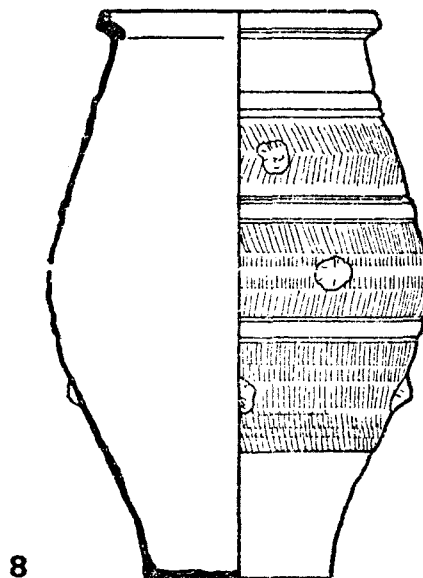
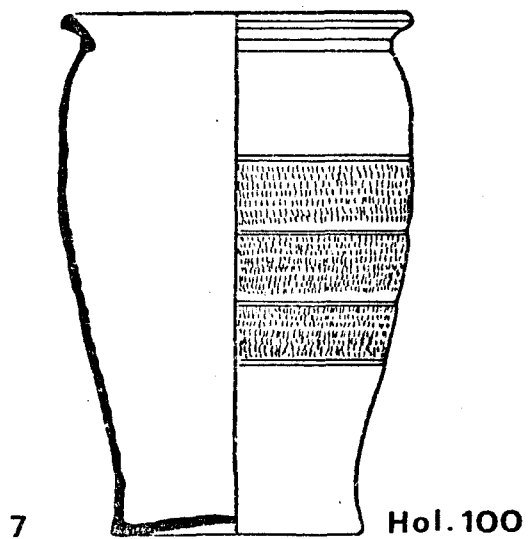
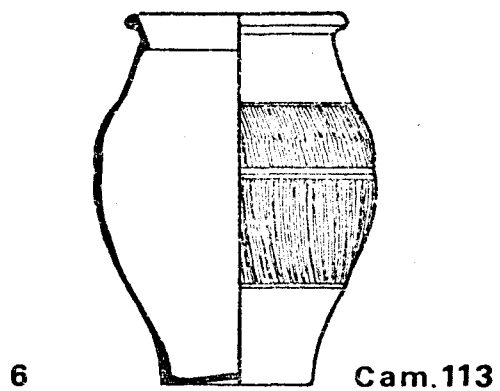
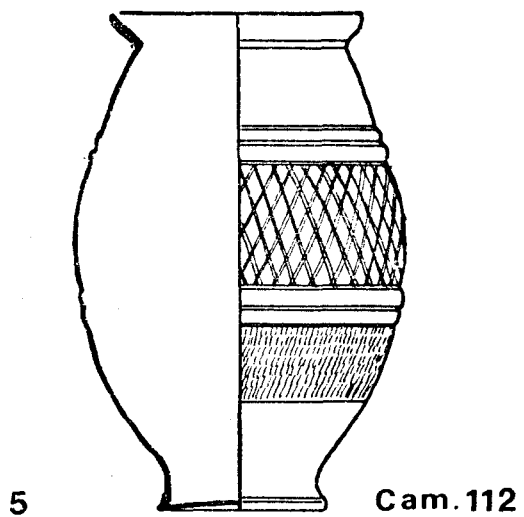
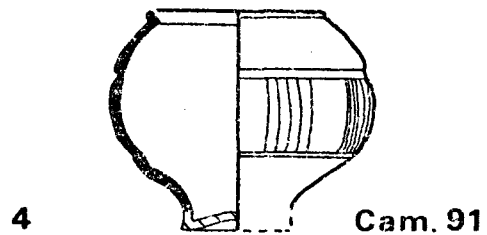
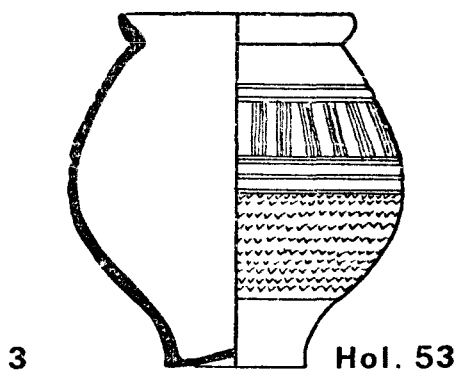
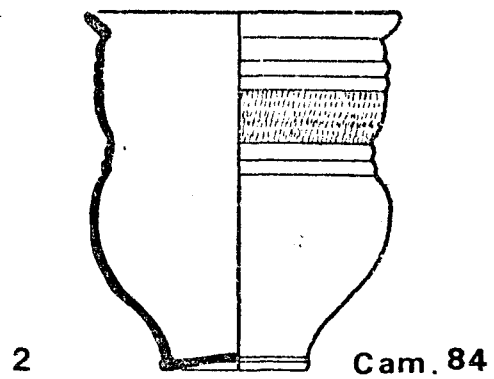
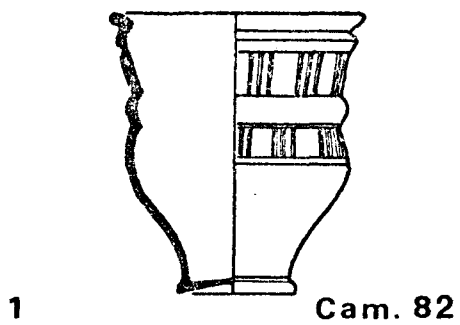


Figure 14.

that in the girth beaker, and a smooth symmetrical convex body curved in towards a grooved foot. The exterior surface is polished and generally decorated with two zones of decoration frequently with contrasting patterns. Various types of decoration are used, the most common being rouletting, either as fine lines, triangles or oval slits, or combing as vertical lines or double lined lattices. The decorated zones are usually demarcated by cordons and grooves.

Two further types of beaker obviously associated with the above are found on the Continent although are not present at Camulodunum. The first, found in great quantities at Nijmegen, is more angular in form with a less convex profile. It is generally fairly large in size and may have been produced in military kilns (Holwerda 1941, types 3-14), (Fig.14.7). The fabric is T.R.3 and decoration usually consists of rouletting. The second type, also an import, is produced in an orange sandy fabric with a polished orange exterior analogous to T.R.3 without the fuming. The vessels are extremely thin-walled and the form fairly similar to Cam. 112. Examples have been found at Dorchester-on-Thames, Oxfordshire (Frere 1962, Fig.12.9) and at the cemetery of Noyelles Godault in the Pas de Calais (Bastien and Demolon 1975). The rim is more squared than that of the Cam. 112 and the decoration has an additional element to it. This is in the form of applied clay bosses in the decorated zones which are usually rouletted (Fig.14.8). Each horizon has four or five bosses and there may be two or three horizons. Bossed beakers also occur in the Goeblingen-Nospelt graves dating to the Augustan-Tiberian period.

The butt beaker was extensively copied in Britain in the usual wide variety of fabrics already noted in other Gallo-Belgic imitations. These examples feature as Cam. 115-119. Of particular note is the development of one type, the white ware variety Cam. 113.

Cam. 113 (Fig.14.6)

The white ware butt beaker is characterised by a lipped everted rim and a slightly humped body decorated with zones of fine rouletting demarcated by cordons. The rim form is very distinctive with a flat bevelled interior surface sharply undercut on the inside. The walls are generally very thin and the vessels fairly standardised in shape and size. Cam. 113 were, until recently, thought to be restricted to Britain but similar examples have come to light at Nijmegen (unpub. Kam museum) and Amiens (Roffin and Vasselle 1966,621). The former example has an identical rim and white fabric but with a red painted interior whilst the latter, again typologically identical, is in a grey-brown fabric with a black polished surface.

Butt beakers of Cam. type 113 occur on a number of sites across southern England but the greatest concentration by far remains that at Colchester. This prompted Hawkes and Hull to suggest that the form was made at Colchester by continental potters (Hawkes and Hull 1947,238). More recently a kiln has been excavated at Chichester (Chapel Street) which was evidently used to fire butt beakers of Cam. 113 type in a range of colours including white, pale brown, red and dark brown (Down 1978).

A third type of related white ware beaker with a slightly more humped profile occurs in the Verulamium area which may also have been producing beakers in the second half of the 1st century A.D.

The final type of imported beaker in this series is the 'herring bone' barbotine decorated form Cam. 114.

Cam. 114 (Fig.15.1)

Like the Cam. 113 these were produced in a white fabric. The rim is similar to that of the Cam. 112 but slightly thicker, and the body is more globular. The exterior rim area and shoulder are usually covered with a mica-gilt slip or orange paint. Below this is the decorated zone of applied barbotine strips usually arranged in a 'herring bone' pattern. A few of the vessels have a red painted interior. On the Continent this form is referred to as a 'gräternbecher' (ridged beaker).

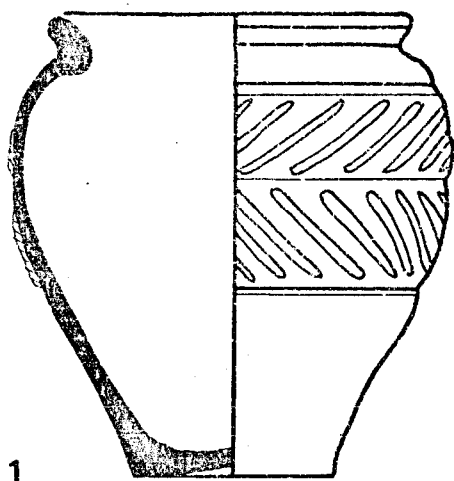
(v) Additional forms

Holwerda Form 21-23 (Fig.15.2)

A squat, globular jar/beaker usually found in a light grey T.N. fabric with a burnished exterior surface and a zone of decoration. None were found in the early excavations at Camulodunum and thus it does not feature in the Hawkes and Hull classification. Subsequently sherds have been identified in Britain, for example from Chester (Ward 1981,54) and Ower, Dorset (Timby forthcoming). It appears to date to the later 1st century A.D.

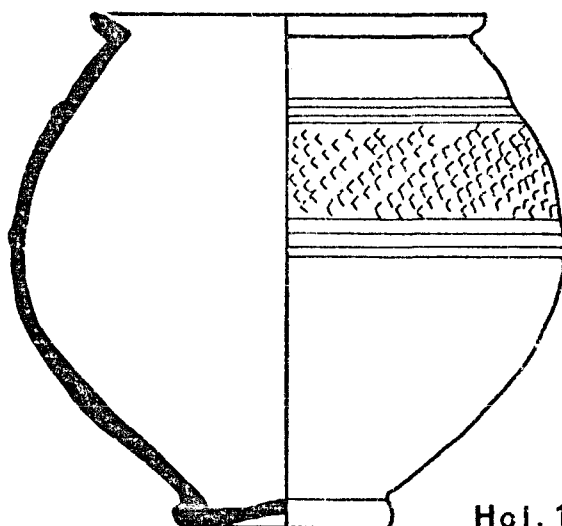
Cam. 120 (Holwerda form 23, Gose 318-319, Hofheim 113)
(Fig.15.3)

A carinated beaker (or biconical urn) produced in a number



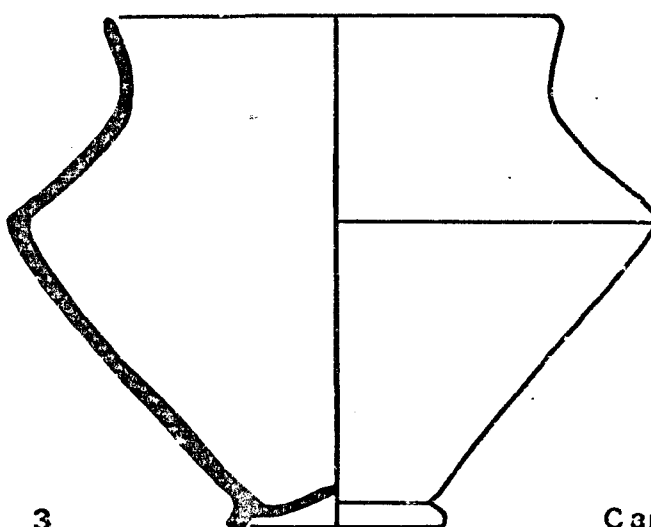
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Cam. 114



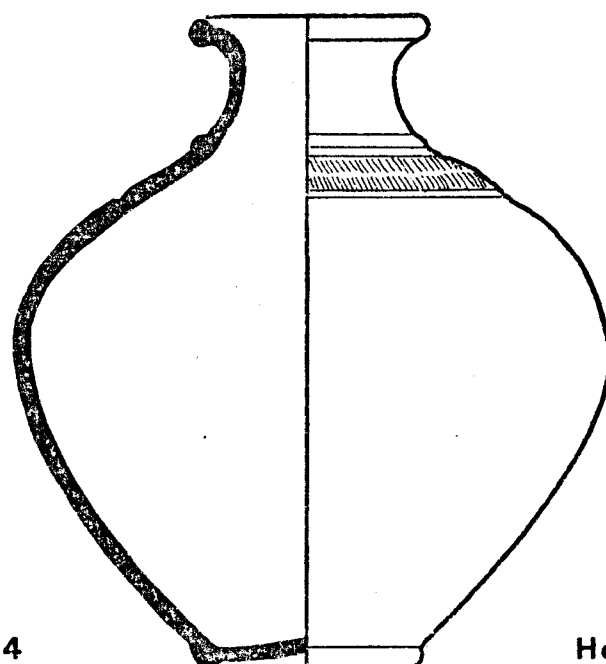
2

Hol. 140



3

Cam. 120



4

Hol. 203

Figure 15.

Scale 1:2

1,3. Camulodunum (Hawkes and Hull 1947, pl. LVII and LVIII).
2,4. Nijmegen (Holwerda 1941, pl. IV, form 21-3, pl. VI, form 25g).

of fabrics including a very thin, highly polished black ware analogous to T.N. It is found over a wide area and is a direct derivation from a La Tène prototype. Several examples have potters stamps impressed onto the underside of the base. This vessel is included here because it was produced within the province of Gallia Belgica, for example at Reims (Neiss pers. comm.) and Ehl (Schnitzler 1978) and shows many of the characteristics accepted as typical of T.N. Both Roman and native copies were made in Britain and on the Continent.

Holwerda form 25g (Fig.15.4)

A flask or bottle produced in T.N. type fabrics similar to the jar Holwerda forms 21-23. There is usually a decorative zone of rouletting or incised lines at the base of the neck and sometimes a further zone lower down the body of the vessel. Examples have only been recognised at Usk in Britain (Greene 1979, Fig.45.1) although the form is fairly common at Nijmegen (Holwerda 1941, pl.VI). Again it dates to the later half of the 1st century A.D.

(vi) Rare or unclassified forms

a. Terra Rubra

Fig.16.1 T.R. platter, Ower, Dorset (Timby forthcoming)

Represented by three rimsherds, from three different but typologically identical platters. The closest parallel for this form appears to be that of the Arretine service 1C (Loeschcke 1909, 137), which is similarly distinguished by an overhanging rim and internal tripartite division. The wall moulding can be paralleled by many of the Arretine examples at Haltern (Loeschcke *ibid.*, Abb.1, 1-5), but the slight

concavity of the external rim face is unique to these platters. The internal surface and external rim face are dark orange matt in colour originally displaying a highly polished finish. Hard fine sandy fabric, analogous to T.R.2. Fig.16.2,3 T.R. platters, Nijmegen (Holwerda 1941,pl.XIII 695 694, form 76)

Two T.R. platters typologically related to the above example and in these cases stamped radially with the potter's stamp Arantedus. A further related example has recently been published from Skeleton Green, Hertfordshire in T.R.1(C) (Rigby 1981, 171 type 18). The examples from Nijmegen are thought to date to the late Augustan-Tiberian period (Giebels pers. comms.).

Fig.16.4 T.R. platter, Nijmegen (Kam museum)

Small platter, variant of Cam. 7 with the central stamp Attissus. Interior decorated with a band of rouletting. Fabric T.R.2.

Fig.16.5 T.R. platter from Silchester (unpub. info. M. Corney)

Small platter, variant of Cam. 7 in T.R.1(A).

Fig.16.6 T.R. platter, Gatesbury (Rigby 1981, Fig.125.3)

A shallow platter with a flat base and overhanging rim in T.R.1(A). Several examples of this type have recently come to light on the Continent with a single known example in Britain from Gatesbury, Hertfordshire. The continental finds include Oberaden (Albrecht 1942, type 87), possibly Tarquimpol (Lutz 1977, Fig.1.10), and the Augustan graves at Wincheringen (Koethe and Kimmig 1937, Abb.2.12), Kröckelbiurg (Thill 1971) and Goebingen-Nospelt (Thill 1967).

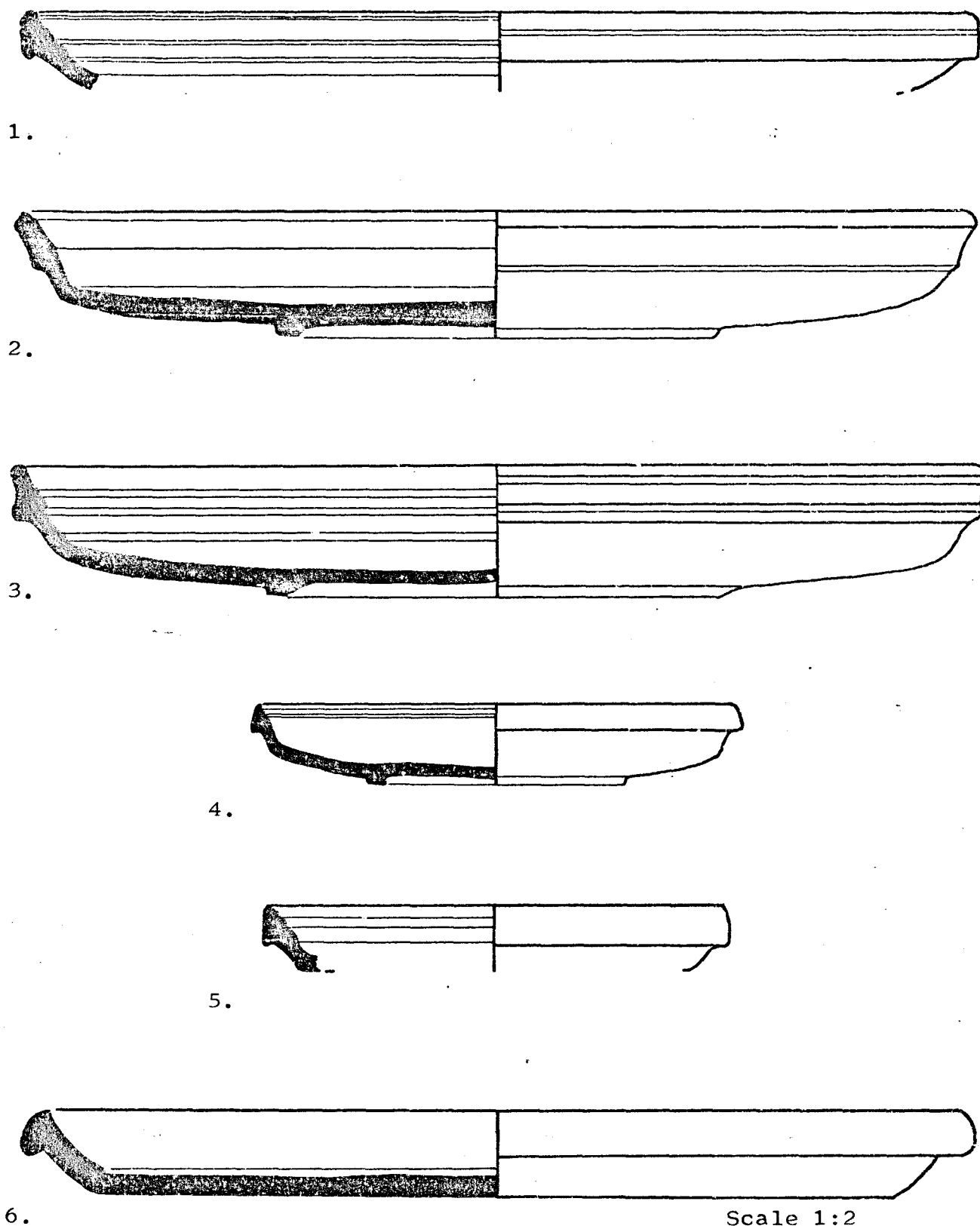


Figure 16. Rare or unclassified forms in Terra Rubra.

1. Ower (unpub. info. P. Woodward).
- 2,3. Nijmegen (Holwerda 1941, pl. XIII, 694, 695).
4. Nijmegen (unpub. Kam museum).
5. Silchester (unpub. info. M. Corney).
6. Gatesbury (Partridge 1981, fig. 125, 3).

Twelve examples in T.R. and one in T.N. were retrieved from graves A and B from the latter site. The form is probably one of the earliest types to be produced and examples feature amongst the kiln debris from Sept Saulx (Fromols 1939, pl.VII.4,5).

Fig.17.1 Cylindrical beaker, Nijmegen (Holwerda 1941,Pl.XI. 513)

Haltern type 16 in terra sigillata imitated in T.R. and less commonly in T.N. A tall vessel with vertical sides which probably evolved into the pedestal beaker series. Fragments were found at the kiln site of Sept Saulx (Fromols 1939,pl.1. 2) in T.R.1(A), and three or four examples were recovered from excavations at Aulnay-aux-Planches, Marne (Roualet 1974,pl.VII).

Fig.17.2 Cup, Skeleton Green (Partridge 1981,Fig.78.25).

Four examples of a small thin walled cup in T.R.1(B). A rare variant of Cam. 56.

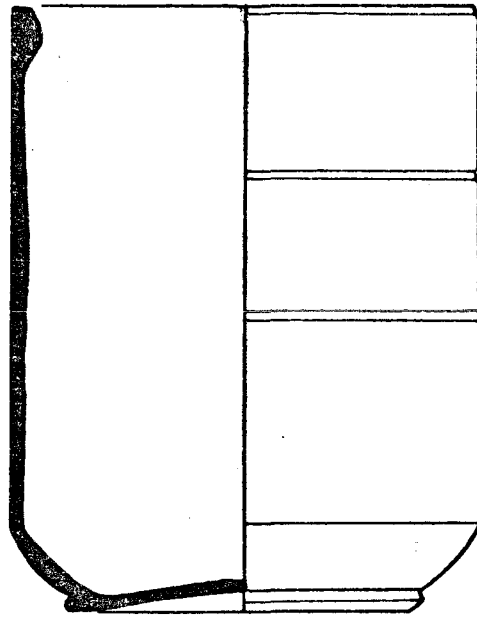
Fig.17.3 Cup, Gatesbury, Hertfordshire (Rigby 1981,334)

A small cup related to Cam. 54 made in T.R. and T.N. Two examples have been found in Britain at Gatesbury. Further examples are known from Oberaden (Albrecht 1942, type 91) and from the Augustan grave at Wincheringen (Koethe and Kimmig 1937,Abb.2.6a,b).

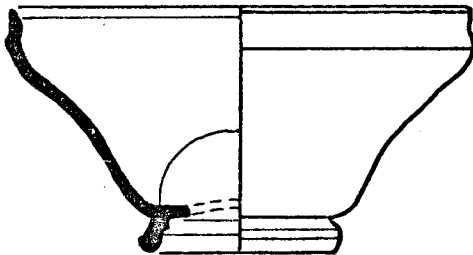
b. Terra Nigra

Fig.18.1 T.N. platter/shallow dish, Chichester (Down 1978, Fig.10.2.14)

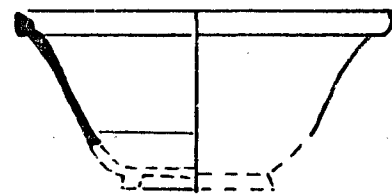
Rimsherd from a platter or disk in grey T.N. with an out-turned rim decorated with a band of rouletting. The form is at present unique in the Gallo-Belgic repertoire.



1.



2.



3.

Scale 1:2

Figure 17. Rare or unclassified forms in Terra Rubra.

1. Nijmegen (Holwerda 1941, pl. XI, 513)
2. Skeleton Green (Partridge 1981, fig. 78.25)
3. Gatesbury (Partridge 1981, fig. 125.15)

Fig.18.2 T.N. platter/shallow dish, Clausentum

(Southampton) (Cotton and Gathercole 1958, Fig.19.10)

Platter or shallow dish with a slightly out-turned rim and raised base furnished with a non functional footring.

Probably belongs to a later phase of manufacture.

Fig.18.3 T.N. platter, Nijmegen (Kam museum)

Small platter, variant of Cam. 7.

Fig.18.4 T.N. platter, Owlesbury (unpub., info. J. Collis)

Rimsherd from a large platter related to the moulded forms Cam. 3-5, in blue-grey T.N.

Fig.18.5 T.N. platter, Skeleton Green (Partridge 1981, Fig.77.24)

Large platter with mouldings, Rigby type 24 (Rigby 1981, 171).

Fig.18.6 T.N. platter, Gatesbury Track (Partridge 1979, Fig.33.3)

Platter, variant of Cam. 2 distinguished by an external horizontal groove.

Fig.18.7 Bowl, Goeblingen-Nospelt (Thill 1967, Taf.1, 10, 31)

Two examples of bowls with out-turned rims and a footstand typologically related to Cam. 53, and dating to the Augustan period. Similar examples occur at Oberaden (Albrecht 1942, type 90B) and from the Titelberg (Thill 1967, 201).

Figure 18.

Rare or unclassified forms in Terra Nigra.

1. Chichester (Down 1978,fig.10.2.14).
2. Clausentum (Cotton and Gathercole 1958,fig.19.10).
3. Nijmegen (unpub. Kam Museum).
4. Owslebury (unpub. info. J.Collis).
5. Skeleton Green (Partridge 1981,fig.77.24).
6. Braughing (Partridge 1979,fig.33.3).
7. Goeblingen-Nospelt (Thill 1967,Taf.1,31).

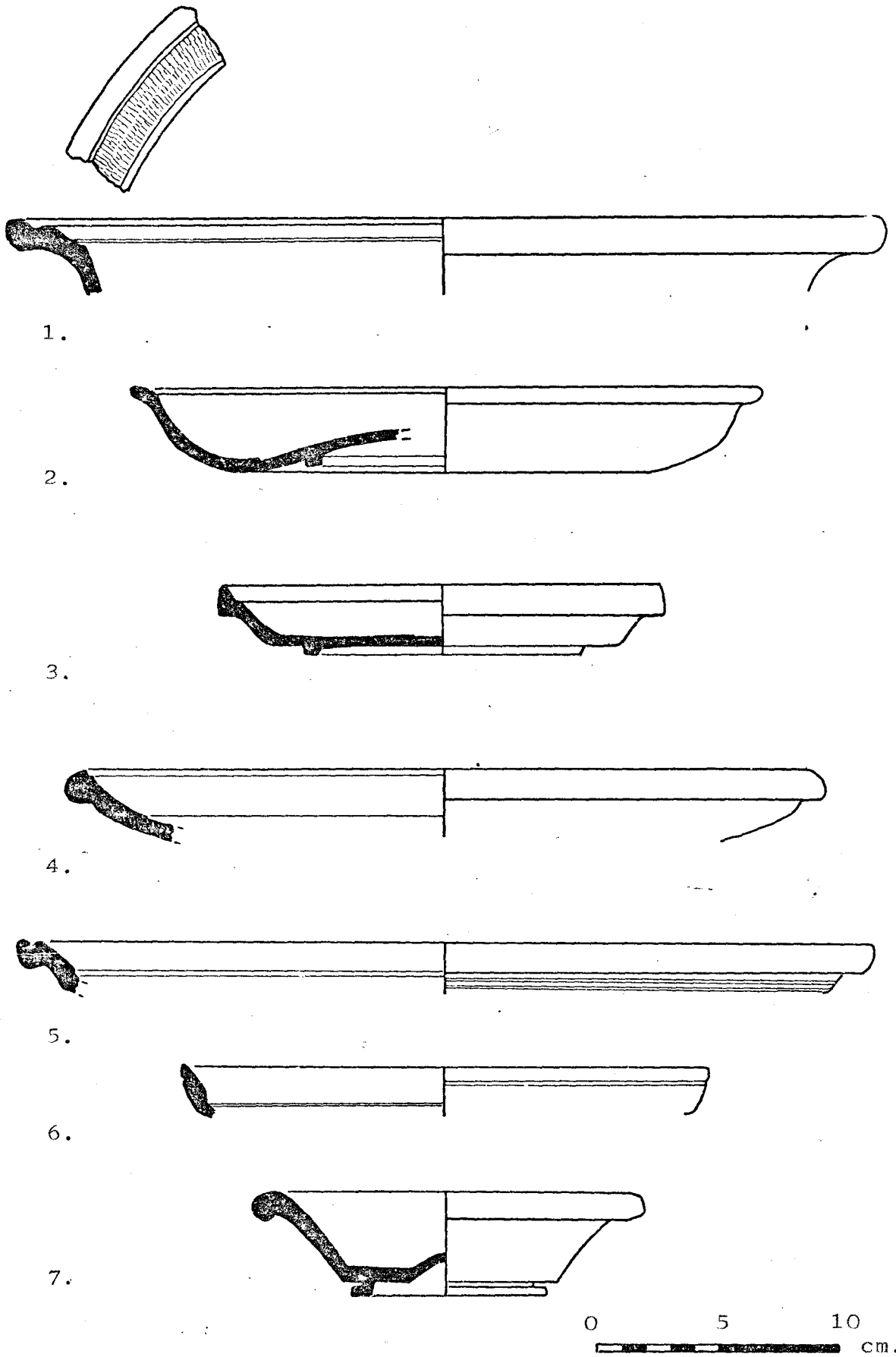


Figure 18.

CHAPTER THREE

PROVINCIAL FINE WARE DEVELOPMENT

'Maiores pars hominum terrenis utitur vasis'
(Pliny, Nat. Hist. Book XXXV, 12(46) 160)

3.1 Introduction

This chapter sets out to review the development of fine ware production in France and the Mediterranean from the later 1st century B.C. and the 1st century A.D. It is evident that there are a number of contemporary regional industries in operation prior to and concurrent with the production of Gallo-Belgic fine wares. Some of these industries may have contributed directly to the development of the industry while others indicate independent development from similar sources of inspiration. In all cases there has been some direct influence from the Mediterranean, both in terms of technology and the development of vessel shape. A summary of other contemporary fine ware industries in Gaul also has some validity to this work since it should not only put the Gallo-Belgic industry into perspective, but contribute both to understanding how the techniques and perhaps the potters moved and towards the construction of possible trade and import mechanisms.

The industries are considered as six broad geographic regions: (1) the Mediterranean, including Italy, Spain and southern France; (2) south-west France, in particular the Aquitaine; (3) central France; (4) eastern France; (5) the

Lower Rhine, north of Mainz; and (6) the Middle and Upper Rhine.

3.2 The West Mediterranean

(i) Arretine

The practice of using fine table wares originated in the Mediterranean regions, in particular Greece and later Italy. The origins of the red gloss tradition, culminating perhaps in the Roman samian industry can be traced back until at least the 2nd century B.C. when red gloss wares became popular at the expense of Hellenistic black glazed wares at places like Pergamon, Antioch and Samaria (Hayes 1972). In Italy this change in emphasis from black to red wares was slower to catch on and the black wares of the Campanian industry developed in the 5th and 4th centuries B.C., persisted into the 1st century B.C. when they were eventually succeeded by Arretine. Arretine was first made at Arezzo in Etruria in the early Augustan period at workshops which had previously been producing Campanian B ware (Goudineau 1968). From there it spread to other Italian workshops, for example Pisa and Puteoli. The principal period of production lasted from c. 30 B.C. to A.D. 20 although certain workshops continued until c. A.D. 40 (Lutz 1974). Italian Arretine was exported around the Mediterranean including Gaul where it was closely followed by the potters themselves, attracted perhaps by the north-western military market. Consequently workshops were set up in Gaul, at for example La Murette, Lyons, Lezoux and La Graufesenque (Williams 1978). At least some of these workshops were

branches belonging to Italian firms, like that of Ateius. Initially the immigrant potters used Italian moulds and techniques but these were gradually superceded as each workshop developed. A range of vessel types, new to the Gaulish repertoire were produced including both plain and relief decorated types which are considered to have originally evolved at Arezzo. Many of the wares were stamped with the potters name, a practice little used previously. Arretine rapidly dominated the Mediterranean market and both Italian and south Gaulish types have been found on many of the Augustan military sites on the Rhine frontier as well as on several sites in Britain (see Fig.19). The new forms introduced became the prototypes for further fine ware pottery development in both the eastern and western provinces.

By the mid 1st century A.D. Arretine had lost its supremacy to the competing Italian and Gaulish terra sigillata (samian) workshops. In Gaul these were initially concentrated in the south with further developments in the Central and Eastern regions in the 2nd and 3rd centuries A.D. Samian production also spread to Spain in the 1st century A.D. where the wares were mainly produced for the home market.

The first person to attempt to establish a typology for Arretine was Loeschcke (1909), using the material from the excavations at Haltern. He identified from this material 21 basic forms which fell into four services (I to IV). Service 1, which was considered as the earliest, was later subdivided into a, b and c by Vogt from further material excavated at Zurich, not present at Haltern (Vogt 1948).

Key to Figure 19.

The Distribution of "Arretine" Ware in Britain.

1. Fingringhoe, Essex.
2. Colchester, Essex.
3. Kelvedon, Essex.
4. Heybridge, Essex.
5. Pleshey, Essex.
6. Verulamium (St. Albans), Hertfordshire.
7. Skeleton Green / Gatesbury and Braughing,
Hertfordshire.
8. Bartlow, Cambridgeshire.
9. Foxton, Cambridgeshire.
10. Barrington, Cambridgeshire.
11. Oundle, Northamptonshire.
12. Leicester, Leicestershire.
13. Margidunum (Bingham), Nottinghamshire.
14. Bagendon, Gloucestershire.
15. Rodborough, Gloucestershire.
16. Silchester, Hampshire.
17. Fishbourne, Sussex.
18. Chichester, Sussex.
19. Canterbury, Kent.
20. London.

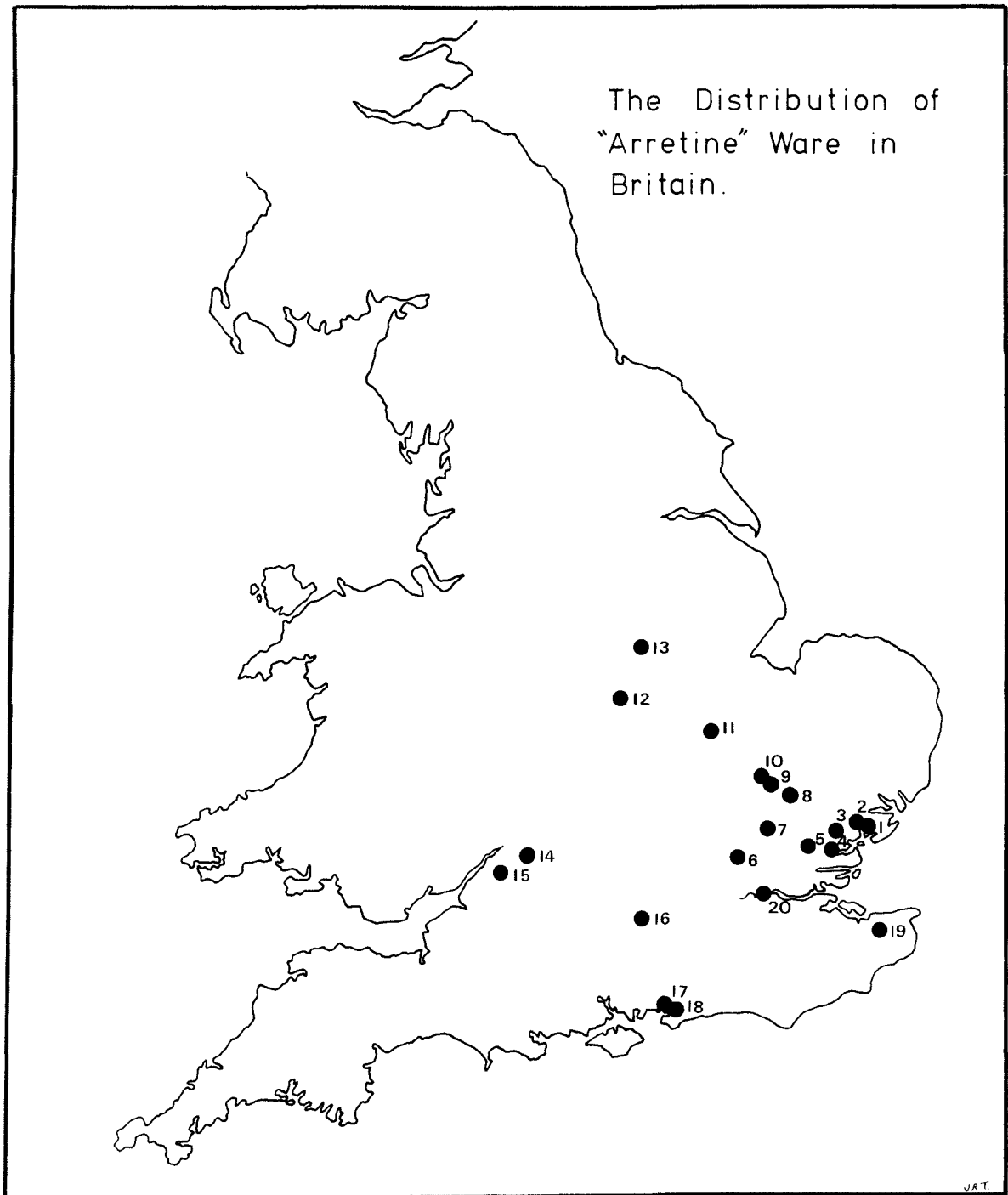


Figure 19.

Loeschcke's original classification is still adhered to in much of the literature despite its obvious drawbacks. This is partly due to the fact that much of the succeeding work particularly north of the Alps, on sigillata has used the scheme thus perpetuating it, and partly because the site of Haltern has the distinction of having occupation levels independently dated from the pottery evidence. It does not, however span the entire lifespan of the Arretine industry, having a terminus ante quem of c. A.D. 9. Loeschcke had presumed in his work that all the Arretine from Haltern originated from Italy. As almost half the products at Haltern consisted of wares stamped Ateius, he further suggested that Ateius was producing exclusively for the Roman army. The suggestion made by Oxé that, in order to account for such quantities Ateius must have been working elsewhere than just Arezzo was ignored at the time (Oxé 1943). It apparently did not occur to either Loeschcke, or Vogt, or at least the consideration was not taken up, that the typology they had evolved was not chronologically but geographically determined.

(ii) Thin-walled beakers (vases à parois minces)

Contemporary with the development of the Arretine and early samian industries in Italy and Gaul was that of the fine ware drinking vessels - cups and beakers, whose origins can also be traced back to the Mediterranean. These originally manifested themselves in the 1st century B.C. as plain thin-walled wares referred to collectively on the continent as 'vases à parois minces'. Much work has recently been devoted to the study of these wares both in Italy by Vegas

(1964), and Moevs (1973) and in Spain by Mayet (1975). A discussion in english on the thin-walled vessels and their later development into decorated cups and beakers in the Mediterranean, Central Gaul and the Rhineland has recently been published by Greene (Greene 1979), and therefore the industry will only be very briefly summarised here.

The thin-walled beaker with a concave rim (Vegas type 1, Mayet type I-III) was originally produced in the coastal area of northern Italy around Cosa, Sutri, Ostia and Tarracina in the late Republican and early Augustan period. Finds are largely concentrated around the Mediterranean coast (see Fig.20 for Mayet's distribution of type III (Mayet 1975)), with a few inland examples, some of which reach as far as the Rhine. In the 1st century B.C. the plain vessels were augmented with decorated examples displaying a range of techniques which include barbotine, either as dots or thorns, applied scales and notched cord impressions. A further development to this was the appearance of colour-coated wares in the Augustan and Tiberian periods and of cups, bowls and beakers with moulded decoration, typified by the beakers belonging to the firm of Aco, and the two-handled bowls stamped Sarius. Both these potters worked in northern Italy. Colour-coated bowls, both moulded and unmoulded and rough-cast beakers were produced at La Graufesenque (Balsan and Vernhet 1972) and possibly at Montans (Greene 1979,58). The production of the moulded vessels at these sites appears to date to the Claudian to Neronian period.

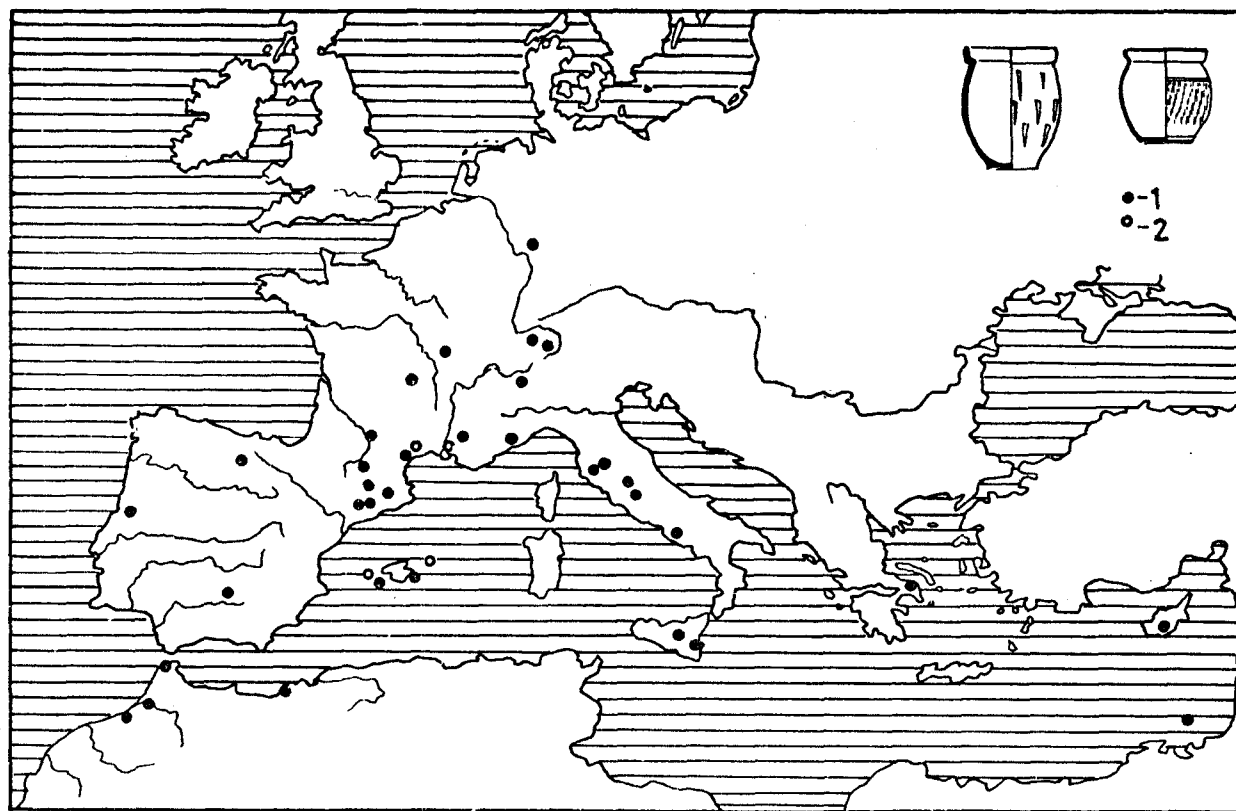


Figure 20.

Distribution of beakers Mayet form IIIa and IIIb, (after Mayet 1975).

3.3 Central Gaul

The Central region of Gaul covering the Auvergne, Allier and the area around and including Lyons can boast a long history of potting activity in the pre-Roman and early Roman periods. A variety of wares were produced including early samian, painted wares, lead glazed wares and white-ware figurines. Each main pottery type from this region belonging to the early Roman period is briefly described below since not only did these have some direct bearing on the development of pottery production in the north but channels of trade to the north and Britain were already been exploited, as evidenced by the distribution of Central Gaulish products in pre-conquest Britain.

(i) Painted wares

From the Hallstatt period through to the early 2nd century A.D., the traditional pottery of the Loire and Allier valleys consisted of painted wares. The earlier forms included tall vases not unlike the pedestalled vessels of the Marne, typified in the Aylesford-Swarling material in Britain, and barrel-like urns. In the early Roman period a number of new forms appeared, notably the hemispherical bowl, accompanied by a visible improvement in quality due to improved technology of production, although the same raw materials continued to be exploited. The vessels are characteristically decorated with geometric, zoomorphic or floral designs usually in red and white (Périchon 1974).

(ii) Red glazed wares (samian)

The influx of Arretine into Gaul in the 1st century B.C.

quickly stimulated the imitation of the new forms by Gallic potters. Such activity has been identified at Loyasse in Lyons and at Lezoux. The early imitations which attempted to copy not only the new forms but also the moulded decoration, colour and gloss finish were not very successful. The main reason for this failure was the clay used by the potters which was a non-calcareous variety widely used in the late La Tène period for potting. The best quality samian ware is produced from calcareous clays which were widely exploited in the Mediterranean for the production of fine wares like Campanian and Arretine. Alongside the inferior Gallic Arretine imitations are some higher quality goods which appear to be the products from immigrant potters also working in Gaul. Subsidiary workshops belonging to the Italian firm of Ateius were established at La Murette in Lyons from c. 10 B.C., where fragments of Italian moulds have been found (Widemann et al 1975). Chemical analysis using x-ray fluorescence and neutron activation has been used in the study of these early samian products manufactured in Gaul and has confirmed the presence of the Italian potters from Arezzo using their own equipment at Lyons (Widemann et al, *ibid*, 58). In the 2nd century A.D. the indigeneous potters at Lezoux changed from using non-calcareous to calcareous clays with a consequent improvement of product.

Intermixed with the material from the workshops at Lyons are a number of more traditional products other than samian and lamps, notably white painted vessels or examples with a micaceous or red slip which continue the tradition of using non-calcareous clays (Picon and Vertet 1970).

(iii) Beakers

The north Italian firm of Aco producing thin-walled decorated beakers also set up at least one subsidiary workshop in Central Gaul at La Murette, Lyons. The name Aco is found at La Murette in conjunction with those of Hilarius and Chrysippus (Vertet et al. 1968). Beakers stamped with Hilarius-Aco, presumably originating from La Murette were found in the Geoblingen-Nospelt graves A and B associated with early Gallo-Belgic products (Thill 1967). The main phase of production seems to date to the late Augustan-early Tiberian period (Vertet et al. 1968).

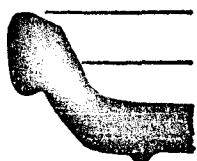
(iv) Reduced wares (Fig. 21)

A number of workshops in the Allier, notably St. Rémy-en-Rollat, Roanne and possibly Vichy amongst others, were producing reduced fine wares in the early Gallo-Roman period. The forms, mainly platters are derived from both Mediterranean and indigeneous prototypes, the platters in particular, showing affinities with Campanian and Arretine forms. In addition several of the platters are stamped with potters names, for example Maxmos and Decmos (Poncet 1974). The names have a Gallic rather than a Romanised antecedence and, like some of the Gallo-Belgic stamps the word 'avot' meaning 'made by' is frequently used. OF (Officina) and FE (Fecit), both latin in origin have not been found on the Central Gaulish reduced wares, only on contemporary samian. A few oxidised examples were produced alongside the reduced wares. Less well represented are the cup and bowl forms. Poncet defines three main platter and three main bowl types. Despite considerable diversity in shade and vessel form, the

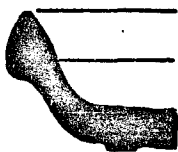
Figure 21.

Central Gaulish platters in reduced wares.

- 1-9. St. Rémy-en-Rollat (after Vertet 1961,fig.2).
10. Gergovia (after Labrousse 1950,fig.23).
11. Mont Beuvray (after Bemont 1972,fig.2.2).
12. Roanne (after Cabotse and Périchon 1966,fig.29.7).
13. Roanne (after Poncet 1974,pl.II,10).



1.



2.



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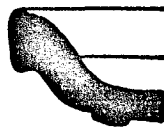
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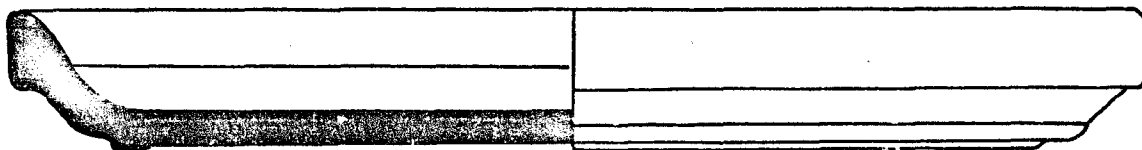
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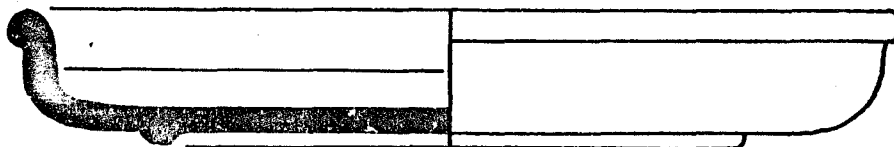
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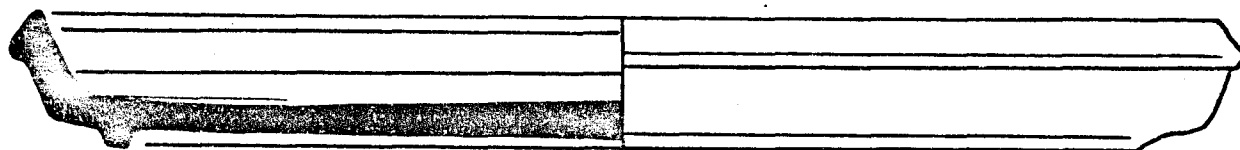
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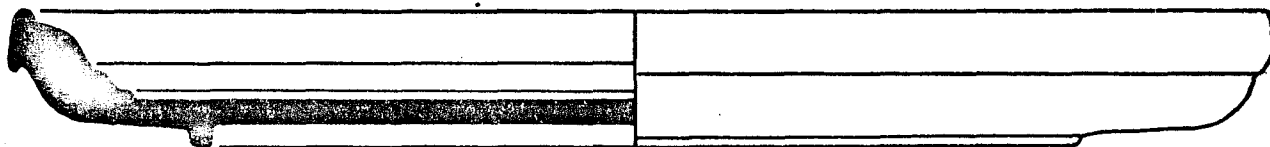
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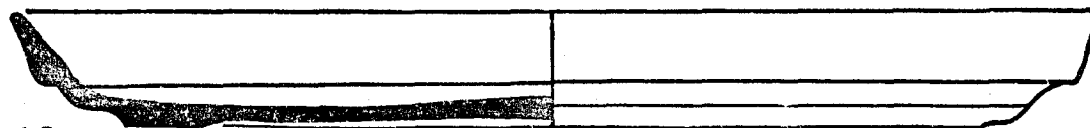
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11.



12.



13.

Scale 1:2

Figure 21.

Central Gaulish platters.

group as a whole presents a certain homogeneity, in its combination of both Italian and more traditional elements (Poncet *ibid*). In addition to the material published by Poncet there are some finds from excavations at the site of the 'nouvelle poste' in Roanne which include some different forms. Amongst these are platters analogous to Cam. form 2 and 7 and reduced ware ovoid beakers (Cabotse 1961, Fig. 2 and 3). Another collection of material from Vichy where it was possibly manufactured has also been published by Bemont (1972). There is a persistence amongst French archaeologists to label these wares from Central France with the same name as the Gallo-Belgic material from northern France, i.e. terra nigra (and terra rubra). Although contemporary the two industries are quite distinct. The material excavated from Roanne is mostly dated to the Tiberian period with very few examples lasting into the Claudian period. Examples have been found distributed locally, for example at the three oppida sites of Mont Beuvray (Bulliot 1899); Gergovia (Ward-Perkins 1940) and Chateaufumeillant (Cher) as well as further afield in Luxembourg and Britain.

It is increasingly apparent that many, if not all, the Central Gaulish samian centres, for example Lezoux, Lyons and Vichy, were producing in addition to the oxidised samian wares, annexe products which included reduced wares. The reason for this is unclear and will be discussed more fully in chapter nine. It has however, been suggested by Widemann et al. (1975) in their chemical work that the production of both reduced and oxidised wares from the same clay was a test of the quality of the clay by the potters. The most

suitable clay and the one preferred by the potters of Mediterranean extraction was one with a high lime content. It is only possible to fire these two extremes of colour from a calcareous clay and in addition obtain the high gloss finish characteristic of the best quality samian.

(v) White-ware figurines

White terra-cotta moulded statuettes were produced on a relatively large scale in the Allier from the 1st century A.D. A variety of subjects are represented mostly animals and various deities. A programme of neutron activation has been undertaken to identify the products from three workshops: Toulon-sur-Allier, Saint Bonnet and Thiel-sur-Acolin (Fontes et al. 1978). Other production centres are known at Vichy and St. Pourcain-sur-Besbre (Rouvier-Jeanlin 1975). The clay used is very fine quality with a low iron content, which is fired in an oxidising atmosphere. Laboratory analysis has shown the use of two different clays in the construction of the figurines shown by a ferruginous zone in the core. It has been suggested that the potter first spread a layer of white firing clay over the mould and then used a second clay to fill in the interior non-visible area (Rouvier-Jeanlin *ibid*, 95).

(vi) Colour-coated and glazed wares

Other contemporary subsidiary industries to the more prolific samian workshops in Central Gaul are those of the colour-coated and glazed vessels. The colour-coated examples, mostly consisting of small hemispherical cups and beakers were produced at several centres in Spain, Italy,

South and Central Gaul. The latter appear to have been produced at Lyons and Lezoux. Glazed ware, often with moulded relief decoration was produced from the early Tiberian period at centres like St. Rémy-en-Rollat and Lezoux. A full account of these wares has recently been published in Greene (1979), and Fig.22 shows a range of the vessels produced in this industry. Most of these can be regarded as table wares made to complement the samian services. The forms are completely unparalleled in the Gallo-Belgic repertoire. Examples were imported into Britain via the Rhine in the immediate post-conquest period, i.e. c. A.D. 43-70 (Greene 1979,47,99).

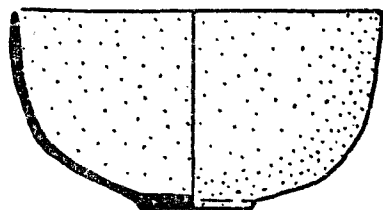
3.4 South-west Gaul : the Aquitaine

The Aquitaine, in particular the region around Saintes also possessed a thriving pottery industry from at least the late La Tène period. Pre-conquest kilns, i.e. pre 58 B.C., characteristic of the late La Tène have been excavated at the Saint-Vivien cemetery, Saintes (Santrot and Santrot 1979). Material from a large number of museum collections and from excavations in the area has recently been published by the Santrots' (ibid). A noticeable feature in the repertoire of forms described in this work is the number of fine wares which show a marked resemblance in form to Campanian and early sigillata. The most recurrent examples are the cups, also paralleled in the Gallo-Belgic potters repertoire. These include forms analogous to Cam. 56, an imitation of Ritterling 5/Loeschcke 7/8, produced in the Saintes workshops between 25 and 10 B.C., Cam. form 58, a

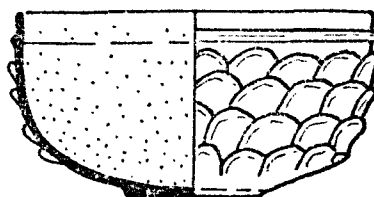
Figure 22.

Provincial auxiliary tablewares.

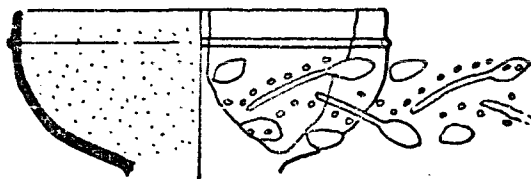
- 1,4,5. Cirencester (Greene 1979,fig.5.1.1,fig.6.5.1,
fig.8.20.1).
2. Nijmegen (Greene 1979,fig.6.5.1).
3. Salmonsbury, Glouc. (Greene 1979,fig.7.12).
6. Topsham, Devon (Greene 1979,fig.17.4).
7. Aramentia, Marvao, Spain (Mayet 1975,pl.LXIX,577).
8. Haut Alentejo, Portugal (Mayet 1975,pl.LXIV,530).
- 9,10. Cosa, North Italy (Greene 1979,fig.33.1,fig.33.7).



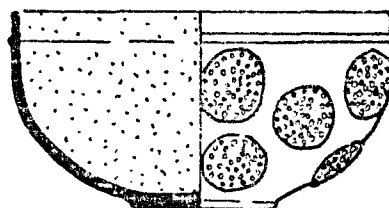
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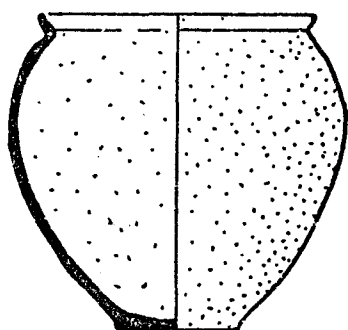


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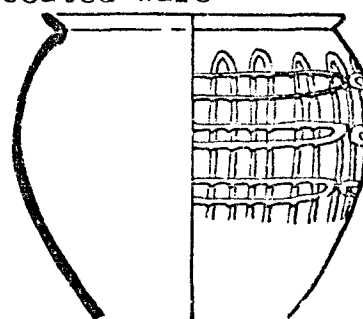


4.

Central Gaulish colour-coated ware

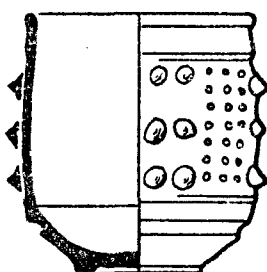


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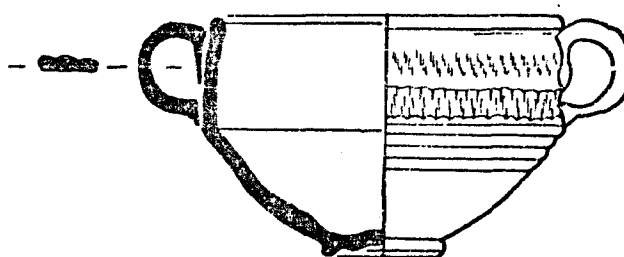


6.

Spanish colour-coated wares

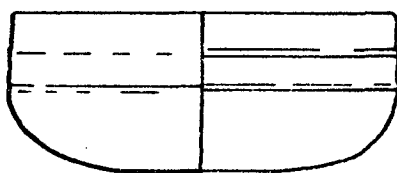


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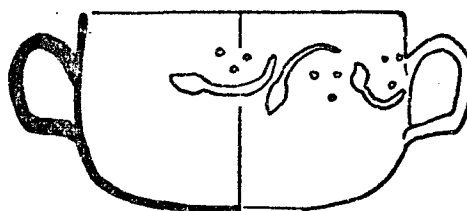


8.

Italian colour-coated wares



9.



10.

Scale 1:2

Figure 22.

Provincial auxiliary tablewares.

hemispherical cup with a flange current in the Bordeaux region in the first quarter of the 1st century A.D. and the Santrots' form 145 which imitates the sigillata form Dragendorff 46, the equivalent of Cam. 53, which is dated to the first quarter of the 1st century A.D. Other familiar forms are the 'vases bobines' (bobbin vessels), Santrot form 172, and Cam. form 51 produced in the period c. 25/20 B.C. to A.D. 20 and which appear in the Rhineland in the first half of the 1st century A.D.; the curved wall platter, Santrot form 56, reminiscent of Cam. 16, the platter Santrot form 62 which find parallel with Central Gaulish reduced ware platter Poncet type 2 (Poncet 1974) and the Campanian imitation Santrot form 58, identical to Cam. form 1.

In addition to the obvious imitation of Roman prototypes which include not only pottery, but metal and glass ware, the Aquitaine pottery industry like its counterparts in Central and North Gaul retains many traditional elements in the vessel form and style of production. Both types of firing were practised, that is, reduction and oxidisation. Recent excavations in the area have identified a large entrepôt on the Garonne estuary adjacent to the pottery producing area (Gourvest pers. comm.). Until recently products from the Saintes kilns were unknown in Britain despite evidence that the western seaways were used for the trading of amphora from Spain and the Mediterranean (Williams 1981).

Excavations in the Poole harbour area at Ower have produced a few shreds of black polished ware with a characteristic grey brown sandwiched core which include a hybrid version of

the carinated bowl, Santrot form 171 (Santrot and Santrot 1979) which may well originate from the Saintes region (Timby, forthcoming). Further examples comparable in form and fabric to the Aquitaine vessels have also been found from the late Iron Age at the Tranquesous, Guernsey (Burns 1977, Fig. 8 and Cunliffe pers. comm.).

3.5 North-east Gaul

(i) East Gaulish samian

Towards the end of the 1st century A.D., workshops in East Gaul, some new, some already established producing reduced wares, started producing samian ware. It has been suggested that the development of the East Gaulish samian industry which may or may not have involved the movement of potters from Central or South Gaul, was due in part to the political situation around A.D. 68-70 (Lutz 1975, 52). Workshops have been identified at Luxeuil, Offremont, La Madeleine, Heiligenberg, Ittenwiller, Blickweiler, Eschweiler-Hof, Haute-Yutz, Trier, Sinzig, Rheinzabern, Bouchepon, Chemery and Mittelbronn. Most of these sites came into existence during the 2nd century A.D. and at present only Bouchepon, Chemery and Luxeuil are known to have been working in the 1st century A.D. The workshops at Bouchepon by far the earliest dating from c. A.D. 20 produced reduced wares (Hatt 1968, 382). A marked expansion of activity occurred during the Flavian period when the grey 'Gallo-Belgic' wares were superseded by sigillata (Schnitzler 1978). The earliest potters known by name: Canaus, Rutaenus and Matu are thought to have come from the Arverne, and Lezoux

respectively although Rutaenus may have stopped off at Lezoux for a short time, since products with his name have been found there (Lutz 1975). The first phase of samian production at Boucheporn ended with a fire around A.D. 68-70. A second influx of potters arrived in the period A.D. 70-80 represented by Giamilo, Capitus and Pavillinus, again probably of Central Gaulish origin (Hatt 1968,382). In the Domitian period, the well known potter Saturnius together with other anonymous potters from Central Gaul also arrived and set up workshops at Boucheporn (Hatt 1979). Production at Luxeuil and Chemery did not commence until the last decade of the 1st century A.D.

3.6 The Lower Rhineland

Several pottery producing centres of varying size and importance have been attested in the Rhineland in the 1st century A.D. In the lower Rhineland these are mostly military in origin and consequently the wares are Mediterranean in form. Many of the early forts, for example Haltern, Nijmegen and Xanten produced their own pottery. The Lower Rhineland is divided both geographically and politically from the Upper Rhineland during the Roman period, forming Germania Inferior and Germania Superior respectively, the division between the two falling across the Rhine gorge near Andernach. The pottery development in each of these areas is correspondingly very different.

Amongst the products featured in the Lower Rhine are numerous colour-coated wares produced in the Claudio-Neronian

period and mainly found on the military sites (Anderson 1980; Greene 1979). Cologne formed one of the major producers of these wares during the pre-Flavian period (Binsfeld 1964). Evidence that the troops stationed along the Rhine were predominantly from Italy during the Augustan to Caligulan period has been demonstrated epigraphically (Webster 1969). It is thus not surprising that much of the pottery produced is Mediterranean in inspiration, like the imitation Arretine and lamps produced at Beckinghausen on the Lippe (unpub. cited by Schönberger 1969, 149) and the hemispherical cups produced at Xanten from the early Augustan period (Greene 1979, 56).

3.7 Middle and Upper Rhineland

This stretch of the Rhine, although covering a greater area, had fewer military installations. The pottery assemblages from these sites tend to be slightly more mixed than the northern forts containing a marked native element particularly amongst the coarse wares. This is apparent at Bad Nauheim, Rödgen and Vindonissa amongst others. It has been suggested by Greene that the army in this area was able to draw more heavily on pre-existing local supplies which were not available in the north (Greene 1973). This was evidently not sufficient on its own since most, if not all the forts, particularly those in the Wetterau, for example, Hofheim, were producing their own wares. Perhaps one of the most prominent kiln producing sites from this area is that of Mainz-Weisenau where at least 43 Roman kilns have been discovered (Pfeffer 1977). Some of these were in operation

from at least the Tiberian period and these were producing amongst other types grey-ware globular butt beakers with rouletted decoration (Behrens 1915, Abb.7). A mould from an Aco beaker was also recovered during earlier excavations (Behrens 1915, Abb.2) although there has been no further evidence to suggest that Aco had another branch office here. Among the earlier material, mixed with the Roman wares are traditional La Tène types including hand-made vessels (Pfeffer 1977). Ettlinger, in tracing the development of pottery in the Rhineland, has noted many similar elements which can be accounted for by identifying the movements of individual legions. The example cited is the similarity between some of the vessels produced at the Holdeurn kilns at Nijmegen, in particular a flagon type and those at the legionary base at Vindonissa and the presence of elements at both these sites which can be found in Pannonian wares. The reason for this is clear when it is found that the XIth legion came to Vindonissa from Burnurn, near Spalato in Dalmatia in A.D. 70, whilst the Xth legion arrived at Nijmegen from Carnuntum in Pannonia via Spain about the same time (Ettlinger 1951).

CHAPTER FOUR

THE CHRONOLOGICAL BASIS OF THE EARLY ROMAN PERIOD AND THE DATING OF THE GALLO-BELGIC INDUSTRY

'Time's wheel runs back or stops; potter and clay endure'. (R. Browning: Rabbi ben Ezra XXVII)

4.1 Introduction

Modern dating techniques have on the whole produced very little impact on Iron Age and Roman studies, which usually rely on the more traditional archaeological techniques of cross dating to establish a sequence of changing types through time. Such sequences can be tied down at points where absolute dates can be established (Hodson 1964). For the La Tène period of the later Iron Age absolute dates are obtainable from three main sources: contexts in which classical imports occur, where objects embodying dateable classical influence such as an artistic or architectural style are found, and where La Tène imports occur in a classically or historically dated context. None of these methods are necessarily very precise and a number of biases can be introduced. The increased variability in the life history of particularly prestigious items, stylistic conservatism by specific workshops and the question of residuality are just three such problems.

In the early Roman period the whole framework of dating shifts to one almost entirely based on artifactual material that can be related to a context dated historically through

literary or numismatic evidence. The primary artifact used to establish such a relative chronology is pottery, in particular fine wares. It is in such a context that Gallo-Belgic fine wares, along with Arretine and samian have come to be regarded as useful chronological indicators for horizons dating to the early Roman period with which this study is concerned.

4.2 The Validity of Pottery as a Chronological Indicator

Before considering the chronology of the period in detail, it is perhaps worthwhile to enumerate some of the problems inherent in using pottery as a chronological indicator. This will help evaluate the potential or otherwise of Gallo-Belgic wares as a means of dating.

Pottery can only be used as a tool for dating archaeological contexts in relative terms, through the establishment of a sequence of changing types. A high degree of accuracy therefore cannot be expected where pottery forms the only means of dating, which is so often the case. Fine wares are better suited to such purposes since they are very vulnerable to changes in fashion and therefore have a shorter lifespan than the majority of contemporary coarsewares. One fine ware may 'displace another without altering the substratum of the local everyday and heavy duty wares' (Clarke 1976,464). Furthermore fine wares are specialist products which become widely copied and exchanged beyond their sources of production. They are therefore distinctive and easily identifiable with a wide geographical distribution.

However, to be of any real use several examples of the same form or preferably several comparable forms are needed to provide a reliable terminus post quem for the deposit involved. Even if the place and date of manufacture can be assigned to a particular workshop and the vessels in question recognised by a potter's stamp or some other characteristic trait there are many intervening and complicating factors operating between the time the pot was made and the time and place of its deposition, at which point it is recorded in the archaeological record. The time lapse between these two events, that is, manufacture and subsequent discard or loss, is difficult and in most cases impossible to determine. It is necessary, firstly to understand the mechanisms by which the vessel was moved from its place of origin, be it by trade, as part of a supply system, through exchange or by some other means. The curation of prestigious objects as 'family heirlooms', the selling off of surplus out of date stock from military warehouses and the role of post depositional factors are just three such problems that should be taken into account. A further factor is the time taken for new styles to spread to other workshops and the degree and competency to which imitations were made.

A final consideration to be borne in mind when using pottery for dating is one which the earlier workers on Arretine overlooked, namely that differences in style may not necessarily indicate a typological or even technological succession but may represent 'contemporary regional or village variants or even the idiosyncratic products of individuals' (Thomas and Erich 1970, 149). This factor may be of

particular relevance with regard to the Gallo-Belgic industry which is marked in its earlier stages by a wide variety of styles and variants on a theme which could well indicate a period of 'experimentation' by contemporary workshops.

4.3 The early Roman period

In theory Gallo-Belgic wares should be extremely advantageous as chronological indicators for this period due to their relatively short lifespan and fairly widespread occurrence over north-east France, Belgium, Luxembourg, West Germany, Holland and Britain. With the possible exception of some of the coinages, there is no other single artifact covering such a large territory at this time. The one major drawback in the use of Gallo-Belgic fine wares in this manner is the lack of points where its presence can be tied down to absolute dates, especially in Britain. The number of contexts with Gallo-Belgic wares that can be independently dated are limited to the military sites along the Rhine frontier and to a number of dated graves mostly located in the Rhineland. Three main sources of evidence are used to date these sites: (1) numismatic; (2) literary and epigraphic works; and (3) samian (terra sigillata).

(i) Numismatic evidence

The majority of the coins from the Augustan military sites on the Rhine on which the backbone of the chronology of the early Roman period is based are usually from one of three mints, the senatorial mint in Rome, and two other mints based at Lyons (Lugdunum) and Nîmes (Nemausus). The Rome

series are considered to date from 19-15 B.C. to 3-2 B.C. and the Lyons altar series from 10 B.C. The dating of the Nemausus series is slightly more controversial and the argument is discussed in full in Wells (1972,266). The summary of this discussion places the first issues of this series at c. 88-20 B.C. with a later issue produced at c. 8 B.C. or soon after (Wells *ibid.*). The later Nemausus issues and the Lyons altar series are absent from the early Augustan sites at Oberaden, Rödgen and Dangstetten all abandoned c. 8/9 B.C., but are present at Haltern occupied from 11 B.C. to A.D. 9.

Earlier coinages existed in Gaul from the 3rd/4th century B.C. and in Britain from the mid 2nd to early 1st century B.C. (Kent 1981,41) prior to the circulation of Roman issues. Most of this early coinage consisted of high denomination issues in gold and silver. After Caesar's conquest of Gaul this type of coinage rapidly disappeared to be replaced by silver and bronze (Allen 1970,14), a similar process occurring in Britain after the conquest in A.D. 43. The main problem with these early Celtic coins is that of their date. Hoards or the occurrence of several coins of different type associated with pottery or other dateable objects from a well defined archaeological context, afford the only reliable means of dating, by establishing a sequence of changing types. Scheers working in the Low Countries and France uses historical events to form a framework for understanding the coinage in these regions (Scheers 1972;1977). In Britain the Gallic wars are used as the only reference point for coinage since these are considered to be

responsible for the main introduction of coinage into south-east England (Cunliffe 1981). The early coins in Britain are intrusive, coming from across the channel in a series of waves commencing c. 100-80 B.C. and these are labelled 'Gallo-Belgic A to F'. These led to local British developments inscribed with the names of individuals taken to represent important political figures and sometimes bearing a mint mark. The distribution of these coins is seen by many as representative of spheres of tribal influence (Allen 1944; Cunliffe 1974; Rodwell 1976) and by others, in particular the later Gallo-Belgic series, to represent social systems reflecting social and economic relationships (Collis 1971). Some pre-Claudian Roman coins have been found in Britain mostly in unstratified contexts. A few of these must have come with the army in A.D. 43-44, but some appear to have arrived earlier (Rodwell 1976, 285); unfortunately these have never been adequately recorded to give any reliable dates.

(ii) Literary and Epigraphic evidence

Much of the historical and geographical information concerning the period from the 1st century B.C. onwards, described by Kent as the 'penumbral zone between prehistory and history' (Kent 1981, 40) has been built up from the written evidence of contemporary writers. Of these, the works of Strabo (64-3 B.C. - A.D. 21) and Pliny the Elder (A.D. 23/4 - 79) are perhaps best known for their geographical information and Caesar (100-44 B.C.), Tacitus (A.D. 55-120) and Dio Cassius (A.D. 155/164 - 231) for the recording of historical events. There have been many problems in the use of such

evidence to reconstruct the historical record, not least the reliability of the narrative, the biases of the authors themselves and errors in interpretation.

The first work of relevance to this period of study is that of the 'Gallic wars' by Caesar, the first of the Roman authors, where he describes his own campaigns mainly in Gaul with later incursions into Germany and Britain. Opinion is divided as to whether Caesar wrote this work, comprising of eight books, over a period of time or at the same time in 52 B.C. after the defeat of Vercingetorix (Handford 1951,24). Hachmann(1976) believes that each of his 'commentaries' were written down annually or after each important period of military activity, which would account for the contradictory statements often found in different parts of the work, the information being updated as new facts became available. The work was compiled partly as a personal propaganda to impress his political contemporaries and partly to provide an historical record of the events that took place. In the past considerable effort has been made by scholars to marry Caesar's narrative, and indeed those of the other classical scholars, with known sites and evidence as shown in the archaeological record. This has unfortunately led to some distortion of the evidence, where the problems arise not so much from the archaeological evidence, but rather in the misinterpretation of the literary evidence. Writers such as Dio writing some time after the actual events had taken place were often very vague about actual names, places and exact dates. Historical events between the death of Augustus in A.D. 14 and that of Nero in A.D. 68 are recorded

in the 'Annals' written by Tacitus with the successive period of A.D. 69 to A.D. 96 recorded in his 'Histories'. Both these works have incompletely survived through the centuries and there are many gaps, most important of which is that between A.D. 37 and A.D. 47 covering the conquest of Britain. The works were only written later in Tacitus' life after he had already completed his biography of the governor Agricola and a detailed account of the origin and history of Germany in 'Germania'. The gaps in the record are filled mainly by the works of Dio Cassius supplemented by a number of lesser writers like Suetonius (Hassall 1970). It is thought that much of Dio's work of which only one third remains is based on that of Tacitus with additional extracts from Livy and Polybius (Cary, no date). Further evidence concerning individuals, events and place names can be gleaned from the numerous fragments of inscriptions on military tombstones, altars, building stones and other dedicatory works which fill in some of the factual gaps left by the literary works.

(iii) Terra sigillata

In the absence of, or in addition to numismatic and literary evidence, terra sigillata is the next most widely used method of dating early Roman sites. Its incidence on sites such as Oberaden and Haltern dated by the first two means, has enabled a very detailed typology to be established against which many sites are dated. Pottery sherds, like coins, only give a terminus post quem for the deposits in which they are found, and it is often impossible to assess the vessel's life history from its production site to its

final deposition and thus how long it has been in circulation.

Doubt and caution have recently been cast upon the use of early sigillata as the only means of dating individual sites by Wells (1977b). As a result of more detailed provenance work by Picon and others (cf. Picon and Vertet 1970; Widemann et al. 1975) it is now known that not all of the sigillata examined and typologically ordered by Loeschcke (1909) originated from the same workshop but from several centres in Italy and Gaul. The differences reflected typologically therefore, are not necessarily chronological differences as assumed by Loeschcke but are more likely to be the development of different styles at the various geographically separated but temporally related workshops. Moreover, it has been pointed out that different workshops are likely to develop their own styles along similar lines but not quite exactly like their parent firm or other workshops (Wells 1977b, 134). It was not until the later Augustan period that the new South Gaulish sigillata appeared. These wares are apparently absent at Haltern but are present together with Italian type sigillata in the lowest occupation levels at Vindonissa (Ettlinger and Simonett 1952) suggesting that south Gaulish sigillata was in production shortly after the abandonment of Haltern in A.D. 9. The initial stages of the industry are marked by a wide variety of forms and styles, some experimental and it was not until the second century A.D. that the range of forms became more standardised and slightly more conservative.

4.4 Military Evidence

(i) The Rhine Frontier

As already mentioned the chronological basis of the early Roman period hinges on the establishment from the early Augustan period of a series of military bases along the Rhine frontier. One of the earliest of these bases to be excavated and one which has until recently contributed most to the establishment of a relative chronology and pottery typology is the complex at Haltern on the north bank of the river Lippe. There are several separate sites at Haltern which include a legionary base, partially overlying an earlier marching camp. The first area to be occupied and to be excavated however, was a fortress site 1.4 km south-west of the legionary base at the site known as the Annaberg. Just to the north-east of the base is a further fort site at Hofestatt with at least four superimposed phases, while to the south-east there is a further complex by the river interpreted as a stores compound. The Annaberg fort produced a small amount of pottery including a few 'Belgic' (i.e. Gallo-Belgic) sherds and next to no sigillata. Excavation at this site was very limited owing to the discovery of the stores compound which produced large amounts of pottery including sigillata. Loeschcke has argued that the pottery from the Annaberg fort and the stores compound are similar and therefore must be contemporary. Recent reassessment, however, has suggested that the two sites may have been founded around the same time but that the Annaberg was only occupied for a very brief period whereas occupation continued for some time in the compound, overlapping with the foundation

of the legionary base (Wells 1972,167). The legionary base was thought to have been founded c. 7/8 B.C. and destroyed by fire in A.D. 9. The forts on the Hofestatt have not been dated very closely, although the first of these, despite a total absence of finds, is thought to have been established prior to A.D. 9 (Wells 1972,206). Most of Loeschcke's work published in 1909 was based on the pottery from the legionary base. Gallo-Belgic wares were present in small quantities from the earliest levels, where it was noted that T.R. tended to occur more frequently than T.N. although this ratio changed in later levels (Loeschcke 1909,262). The great advantage of the scheme devised at Haltern is that the archaeological levels could be independently dated from the pottery, thus Haltern dates the pots not vice-versa.

More recently a new site has come to light at Bad Nauheim which appears to be contemporary with Haltern with a similar range of pottery (Schönberger and Simon 1976,225).

Since the pioneer work at Haltern a large number of other forts have been excavated along the frontier. The exact date of the first base is at present unknown but can probably be placed between 16 and 13 B.C. (Schönberger 1969,144). Several sites can now be dated to the campaigns of Drusus in the second decade B.C. including Vetera I (Xanten), Mainz (Mogontiacum), Neuss (Novaesium) and Vechten (Fectio). Also early is the military site at Oberaden on the Lippe founded 11/10 B.C. and abandoned shortly after in 9 B.C. after the accidental death of Drusus (Albrecht 1938;1942). The dating originally based on literary and numismatic evidence has

found further confirmation in the modern dating techniques of dendrochronology. Green timbers used in the early structural phases gave dates of c. 10 B.C. (Haffner 1979). Contemporary with Oberaden is the supply base at Rödgen and the fort at Beckinghausen forming a link between Oberaden and the Rhine (Wells 1972,220). The pottery from these three sites is very similar and the presence of Gallo-Belgic wares is certainly attested at the former two. The forms present would suggest that the Gallo-Belgic industry was only in a formative stage prior to 10 B.C. and as at the early levels at Haltern, T.R. wares tend to dominate T.N. types. The platter Cam. form 5 and the dish Cam. form 52-53 feature at both sites.

There are now known to be further legionary bases in the Lower and Middle Rhine whose foundations can be placed in the Augustan period. These are Vetera I (Xanten), Mainz, Neuss and Vechten already mentioned as belonging to the second decade B.C., which are followed slightly later by Nijmegen and Cologne probably not founded until c. A.D. 9. The legionary base at Neuss probably founded under Claudius was recently found to have adjacent to it seven successive forts or legionary bases of the Augustan-Tiberian period of which the earliest appeared to date sometime within the third decade B.C. (Wells *ibid*,127). It is presumed that there are several more as yet undiscovered sites belonging to the Augustan period and Wells suggests the following as possibilities: Asberg, Bonn, Koblenz, Andernach, Urmitz, Bingen and Speyer (Wells *ibid*,97). Later forts are known at Wiesbaden (Claudian and Flavian), Friedberg, Bad Nauheim and

Hochst-am-Main, where in all cases there has been some argument for preceding Augustan occupation (Simon 1960). Gallo-Belgic fine wares have been found in varying quantities at all the above mentioned sites although in many cases the contexts of the finds are uncertain. At the end of the Augustan period many of the existing forts were gradually rebuilt or extended and a number of new sites created, for example Koln-Alteburg, Remagen, Koblenz and Hofheim. Between A.D. 30-40 the legionary fortress at Cologne was evacuated and its two legions posted to Neuss and Bonn. The fort at Hofheim built c. A.D. 40, was linked by Ritterling to the wars of Caligula in A.D. 39-40. Ritterling further concluded that the fort was destroyed in A.D. 50-51 and not rebuilt until A.D. 70 (Ritterling 1912). These conclusions have subsequently been questioned and in current opinion the fort was not thought to have been destroyed until the Batavian revolt in A.D. 69-70 and that it was once more occupied after this for a short time until perhaps A.D. 83 (Schönberger 1969; Stuart 1976,14). The range of Gallo-Belgic forms from the excavations at Hofheim is basically similar to that from Haltern with a few slight differences. T.N. Cam. forms 1,2,53 and beaker forms are present at Haltern but not at Hofheim which possesses instead the slightly later forms Cam. 16 and 58 not at Haltern. There is also a greater range of beaker types in both T.R. and T.N. at Haltern which are scarce or absent at Hofheim.

After A.D. 69-70 to the end of the 1st century there was a thorough reorganisation of the frontiers. As a result a new legionary fortress was established at Nijmegen and the

destroyed Vetera I was replaced by Vetera II sited 1.5 km nearer the Rhine. The presence of Gallo-Belgic wares is no longer a feature of these later sites where samian fulfills any demand for fine table wares.

(ii) Military sites in Britain

The dating of pottery from military sites in Britain in the 1st century A.D. is not easy and such sites are generally better dated by other evidence. Since its publication in 1947 the pottery from the Camulodunum excavations has been fairly extensively used in the dating of other sites in Britain but since the dating of this material itself rests on the Augustan military sites on the Rhine it cannot be regarded as very secure. Darling (1977) has emphasised the wide range of vessels present on the early military sites where the great variety of style and form represent a fusion of pottery traditions, native and immigrant. Samian wares have generally formed the primary method by which these sites are dated.

4.5 Dated graves

Apart from the military sites the only other major context in which Gallo-Belgic wares occur in association with other dateable objects is that of rich burials with grave goods. Compared with the large number of excavated graves which have contained Gallo-Belgic products the percentage which can actually be dated is very low. The cemetery at Wederath in the Rhineland, for example, only contained nine graves out of the 1259 excavated with coins and Gallo-Belgic wares,

and only two graves with samian and Gallo-Belgic wares together (Haffner 1971;1974a;1978). There are several other graves mostly in the Rhineland with additional examples in Luxembourg, for example Sampont, which can be dated on coin evidence. These are nearly all early in date belonging to the Augustan-Tiberian period although later examples in the Claudian period can be found at Blicquy, Belgium. Unfortunately due to the large number of forms and potters belonging to the Gallo-Belgic industry particularly in its earlier stages and the small number of instances where these can be individually dated, there are very few cases where one form or a potter's die occur more than once in a dated context, and therefore any subsequent dating of that form or potter is based on just that one example, which is itself used to date other objects.

The three cemeteries at Nijmegen excavated earlier this century and published by Holwerda in 1941 have over recent years been extensively used to date comparable pottery finds in both Britain and the Continent. The cemeteries labelled 'O', 'E' and 'S' were dated A.D. 5/10-30, A.D. 20-40 and A.D. 30-70 respectively. This dating is no longer considered acceptable by several archaeologists although no firm resolve has been made at present as to how the cemeteries should be dated. Stuart (1976) in a reassessment of the evidence has made a number of statements: firstly that the earliest finds from these cemeteries date to the later periods at Haltern and secondly that 'O' may still be late Augustan. Furthermore 'O' is older than 'E' or 'S' and that 'O' and 'E' wares were in use in the Tiberian period

(i.e. A.D. 15-37). The wares from 'S' are slightly later, making it chronologically the latest of the cemeteries, however the apparent absence of Gaulish samian and the presence of high quality T.N. would suggest that it cannot date to later than the 2nd or 3rd decade A.D. The trend therefore would suggest a slightly less expansive history of use for the three cemeteries collectively with the dating tending towards earlier rather than later. A complete reassessment of Holwerda material at the Kam museum, Nijmegen is currently in progress in the light of more recent material from the area (H. Giebels, pers. comm.). Until this is complete caution should perhaps be exercised in using the Nijmegen cemeteries as dating horizons.

A more recently discovered and very significant grave group is that of the four graves at Goebelingen-Nospelt, Luxembourg (Thill 1967; Haffner 1974b). The later two graves (A and B) both contain a number of early Roman wares which include Gallo-Belgic fine wares, amphora, Arretine platters, Aco beakers and butt beaker types in addition to other items such as fibulae and weaponry. The latest date that can be ascribed to grave A which contains a stamped Arretine ^{platter} belonging to Service 1 is 15 B.C. Grave B is placed slightly later at c. 10 B.C. on the basis of it containing many items in common with material from Oberaden and Dangstetten, which makes it contemporary with the rich grave at Wincheringen (Koethe and Kimmig 1937). If the dating of grave A can be regarded as fairly secure then it must place the early production of Gallo-Belgic wares to a period prior to 15 B.C. Haffner suggests that on present evidence a date

between 15 and 20 B.C. might be considered realistic (Haffner 1974b). A further cemetery has recently been excavated at Kräckelbiurg, a few kilometres north-west of Goebbingen-Nospelt. At least two of the 16 graves contained early Gallo-Belgic forms, analogous to those at Goebbingen-Nospelt (Thill 1970, graves 2 and 9). The first grave to be excavated from the group, published separately, contained two platters stamped Ateius associated with a T.N. platter stamped Miilos (Thill 1969). Until further sites are discovered which can be dated to within this crucial period of 20 to 10 B.C., or the wares associated with specific production sites, little more can be added at this stage to the date of early production and distribution. Presumably if vessels were reaching the early Augustan forts on the Rhine frontier like Rödgen and Oberaden by 10 B.C., the industry was already fairly well established with a marketing or supply outlet operating.

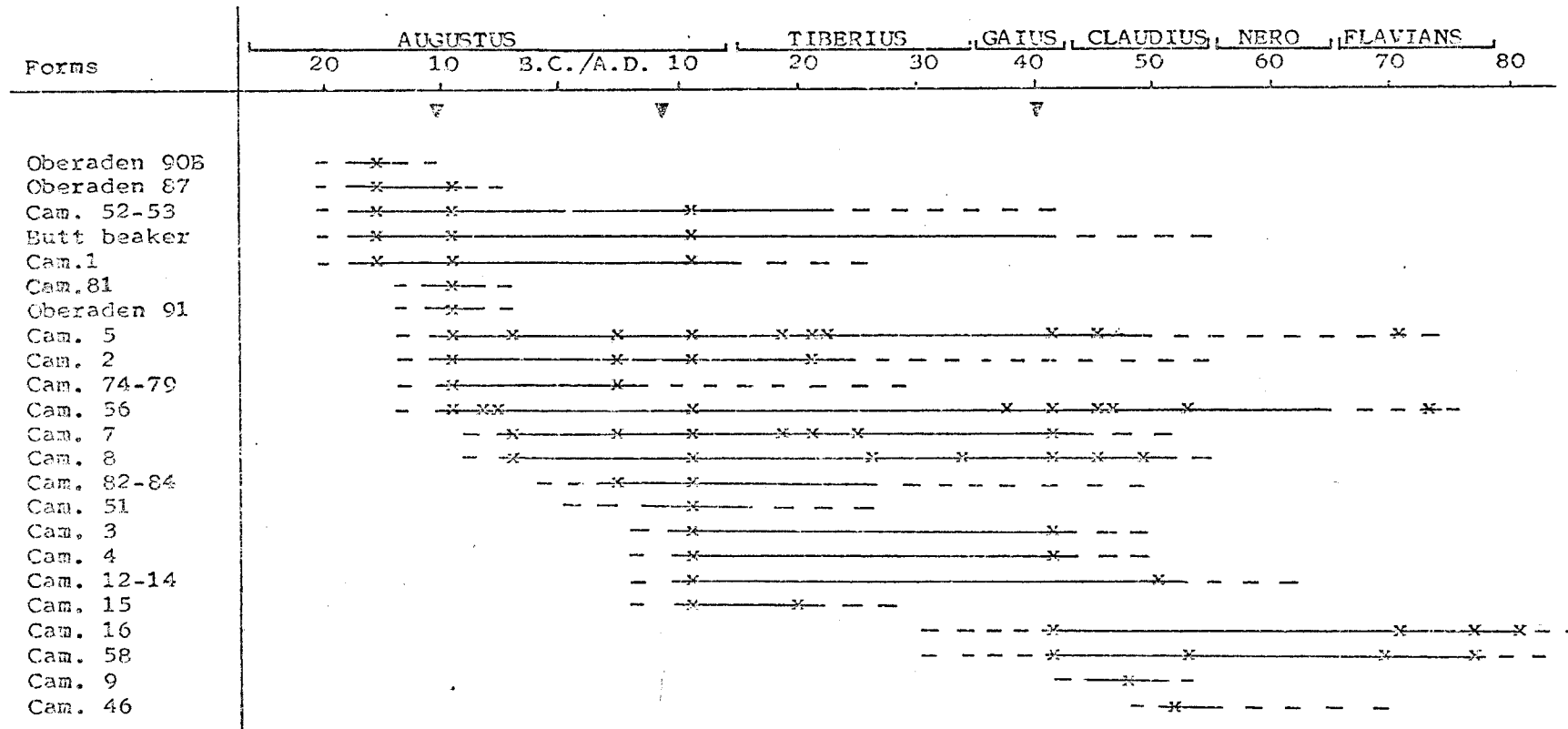
Beaker production seems to have preceded that of T.N. and T.R. although it is not yet possible to say whether the production sources coincided. It does appear to be the case that T.R. wares achieved a wider and more prolific dispersal in the earlier period when compared to T.N. which tends to become more common later and in fact outlives T.R. The presence or absence of Gallo-Belgic wares in Britain have in the absence of other dateable material been used by Stead to produce a relative chronology for the series of rich graves in the Hertfordshire-Bedfordshire-Essex region (Stead 1967). Although founded on slightly tenuous grounds the dating does seem substantiated by other grave goods such as amphorae and

bronze vessels. The earliest graves in the sequence are Welwyn A and B, containing native style wheel-made pottery. These are followed by Welwyn Garden City and Hertford Heath similarly with no Gallo-Belgic imports. The former example did contain two 'micaceous' platters analogous to Cam. 1 in form which may originate from Central Gaul where the pottery production may be considered a prototype for the slightly later Gallo-Belgic industry to the north. The following two graves, Snailwell and Mount Bures, are both distinguished by the presence of Gallo-Belgic imports which are replaced by samian wares in the last two graves in the sequence at Standfordbury A and B.

4.6 Dating of individual forms and potters in the Gallo-Belgic industry

The number of dateable horizons available for the period in which the Gallo-Belgic industry was functioning are limited, thus making the independent assessment of the lifespan of different vessel types difficult. At present it is only possible to outline general trends as reflected by the incidence of these vessels at specific sites. In the foregoing discussion it has been shown that the chronology of the industry is entirely dependent on a number of Rhenish military sites and graves whose dates have been established mainly through literary and numismatic evidence. The two most reliable and significant horizons providing a terminus ante quem are at c. 10 B.C. for the material from Oberaden, Rödgen, Goeblingen-Nospelt grave B and the burial at Wincheringen, and at A.D. 9 with the abandonment of Haltern

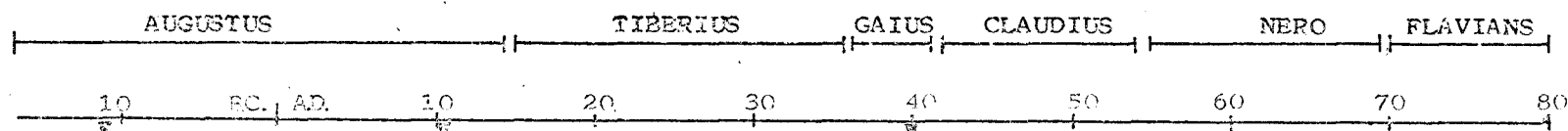
and possibly Bad Nauheim. The establishment of a fort at Hofheim provides a further horizon with a terminus post quem of A.D. 40. A fourth temporal marker may be added with the ceramic material in grave A, Goeblingen-Nospelt which pre-dates in relative terms that in grave B dated to c. 10 B.C. The provisional date of 15 B.C., suggested by Haffner (1974b) is used here in reference to this material. These four horizons, supplemented by other dated contexts, have been used for the formulation of Figs.23 and 24 which demonstrate the approximate duration of the most common T.N. and T.R. forms and the occurrence of potters stamps respectively. It must be emphasised that the figures are only conjectural and that they do not necessarily reflect the exact production periods but do give some idea of the length of time the various types were in circulation on a presence or absence basis. The earliest vessels represented at Goeblingen-Nospelt which may be considered representative of early Gallo-Belgic products only seem to achieve a limited distribution both geographically and temporally. These include two bowls, one of which is an unparalleled imitation of a terra sigillata form (Thill 1967, Taf.1,45) whilst the other (Thill *ibid*, Taf.1,12,14) represented by two examples with a silver grey finish occurs at several other early sites like Wincheringen, Wallertheim, Oberaden (Albrecht 1942; form 90B) and the Titelberg, and can probably be considered a forerunner to the Cam. form 53. The third form present is a dish-like platter which again is only featured on early sites and is not present in the Camulodunum or Haltern sequences. It is characterised by a flat base without a



▽ - absolute dates

Figure 23. Chronology of forms.

footring and an overhanging rim, (see Fig.16,6). The fabric appears to be analogous to T.R. with a pinkish core covered by a red slip. Grave B contains thirteen almost identical examples, one of which is in a T.N. fabric, the rest in T.R. Other examples have been found at Oberaden (Albrecht 1942 form 87), Wincheringen, the Petrisberg near Trier, Urmitz, Andernach (Thill 1966,200) and Gatesbury, Hertfordshire (Rigby 1981,333). Also present in grave A are two butt beakers grey in colour and of the classic ovoid shape. They are undecorated apart from two pairs of incised girth grooves demarcating a zone in the upper part of the body which has three triangular-shaped protuberances. This form of relief barbotine decoration can be found on several types of thin walled beakers produced in the Mediterranean area in the second half of the 1st century B.C. A number of examples were found during excavation at the oppida site at Cavaillon, Vaucluse in association with Aco beakers and Campanian ware (Dumoulin 1965,19), while further finds of a similar type have been made at the oppida at the Titelberg, Luxembourg (Thill 1967,202). It is not possible to determine at this stage whether the Goeblingen-Nospelt beakers are true Gallo-Belgic products or the Mediterranean prototypes of later butt beakers produced in north Gaul. Five further examples with relief barbotine decoration occur in Goeblingen-Nospelt grave B but these examples have accompanying bands of rouletted decoration, which later takes over as the dominant form of decoration. Several other forms appear at around 10 B.C. which include the two very popular types Cam. 5 and Cam. 56 which carry on into the



IVLIOS	ACVTVS	ANDECO	CVI
IV'AM'	ALOCOS	ATITISUS	TORNOS/VOCARI
MAIOS	PASSINO	CARISSO/RITVSCIA	
DACCOS	ATTA	CASA.AVO	
DATVBO	ATTISSVS	CICARV	
	BELAN	COTTIVS	
	CANICO/S.FNAI	IAPPI	
	CIRICA	IVLIOS	
	COVERTHI	?TORNOS/VOCARI	
	DATIN	?VELVCNIO	
	DIVER		
	IVLES	ANDECO	
	ACVTII	ATIASSV	
	ATTA	AVIAVO	
	CARISO.F	BENIO	
	DVRCITX	DVRVC/VAVO	
	MAIOS	IOVAX.V	
	MEDI	ITRAXI	
	?TORNO	NOVII	
	TROKOS	VADI	
	ACVTIO	VARICOS	
	AIVAVD		
	ASSINO		
	ATECNVDVS		
	ATIASSV		
	BVSO		
	CANICOS		
	DACOVIR		
	NOVIDVS		

▼ - absolute dates

Figure 24. Chronology of potters'.

Claudian period, and in the latter case possibly beyond. Other forms dating to this period seem to be less common, for example the two large 'urns' (Cam. form 81) from the Wincheringen grave (Koethe and Kimmig 1937:Abb.2,3a and 3b). The platter Cam. 2 and pedestal beakers are also represented in the material from Oberaden.

During the 1st decade A.D. most of the popular forms are current and a large number of potters can be associated with this period of production (see Fig.24), notably Acutus, Attissus, Ciruca and Dann (omarus). A further spate of potters can be linked with the early Tiberian period up to around A.D. 20/25. Most of the forms continue through into the early Claudian period showing increased standardisation compared with the earlier examples. At this point the repertoire begins to dwindle and the number of legible potters stamps rapidly declines. Only a few of the later forms to develop such as the platter Cam. 16 and the cup Cam. 58 which do not appear until the late Tiberian period continue to be produced and are still found on sites dating to the Neronian and Flavian period. Another late form associated with these two is the bowl Cam. 46 which is similarly found on post-conquest military sites in Britain like Cirencester and Usk.



CHAPTER FIVE

THE TECHNIQUES OF POTTERY PRODUCTION AND

KILN TECHNOLOGY

'Clays were perhaps after all only mud and the whole art and science of ceramics only a superior kind of mud pie making' (Cardew 1969,14)

5.1 Introduction

A study of any pottery type cannot be undertaken without some knowledge of the techniques of production. The 1st centuries B.C. to A.D. saw a number of radical changes in the technology of pottery production, marked in particular by the widespread adoption of the potter's wheel and the use of kilns which allowed greater control of the temperatures during firing. Gallo-Belgic wares represent the last stages in the transition from hand to wheel-made wares by 'native' potters and the first stages of the adoption of Romanised wares and techniques in northern France and the Low Countries.

The production of pottery involves a number of basic processes, the scale and complexity of which depends on the mode of production. In a general model of the economy of pottery, Van der Leeuw lists 30 variables concerning economy and technology through which he identifies six modes of production: household production, household industry, individual industry, workshop industry, village industry and large scale industry (Van de Leeuw 1977). Peacock defines a similar range but adds two additional modes with reference to

brick-making; military and estate production (Peacock 1979, 7). Each mode of production has its own defining characteristics, particularly in terms of the time involved, organisation, status of the potter and the technology available.

The Gallo-Belgic industry could be defined as a workshop situation, either as an individual concern or a nucleation of several workshops in one locality, where a lot more time and investment was placed in pottery production and a variety of different products manufactured, including both fine and coarse wares. Pottery production may have been a full-time activity but was more likely subsidised by other activities depending on the time of year. This probably represented a change from earlier pottery^{production} where the emphasis was more on the household industry and goods produced on a part time basis for local consumption. The establishment and success of most pre-industrial potting is environmentally determined, since it is dependent on both the geology and ecology of a region for the procurement of the basic materials; clay, fuel, water and temper. A potter will rarely transport these commodities any great distance and the actual availability of a suitable clay is sometimes, although not always, the primary reason for the location and development of pottery making in a particular area (Nicklin 1979).

The first stage in production is the procurement of a suitable potting clay. In some cases clay is worked immediately alongside the kilns, for example at Brockley Hill (Castle 1972), whilst in other cases it is transported short distances. The choice of clay is important since not all clays

are suitable for potting and different clays may be suited to different types of vessel, for example white wares need to be produced from iron-free clays such as those found in estuarine or alluvial deposits. Factors which determine the choice of a particular clay may include its colour, physical properties, and availability, both in the ground and in distance from the workshop. Many contemporary potters prefer to dig their clay in the Autumn and leave it exposed to weather through the Winter. In drier areas such as India this clay is collected during the summer before the monsoons, after which it becomes waterlogged and heavy (Saraswati and Behura 1966,40).

Most potters use three standard processes to prepare their clay prior to potting; cleaning, mixing and wedging. The cleaning process is designed to remove major impurities in the clay which may be done by drying, pulverising and then sifting. Alternatively the clay may be mixed with water and the resulting slurry sieved and dried until of a working consistency. This may be carried out in puddling pits, some of which have been found in archaeological contexts, as at a number of Oxfordshire kiln sites (Young 1975). Alternatively, such puddling pits may have been used in the mixing stage, and the hard surfaces or pebble floors found in many ethnographic situations, used for breaking up and refining the clay. In some cases the potter may leave the clay until it starts to break up before cleaning. The clay gains plasticity through the processes of souring and wedging. If the property of one clay is unsuitable on its own it may be mixed with another to compensate for its deficiencies. This

seems to have been done at Chichester where the raw clay deposited in the kiln working area proved to be a deliberately mixed body which was 'extraordinarily robust and plastic and went a little way towards explaining how they (the potters) could throw their pots so finely' (Gunn 1971, 11).

The amount of cleaning and refining depends on the quality of the pottery being produced and the original state of the clay. Clay left in settling tanks produces different grades ranging from the finest at the top to the coarsest at the bottom. As clay has a tendency to split, it is normal to add temper, the amount and form of which depends on the quality and the function of the pot being produced. The temper also counteracts excessive shrinking and warping during firing. The prepared mixture of clay and temper is then wedged until it is ready for throwing.

The clay used for producing T.N. and T.R. is extremely fine in texture with very fine quartz inclusions. It is uncertain whether fine quartz sand was added to a finely levigated clay or whether the clay was suitable without additional temper. If the latter is true then it suggests that only very specific clays were chosen for this type of pottery.

The 'Gallo-Belgic' vessels are all wheel-made and as a result fine or broad shallow rilling or ridging is a marked feature on the interior surfaces of flagons and beakers. Plate I illustrates the various stages in the throwing of a bowl with a footring by an experienced potter. A smooth

surface finish is produced by burnishing when the vessel is at the leather hard state, sometimes detectable by a fine shallow rilling particularly noticeable on the curved surfaces of Cam. 16 platters. It is popularly believed that burnishing, in addition to producing a smooth, polished surface to the vessel, also contributes to making the walls impervious to liquids by increasing the density of the clay surface. May also comments that the addition of slip 'prevents the fouling and tainting of the surfaces after they have contained organic matter ...' (May, 1916,5). Experiments carried out by Duma however, to compare the relative pore sizes in a polished and an unpolished surface demonstrated that there was essentially no difference between the two (see Table 1). Furthermore it appears that reduced wares have a slightly higher average pore size compared to oxidised wares (Duma 1963,380). This is perhaps a reflection of the higher firing temperatures used in the production of oxidised fabrics.

Table 1

Upper surface	Pore radius (mp)	
	Oxidised	Reduced
natural	7.34	8.49
polished	7.55	9.07

(after Duma 1963,Taf.5)

Since there are no mould fragments from a Gallo-Belgic potter's workshop it is possible that the 'moulded' platters, e.g. Cam. 3-6, were produced with the aid of a wooden, metal

or even clay template. The consistent range of sizes of the various vessel types is explained by Röttlander as being the result of a measured marker attached to a vertical shaft alongside the potter's wheel (Röttlander 1966,76). Possible supporting evidence for the use of some sort of measuring device is perhaps visible on pl.II where the imprint of a pointed instrument has been accidentally impressed into the vessel producing a line of weakness along which the vessel, in this case a T.R. platter from Ower, Dorset, has fractured. The imprint corresponds with one of the horizontal mouldings.

In his work on the standardisation of provincial Roman pottery Röttlander noted a relationship between the dimensions of several diverse articles of Roman pottery, including samian, which related to linear scales derived from the pes subdivided into 'unciae' and 'digiti' widely used by the Romans. The unciae resulted from a subdivision into twelve equal parts and the digiti from sixteen. Measurements taken from T.N. vessels did not conform to either of the other vessel categories or the digitus and unciae scales.

Röttlander thus concluded that these vessels were made using measurements based on the 'Drusian pes' which corresponded to 33.3 cm. for the Gallic provinces compared with 19.95 cm. for the standardised pes. By dividing the Drusian pes into 16 (digitus) and then quartering this amount Röttlander managed to get a 91% correlation with the measurements made from T.N. vessels (Röttlander 1966).

The vessels once made were probably left in a drying shed for a few days. The rate of drying has to be carefully

controlled to prevent the vessels drying out too fast and cracking. It is at this stage that slip can be added to the vessel surface. This was used with a few Gallo-Belgic vessels, in particular T.R.1 and some T.N. but not in all cases. Several platters were additionally decorated with rouletting on the interior surface (see Plate III). The potter's stamp or mark was either impressed when the vessel had just come off the wheel or at the leather hard state. In some cases it is evident that the clay was rather wet when the stamp was impressed because the edges have become deformed and the letters ill-defined. Many vessels, particularly the platters, show the potter's fingerprints on the underside of the stamp and in one example the stamp was evidently pressed too hard into a thin walled vessel making it necessary to affix a reinforcing pad of clay (Colchester 1970 excavations, unpub.). The actual dies used to produce the stamps were probably made of wood or metal. In some cases the grain of the wood can be picked out, particularly on British coarse ware copies.

The final stage in the process of pottery production is the firing. Metamorphic changes of certain clay minerals are induced by the temperature and atmospheric conditions created in the kiln, producing a hard durable fabric. Gallo-Belgic wares were fired in kilns, unlike some of the earlier coarse wares which seem to have been fired in bonfires or clamps. The construction and firing of a kiln requires time and investment and pre-supposes to a certain extent that the potter is well practised and through his own experience has a good knowledge of the exact time and temperature

requirements for the wares he is producing. The completion of successful firings is also dependent on the ability of the kiln to reach and hold the required temperatures and the physical properties and preparation of the clay to withstand these temperatures naturally. A number of mineralogical and dimensional changes take place depending on the temperature which generally result in an overall shrinkage of the vessel. Rosenthal suggests that this falls between 8-22% depending on the original chemical composition of the clay (Rosenthal 1949,67). The addition of certain tempering materials or the presence of refractory materials like alumina tend to counteract excessive shrinkage, whilst a high percentage of minerals such as feldspar and mica tend to cause increased shrinkage. If the vessels are heated too rapidly, water chemically combined with the clay particles is unable to evaporate fast enough and the vessel 'explodes'. A similar reaction occurs if the vessel is allowed to cool too quickly. The red (T.R.) and black (T.N.) wares are the result of two different firing processes. The red wares result from firing in an oxidised atmosphere when combustion is complete and the metals in the clay give their oxide colours. The grey and black wares on the other hand are fired in reducing conditions where the oxygen is completely excluded from the firing chamber. It was originally deduced by many earlier writers that the black polished surfaces found in many T.N. vessels resulted either from a coating of bitumen or asphaltum, - the vessels being dipped into a melted mixture before firing (May 1916) or to a coating of graphite (Fox 1923,201). Others attributed the grey or

black colouration to the deposition of soot on the exterior of the vessels exposed to the smoky atmosphere in the kiln. Both these theories as to how the black colouration is produced are rather simplistic and detailed scientific analysis has demonstrated that the process is a fairly complex one resulting from a series of chemical changes (Davis et al. 1957; Duma 1963). It has been observed that carbon not present in the pot before firing, is always present after firing and therefore must have been created during the firing process. Carbon is released by carbon monoxide gas at a temperature between 445°C and 925°C and Duma has deduced that the carbon is present in the pottery, not as a result of soot, smoke or tar, but from the decay or dissociation of carbon monoxide gas. Certain metals present in the clay act as catalysts for this reaction, in particular iron, manganese and nickel. Electron micrographs taken of the carbon deposited during the dissociation of carbon monoxide by oxides of iron have identified three thread-like forms which gradually penetrate the material exposed to the gas (Davis et al. 1957). Davis et al. also single out iron percarbide (Fe_{20}C_9) and possibly cementite as the main catalysts responsible for the dissociation reaction at 450°C and have traced the various changes with length of exposure to carbon monoxide for several ores. One of the more relevant examples is the effect of carbon monoxide on iron ore at 450°C . The original sample composed of ferric oxide, a trace of magnetite, calcite, mullite and quartz, changes after 4 hours to a mixture of carbon, magnetite, and iron percarbide. After 32 hours this has become carbon, iron

percarbide and calcite. Research by Lipson and Petch has suggested that 'the cementite molecule consists of closely packed iron atoms held together by metallic bonding with carbon atoms along the interstices' (Davis et al. ibid., 76). A slight variation in the composition will result in the loss or gain of carbon atoms. Therefore iron percarbide can be formed from cementite or vice-versa, the changes occurring with the decay of the carbon monoxide gas resulting in the loss of the oxygen. With a continual cyclic repetition of these changes, i.e. cementite → percarbide → cementite + carbon the carbon threads begin to grow, penetrating the clay surface of the pot until the vessel is completely reduced both on the exterior and interior. The intensity of colour and the depth of penetration presumably depends on the amount and form of iron originally present in the clay or slip and the length of time of firing in the reduced atmosphere. The addition of an iron rich slip to the surfaces of the vessel therefore probably produces a better surface colour, especially in a clay slightly deficient in the prerequisite iron ores. The discovery of an intact kiln load at Thuisy, Marne consisting of grey or black platters, and grey, black slipped and white jars would further support the argument that the black colouration is due to the iron minerals present and not soot since the white jars seem unaffected by the process (Bry 1944). White ware vessels generally have an iron-free fabric and are often made from estuarine or alluvial clays.

Work by De Laet and Thoen has established, through studying the Gallo-Belgic wares found at the cemetery at Blicquy,

Hainaut, that the T.R. vessels were fired at higher temperatures than the T.N. A figure of 700°C and above is quoted for the former compared to 700°C and below for the latter (De Laet and Thoen 1968). This would accord well with the experimental results discussed above where it was established that the optimum temperature for the process of reduction was around 500°C.

In a kiln the atmosphere is made rich in carbon monoxide gas by introducing large quantities of fuel in the last phases of firing and closing all openings or vents into the kiln to prevent any oxygen entering. Duma has experimented with different fuels and has found a considerable difference in the type of fuel and the amount of carbon monoxide gas produced. This is illustrated on Fig.25 where it can be seen that pine wood is the most efficient producer, followed by beech wood, sheep dung, straw, cellulose and pure carbon monoxide gas itself (Duma 1963,374). Whether or not this difference was appreciated by the actual potters is another matter and it is more likely that the most readily available materials were used as fuel although it is possible that different potters using different fuels may have compensated for this difference by firing for correspondingly longer or shorter periods.

There are several ethnographic examples where potters are, or were until recently, specifically producing black wares. Among the better documented of these are three groups of potters working in Hungary: the Nádudvar, Szentes and Mohács (Szabadfaldi 1958; Duma 1963). These potters were, in the

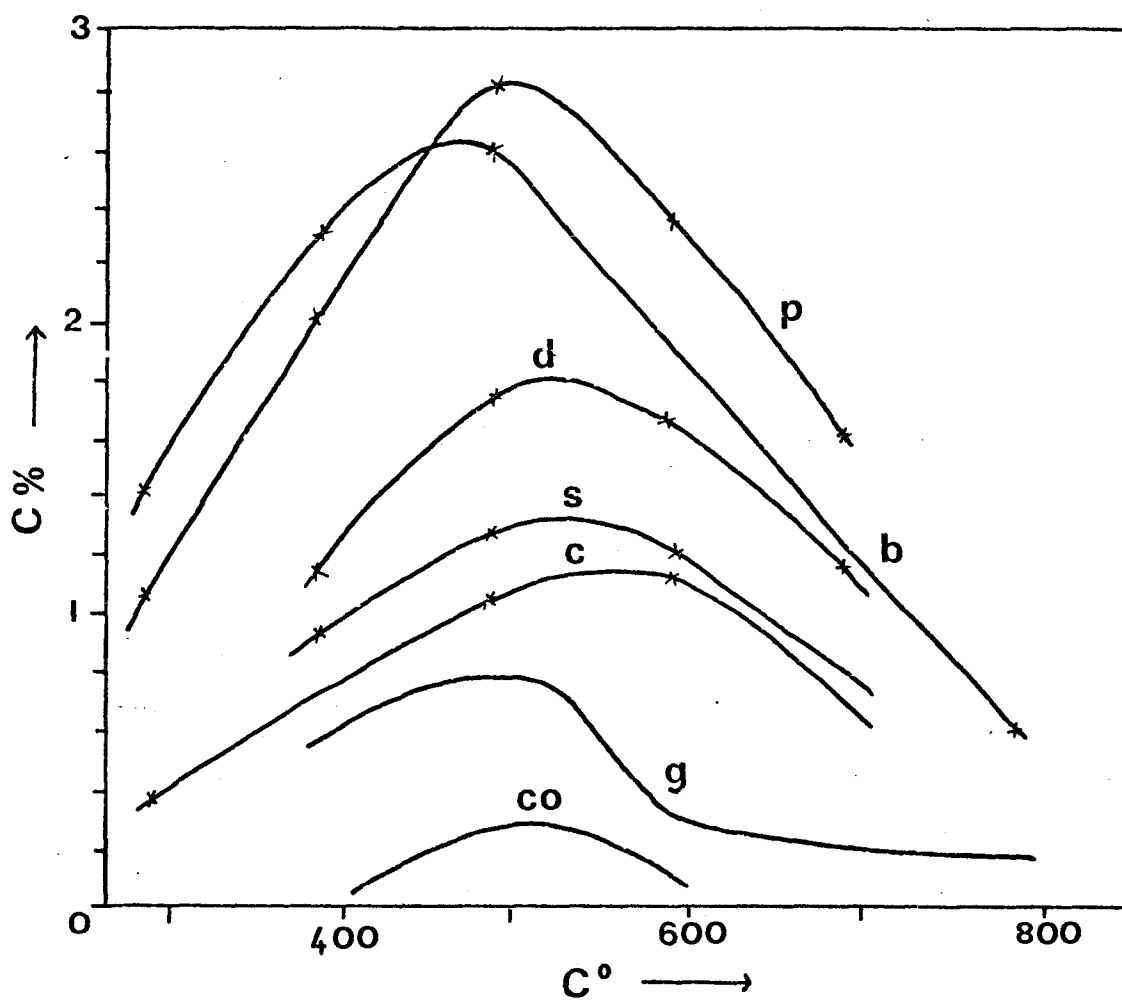


Figure 25

Graph showing the contrasting rates of carbon emission in flowing gas using the following fuels : pine (p), beech (b), sheep dung (d), straw (s), cellulose (c), cleaned wood gas (g), and pure carbon monoxide (co), when clay is fired at temperatures between 300°C and 800°C, (after Duma 1963).

late 1950's, producing black pottery using traditional kilns and techniques dating back until at least the last century and probably before. The kilns are masonry built with extra thick walls for additional insulation. The firing of black pottery is particularly affected by climatic conditions since a slight wind will encourage flames. The Hungarian potters judge the firing process by observing the colour changes of the kiln itself, i.e. the amount it glows. Since the glow is relatively weak even at the maximum temperatures the firing is usually carried out at night. In doing this the potters can ensure an even firing and assess more easily when more fuel is required. Initially the wares are fired in an oxidising atmosphere until a constant temperature around 550°C is reached. The kiln is then sealed off and large quantities of fuel added to produce a reduced atmosphere within the firing chamber. Indian peasant potters achieve the same results by entirely sealing up the kilns with a thick paste of clay or wet ash (Sarawati and Behura 1966,128).

A slightly different technique was used by the potters in Jutland where the vessels were placed in 'smoke-kilns' prior to firing. The 'smoke-kilns' were constructed out of brick and set below ground level. The pots were stacked on poles on the earthen floor and a slow peat fire kindled. As the smoke built up the kiln was gradually sealed off and left for four days. The vessels were then light brown in colour and the pores sealed by the tarry component in the peat smoke. While still hot these were placed under covers, originally large jars which were subsequently replaced by oil

drums, and fired in a surface 'bonfire' kiln for 2-4 hours in reducing conditions (Steensburg 1940). Once the firing is complete the kilns are allowed to cool before the completed vessels are removed and stored for disposal, perhaps to a local market.

5.2 Kiln Technology

The earliest recognised pottery kilns in Britain are those belonging to the early Roman or conquest period, typified by a number of examples in the Nene Valley (Woods 1974). The origin of these types are unknown and examples have yet to be recognised in 'Belgic' contexts. The Nene valley kilns are all of a single flue updraught type, small in size and constructed above ground, thus leaving very little archaeological trace. The floor and floor supports consisted of pre-fabricated bars and pedestals of a portable and reusable nature. Although the majority of pre-conquest wares could have been fired in 'clamp' or bonfire kilns it is difficult to understand how the finer wares, for example the white ware beakers and other fine wares considered to have been produced in the Colchester area in the pre-conquest period (Hull 1958,248) could have been fired without more sophisticated kilns.

The permanent kiln has a much longer pedigree on the Continent, particularly from the Classical world, It became widely used in Europe in the later Iron Age (La Tène III) and several earlier examples are known from the early Iron Age/late Bronze Age. A particularly interesting group is

found in the Alsace region; recent examples having been excavated at Florange (Petrequin et al. 1973) and Rosheim, Bas Rhin (Pétry 1974). Other examples occur at Ecury-le-Repos (mid-Hallstatt), Strasbourg-Cronenburg (final Bronze Age), Neewiller, Wissembourg (Hallstatt), Achenheim (final Bronze Age) and Marlenheim-Fessenheim, Bas Rhin. A reconstruction of the latter published by Forrer in 1915 is reproduced by Chenet (Chenet 1928, Fig. 2). From the reconstruction this appears to be quite a sophisticated structure with a permanent clay floor and a dome with a central vent. The floor is supported by a central pedestal from the furnace chamber which is excavated below ground and served by a single stokehole. Petrequin et al. (1973) comment that this type of kiln seems to have been reserved for the production of quality wares and further add that the ephemeral nature of some of the early kilns may have resulted in the misidentification of kilns of the Florange type as the foundations or floors of wooden huts. Generally speaking the use of kilns with domes and perforated floors does not become widespread until the La Tène period onwards.

The pottery kilns of the 1st and 2nd centuries A.D. are extremely diverse in nature. From the early Roman period virtually the only evidence that exists for the method of construction and use of pottery kilns is from the archaeological remains. The information gained from these is dependent on the quality of the excavation since once excavated the structure is destroyed and nothing remains for reinterpretation except the excavator's notes. Kiln discoveries for this period tend to be characterised by a

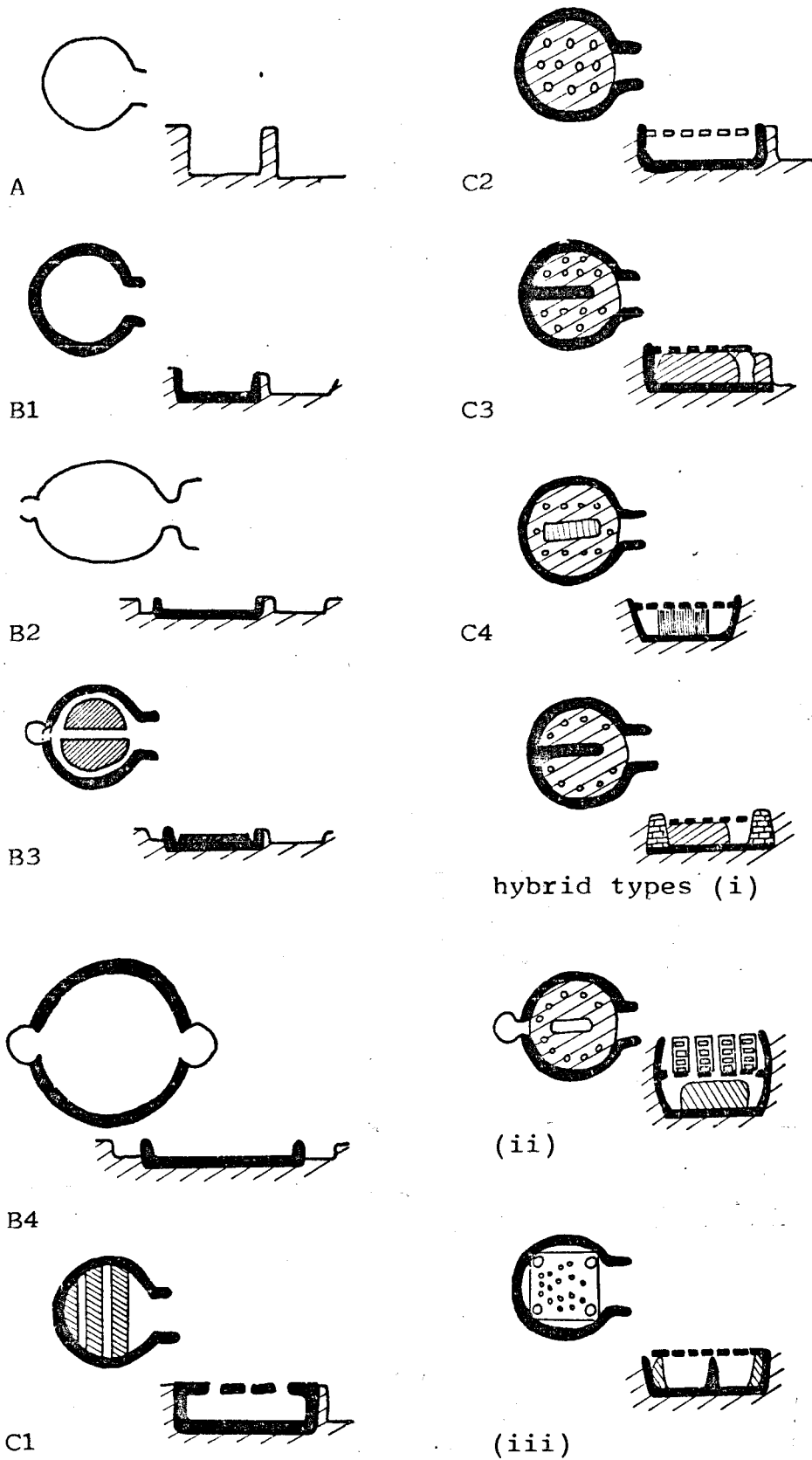


Figure 26.

Fromols type series of 1st century A.D. kilns (after Fromols 1938).

high frequency of finds in varying stages of preservation. Completely intact examples are rare. Figure 27, showing the distribution of 1st century pottery kilns reflects this frequency of finds in north-west Europe. The only other independent evidence concerning kiln structures is pictographic, mostly from designs painted onto Greek vessels and from a unique model of a Roman kiln found in the vicinity of the legionary camp at Nijmegen (Duhamel 1974,55).

One of the earliest kiln typologies evolved was that by Fromols in 1938 after a spate of discoveries highlighted by the two complexes at Sept Saulx (Fromols 1939) and Thuisy (Fromols 1938) excavated by Bry. The typology (see Fig.26) was based on morphological features and Fromols identifies four basic types:

- A - Very simple kilns without lining and consisting of a single chamber.
- B - Kilns with a single chamber constructed of fired clay.
- C - Kilns with two chambers constructed with fired clay.

The furnace is separated from the firing chamber by a floor.

- D - Kilns of fired clay with a movable dome.

B and C were further sub-divided according to construction material and floor types.

Fromols comments that there are a number of further hybrid types in addition to the examples he placed in his typology (Fromols 1938,53).

A second kiln typology was produced by Corder in 1959 where the main distinction was made between updraught (class I)

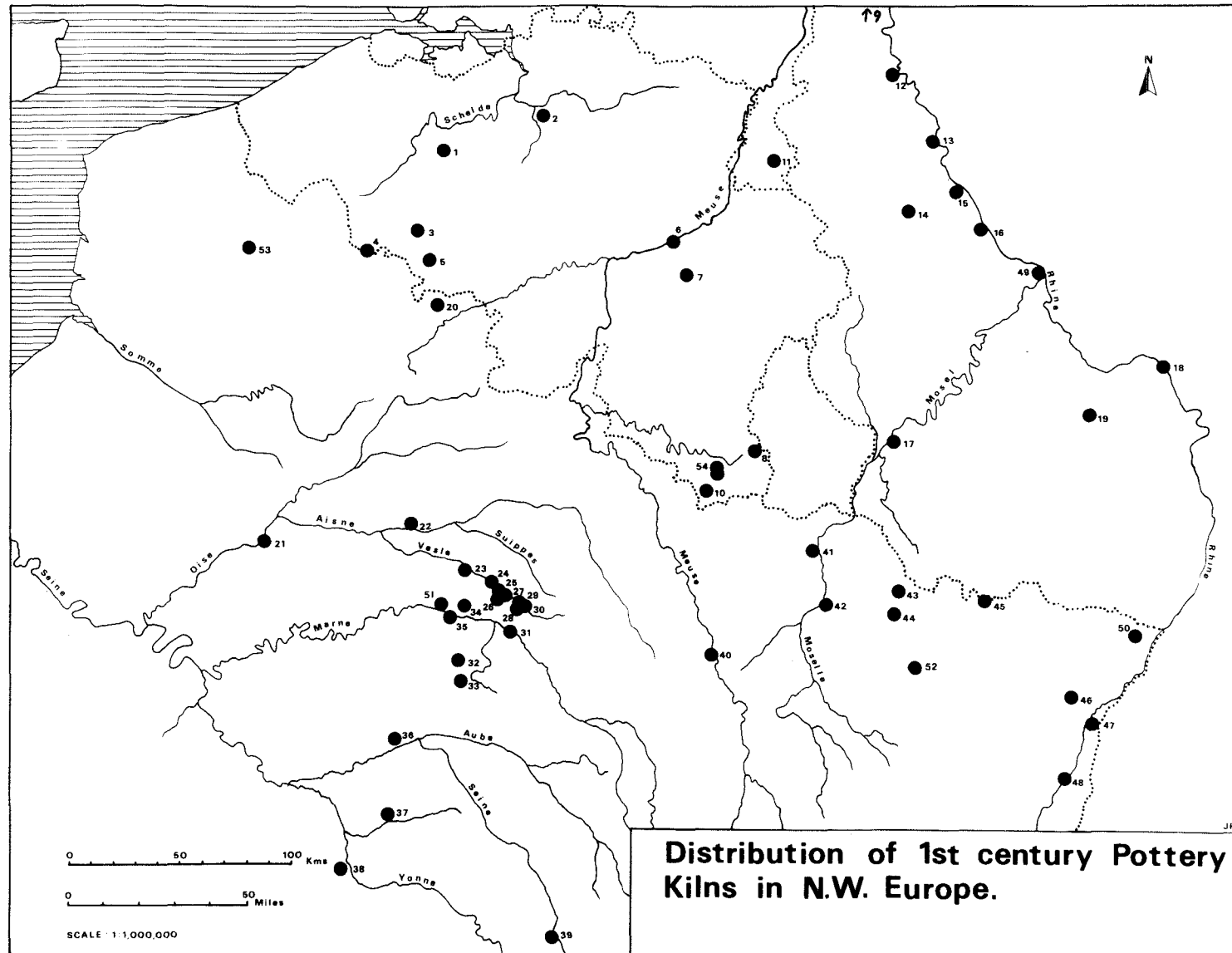


Figure 27.

Key to Figure 27.

The Distribution of 1st century Pottery Kilns in N.W.
Europe.

1. Velzeke, East Flanders (Wankenne 1972).
2. Hofstade, East Flanders (De Laet 1947).
3. Blicquy, Hainaut (De Laet 1964).
4. Howardries, Hainaut (Amand 1971).
5. Sirault, Hainaut (Amand 1959).
6. Amay, Liège (Amand et al. 1962; Dandoy 1968).
7. Clavier, Liège (Wankenne 1972).
8. Arlon, Luxembourg (Bertrang 1960).
9. Nijmegen, Gelderland (Kam museum).
10. Hambresart-Virton, Luxembourg (Amand 1959; Martin 1939).
11. Heerlen, Limburg (Bogaers 1962).
12. Neuss, Nord Rhine Westfalen (Filtzinger 1972).
13. Cologne (Köln), Nord Rhine Westfalen (La Baume 1964).
14. Weilerwist, Nord Rhine Westfalen (Gross and Haupt 1972).
15. Bonn, Nord Rhine Westfalen (Fromols 1938).
16. Remagen, Rhineland Palatinate (Fromols 1938).
17. Trier, Rhineland Palatinate (Amand 1959; Koethe 1938).
18. Mainz-Weissenau, Rhineland Palatinate (Behrens 1915).
19. Kreuznach, Rhineland Palatinate (Fromols 1938).
20. Bavai, Nord (Terrise 1963).
21. St. Sauveur, Oise (Frézouls 1971).
22. Vauclair, Aisne (Litt 1969).
23. Reims, Marne (Frézouls 1971;1973;1975).
24. La Prosnes, Marne (Bry and Fromols 1938).
25. Thuisy, Marne (Fromols 1938).
26. Courmelois, Marne (Fromols 1938).
27. Sept-Saulx, Marne (Fromols 1939).
28. Livry-sur-Vesle, Marne (Frézouls 1971).
29. Moumelon-le-Petit, Marne (Frézouls 1971).
30. Louvercy, Marne (Frézouls 1967,1971).
31. Juvigny, Marne (Frézouls 1975).
32. Bergères, Marne (Fromols 1938; Lantier 1943).
33. Morains, Marne (Fromols 1938).
34. Champillon, Marne (Fromols 1938).
35. Fontaine Denis, Epernay, Marne (Fromols 1938; Lantier1943).
36. Villeneuve-au-Châtelot, Aube (Frézouls 1967;1969;1971;
1973).
37. Courgenay, Yonne (Fromols 1938).
38. Bussy-le-Repos, Yonne (Duhamel 1975).
39. Vertault, Côte d'Or (Bohm 1922; Lorimy 1923).
40. Lavoye, Meuse (Chenet 1928;1938).
41. Daspich-Ebange, Moselle (Schnitzler 1978).
42. Metz, Moselle (Reusch 1943).
43. Boucheporn, Moselle (Hatt 1964;1979;Schnitzler 1978).
44. Chemery, Moselle (Schnitzler 1978).
45. Bliesbruck, Moselle (Billoret 1974;Burnand 1978).
46. Brumath, Bas Rhin (Pétry 1974; Schaeffer 1923).
47. Strasbourg, Bas Rhin (Hatt 1954).

Key to Figure 27 continued.

- 48. Ehl, Bas Rhin (Deiber 1969; Schnitzler 1978).
- 49. La Saulsotte, Aube (Drioux 1943).
- 50. Seltz, Bas Rhin (Hatt 1954).
- 51. Damery, Marne (Favret 1949).
- 52. Tarquimpol, Moselle (Lutz 1977).
- 53. Labussière, Pas de Calais (Tuffreau-Libre 1980).
- 54. Huombis, Luxembourg (Fouss 1957).

and horizontal draught (class II) types. The latter are fairly uncommon and geographically restricted although this distribution is extending as more discoveries are made and is considerably greater than it was in 1959.

The basic components of a kiln are seen as: a) a stokehole pit, b) a flue leading from the stokehole to the furnace, c) a furnace located alongside or below the firing chamber or oven, and d) the firing chamber in which the vessels are fired. The furnace in updraught kilns is most commonly dug into the ground with the base of the firing chamber at the ground surface. The firing chamber is usually covered with a temporary domed structure, removed between firings, which has vents or permeable walls to allow hot gases to pass out. The actual oven floor may either be a permanent feature or, like the Nene valley examples, a temporary arrangement. In the former the floor, made out of fired clay, can either be self-supporting, - in small kilns only, or rest on one or two pillars or a central tongue pedestal projecting from the back of the furnace. The clay floor is always perforated by a number of holes to allow the hot gases to pass into the chamber. With temporary floors the floor itself is generally composed of prefabricated reusable firebars or tiles which rest on a central pillar or clay pedestal (see Fig.36a for the radial bar arrangement in a kiln at Saintes, Aquitaine). A number of different materials have been used to construct the supporting pillars, ranging from large stones at Weston Favell (Bunch and Corder 1954) to bricks or blocks of clay, an inverted jar, or as at Hambresart a pile of inverted bowls separated by lumps of clay (Martin 1939).

A more recent and very detailed diachronic study of kiln typology has been proposed by Duhamel (1973; 1974), based on functional and morphological differences. Like Corder his primary distinction is between horizontal and updraught types, but his subsequent analysis is far more detailed. It is extremely unlikely that kiln development followed any straightforward evolutionary sequence, and the sheer number of permutations on a theme would suggest that many potters made their own adaptations to improve the functioning of their particular kiln(s) as dictated by local circumstances, for example, local materials and their availability, labour and time available and climatic factors. It may be possible that different kilns were designed or used for the firing of different types of vessel; the rectangular kilns of the Roman period for example, were almost invariably, with the exception of some of the samian kilns, used for firing construction material such as tile and brick (McWhirr 1979). It has been noted by Duma that some of the Hungarian potters producing more than one type of pottery, i.e. that require different firing technology, had more than one kiln (Duma 1963). Obviously such specialisation would depend on the scale of the industry and the demand for different wares.

Evidence from the excavation of 'Gallo-Belgic' potters' kilns and workshops is scanty and many of the excavated sites very poorly documented. Descriptions of the accompanying products are often so vague that it is unclear whether or not T.R. or T.N. are present. The term 'Gallo-Belgic' is used in most cases to describe both coarse ware and fine ware products, and the fact that it is waste

material may lead to false identification through the use of colour.

The relevant kilns, many of which were excavated in the 1930's, are described below with a few additional examples which may prove to be irrelevant as regards the production of fine wares with further work in the field of excavation. There seem to be two main groups of 'Gallo-Belgic' potters, one located in the Marne especially in the river valleys just south of and at Reims, and the second in East Gaul in the Moselle, and Bas Rhin districts. In addition there is a scatter of other workshops in the peripheral areas of the Gallia Belgica province in the Departments of Yonne, Aube, Côte d'Or and Nord. Most of these workshops seem to have been civilian enterprises. Along the Rhine there were a number of military kilns or civilian kilns linked with military posts, for example at Neuss (Fig.35b) and Haltern, producing wares mainly for military consumption. The final group of kilns discussed below are those known to have been producing, amongst their other products, imitations of Gallo-Belgic vessels. These kilns are mostly found in areas receiving 'Gallo-Belgic' imports, for example Britain and Belgium.

The kilns described below illustrate several points. Firstly there is a great variety and diversity of form and it is not until later in the 1st century A.D. that kiln structures became larger and more standardised. Secondly, none of the kilns appear to have been exclusively producing one type of pottery but a range of forms usually including both fine

and coarse wares. The larger kiln conglomerations such as those at Reims, and Boucheporn continue to produce pottery at the same sites into the 2nd and 3rd centuries A.D., although with a change of emphasis on the actual pottery types. A further recurring feature, which will be discussed in more detail later, is the production of reduced fine wares at centres which later specialised in oxidised wares. This can be seen at several of the East Gaulish sites like Boucheporn and Daspich-Ebange which later concentrated on producing samian; in the Central French region and in Britain at the workshops of the Oxfordshire industry in the last 1st century A.D. (Young 1975).

Information on structures associated with the kilns, for example drying sheds, workshops, living quarters is rare although in a few cases various pits and wells have been excavated in association with the kilns, as for example at the large complex of Villeneuve-au-Châtelot. Evidence of actual potters' tools is even more scarce, the recovery of three fragments of a limestone 'tournette' at Damery, Marne being exceptional (Favret 1949, 115). Unfortunately, although known from elsewhere, there have been no rouletting tools, moulds, templates or name dies found associated with 'Gallo-Belgic' potters although their use is well documented on the pottery itself.

5.3 Kilns

In the following and final section of this chapter, a detailed description is given where possible, of all the kilns

recorded and excavated to date in the region of Gallia Belgica, many of which were involved in fine ware production. These are geographically divided into three groups; I in the Champagne-Ardenne region, II in East Gaul, and III other 'Belgic' type kilns in Gallia Belgica outside groups I and II. Finally a fourth group includes those kilns recognised for producing Gallo-Belgic imitations.

(i) Group I The Champagne-Ardenne

a) BERGÈRES-LES-VERTUS (Marne)

Excavated by Brisson and Loppin but unpublished beyond a mention by Lantier (Lantier 1943,204). Cited by Fromols as having one kiln of his B4 type, (see Fig.26) with masonry walls and two opposing stokeholes (Fromols 1938,55), and two examples of his B3 type characterised by the presence of two semi-circular segments supporting the floor of the firing chamber (Fromols 1939,38). Details of pottery unknown.

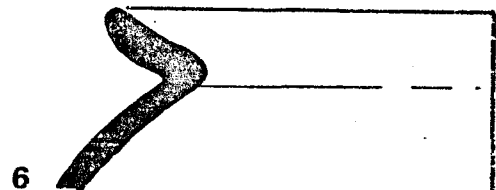
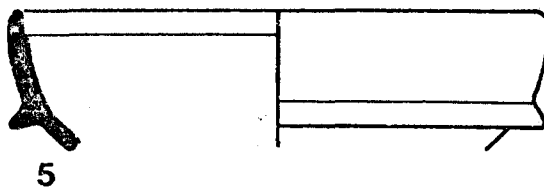
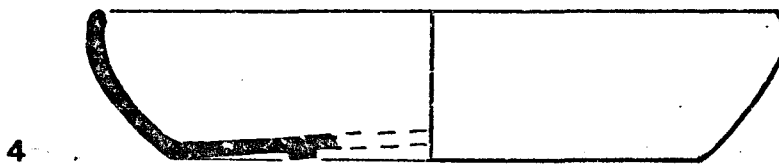
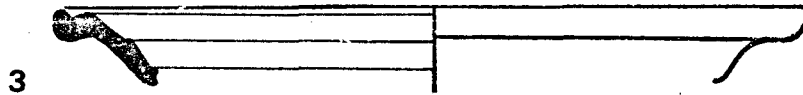
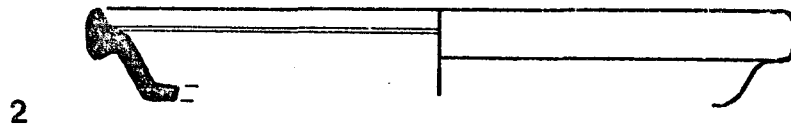
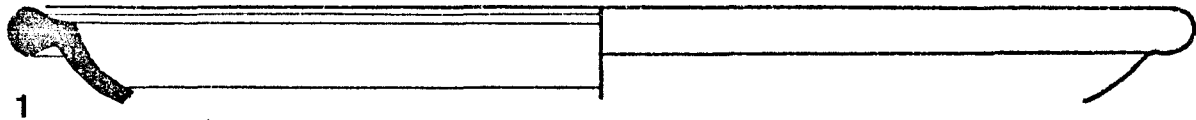
b) CHAMPILLON (Marne)

Excavated by Jorssens and Lacroix. Unpublished.

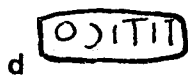
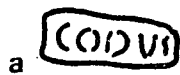
c) COURMELOIS (Marne)

Excavated by Jorssens and Lacroix in 1935. Unpublished but cited by Lantier (Lantier 1935,323) and Fromols (Fromols 1938,50). A collection of material from the excavations can be found at the Musée St. Remi, Reims, some of which is illustrated in Fig.28 (Acc.no. 978.17127-17136). The majority of the vessels in the collection appear to be unfinished or misfired and many of the fine ware platters do not have the dark grey polished finish present on a few examples.

There are a number of wasters with evidence of distortion and vitrification. Most of the vessels are in a fairly distinctive fabric, grey to brownish-buff in colour and fairly sandy. Occasional flecks of mica, quartz and iron-ore inclusions are visible macroscopically. Many of the platters have centrally placed potters' marks which are for the most part illiterate although formed of distinctive letters. The three predominant forms are platters of Cam. form 8, 12 and 15 (Hawkes and Hull 1947), with a few examples of the cups Cam. forms 56 and 58. Sherds from the destroyed flue included examples from Cam. 56, 58, 12, 15 and 16. Coarse ware vessels in a grey sandy fabric were also represented, including some with illiterate stamps and a crude Cam. 5 platter. Whilst the bulk of the wares in the Lacroix Collection at St. Remi are wasters or unfinished vessels there are a few sherds of the more typical T.N. with a highly polished dark grey-black interior surface and a light to mid-grey core. T.R. proper does not seem to be present although there are a few pinkish-brown vessels, for example Fig.28.3. In addition to the fine ware cups and platters there are also fine ware beakers/jars present reminiscent of the Cam. 114 type in a white sandy ware often with a dark grey core, Fig.28.6. There are several different potters' stamps, most of which are stylistically very similar. In most cases there are several vessels with the same stamp and each stamp form generally confined itself to one type of platter. Evidence that the products from this workshop were being fairly widely 'traded' or distributed is demonstrated by the occurrence of one of the potters' stamps on a T.N. vessel from



Scale 1:2



Scale 1:1

Figure 28.

Kiln products and potters stamps from Courmelois, Marne, (unpub. material St. Remi museum).

the excavations at Clausentum (Cotton and Gathercole 1958, Fig.19.1). Other more locally occurring examples have been found in the cemetery at Prunay (II) (Bry and Fromols 1938, 149, tomb 32).

d) DAMERY (Marne)

Excavated by Brisson and Loppin. Remains of a kiln in a very poor state of preservation which proved to be a 1st century 'Gallo-Belgic' type analogous to examples at Villeneuve-au-Châtelot, Aube. A plan of the kiln published in the Gallia regional survey for 1949 shows the kiln to be slightly elliptical in shape with a free standing central pillar to support a permanent, perforated clay floor (Fromols type C4 (Fromols 1938)). The pillar and furnace walls were constructed from tegulae (Favret 1949,115). The products from this kiln include platters and jugs. The excavations also recovered three fragments of a limestone 'tournette' mixed in with the pottery debris.

e) FONTAINE-DENIS (Marne)

Excavated by Brisson and Loppin in 1936. Cited by Fromols (Fromols 1938,50). A number of kilns of different construction associated with 'Gallo-Belgic' products. No further details.

f) JUVIGNY (Marne)

Gallo-Roman kiln dating to the second half of the 1st century A.D. Circular in plan with the furnace below ground level reinforced with clay. The material collected was essentially composed of bottles, jugs, bowls and platters in a grey to black coarseware (Frézouls 1975,406).

g) LA PROSNE (Marne)

Excavated by Bry in 1937 and cited in the Prunay I cemetery report which contained vessels apparently produced in these neighbouring kilns (Bry and Fromols 1938). The particular vessels singled out for comment by Bry include cups form Dragendorff 28 (i.e. Cam. 56) with the stamp Aeti which were considered to be a barbarian imitation of the Arretine potter Ateius.

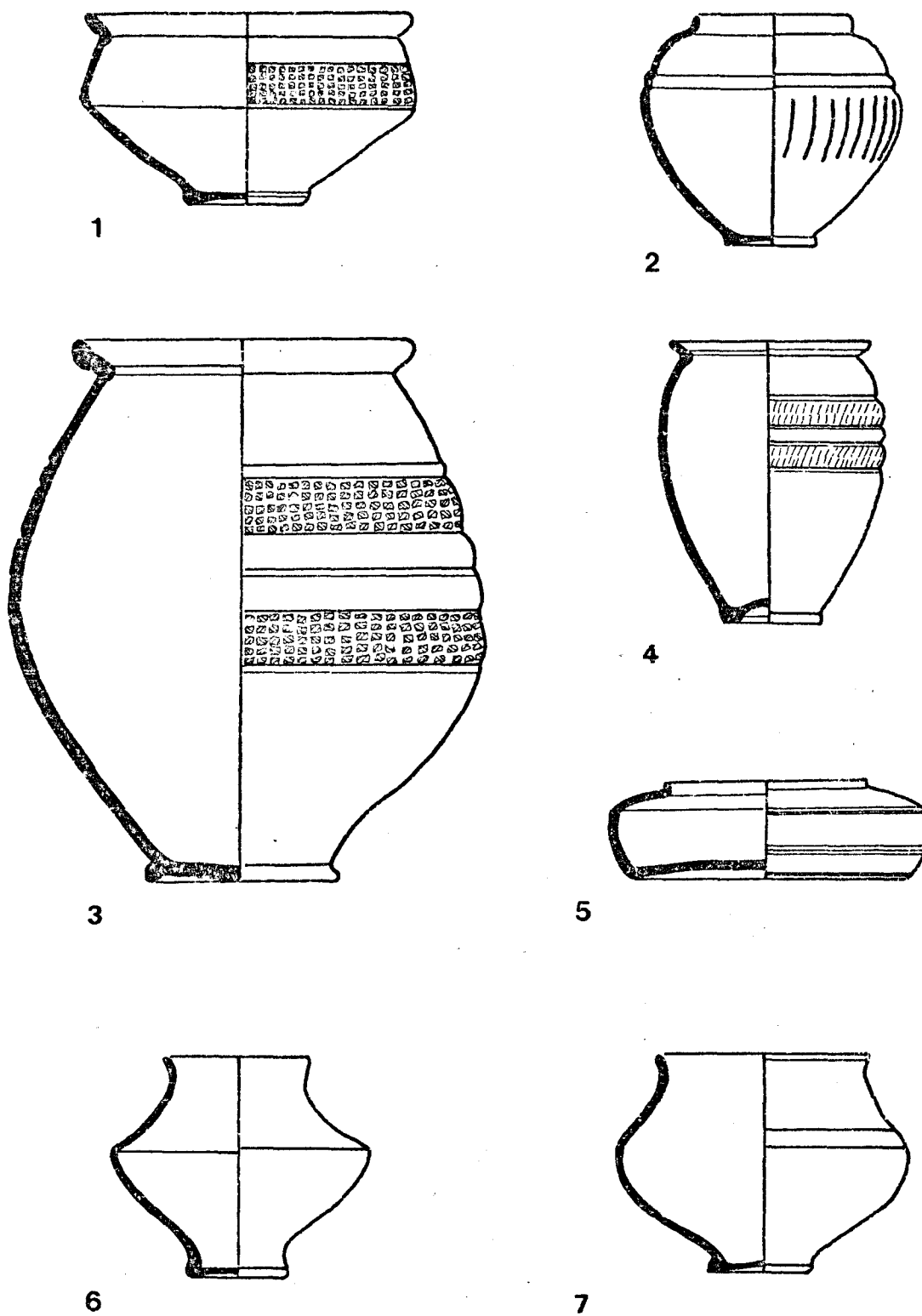
h) LAVOYE (Meuse)

Excavated by G. Chenet in 1920/21. Chenet's discoveries suggest that the better known 'Argonne' ware industry of the later Roman period was preceded by a native type of production for which he coined the term 'Gallo-Belgic' (Chenet 1928,14). The kilns were characterised by their firing arrangements in that they had a clay floor perforated by holes to circulate the heat. Chenet comments that the interior of the 'Gallo-Belgic' kilns were often black or brown in colour as a result of the reduced firing process unlike the samian kilns which show a red interior (Chenet 1928,15). Initially Chenet uncovered three 1st century kilns of similar construction. A pedestal projecting from the back of the furnace supported the floor (Fromols type C3 (Fromols 1938,52)). The diameters ranged from 1.50m to 1.20m. The stokehole entrance and hearths were filled with burnt pottery debris. The floors and walls of the Autrecourt kiln were composed of a mixture of clay, gravel and small potsherds whilst the pedestal and external furnace walls contained abundant refractory material. When excavated the floor was concave in shape probably due to warping during or subsequent to use

and not an original feature as implied by Chenet. The pottery fragments from the kilns were very mixed and some may have been 'imports' to the site. Others were probably kiln products, a selection of which are shown on Fig.29. There are two distinct categories of ware, a coarse domestic ware in a black or brown fabric with white calcareous inclusions, and a finer ware produced in a variety of colours ranging from black to yellow-orange to grey and white. The grey wares are the commonest and occur as wheel-made beakers, carinated urns and dishes. Platter and cup forms seem to be absent from the Lavoye repertoire. The vessels are matt or polished, plain or decorated, the latter usually as fine combed lines, rouletting or barbotine. A second type of kiln was later published by Chenet, also from Lavoye, which had a circular firing chamber with a laterally placed hearth, unlike the former examples where the hearth or furnace was located under the firing chamber (Chenet 1938,256). It seems that many of the 1st century pottery kilns at Lavoye were subsequently modified and reused as ustrinum (i.e. for the burning of corpses) once their use as pottery kilns had ceased. The cremated remains were buried in pits nearby (Chenet 1928). Pottery production continued to flourish at Lavoye into the 2nd and 3rd centuries A.D. with the production of 'samian' and beakers (Faltenbecher) and Griesbecher).

i) LIVRY-SUR-VESLE (Marne)

At least one, possibly two, 'Gallo-Belgic' potter's kilns. No further details (Frézouls 1971,295).



Scale 1:2

Figure 29.

Kiln products from Lavoye, Meuse (after Chenet 1938).

j) LOUVERCY (Marne)

A potter's kiln with an oblong floor, 1.9m by 0.9m associated with Gallo-Belgic pottery. Of particular note are a number of stamped platters in a grey-white fabric with a black or slate grey surface (Frézouls 1967,287; 1971,295).

k) MORAINS (Marne)

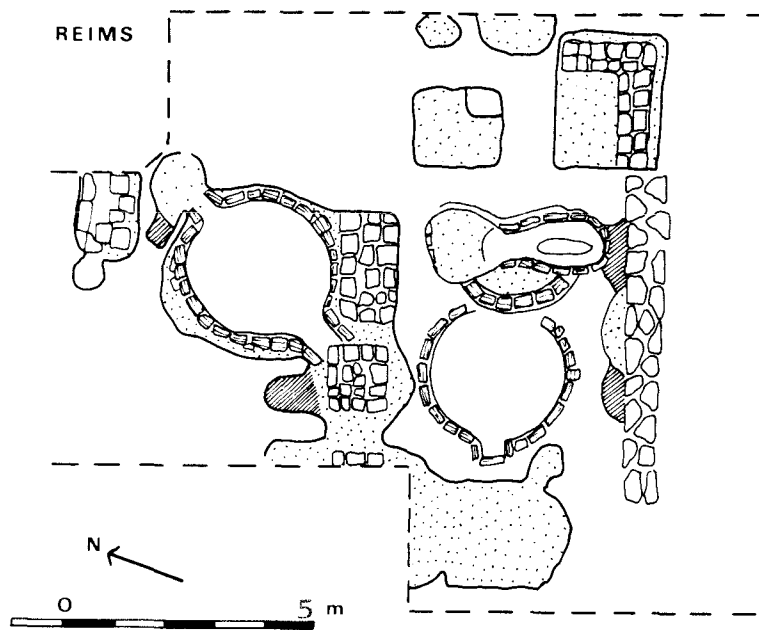
Excavated by Brisson and Loppin. A 1st century A.D. kiln cited by Fromols as a B4 type, like that at Bergères-les-Vertus (Fromols 1938,57).

l) MOURMELON-LE-PETIT (Marne)

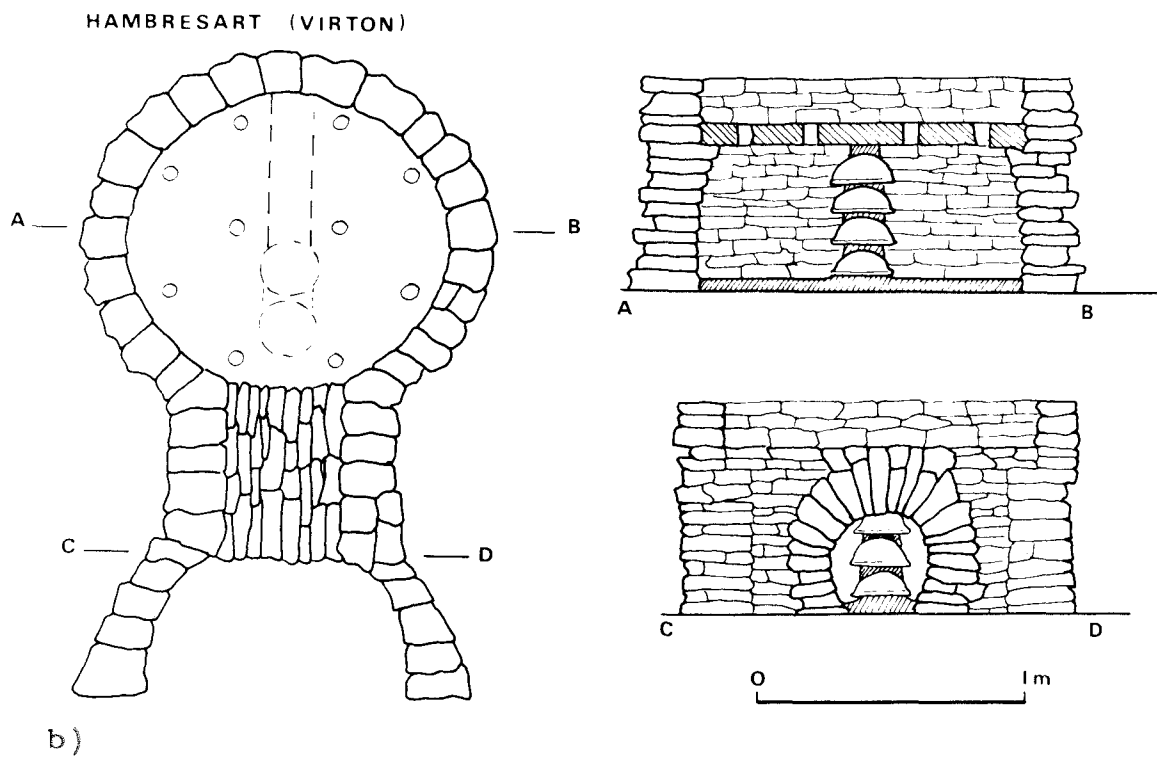
Early 1st century A.D. potters producing Gallo-Belgic wares. The products include platters with red slips (T.R.). Included with the pottery was one stamp reading CIVICOI or CINCOI (Frézouls 1972,295). No further details.

m) PEIMS (Marne) (Frézouls 1971;1973;1975)

A large complex of kilns and potters' workshops has recently been discovered in a series of rescue excavations in the St. Remi district of Reims. At least 14 kilns have been excavated together with a number of associated pits and structures. The kilns are of several different types (see for example, Fig.30a) and range in date from the early 1st century A.D. (possibly even the late 1st century B.C.) to the first half of the 3rd century. In the majority of cases the kilns have no floors and temporary structures were probably used. All the kilns were partially dug into the chalk and constructed of fired clay, brick, tile or stone. Amongst the forms present are Fromols types B4, B1 and C4 (Fromols 1938,52); two examples being fired from a single stokehole.



a)



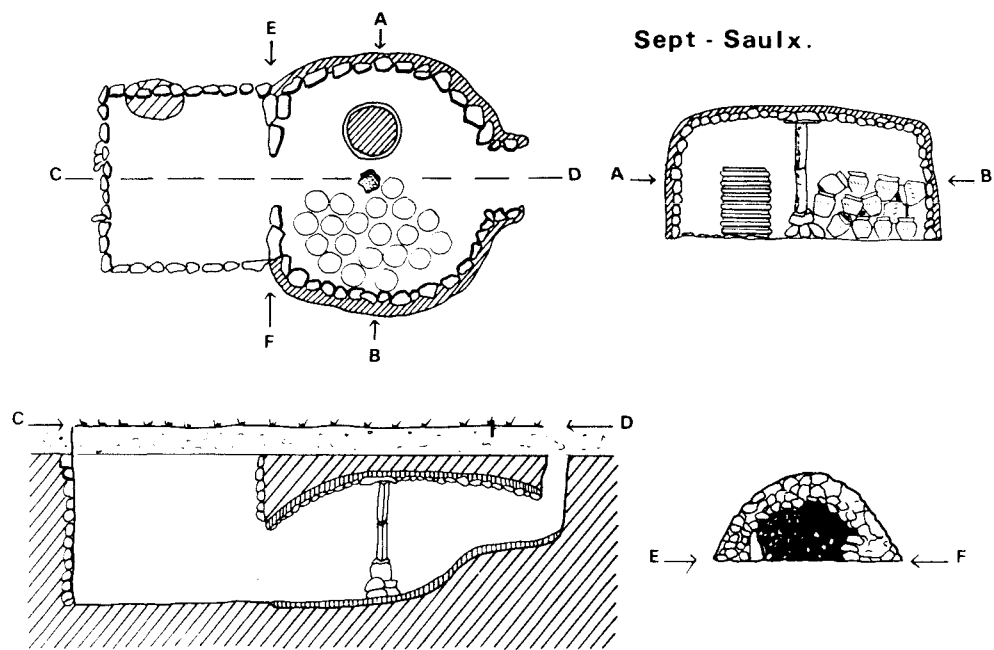
b)

Figure 30. a) Plan of part of the kiln complex at Reims (after Frézouls 1971, 297).
b) Plan and section of a kiln at Hambresart, Virton (after Martin 1939).

The kilns show a number of different orientations and dimensions but one particular group facing north were distinguished by the presence of Gallo-Belgic fine wares not featured at the other kilns. Twelve T.R. platters stamped with the potter's name Arantedus were found associated with one kiln in the same locality that thirty stamps of At^tissus were discovered in 1918 (Frézouls 1971, 295). The other 1st century kilns seem to have concentrated on producing a grey-blue sandy domestic ware, known locally as 'craqueleé bleutéé' which was produced from the 1st century onwards, presumably mainly for the local market. An enormous amount of as yet unprocessed pottery has been recovered during the course of the excavations. T.R. fabrics are particularly prominent, mainly as platters, cups (Cam. 56) and beakers. The latter are in a typical T.R.3 fabric and are markedly ovoid in shape with zones of rouletted and incised lattice decoration. The rouletting is a distinctive rectangular variety. Other examples of T.R. vessels, perhaps less well known found at Reims are flagons in T.R.1 with a pinkish fabric and red polished external slip. These do not seem to be very common although possible examples have recently turned up at Canterbury and Clausentum (Timby n.d.). T.N. is at present, in the minority at Reims and none appears to have been found directly associated with a kiln although the excavated area is only a small percentage of the total artisan quarters at Reims (R. Neiss pers. comm.). Other vessels however that are prominent amongst the pottery assemblages are the white ware flagons (Cam. 161 type) and black 'egg-shell' carinated urns (Cam. 120) both of which were undoubtedly produced at Reims.

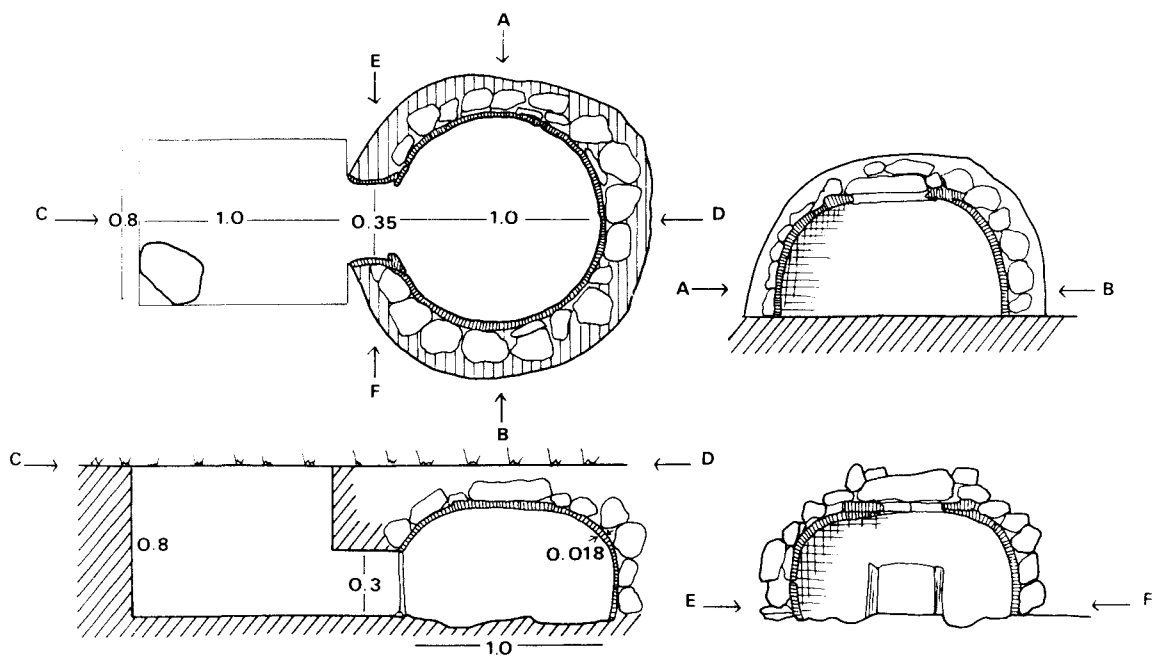
n) SEPT SAULX (Marne)

Excavated by Bry in 1938, and published by Fromols in 1939. Three kilns and an accompanying waster dump were excavated. Kiln i (Fig.31a) was oval in plan with the floor, walls and dome composed of stones (sandstone and flint) held together with a mortar of clay and crushed chalk. The dome was originally constructed over a framework of plaited branches which had subsequently been destroyed leaving a dome held together by fired clay. A central supporting pillar was constructed from four imbrices placed upright and cemented together. The form falls into Fromols type B2 with the hearth placed laterally to the firing chamber (Fromols 1938,52). Kiln ii (Fig.31b) was similar to i, but constructed using the sherds of very large vessels. Two large 'olla' halves were used as the main frame of the kiln. The dome, unlike that in kiln i which had a second exit, had a central vent covered by a large stone. The third kiln falls into Fromols type B3, ovoid in form, with two opposing entrances. Built of a fine chalk cement with small stones and potsherds, the two entrances were flanked by tiles (tegulae) supporting a fragment from a large jar. Several fragments from 'saggers' were recovered from the kiln area, used to protect the individual vessels during firing from the flames. The pottery products from these kilns include many forms in both coarse ware and fine ware dating to the Augustan-Claudian period. Kiln i, when excavated, contained two varieties of vessel abandoned in the kiln after firing. One half of the kiln contained a pile of T.R. platters Cam. 7/8 (Loeschcke 72/77 (Loeschcke 1909)) whilst the other half was filled with a heap of small



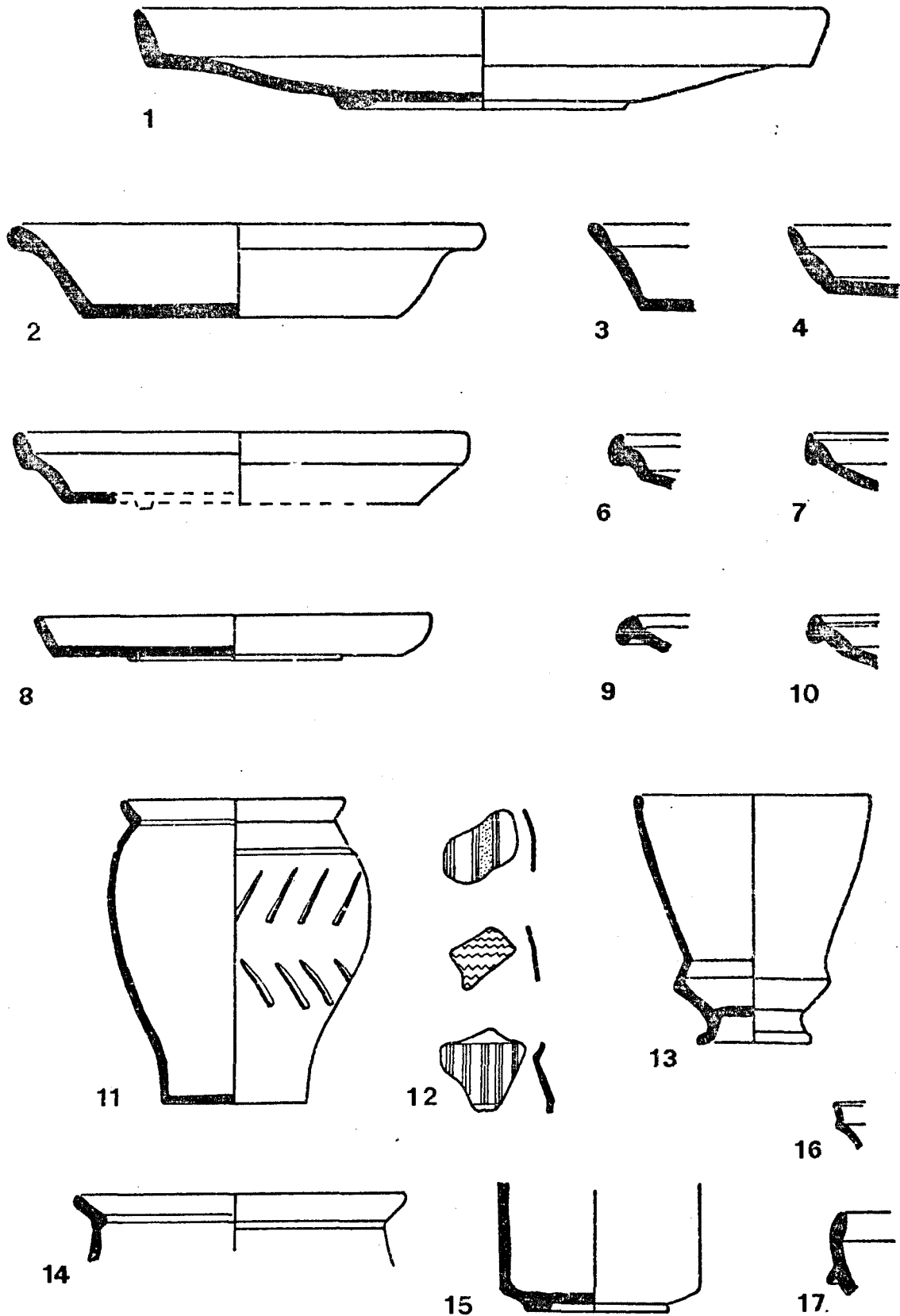
Kiln 1.

Scale unknown.

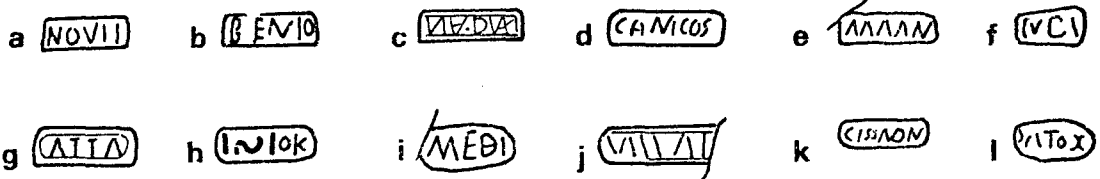


Kiln 2.

Figure 31. Plans and sections of kilns 1 and 2 at Sept-Saulx, Marne (after Fromols 1939).



Scale 1:2



Scale 1:1

Figure 32. Products and stamps from the kilns at Sept Saulx, Marne, (after Fromols 1939).

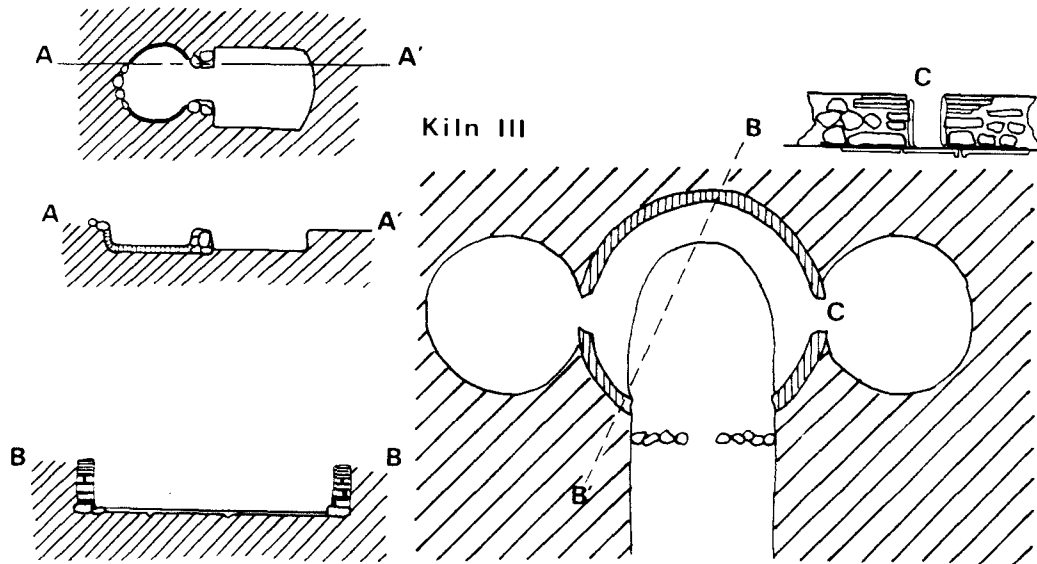
ovoid jars with red painted rims (Loeschcke type 85). The waster dump contained thirty-three different types of vessel some of which are shown on Fig.32. Prominent amongst these are T.R. cups (imitating Haltern terra sigillata form 16), pedestal beakers, platters, forms Cam. 2,3,4,5,6,8 and 12/13, single and double handled flagons, various coarse ware jars and lids and beakers (including a 'gräternbecher'). Within the platter range there is a great variety of moulded rim forms, too many to feature here (see Fromols 1938;pl.VIII), which come into the Cam. 3 to 6 range in both T.N. and T.R. The platters in Cam. 8 and 12/13 seem to have been predominantly produced in T.N. Cup forms seem to be slightly under-represented and only thirteen rims from the larger version of the Cam. 56 are present; the smaller version more characteristic of the early 1st century is absent as is the form Cam. 58. Several vessels were unfinished with no surface colour either from a slip or fuming. The debris from kilns i and ii produced twenty-two different potters' stamps with an additional five from kiln iii. Amongst the better known potters present are Medi (2), Canicos, Benio, Atta (8), Nadna (25) and Novii; the majority of the other stamps are illegible or senseless.

o) THUISY (Marne)

Discovered and excavated by Bry in 1934 and published by Fromols in 1938 together with his kiln classification. Initially six kilns were discovered at Thuisy located just up river from La Prosne. The kilns were all single chambered examples where the pottery was placed in the chamber next to the fire. Kilns I and II were Fromols type B1, with small

Kilns I and II

THUISY (Marne)



Scale unknown.

Kilns IV and V

Kiln VI

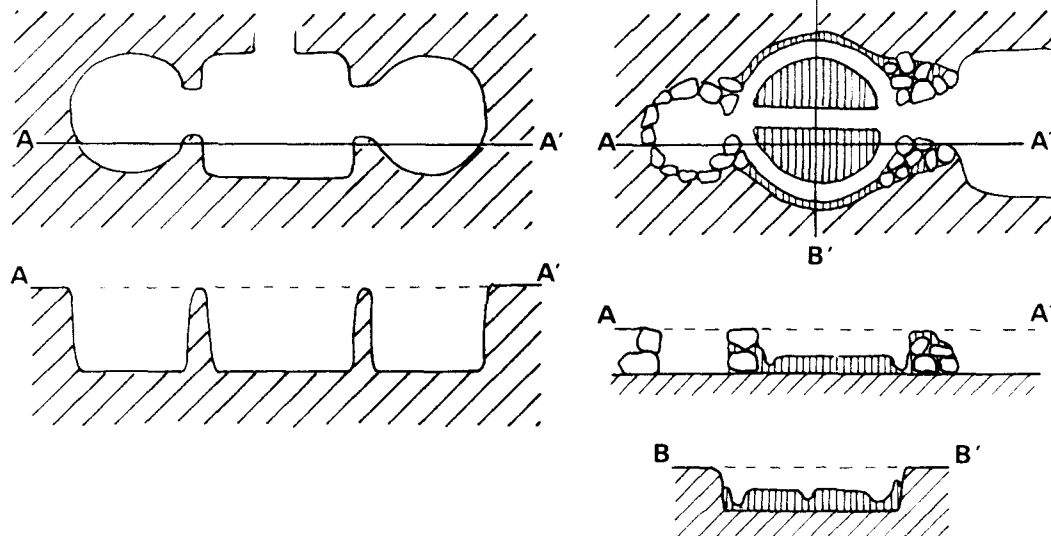


Figure 33.

Kilns I, II, IV, V and VI at Thuisy, Marne (after Fromols 1938).

round chambers and a separate area for the fire. Kiln III was an example of type B3, with masonry walls, a tiled floor and two opposing entrances. Kilns IV and V were type A, simple and undifferentiated, and kiln VI was type B3 characterised by a floor in the form of two semi-circular segments (see Fig.33). A seventh kiln was excavated in 1942 after the main report had been published. Unlike the previous examples this kiln had a firing chamber separated from the furnace and was probably slightly later in date (Bry 1944). This kiln still retained a dome of fired clay over the firing chamber with a further clay cover over the flue, apparently being abandoned whilst still in use. Traces of a wooden frame were noted carbonised into the interior of the dome. The vessels inside the kiln were composed of approximately thirty small 1st century 'ollae' (small jars) in either a fine white clay or grey with a black slip, together with a number of platters in a fine, hard grey ware, some with a black slip and some polished. Twenty of these were stamped with the potters' names but unfortunately the excavator does not elucidate further on these in the report (Bry 1944). Amongst the debris recovered from the kiln area were two fire-dog fragments, one of fired clay, the other of sandstone, and four fragments of a perforated clay plaque presumably used to separate the hearth from the firing chamber. Some of the kilns were used as waster dumps when no longer used for firing so that the material is not necessarily contemporary with the actual kiln in which it was found. As in the former workshops the potters at Thuisy were involved in producing a number of different products including flagons,

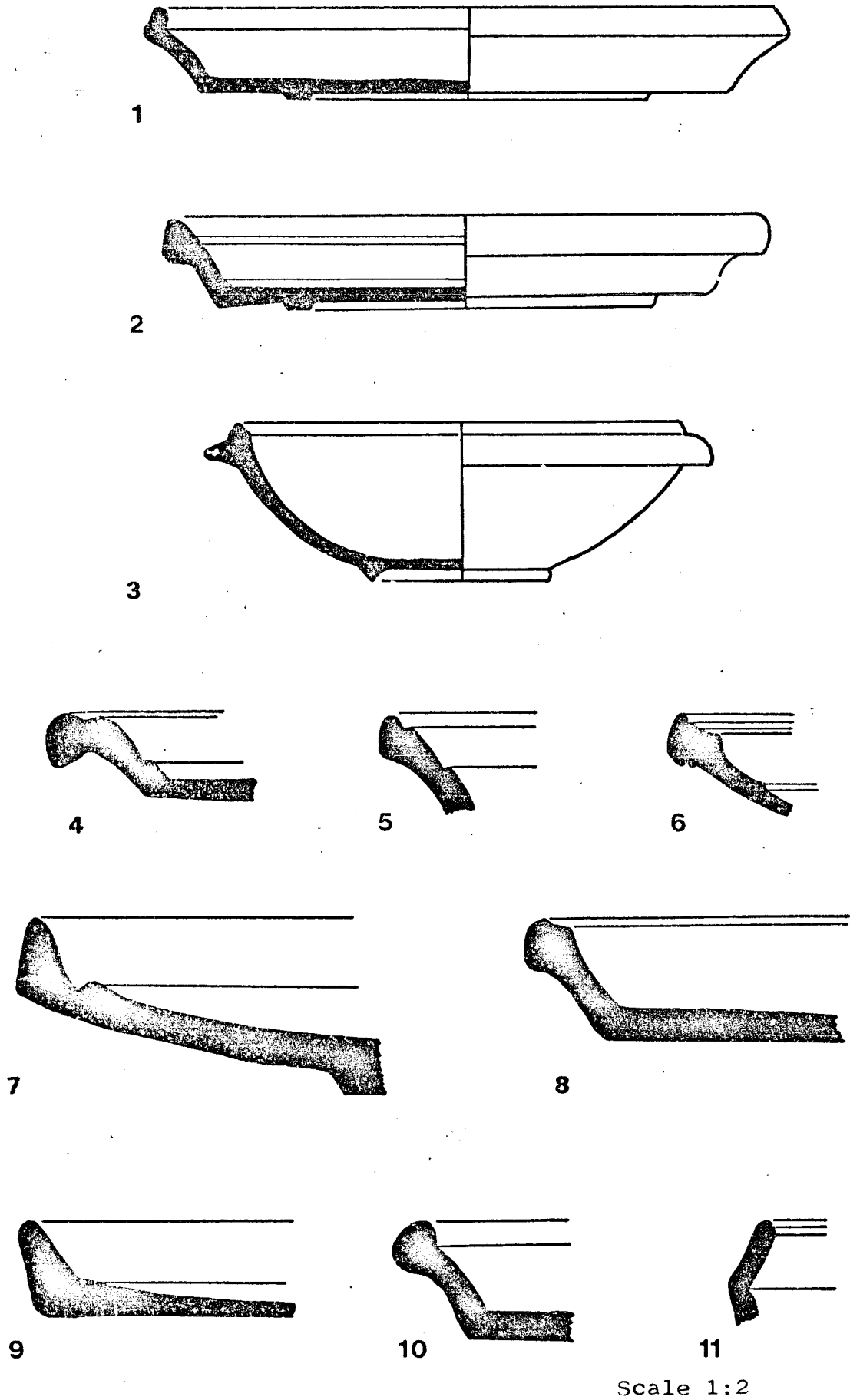


Figure 34.

Kiln products from Thuisy, Marne (after Fromols 1938).

jars, flanged dishes, dolia and platters. Like Sept Saulx there are a number of platter variants (Fig.34). Amongst the platter forms present the following can be identified: Cam. 2,5,7/8,12/13 in T.N. and Cam.5,7/8 in T.R. Cups are apparently scarce although there are a few examples of Cam. 56, and an example stamped Bollo was recovered from the working area (Bry 1944). Very few potters' stamps were found and the majority of these seem to be illegible. At least two examples of these are present at the neighbouring cemetery site at Prunay (Bry and Fromils 1938,10). Production seems to have begun at Thuisy in the Augustan period.

p) VAUCLAIR (Aisne)

Excavated and published by Litt (1969). Two 'Gallo-Belgic' potters' kilns dating to the second half of the 1st century A.D. were excavated. Both were of similar construction and seem to be of a horizontal draught type similar to examples found at Overwey, Tilford and Farnham, Surrey (Corder 1959). The kilns are both oval in shape with double flues and are constructed out of stone. The pottery included several forms mostly in a grey or black coarse ware. Particularly prominent were a number of small jars (marmites), carinated urns and bottles. Four T.N. platters were also present (Cam. 12/13 and 16), but it is uncertain from the report whether these are true T.N. or imitations and whether they are local products.

(ii) Group II East Gaul

a) BLIESBRUCK (Moselle)

An important pottery production site in the course of investigation. A detailed stratigraphic study has allowed the identification of several dated horizons which fall into three main periods. The first of these dates from the Augustan to Vespasian period and is terminated by a fire between A.D. 60-80 (Billoret 1974). The pottery from this period is very prolific and includes 'Gallo-Belgic' types, black carinated jars and large two handled jugs in a beige or ochre ware. Recently two kilns have been discovered, one of which had a complete load to ovoid vessels of 'Gallo-Belgic' type (Burnard 1978,329).

b) BOURGHEIM (Bas Rhin)

Kiln activity dating to the late La Tène and characterised by the production of painted vessels. Three 1st century A.D. kilns and a square 2nd century example were later uncovered during recent excavations. The pottery recovered includes ovoid jars with combed or painted decoration. A neighbouring ditch contained T.N. sherds and fragments of burnt clay presumably from the kilns (Pétry 1980,447).

c) BOUCHEPORN (Moselle)

A large pottery complex dating from the first half of the 1st century A.D. to the end of the 2nd century. Excavated by Hatt between 1964 and 1967. At least six kilns belong to the oldest period of the site, four to the period between A.D. 60-70 and a large number to the Flavian period (A.D. 70-97), the most active period of the site. The first

products to be manufactured between A.D. 20 and A.D. 60 were grey 'Gallo-Belgic' wares. In the second phase (A.D. 60-70) grey wares continued to be produced along with micaceous wares and East Gaulish imitations of La Graufesenque terra sigillata. By the third phase (A.D. 80-100) the 'samian' potters had taken over, with the workshops of Saturni^{us} and others. By the end of the 2nd century the production of samian was seriously reduced and the range of products again diversified to include coarse wares and tiles (Hatt 1964,344; Schnitzler 1978).

d) BRUMATH (Bas Rhin)

Two Tiberio-Claudian kilns were discovered in 1978 producing local wares, both coarse wares and 'Gallo-Belgic' types (Burnand 1978,365).

e) CHEMERY (Moselle)

Excavations in 1934 by Marcus and Welter revealed a collection of seven kilns and several samian waster dumps. A number of grey 'Gallo-Belgic' sherds were recovered but it is not clear whether these were also produced at this site before or along with the samian (Schnitzler 1978).

f) DASPICH-EBANGE (Moselle)

The artisan quarters have been excavated since 1960 by J.J. Hatt. In 1960-62 a series of kilns were uncovered dating from the 1st to the 3rd century A.D. Two of these kilns were involved in the production of grey or black wares in the 1st century, sometimes with rouletted decoration. The smaller of these kilns was oval in plan with a perforated clay floor whilst the second example was larger and round in

plan and probably slightly later in date, being late 1st century probably continuing into the 2nd century. A third 1st century kiln was excavated in 1967. This example was brick built with a well preserved floor. In the same locality a dump of material stratified below a burnt horizon dated to a fire in c. A.D. 70, contained fragments of T.N. associated with early 1st century samian from La Graufesenque (Schnitzler 1978). The T.N. is considered to be of local manufacture. Amongst the forms produced at Daspich-Ebange in the late 1st century are platters, Hofheim type 97B and Hofheim type 99 (Cam. 16 variant); spherical jars with rouletted decoration, mortars, urns and lids.

g) EHL-BENFELD (Bas Rhin)

In 1968 after a series of excavations which commenced in 1960 and produced material dating back to the Hallstatt period, two kilns were discovered. The first dated to the La Tène III, had a double stokehole and contained polished decorated pottery. The second kiln dated to the early Roman period produced a variety of wares including jars and ovoid vases decorated with stamped impressions and rouletting, cups and platters (Pétry 1968,403-8). A nearby ditch contained a collection of 'Gallo-Belgic' pottery, both oxidised and reduced wares dating to the Tiberio-Claudian period. Amongst these was a platter stamped ITRAXI, platters of Cam. form 2,5 and Hofheim 97B, dishes Hol. 1220, cups Cam. form 58, butt beakers and flagons (Deiber 1969, Fig.3&4), (see Fig.37,5-9).

h) METZ (Moselle)

A single kiln excavated and published by Reusch in 1943. The kiln with a tongue pedestal floor support falls into Fromols type C3 (Fromols 1938,52). The substructure was built of mud bricks with an extra inner lining of clay to prevent excess heat loss (Fig.35a). The pottery included a T.R. pedestal beaker (Cam. 74) and three platters one of which was a Cam. 12/13 type. Also present were two T.R. platters stamped by the potter Cassicos, one of which was a Cam. 4 (Fig.37.1). In addition to these there were four large globular flasks (Halter type 89) (Fig.37.4) in a reddish-brown polished fabric decorated with zones of rouletting and incised lines, and two wider mouthed jars decorated with irregular vertical lines. The similarity in colour and finish of all these vessels and their association with the kiln suggests that they are all the work of the potter Cassicos.

i) SELTZ (Bas Rhin)

The remains of a kiln and pottery workshop were found in 1954 (Hatt 1954,497). The kiln, 2m in length was constructed partly in stone and partly in brick and tile with a clay mortar. It was apparently used for firing indigenous brown and black slipped wares dating to the late 1st century (Hatt 1956,300).

(iii) Group III 'Belgic' type kilns in other areas of
Gallia Belgica

a) LA SAULSOTTE (Aube)

A group of at least nine kilns, several of which are of

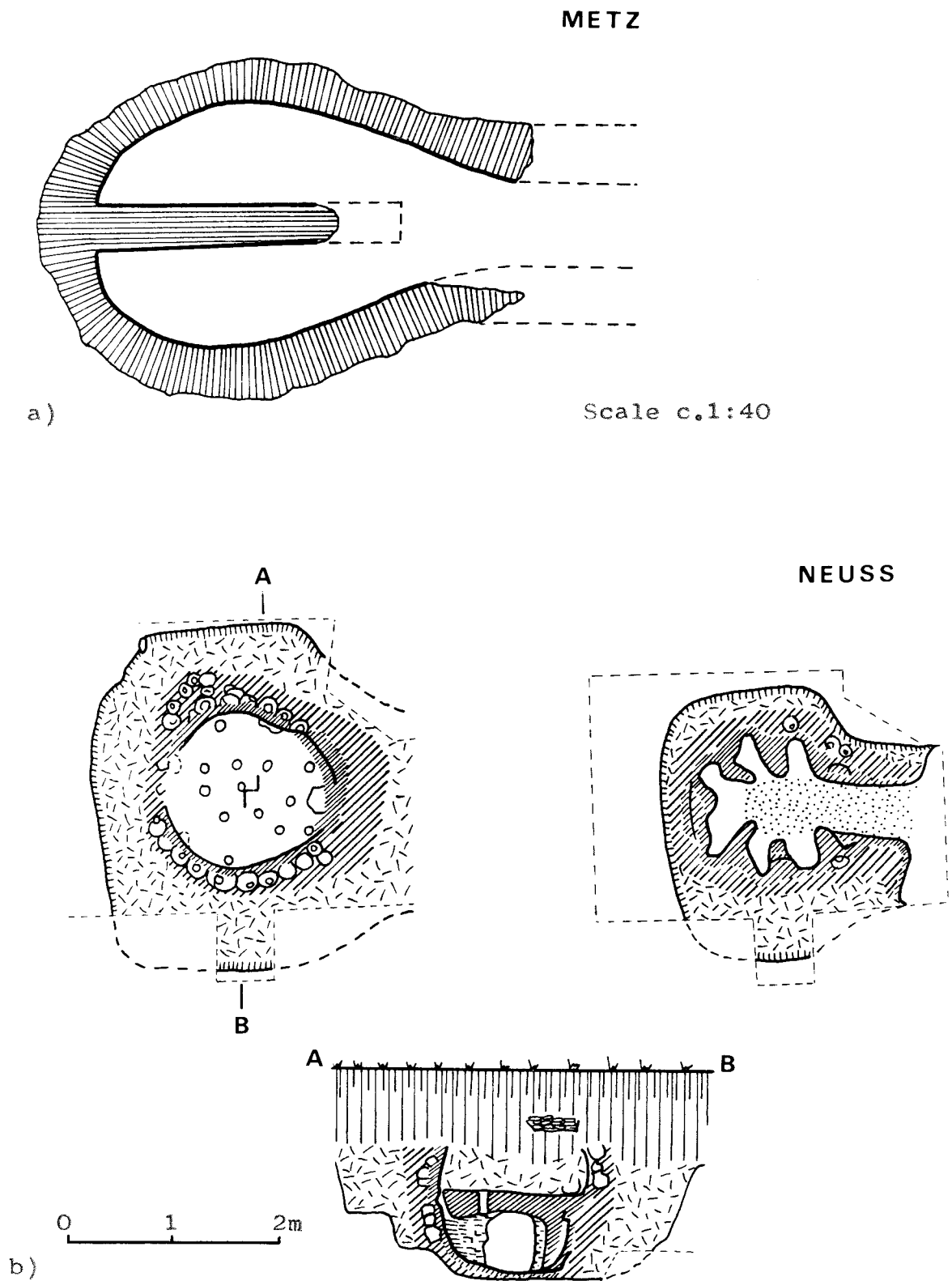


Figure 35. a) Plan of the kiln at Metz, Moselle (Reusch 1943).
b) Plan and section of a kiln from the military complex at Neuss (Novaesium) (Filtzinger 1972, Abb.3)

similar construction to the examples at Fontaine-Denis, Marne (Drioux 1943). Excavation and finds unpublished.

b) LA VILLENEUVE-AU-CHÂTELOT (Aube)

A very large pottery complex discovered in 1936 by Brisson and Loppin which subsequently became the focus of several seasons of excavation. Unfortunately these have only been published as short interims. The first kiln discovered in 1936 was constructed of tile fragments with the space between the excavated pit and the kiln walls filled with an insulating layer of clay. The pottery associated with the kiln was dated to the third quarter of the 1st century A.D. on the basis of a single samian cup (Dragendorff 35) from La Graufesenque. In 1937 five new, broadly contemporary kilns were excavated together with a number of pits. These kilns were all constructed out of clay and potsherds with additional fragments of brick and tile. An eighth kiln was uncovered in 1938. The bulk of the pottery recovered ranged in date from the Claudian period to the early 2nd century. Included in this was a number of white vessels decorated with red painted designs or rouletting, and a number of jugs and platters. In 1967, the discovery of some earlier sherds belonging to the La Tène II and III periods suggested the possibility of an earlier pre-Roman production. Intermittent excavations are still carried out at the site and in 1972 a further six kilns were discovered (Frézouls 1972, 285); (Fig.36b).

c) VERTAULT (Côte d'Or)

A large waster dump excavated and published by Lorimy in

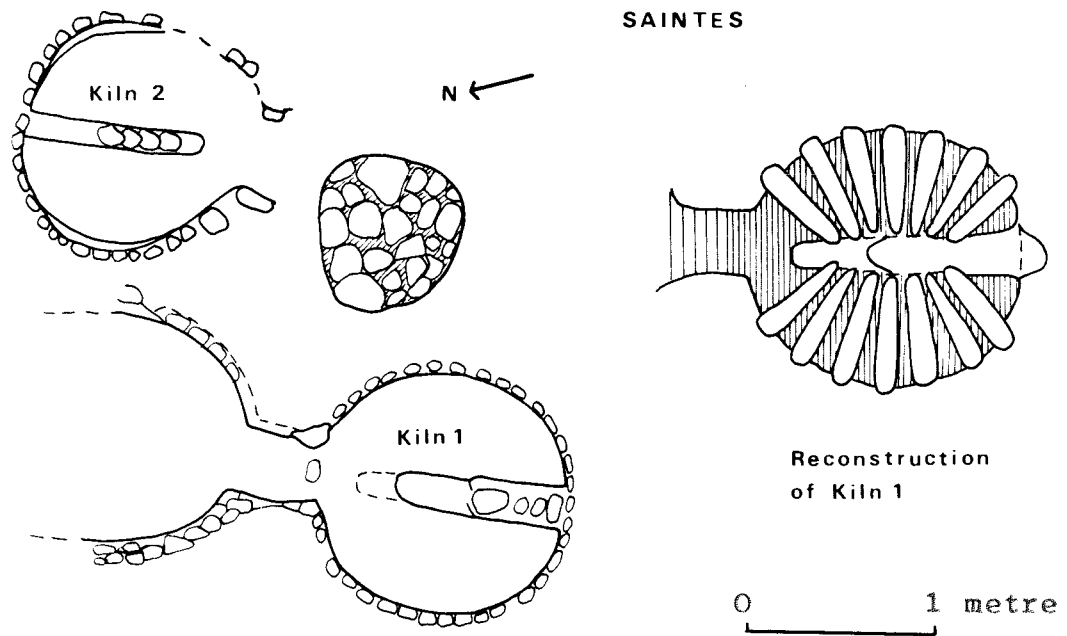


Figure 36 a)

Plan of two kilns and a reconstruction at the St. Vivien cemetery, Saintes, Aquitaine (after Nicolini 1975,373).

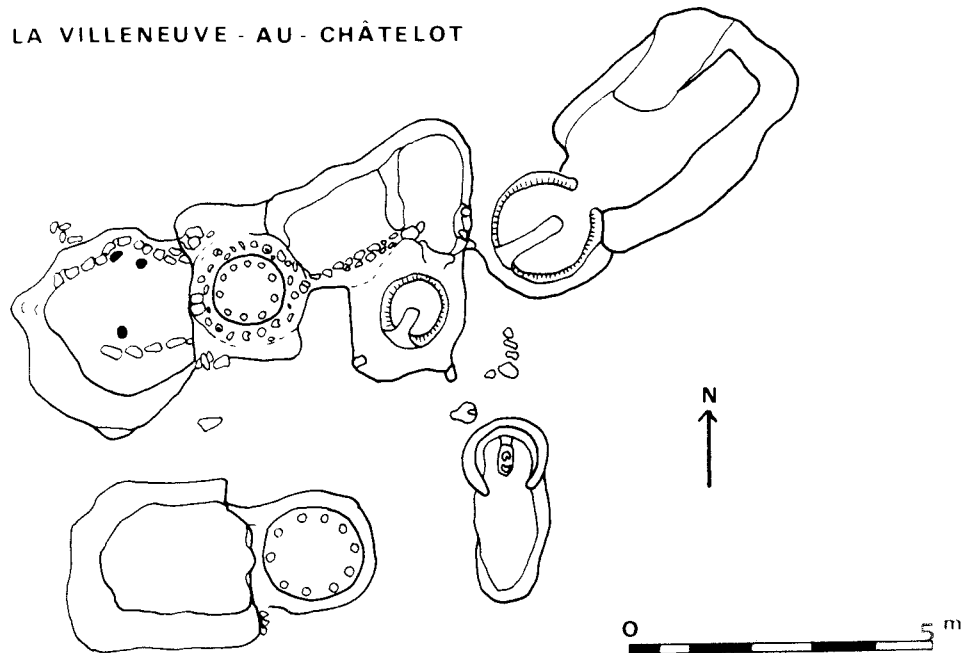


Figure 36 b)

Plan of part of the kiln complex at La Villeneuve-au-Châtelot, Aube (after Frézouls 1975,399).

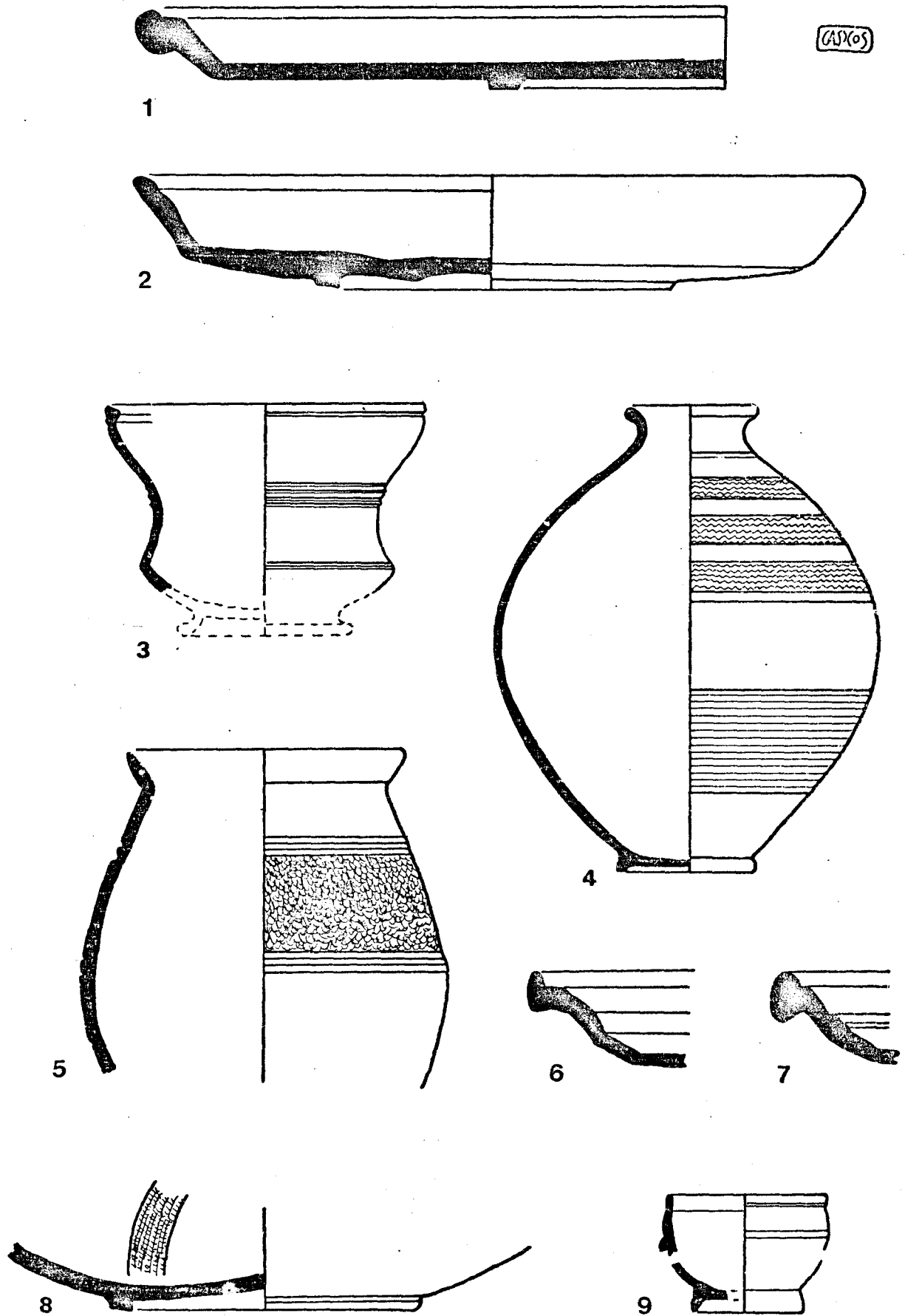


Figure 37.

Scale 1:2, no.s 3,4 Scale 1:4

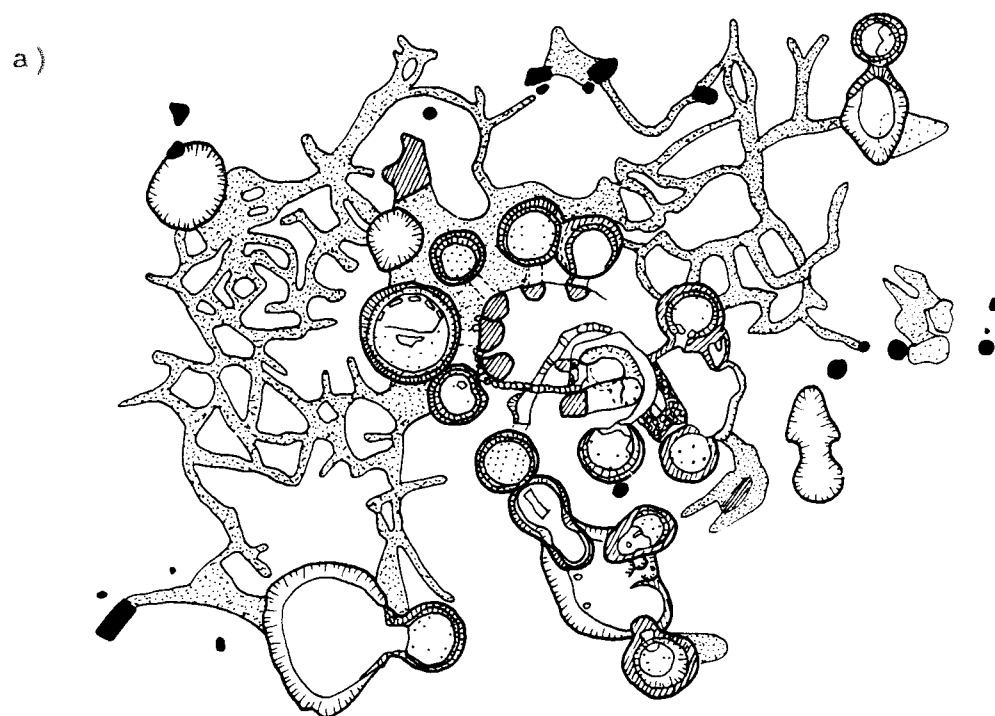
Products from the kilns at Metz and Ehl.
 1-4. Metz (after Reusch 1943, Abb.2 and 3).
 5-9. Ehl (after Deiber 1969, figs.3 and 4).

1923 suggested the existence of a potters' workshop in the vicinity. Many of the wasters were from 'Gallo-Belgic' wares - platters and cups. A total of 400 potters' name stamps were recovered in which there were at least 46 different names, notably: Papilos (147 examples), Atta (6 examples), Ingenus (48 examples), Nove.f(e) (32 examples), Viriodac(us) (15 examples), Atecnudus (10 examples), Ciruca (10 examples), Aetussa (10 examples), Andeco (7 examples), Uta (7 examples) and Crixio (6 examples) (Bohn 1922,123; Lorimy 1923,169). The platters and cups in both T.N. and T.R., mainly the latter, include Cam. forms 3,5,8,12 and 56 with one or two additional types. An Augustan date was suggested for the dump on the basis of there being no samian present and because many of the vessels showed the vestiges of a La Tène tradition. There were in addition to the fine wares a number of coarse wares, for example, urns of various sizes and conical dishes.

d) BUSSY-LE-RÉPOS (Yonne)

Excavated by Bolnat but essentially unpublished with the exception of a plan (Fig.38) reproduced by Duhamel (Duhamel 1975). This shows a complex workshop area with a number of kilns arranged in a circular pattern with the stokeholes facing inwards. The site is underlain by a complex drainage network with a number of pits and post holes. The formal arrangement of the kilns would suggest this was the workshop of a specialist perhaps full-time potter. Unfortunately since the products from the kiln area are unpublished a precise date for the kilns is unattainable although Fromols suggests that it is late 1st century and possibly even early

BUSSY-LE-REPOS (Yonne)



Scale unknown.

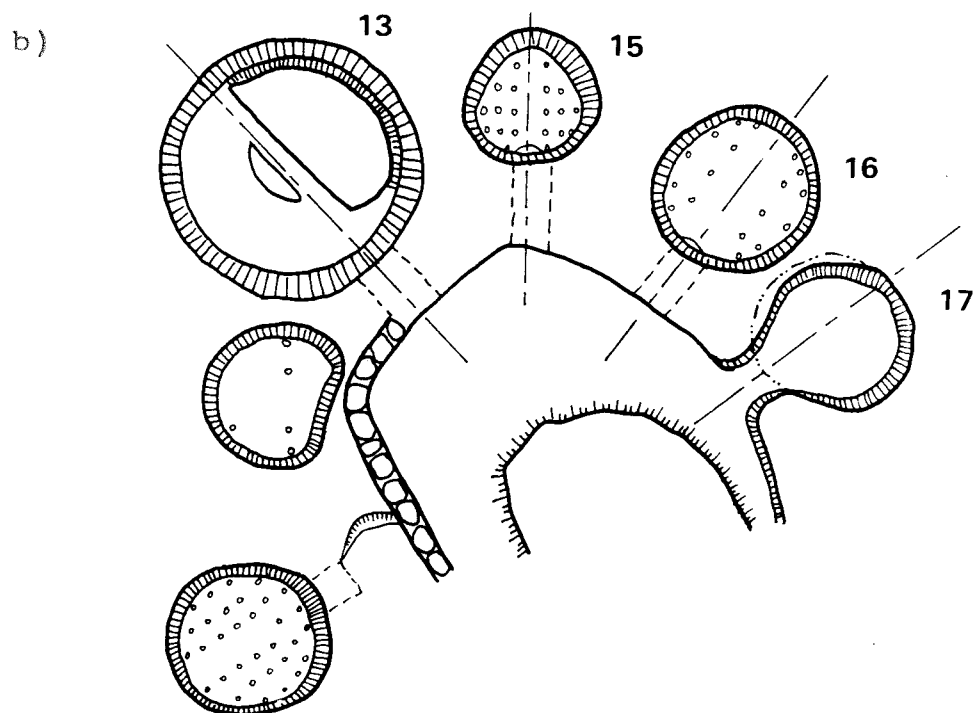


Figure 38. Plans showing a) the complex of kilns and drains, b) a battery of four kilns.
(after Duhamel 1975).

2nd century A.D. (Fromols 1938,50).

e) BAVAY (Nord)

A dump of pottery found in a ditch, probably the debris from a nearby kiln. A number of kilns have been recorded from the area in the course of sand and gravel working, together with a mint and a fibula workshop. The pottery was mainly composed of coarse wares, - flagons, handled urns and a large number of grey platters (Terrise 1963). The high concentrations of Pompeian Red ware platters (Hofheim 100) in and around Bavay have led Amand to suggest that they might have been produced in workshops at Bavay in the mid 1st century A.D. (Amand 1959,297).

f) TRIER (Rhineland/Palatinate)

A number of 'Belgic' type kilns have been found in Trier some of which allegedly produced T.N. wares, in particular platters of Cam. 16 type (Amand 1959,297). The kilns in the Louis Linzstrasse, excavated earlier this century for example had Cam. 16 platters associated with them (Amand 1959, 301). Further, Koethe quotes several products with potters' stamps, for example ATITISV and DATVEIO who are thought to be Trierer potters (Koethe 1938).

g) MAINZ-WEISSENAU (Rhineland/Palatinate)

Excavated in 1910-1913 and published in 1915 by Behrens. Two kilns with associated 'Gallo-Belgic' wares were excavated at Weissenau. One of these was similar to Fromols type C3 with a tongue pedestal supporting a perforated clay floor (Fromols 1938,52; Behrens 1915,Abb.6). The pottery from these kilns were mainly grey ware beakers, - girth

beaker and butt beaker types (Pfeffer 1977). A third kiln was subsequently excavated which seemed to have produced specifically white wares. The kiln seems to be a hybrid type with masonry built walls and a central tongue pedestal (Behrens 1915, Abb.9,10). The furnace walls, however, appear to have vertical vents analogous to those found in the samian kilns. The wares were mainly single and double handled jugs. Two further kilns were excavated, one associated with grey wares but these are probably slightly later in date. A collection of grey ware wasters and a kiln were recorded at a site in Mainz in 1897 (Behrens 1915,94). The kiln, judging by the contemporary photographs, appears to be rectangular in plan and probably 2nd or 3rd century in date.

(iv) Group IV Kilns producing 'Gallo-Belgic' imitations

Britain:

a) COLCHESTER (Essex)

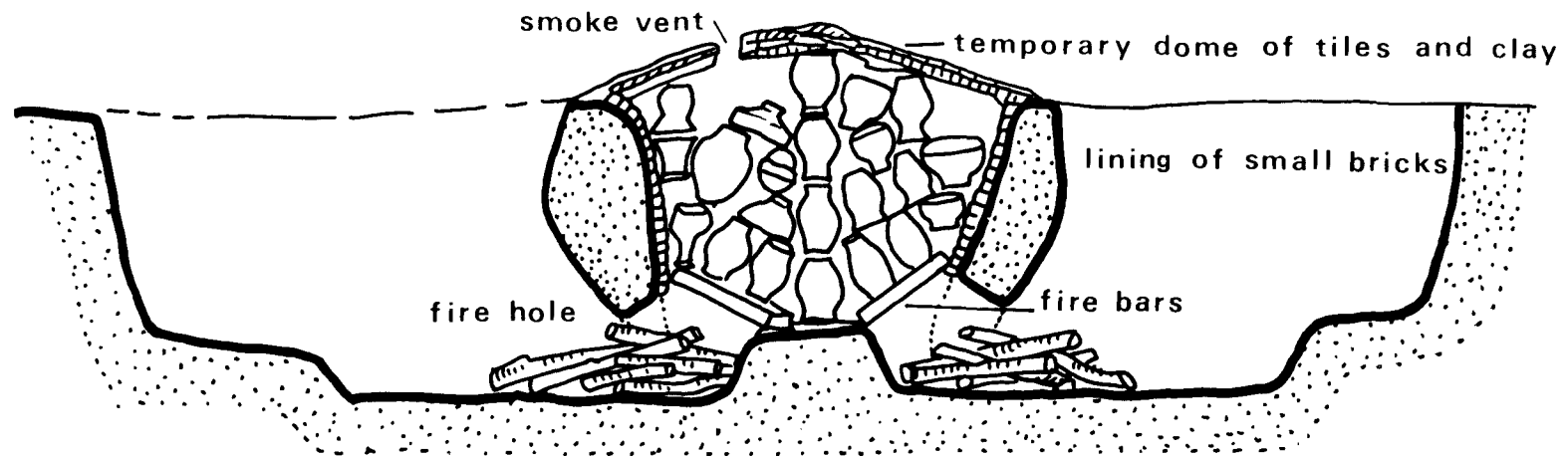
Pre-conquest kilns have yet to be found at Colchester although the vast quantities of pre-conquest pottery found there have led Hull to suggest that Colchester was a prominent pottery production centre (Hull 1958,248). The two vessel types singled out particularly as possible local products are black platters Cam. form 12 (Hawkes and Hull 1947, 219) and white ware butt beakers, Cam. form 113 (Hawkes and Hull 1947,238).

b) CHICHESTER (Sussex)

The first, and at present the only kilns in Britain found with butt beakers and platters of direct 'Gallo-Belgic' tradition are two examples recently excavated at Chichester

CHICHESTER

SECTION



PLAN

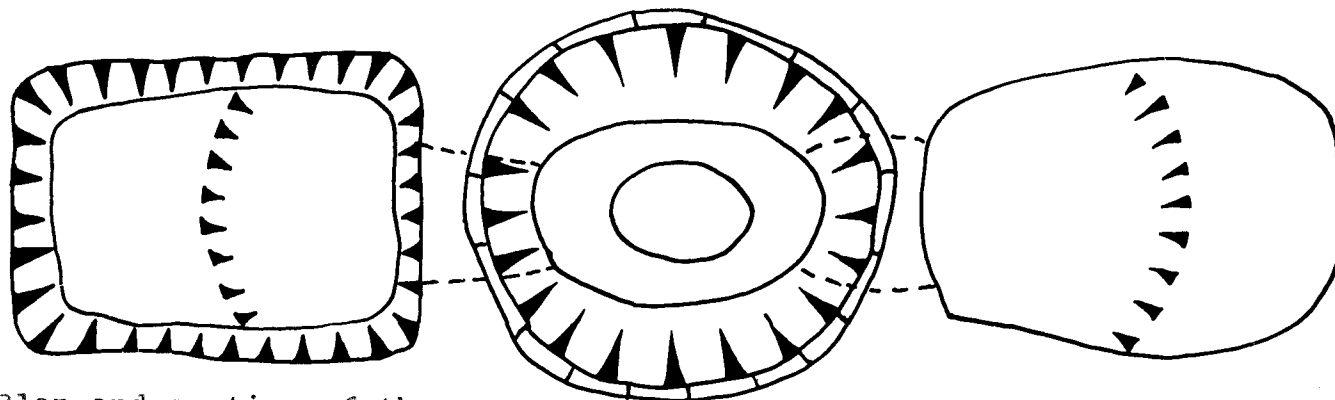


Figure 39. Plan and section of the reconstructed Roman kiln at Chichester (after Gunn 1971).

(Down 1978). The first of these kilns was a small updraught type fired from the south end which was deliberately dismantled and refilled. The second kiln, abandoned in working condition, was slightly unusual in that it appeared to be fired from two stokeholes (Fig.39). The firing chamber was lined with small pre-fired bricks set in a clay mortar, but there was no trace of a floor, either permanent or temporary, although a central pedestal would have served to support a set of radial kiln bars. Two nearby pits were filled with clay derived from the Reading Beds together with a number of pottery wasters. Some of the clay found was already prepared ready for working and proved not to be the 'unadulterated local clay' (Gunn 1971,11), but a mixed body. This kiln and some of the 'Roman' clay were used to carry out a fairly successful kiln firing experiment. The clay proved to be extremely robust and malleable and fired well after 10 hours in the kiln (Gunn 1971). The products from the kilns included both coarse ware and fine ware vessels - carinated bowls, butt beakers, rusticated jars, lids and platters.

Belgium:

c) HAMBRESART (Virton)

Three kilns of probable identical construction and built around a central ditch were excavated and published by Martin (1939). The better preserved example was constructed in local stone with a perforated clay floor supported on a central pedestal composed of inverted bowls separated from one another by a pad of clay (Fig.30b). A similar second pile supported the floor where the circular walls were interrupted by the passage of the flue. All three kilns used a

common stokehole. One of the kilns had been used as a was-
ter dump. The vessels were either oxidised, red or yellow,
or reduced grey or black and included several different types.
Of particular note are platters (Hambresart type 1, Hofheim
type 99, Cam. 16v) in both oxidised and reduced fabrics,
ranging in diameter from 18-25cm. and with polished interior
surfaces, and platters Hambresart type 2 (Hofheim 97Ab, Cam.
8v), mostly produced in a grey ware. Other products include
bowls, small jars, beakers, bottles, jugs, and carinated
urns. The main period of activity of the kilns was in the
second half of the 1st century A.D.

CHAPTER SIX

THE DISTRIBUTION OF GALLO-BELGIC AND ALLIED WARES

'... for the past thirty or forty years archaeological distribution maps have been one of the main weapons in the armoury of the prehistorian.' (Clark 1957,153)

6.1 Introduction

Terra nigra and terra rubra wares have been found at a large number of 1st century A.D. sites both in Britain and on the Continent. In Britain the greatest concentration of finds occurs south and east of the Fosse Way which runs from near Seaton on the Devon coast, via Bath, Cirencester and Leicester to Lincoln. With the exception of the material recovered from excavations at Sheepen, near Colchester, Essex (Hawkes and Hull 1947; Dunnett 1970, excavations unpub.) the amount of pottery recorded at each site is very low, in every case forming a negligible percentage of the total pottery assemblage. Gallo-Belgic wares occur in a number of different depositional contexts, the most recurrent being those associated with burial or settlement sites both military and civilian. In Britain finds occur in both pre- and post-conquest deposits. Finds of T.N. or T.R. beyond the putative Fosse Way frontier are almost exclusively connected with military posts, for example at Castle Cary on the Antonine Wall (Laing 1966), Corbridge, 5 km. south of Hadrian's Wall (Gillam 1957) and Nanstallon, Cornwall (Rigby 1973). Finds to date on the Continent are restricted to the area covered by north-east France, Belgium, Luxembourg,

Holland and Germany, particularly west of the Rhine. Large concentrations of vessels have been recorded at Nijmegen, Holland and in the Trier, Luxembourg and Reims areas, although in terms of published material these do not exceed the quantities already recorded at Sheepen. In addition to discussing the distribution of Gallo-Belgic wares and potters, this chapter will also briefly consider the distribution of ^{the}Central Gaulish^{ware}, often referred to as micaceous T.N.

6.2 Method of Analysis

In order to look for patterning in the distribution of T.N. and T.R. wares the data has been tabulated according to class of site. There are three main classes, namely temple/sanctuary, burial and settlement, and the provenance of finds within these classes has been listed alphabetically in Appendix 1. Details of forms present, where known, are listed using the Camulodunum classification after Hawkes and Hull (1947), supplemented by other references where necessary. The incidence of T.N. and T.R. are catalogued separately. For British sites, the right hand column of the gazetteer lists other associated imports such as amphorae, Pompeian Red wares, flagons and so on; whilst for Continental sites associated wares of similar calibre are mentioned where their presence can be attested. Within the main classes of burial or settlement, there are further subdivisions. For burial a distinction is made between cremation and inhumation and between cemeteries (i.e. a concentration of several individual graves in the same locality of

roughly contemporaneous date), single graves and tumuli burials. Settlement is divided into eight sub-classes covering permanent or semi-permanent military installations such as forts, camps, supply bases or legionary fortresses; towns with probable military association; Roman small towns; Roman villas; oppida and other major settlements; hillforts; minor open settlements or farmsteads; industrial sites/workshops; and occupation sites whose nature is unspecified.

6.3 Problem of Classification

Although the method of classification adopted here is designed to impose some structure and coherence on the data in order to facilitate comparisons between contexts and regions, within existing terminology, it becomes fraught with problems when put into practice. Firstly there is the difficulty of assessing the context from which a sherd or group of sherds is derived. This is singularly acute when dealing with multi-phase sites where it would be desirable to distinguish military from civilian or the status of the site in question at a particular point in time. Many late Iron Age settlement sites were used for the siting of military posts and subsequently developed into civitas capitals, thus eventually becoming planned Roman towns. On the other hand the establishment of a fort often attracted further settlers and towns or 'cannabae' frequently developed around them. In both these cases the distinction between pre- and post-conquest material and between vessels which may have arrived via the military supply system as opposed to the civilian market cannot be made. Excavation at most of these sites

has itself been constrained by the area available and the depths involved since many settlements developed in the early Roman period have been continuously occupied up to the present. This all contributes to making it difficult to obtain a full picture of development at any one place for a particular point in time. With the continental material much information is unfortunately lost, never recorded or inaccessible, particularly with regard to vessel form and fabric and the context of finds. Many finds are only known by virtue of there being a stamped sherd which had been singled out for attention and even then details of form, fabric and context are often omitted. This is especially the case with older finds, the lists in the C.I.L. being a case in point.

Discrepancies also exist between the data available from continental excavations compared with that from Britain. Not only is there a temporal difference reflected in the spread of romanisation north and west but there is a different emphasis on the type of sites from which information is available, making cross channel comparisons difficult. On historical grounds France lacks any well defined military posts, with the exception of the fort at Strasbourg, but possesses a plethora of small pottery manufactory sites often accompanied by contemporary occupation where, not surprisingly, most of the pottery finds have been made. German excavations by contrast have concentrated on military installations and cemeteries to the neglect of civilian settlements. Yet another obstruction to classification is the use of differing criteria for identifying Gallo-Belgic wares in terms

of form, fabric, place of manufacture and date.

Many methods of analysing the spatial distribution of artifact groups depend on the absolute and relative quantification of the items under study. Unfortunately the pottery studied here does not at present lend itself to numerical quantification. Paramount among the difficulties is the problem of determining the contextual provenance of individual or groups of sherds, often deeply stratified beneath later levels. Furthermore, the small areas sampled at most sites makes it hard to believe that the recorded material is at all numerically representative. In relative figures, Gallo-Belgic wares generally form a very small percentage of the total assemblage from a site thus making quantification totally unpractical given available resources.

In order to overcome some of these problems an effort has been made to assess the number of different Gallo-Belgic forms present at a site as a rough gauge of both the size of the site and its relative date. For example, a site containing a higher incidence of T.R. forms compared to T.N. is likely to be slightly earlier in date than a site with little or no T.R. but with T.N. Likewise, an assemblage limited to just platters Cam. 16 and cups Cam. 58 would suggest a date in the later 1st century A.D. when compared to a site displaying a wide range of cup, platter and beaker forms.

6.4 Analysis of the Distribution

CLASS 1 - TEMPLES OR SANCTUARIES

The first class of site identified is that considered to have some ritual association, in this case restricted to a temple or sanctuary. Many sacred places may not have been marked by any permanent structure. It is generally accepted from classical sources that the Celts frequently chose natural features, - rivers, lakes, trees, as places of veneration (Green 1976,3). However, in recent years a number of excavations have brought to light late Iron Age and early Roman buildings which have been interpreted by their excavators as temples or shrines. In Britain only Great Chesterford, Essex, Hayling Island, Hampshire and Lancing Ring, Sussex have so far produced Gallo-Belgic imports. Of these only Hayling Island has produced significant quantities of both T.N. and T.R. Its proximity to the south coast, and in particular Chichester, its exceptionally early date compared to other British examples (Lewis 1966) and the political situation in the area during the late Iron Age and early Roman periods all conspire to make it a unique site however. Other temples that have been excavated in southern England include Uley, Gloucestershire, Frilford, Oxfordshire and Heathrow, Middlesex, but these have failed to produce evidence of Gallo-Belgic imports. It is interesting to speculate whether the site at Gosbecks will eventually produce much Gallo-Belgic material in view of its proximity to Sheepen, and the complexity of earthworks that have recently been revealed there through aerial photography (Crummy 1980a; 1980b).

Quite what activities were undertaken at temple sites to require large amounts of fine ware or indeed any pottery is uncertain and it might be suggested that an association with a market or fair, perhaps in connection with a festival, has much to do with the deposition of such material at sites like Hayling Island.

Some of the continental pre-Roman cemeteries had small adjacent shrines or sanctuaries, as for example at Normée, Marne (Brisson et al. 1959) and Feneux, Ardennes (Roualet 1978). In Britain, Lancing Ring, Sussex is also considered to fall within this category of site (Smith 1900; Bedwin 1981), together with several other sites in the Marne and Rhineland. There has been no clear evidence of Gallo-Belgic being associated with such structures on the Continent, although finds have been made from the adjacent cemeteries. Finally, it should be mentioned that ritual shafts are frequently found dating to the Iron Age and early Roman periods particularly in Gaul (Ross 1967, 50ff), but Gallo-Belgic pottery has yet to be found in association with these.

6.5 CLASS 2 - BURIAL

The late La Tène and early Roman periods in Britain and the Continent are characterised by the spread of a new burial custom described by Collis as belonging to the 'North Gallic culture' (Collis 1977). The custom comprises that of cremation often accompanied with grave goods, usually pottery and metal fibulae and less commonly 'exotic' imported goods from the Mediterranean. The wealth of evidence for such practices

in Britain is in direct contrast to the previous periods where cemetery evidence is scarce. Cremation was the most widely practised, but not the exclusive method of disposal of the dead and there are many regional variations in both how the remains were dealt with including inhumation in some areas.

(i) Cremation

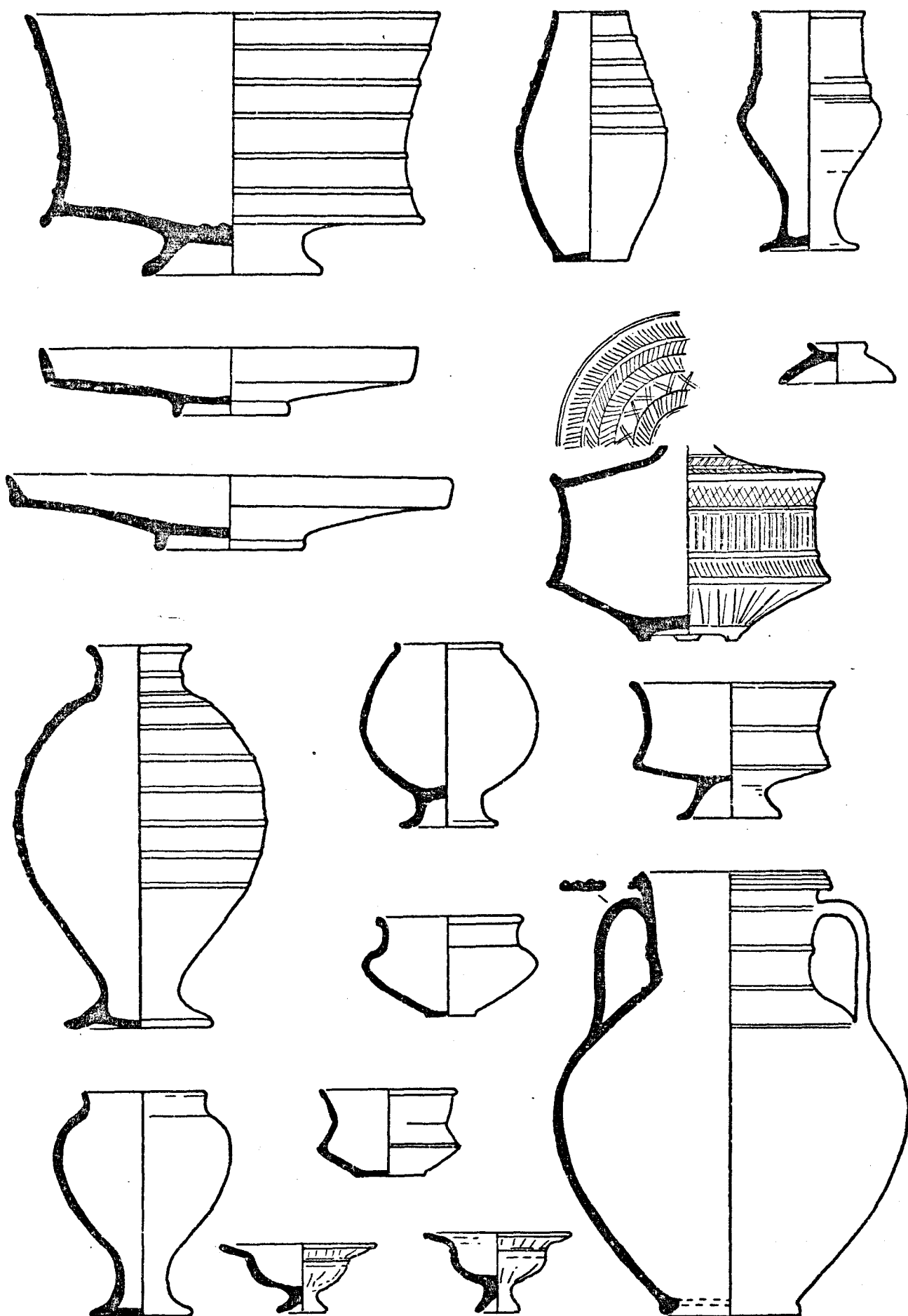
The North Gallic culture, as identified by Collis covers the area of Britain now known as Kent, Essex, Hertfordshire, Bedfordshire and part of East Anglia spreading further north and west at a slightly later date into Lincolnshire and the Wessex region, excluding Dorset. The type sites for the period, namely the second half of the 1st century B.C., are the two cemeteries at Aylesford and Swarling, Kent, both discovered at the end of the last century and the beginning of this century respectively through sand and gravel working (Evans 1890; Bushe-Fox 1925). The discovery of these two cemeteries gave rise to the 'Aylesford-Swarling' culture. The cremated remains at Aylesford were buried in roughly cylindrical pits, some of which appeared to be grouped into 'family circles' (Evans 1890, 322). Grave goods included wheel-thrown vessels, in particular urns with pedestalled bases, conical urns, corrugated vessels, cordoned and grooved bowls and occasional platters, lids and butt beakers (Birchall 1965). On the basis of this material the Aylesford graves have been divided into early, middle and late by Stead (1976b). Most of the graves are late, i.e. after 15-10 B.C., thus belonging to Stead's 'Lexden phase', which is supposedly characterised by the presence of imported

Gallo-Belgic wares (Stead *ibid*, 401), although these are in fact absent at Aylesford. After 15-10 B.C. the local wheel-made wares typified by the Aylesford-Swarling examples became supplemented at other cemeteries by imported fine wares. Thus at the slightly later cemetery at St. Albans (King Harry Lane), Gallo-Belgic fine wares are common. Many comparable cremation cemeteries with fine wares are known on the Continent, notably Wederath, Germany (Haffner 1971; 1974; 1978), Prunay, Marne (Bry and Fromols 1938) and Goeblingen-Nospelt, Luxembourg (Thill 1967). In some cases the cemeteries can be associated with towns, as at Nijmegen, Holland (Holwerda 1941; Stuart 1976), Tongeren, Belgium, and Trier in the Rhineland, or with 'villas', like that at Noyelles-Godault in the Pas de Calais (Bastien and Demolon 1975). The wealth of cemetery evidence available from the Continent has enabled quite a lot of work on cemetery analysis by continental field-workers, notably De Laet (1967), who has been able to identify several different practices associated with cremation.

(ii) Rich Burials

Concomitant with the spread of cremation was the re-emergence in the 1st century B.C. of rich burials containing a wide variety of gravegoods, many of which were imported. The emergence of such wealth has frequently been associated with renewed trading activity, particularly with the Mediterranean. The earliest of these rich burials occur in the Moselle and central Rhineland, for example, Hoppstädten, Birkenfeld (Behrens 1950; Haffner 1969) and below the Claudian fort at Hofheim (Werner 1953). Both these examples

are likely to be pre-Caesarian in date, the pottery typologically predating the first of the 'romanised' wares. The period between 50-25 B.C. is typified by the Welwyn A and B graves, Hertfordshire (Smith 1912) and the two earliest graves at Goeblingen-Nospelt, Luxembourg (Thill 1967). Grave goods from these include bronze Campanian vessels, Roman amphorae, firedogs, La Tène tradition pottery and various personal ornaments, but no romanised fine wares. Stead (1967) also places the graves at Trier Olewig (Schlindler 1971), Presles St. Audebert, St. Germainmont, Rethel, Hannogne and Château Porcien into this earlier category of rich burials. The succeeding series of burials are distinguished by the presence of Roman pottery forms current prior to 10 B.C. These include the two later burials at Goeblingen-Nospelt (Thill 1967, graves A and B) which contain wine amphorae, early or 'proto' T.N. and T.R. cups and platters, Pompeian Red ware, Aco beakers, butt beakers and more indigeneous coarse wares (Thill op.cit. Taf. I and II). The Welwyn Garden City burial also falls into this category with imported pottery and amphorae but no Gallo-Belgic wares (Stead 1967). Significantly however, this grave does contain two fine ware platters, of a type analogous to examples at Goeblingen-Nospelt and which probably originate from Central Gaul (see Fig.40, and pp.226 this chapter). Further examples of rich burials in Britain considered to be contemporary with the above and marked by an absence of T.N. or T.R. have been found at Aylesford, Kent (Evans 1890; Birchall 1965, grave Y), Hertford Heath, Hertfordshire (Holmes and Frend 1959), and Baldock, Hertfordshire (Stead 1967, unpub.).



Scale 1:4

Figure 40.

Pottery from the Welwyn Garden City burial (after Stead 1967).

Chronologically the latest burials to occur within this series date to the first half of the 1st century A.D. They share many similar elements among the grave goods with the earlier burials, that is amphorae, firedogs and other personal equipment, but have in addition fine tablewares, initially Gallo-Belgic types to be followed later by samian. Amongst the graves in this later group are Mount Bures, Essex (Smith 1852; Smith 1912), Snailwell, Cambridgeshire (Lethbridge 1954); Stanfordbury A and B, Bedfordshire (Dryden 1845; Smith 1912); the tumulus at Lexden, Essex (Laver 1926), and Wincheringen, Saalburg (Koethe and Kimmig 1937).

(iii) Warrior burials

Contemporary with the cremation tradition in the Rhine, north-east Gaul and Britain are occasional warrior burials, or at least burials containing weapons. On the Continent such tombs are relatively rare, but in contrast to Britain the tradition continues after the Roman conquest. The earliest examples of these burials seem to be concentrated around Trier in the Moselle valley. Schönberger (1953), regarded these tombs as belonging to auxiliary indigeneous troops in the Roman army and sees the rites as neither Roman nor Italian, but 'provincial Roman'. De Laet on the other hand suggests that they might equally be the tombs of migrants coming to settle in Gaul, sensing an improved economic market under Claudius, but who have been buried with their weapons in the manner of a rite used in their homelands (De Laet 1967). Koethe prefers to see such burials as the survival of older indigeneous traditions, the deposition of weapons in the graves of warriors being well attested from

the Hallstatt and La Tène periods (Koethe 1937). In nearly all cases the graves contain local indigenous wares.

De Laet concludes that the tombs of the earlier period (50 B.C. - A.D. 50) belong to an indigenous population still firmly entrenched in La Tène tradition whereas those after A.D. 50 represent a survival of pre-Roman traditions which reappear as a result of economic improvement. He further suggests that weapons are seen as symbols of the improved social status of individuals within the Roman governing classes, and that they have exchanged their martial image for one less offensive, perhaps that of hunting?

These conclusions are more difficult to reconcile with similar burials in Britain. Collis lists twenty-seven possible examples stretching from County Dublin to Yorkshire to the Isle of Wight, which include both inhumed and cremated examples. The burial at Owslebury, Hampshire dated to the 1st century B.C. is a classic example, which also acts as the nucleus for a small cemetery (Collis 1970;1973). On present evidence these graves may perhaps be seen as those belonging to migrants, refugees, traders or perhaps even mercenaries.

(iv) Inhumation

The adoption of cremation although fairly widespread was not complete, and in a few regions inhumation persisted as the dominant rite throughout the Iron Age and early Roman periods. This is the case with the south-west peninsula, Britain, Dorset and south-west Gaul. Grave goods were frequently placed in the grave but these were generally of a less ostentatious nature than the cremations especially the

rich ones, and usually consist of a single vessel, as in the case of the Maiden Castle 'war cemetery' (Wheeler 1943). Inhumations have been found alongside cremations, both in the same cemetery and as single phenomenon in a cremation practising region. Of the four hundred and sixty-three burials excavated at the King Harry Lane cemetery, St. Albans, eighteen were inhumations (Stead 1969). Other cases of inhumation have been recorded, for example, at Owslebury, Hampshire (Collis 1973), Dumpton Gap, Kent (Birchall 1965, 256), Eastbourne, Sussex (Budgen 1931), Schirzheim (Mahr 1967), Bussy-le-Château, Marne (Birchall 1965, 260), Fontaine Valmont, Hainaut and Dieulouard, Meurthe and Moselle (De Laet 1967). Gallo-Belgic wares have not been found associated with inhumations.

6.6 Vessel Occurrence

A wide range of both T.N. and T.R. vessels are represented in burial contexts, but these are almost entirely restricted to cremations, both flat and barrow examples. Figs.42 and 41 show the distribution of individual forms of T.N. and T.R. respectively. A distribution map of the actual location of the findspots (Fig.43) shows a distinct concentration in the Moselle, the middle Rhineland, west of the river Rhine and the Marne, northern France with smaller concentrations in the Pas de Calais and Hainaut regions, in Gelderland, Holland around Nijmegen and in the Essex - Hertfordshire - Cambridgeshire region, south-east England. Further regional variations are apparent when the distribution map is modified to differentiate those graves producing only T.N. or

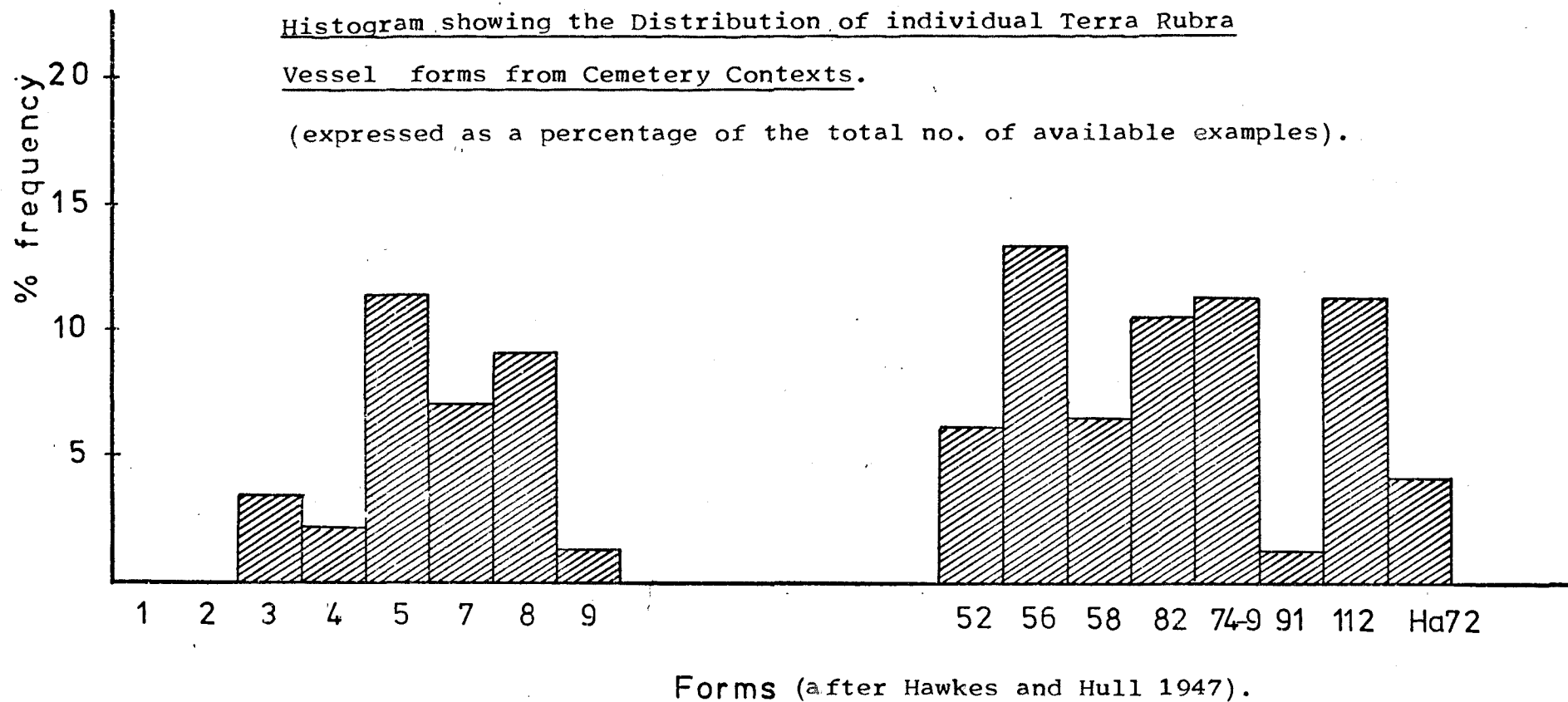


Figure 41.

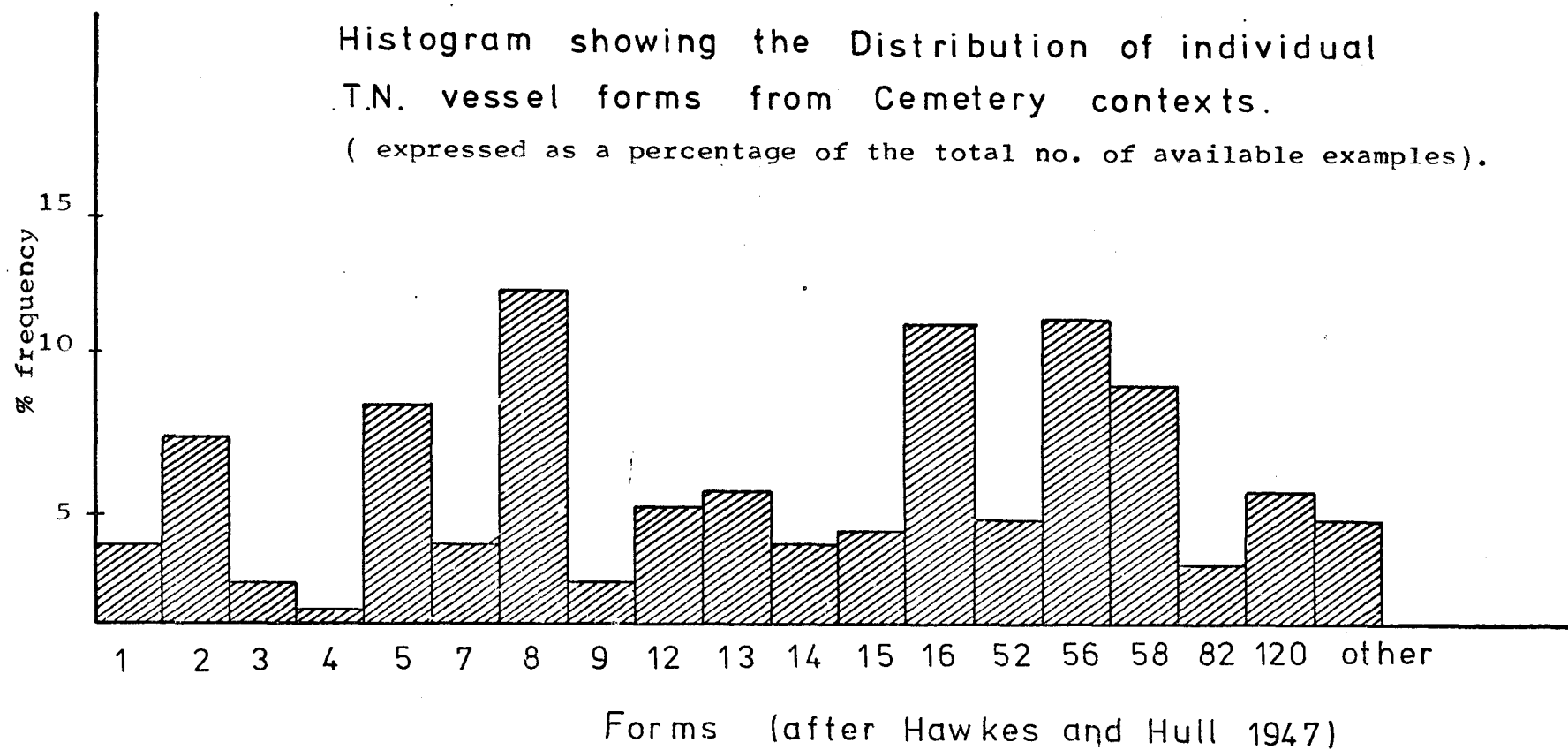


Figure 42.

T.R. from those producing examples of both fabrics. Some of the larger cemeteries containing several graves contain all three permutations, for example, Wederath (Haffner 1971; 1974;1978) although in most cases such a detailed breakdown of individual graves is lacking. Thus if both T.N. and T.R. are recorded as having come from one site, be it one or several graves, these have been treated as mixed assemblages for purposes of discussion.

At present only six cemeteries have produced T.R. wares unaccompanied by T.N.: Menil-Annelles and Montépreux in the Marne, Biewer, Keidelheim and Reinsfeld in the Rhineland Palatinate and Livingen (Roeser), Luxembourg. The examples from the Marne and Luxembourg are restricted to beakers; pedestal, girth and butt beakers and a single butt beaker respectively, whilst both Biewer and Reinsfeld have produced cups Cam. form 53 (Gose 304/305) and Keidelheim a platter, type unspecified. It is difficult to ascertain whether any significance can be attached to this small number of examples with just T.R. wares. It may well be a reflection of the general predominance of T.N. over T.R. or alternatively it is possible that these cemeteries are chronologically earlier than the surrounding examples. Cups of the form Cam. 53 are found in both T.R. and T.N. fabrics but have a fairly restricted area of occurrence. They occur in many of the earlier graves, for example, Goeblingen-Nospelt grave A (Thill 1967), as well as at many of the Augustan-Tiberian military complexes along the Rhine. A distribution map (Fig.44) shows them to be heavily biased towards the Rhineland with only three sites in France: Sept Saulx, Marne

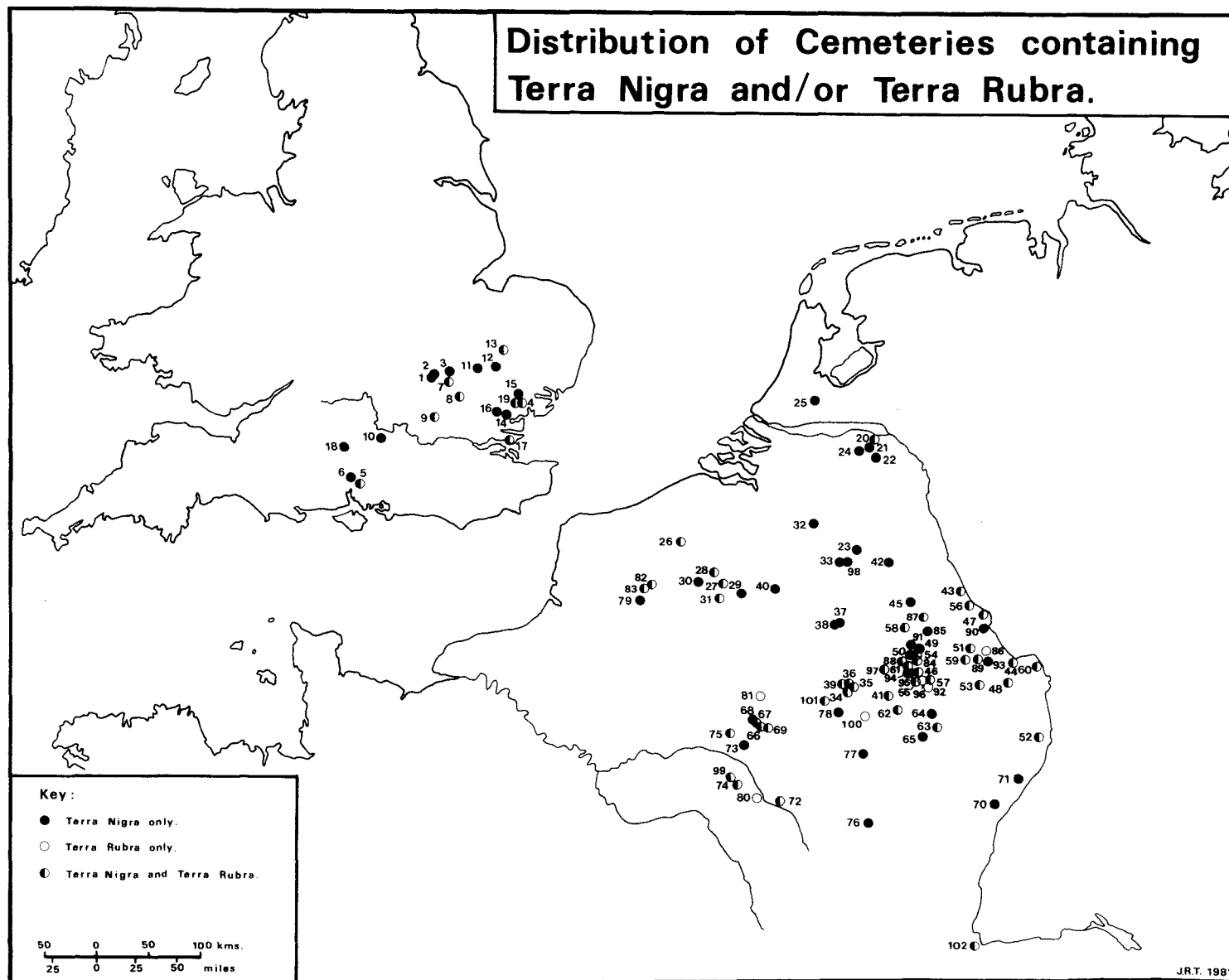


Figure 43.

Key to figure 43.

Distribution of Cemeteries containing T.N. and/or T.R.

1. Shefford, Bedfordshire.
2. Stanford, Bedfordshire.
3. Littlington, Cambridgeshire.
4. Colchester, Essex.
5. Owslebury, Hampshire.
6. Winnall, Hampshire.
7. Baldock, Hertfordshire.
8. Braughing, Hertfordshire.
9. St. Albans, Hertfordshire.
10. Cuning Man, Burghfield, Berkshire.
11. Foxton, Cambridgeshire.
12. Linton, Cambridgeshire.
13. Snailwell, Cambridgeshire.
14. Little Waltham, Essex.
15. Mount Bures, Essex.
16. Pleshey, Essex.
17. Southbourne Grove, Essex.
18. Hurstbourne Tarrant, Hampshire.
19. Lexden, Essex.
20. Nijmegen, Gelderland.
21. Hatert, Gelderland.
22. Moyland, Gelderland.
23. Maastricht, Limburg.
24. Gaalse Heide, North Brabant.
25. Vechten, Utrecht.
26. Coutrai, West Flanders.
27. Baudour, Hainaut.
28. Blicquy, Hainaut.
29. Peronnes-les-Binche, Hainaut.
30. Peruwelz, Hainaut.
31. Spiennes, Hainaut.
32. Beringen, Limburg.
33. Koninksem, Limburg.
34. Chantemelle, Luxembourg.
35. Fouches, Luxembourg.
36. Hachy, Luxembourg.
37. Hives, Luxembourg.
38. Lavaux, Luxembourg.
39. Sampont, Luxembourg.
40. Sombreffe, Namur.
41. Goeblingen-Nospelt, Luxembourg.
42. Gressenich Nord-Rhine Westfalen.
43. Andernach, Rhineland Palatinate.
44. Bingen, Rhineland Palatinate.
45. Harzheim, Rhineland Palatinate.
46. Hoppstädten, Rhineland Palatinate.
47. Koblenz-Neuendorf, Rhineland Palatinate.
48. Kreuznach, Rhineland Palatinate.

Key to figure 43 continued.

49. Kyllburgweiler, Rhineland Palatinate.
50. Meckel, Rhineland Palatinate.
51. Morsbach, Rhineland Palatinate.
52. Speyer, Rhineland Palatinate.
53. Sponsheim, Rhineland Palatinate.
54. Stahl, Rhineland Palatinate.
55. Trier, Rhineland Palatinate.
56. Urmitz, Rhineland Palatinate.
57. Waldrach, Rhineland Palatinate.
58. Wallersheim, Rhineland Palatinate.
59. Wederath, Rhineland Palatinate.
60. Weissenau, Rhineland Palatinate.
61. Welschbillig, Rhineland Palatinate.
62. Wincheringen, Rhineland Palatinate.
63. Lebach, Saar.
64. Losheim, Saar.
65. Roden, Saar.
66. Arnel, Ardennes.
67. Feneux, Ardennes.
68. Les Heurteaux, Hauvine, Ardennes.
69. St. Clément-à-Arnes, Ardennes.
70. Brumath, Bas Rhin.
71. Niederroedern, Bas Rhin.
72. Hallignicourt, Haute Marne.
73. Bouy, Marne.
74. Normée, Marne.
75. Prunay, Marne.
76. Bainville-sur-Madon, Meurthe and Moselle.
77. Labeuville, Meurthe and Moselle.
78. Grand-Failly, Meurthe and Moselle.
79. Arras, Pas de Calais.
80. Mênil-Annelles, Ardennes.
81. Montépreux, Marne.
82. Noyelles-Godault, Pas de Calais.
83. Vimy, Pas de Calais.
84. Ferschweiler, Rhineland Palatinate.
85. Gillenfeld, Rhineland Palatinate.
86. Keidelheim, Rhineland Palatinate.
87. Leuderdorf, Rhineland Palatinate.
88. Mesenich, Rhineland Palatinate.
89. Nannhausen, Rhineland Palatinate.
90. Obergonderhausen, Rhineland Palatinate.
91. Philippsweiler, Rhineland Palatinate.
92. Reinsfeld, Rhineland Palatinate.
93. Rieweiler, Rhineland Palatinate.
94. Temmels, Rhineland Palatinate.
95. Bauler, Rhineland Palatinate.
96. Biewer, Rhineland Palatinate.
97. Fontenouille, Luxembourg.
98. Tongeren, Limburg.
99. Ecury-le-Répos, Marne.
100. Livingen, Luxembourg.

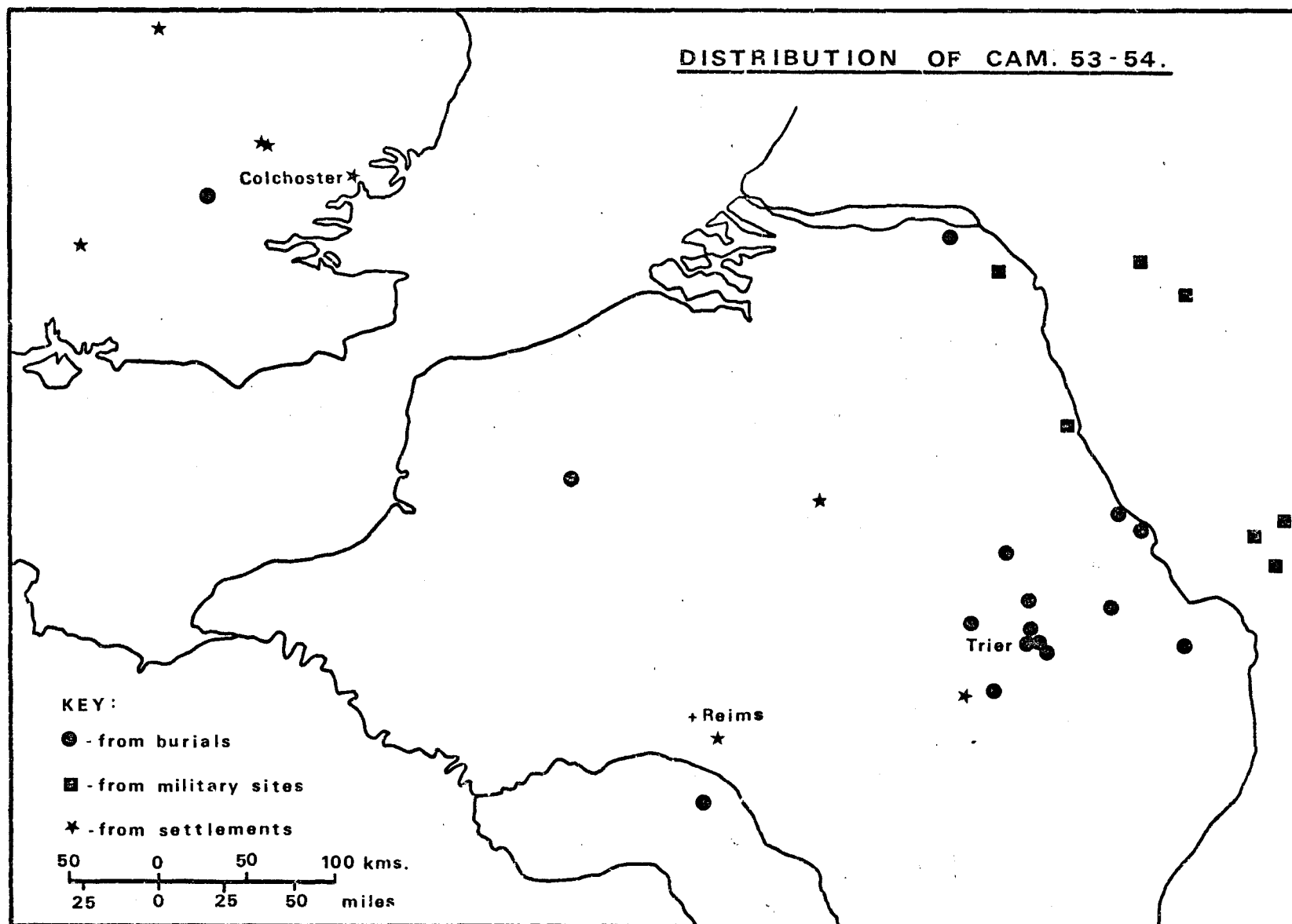


Figure 44.

(Fromols 1939), Noyelles-Godault, Pas de Calais (Bastien and Demolon 1975) and Ecury-le-Répos, Marne (Brisson and Hatt 1955;1960), none in Holland and six sites in Britain: Camulodunum (Hawkes and Hull 1947); Leicester (Kenyon 1948); St. Albans (unpub.); Skeleton Green and Gatesbury, Hertfordshire (Partridge 1981) and Silchester (Fulford pers. comm.). Pedestal beakers on the other hand show a much more dispersed distribution although are noticeably absent from northern France and most of Belgium and Holland (Fig.45). On the Continent they have mostly been recovered from cemetery contexts whilst in Britain a greater number of finds have come from settlement sites.

The area with the greatest concentration of cemeteries also shows the greatest density of sites containing graves with both T.N. and T.R., that is the area across from the Marne to the Rhine. The small group in the Pas de Calais and Hainaut also show predominantly mixed groups, although the area between the Marne and the above seems to show a complete void of any cemeteries of this date. In the north west of the region however, covering the Belgium Luxembourg, Limburg and Gelderland the graves tend to be restricted to T.N. wares only. This is similarly the case with the small scatter of cemeteries in the Bas Rhin and Meurthe and Moselle to the south east. Again whether this patterning is a reflection of differential access to wares or chronology is difficult to ascertain. There may have been less demand in the areas with low frequencies of occurrence because alternative wares were available; both Belgium and eastern France show evidence of several 1st century kilns producing mostly

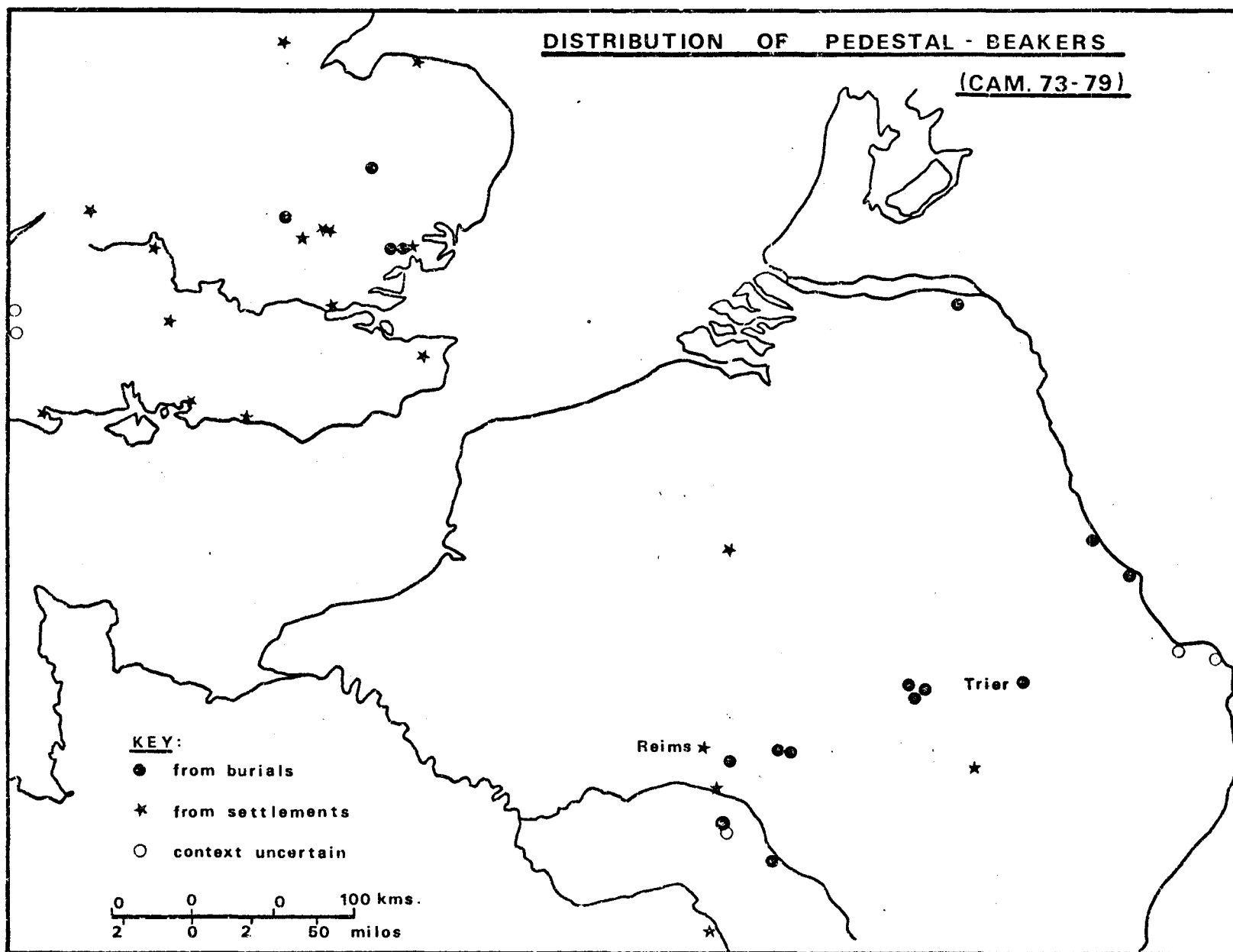


Figure 45.

reduced wares at this time. Further evidence from Belgium shows there to be in some cases pottery workshops sited alongside a cemetery presumably producing wares for funerary use. At Blicquy, Hainaut (De Laet and Thoen 1968,113) where this occurs many of the products from the kilns were found in the graves. Whether the wares were used exclusively for funerary usage or whether they were also serving a domestic market in the town has not yet been determined. The graves found in Britain (Fig.46) show a mixture of those containing both T.N. and T.R. and those containing just T.N. The latter tend towards the periphery of the distribution in Berkshire, Bedfordshire and Cambridgeshire.

The choice of goods placed in the tomb is considered by some to relate to the concept that the tomb was a temporary 'home' for the deceased where he was required to remain to await his departure to the 'new world'. These goods included personal items; objects necessary to render his stay agreeable, i.e. food and drink with the necessary containers and serving vessels; and possibly further objects as a protection against bad spirits (Menzel 1952 quoted in De Laet 1967,125). The ultimate choice of goods however was conditioned by other diverse influences including prevailing traditions and the degree to which they were observed by the living, and their personal choice of what was available. The number and quality of goods need not have necessarily correlated with the wealth or status of the deceased in life but perhaps his popularity or the number of relatives left to pay homage.

Key to Figure 46.

Distribution of Burials with Terra Nigra and Terra Rubra
in Britain.

1. Shefford, Bedfordshire.
2. Stanford, Bedfordshire.
3. Cuning Man, Burghfield, Berkshire.
4. Foxton, Cambridgeshire.
5. Linton, Cambridgeshire.
6. Snailwell, Cambridgeshire.
7. Littleington, Cambridgeshire.
8. Mount Bures, Essex.
9. Owslebury, Hampshire.
10. Ickneild Way II, Hertfordshire.
11. Hurstbourne Tarrant, Hampshire.
12. Stone, Kent.
13. Lexden, Essex.
14. King Harry Lane, St. Albans, Hertfordshire
15. Verulam Hills Field, St. Albans, Hertfordshire.
16. Little Waltham, Essex.
17. Winnall, Winchester, Hampshire.
18. Duston, Northamptonshire.
19. Elmstead, Essex.
20. Baldock, Hertfordshire.
21. Southbourne Grove, Essex.
22. Milland, Winchester, Hampshire.
23. Colchester (west), Essex.
24. Colchester (1942), Essex.

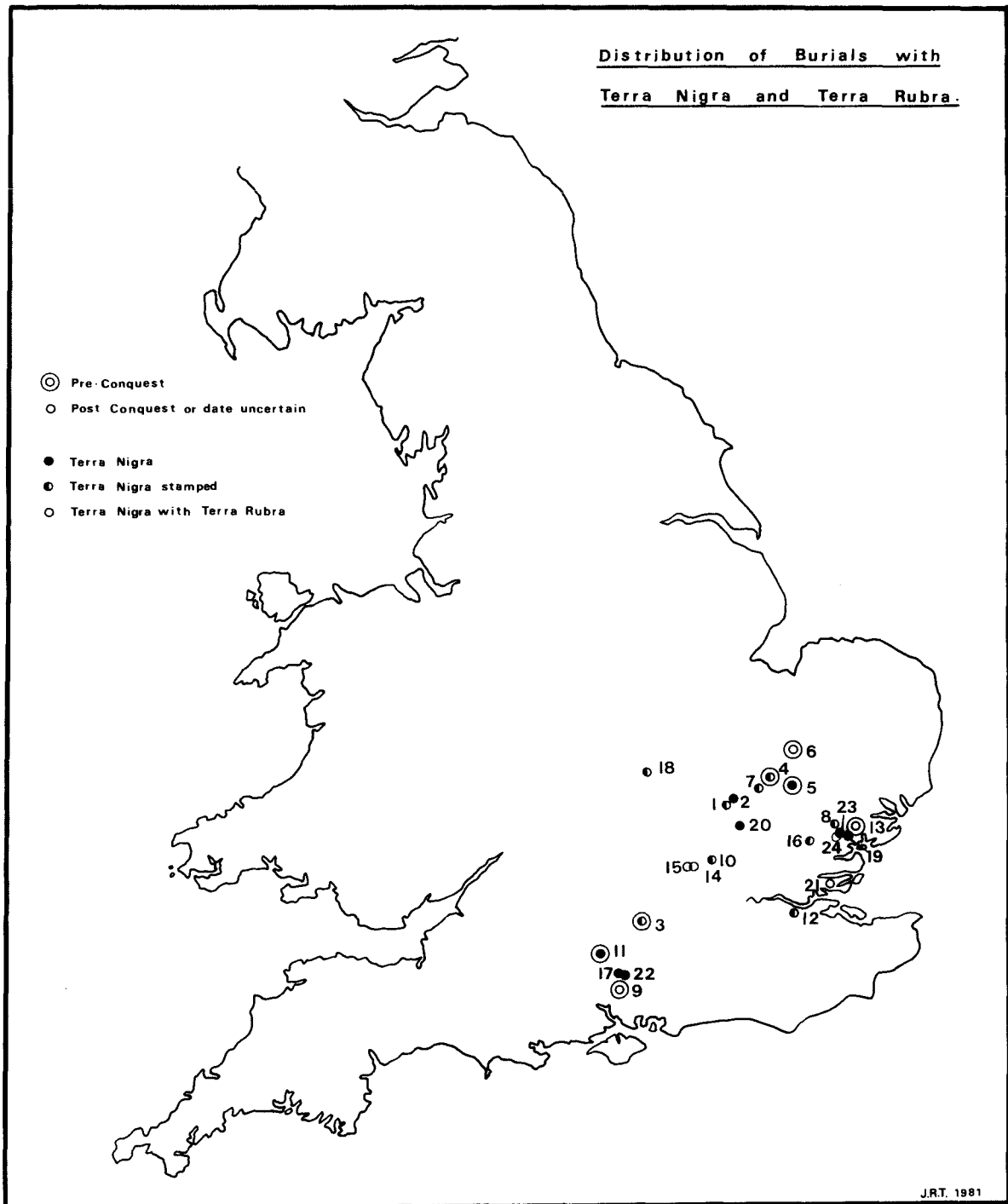


Figure 46.

The theme of eating and drinking is a recurrent one throughout the region under study. Most of the cups and platters are undoubtedly present due to their functional properties as table wares and serving dishes, as well as their more aesthetic appeal when compared with some of the more mundane coarse wares which may have served the same purpose. The presence of wine amphorae, mixing buckets and flagons also perpetuate this theme. Amphorae are present in many graves containing Gallo-Belgic vessels but were also used before the advent of 'Gallo Belgic' wares as evidenced by the great concentration in the area of the 'Welwyn type' graves in Britain (see Fig.47). The distribution map of graves containing 1st century B.C.-A.D. amphorae (Dressel, Koan and Rhodian types) reflects the same pattern as Fig.43, with examples concentrated in the area between the Marne and Rhine and in south-east Britain. No amphorae burials seem to have been recorded for the area covering the present day Low Countries.

Looking in more detail at the relative numbers of specific forms occurring in burial contexts, it is found that there is an almost equal number of cups and platters although both are not always present in the same grave. The overall ratio of T.R. to T.N. vessels is 2:3, a figure which considerably increases for other contexts, where T.N. is far more common. Thus T.R. is well represented in burial contexts.

In the histogram, Fig.42, showing the relative percentages of the various T.N. cups and platters, the most common forms are cups Cam. 52/53 and 56 and platters Cam. 2,5,8 and 16.

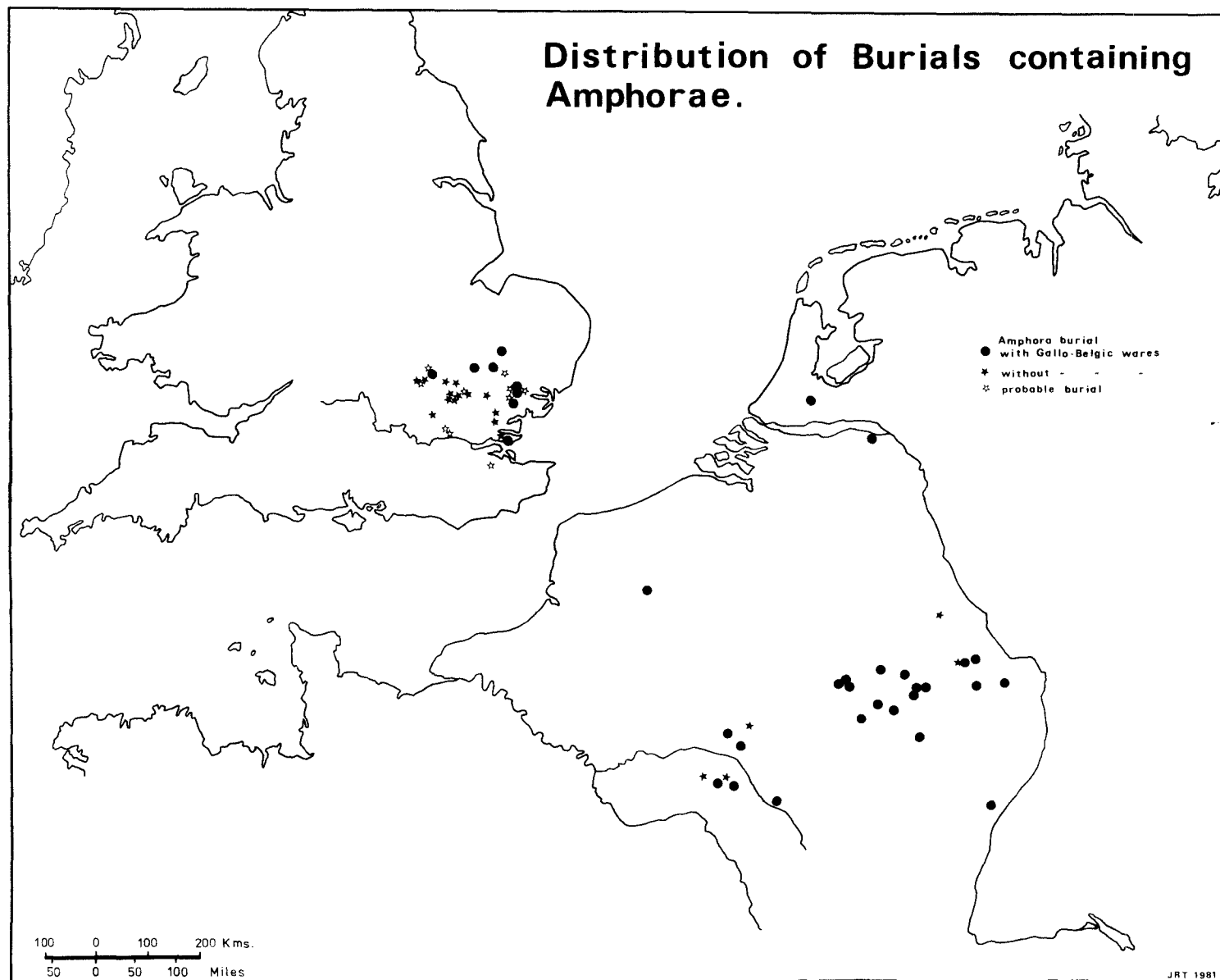


Figure 47.

Platter forms 5 and/or 8 and 16 are thought to have made up 'sets' with cups 56 and 58 respectively (Rigby 1977,38), and therefore a higher percentage of these forms might be expected. For the T.R. range, Fig.41, platters Cam. 5 and 8 and cups 56 are again dominant, closely followed by the range of beakers produced in T.R.3, rarely made in T.N. Several other types are represented but in smaller quantities.

If this information is broken down still further on a regional basis; in the case of T.N.; Britain, Belgium/Holland and the Moselle-Rhine (Marne is excluded due to low percentages), and for T.R. Britain, the Marne and the Moselle-Rhine, it is found that different regions show different vessel preferences (Figs.48 and 49). Britain shows a far higher incidence of forms 8 and 56 compared to the Continent with a lower incidence of most other types. The Belgium/Holland area contains a higher percentage of vessels Cam. 2,5,8,82-85 and additional forms. The latter may reflect the more extensive use of the term T.N. in this area thus covering a wider range of vessels. The Rhineland has all the above types, the slightly lower percentages being taken up in the wider range present. Turning to T.R. (Fig.48), in Britain platters 7 and 8 and cups 56 and 58 dominate with fairly high percentages of pedestal and butt beakers, whilst the Marne tends towards platters form Cam. 5 and cups 56 and all the beaker forms, particularly pedestal beakers (Cam. 74-79). Girth beakers are also prominent although noticeably absent in Britain. The Moselle-Rhine is similar to the Marne but with fewer beakers.

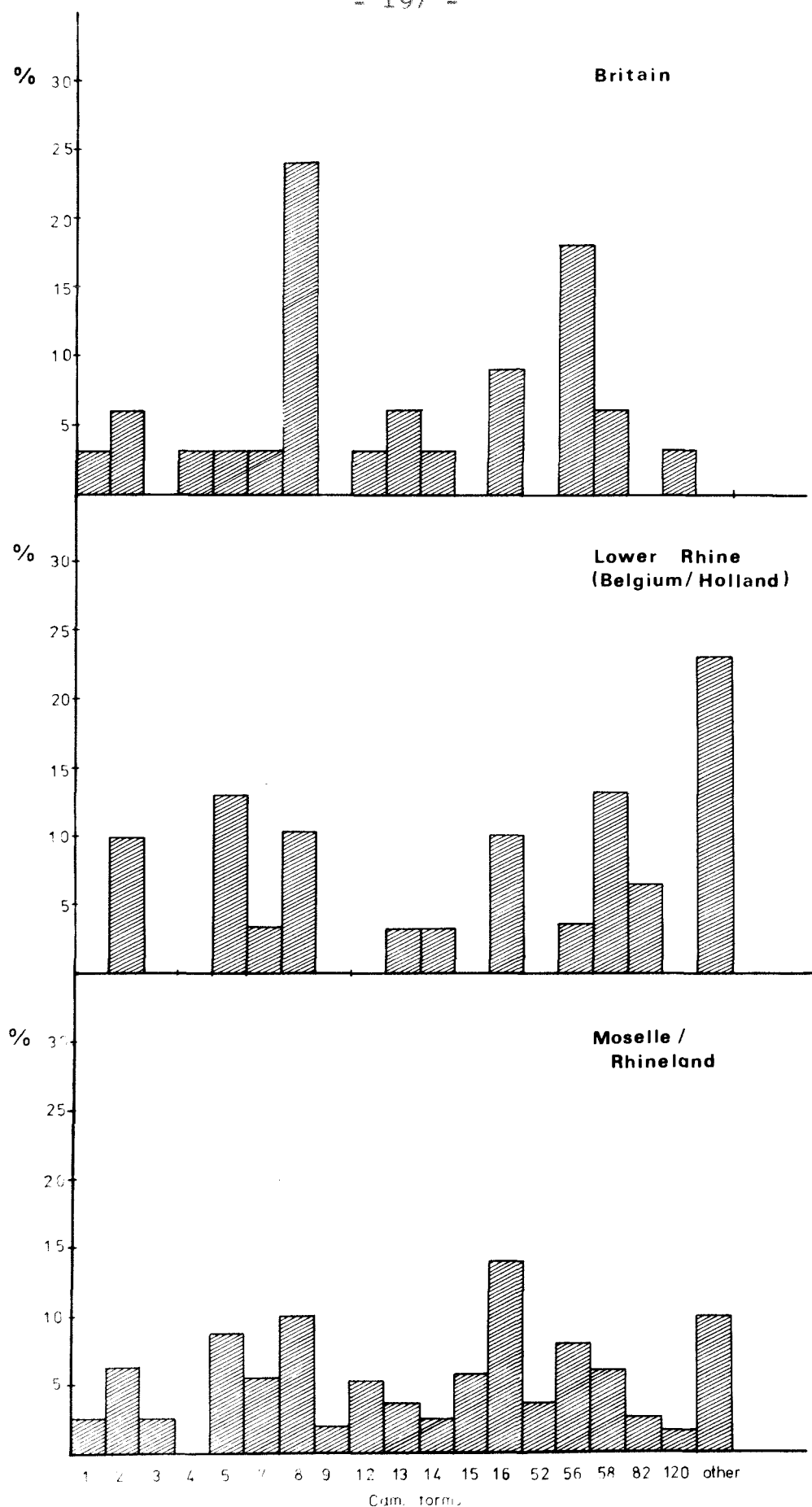


Figure 48.

Regional Variation in the Incidence of Terra Nigra from Cemeteries.

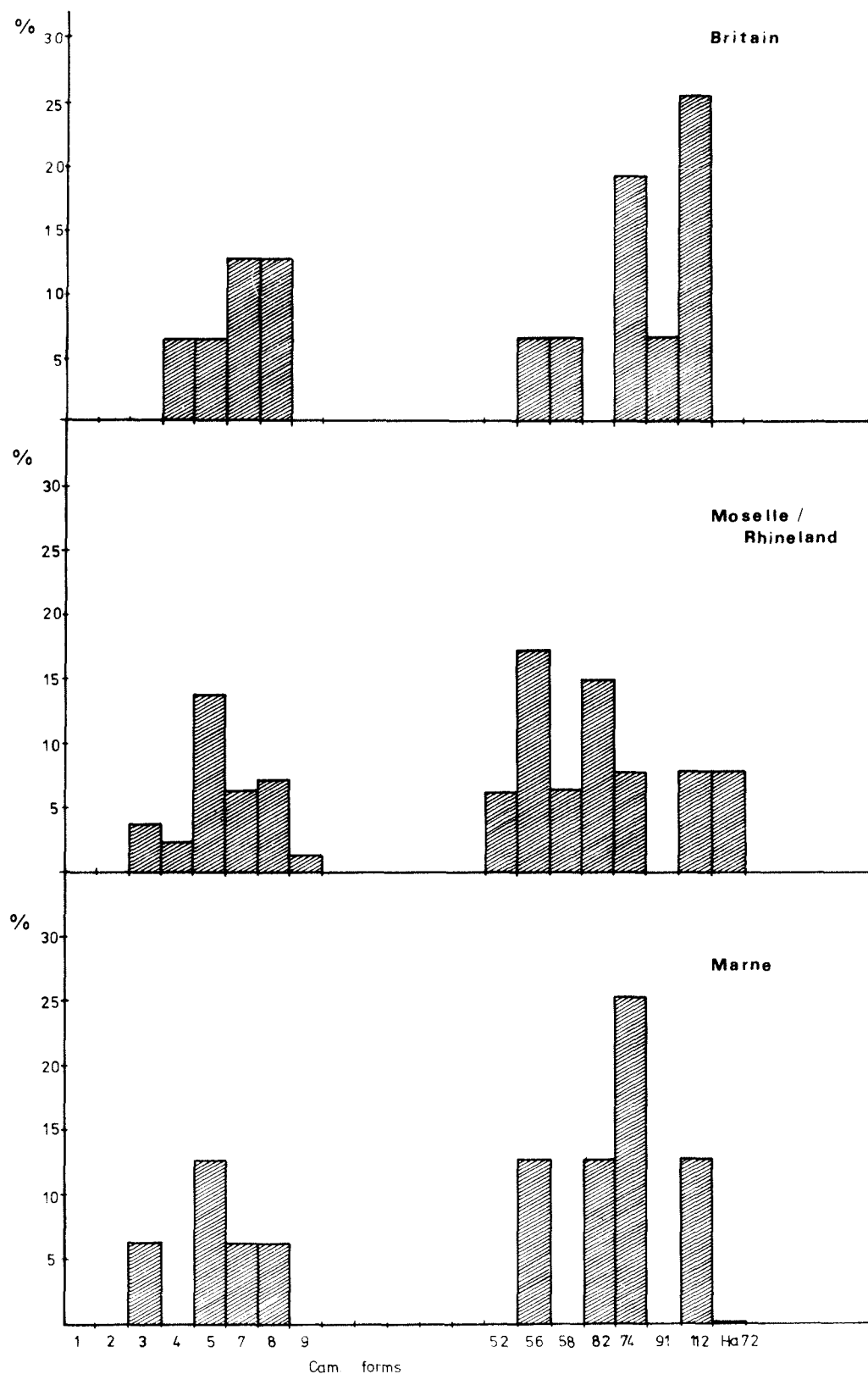


Figure 49.

Regional Variation in the Incidence of Terra Rubra from Cemeteries.

The majority of the continental cemeteries under discussion were not scientifically excavated or adequately published, being the focus of attention of many of the early antiquaries. One exception is Wederath, in the Rhineland, recently extensively excavated by Haffner (1971;1974;1978). Although it is clear from the plans that the cemetery extended well beyond the limits of excavation, a sample of 1,259 graves spanning the period from the mid 1st century B.C. up to the early 2nd century A.D. were excavated. The presence of such a large cemetery spanning the period in which 'Gallo-Belgic' wares were in vogue and furthermore located in a region in the very heart of Gallo-Belgic distribution affords an opportunity to look at the deposition of vessels as grave goods in more detail. The earliest graves in the cemetery were marked by large tumuli; these were succeeded by numerous small square or rectangular ditched enclosures, averaging 5m x 5m and 10m x 5m. The burials occur within and between these enclosures. Further discrete clusters of graves outside the enclosures may imply other forms of enclosure which have not left any archaeological trace. Of the total 1,259 graves excavated and recorded, 85 (6.8%) contained cups or platters in T.N. or T.R., and 45 (3.6%) contained samian. Only one grave contained both T.R. and samian. The 85 graves were scattered across the cemetery distributed equally within and outside the ditched enclosures. The samian graves were also distributed across the cemetery but very few fell within an enclosure. This dispersal over a large area suggests that this cemetery was divided up into 'family' plots and that most of the cemetery

was consequently in use over the same period, unlike the slightly earlier cemetery at Münsingen-Rain where there is a horizontal progression across the cemetery with time (Hodson 1968). Of the 85 graves with 'Gallo-Belgic' vessels, 39 graves contained only platters, 35 only cups and 11 both cups and platters. As can be seen from Table 6.1, T.N. cups Cam. 56, and platters T.N. 8 and 16 and T.R. 8 predominate following the general trend found elsewhere.

Table 6.1

Incidence of vessels at Wederath

Form	T.N.56	T.R.56	T.N.58	T.R.58	T.N.52/53	
no.	28	13	14	1	4	

Form	T.R.52/53	T.N.8	T.R.8	T.N.7	T.R.7	
no.	3	10	10	2	3	

Form	T.N.5	T.R.5	T.N.2	T.N.13	T.N.15	T.N.16
no.	5	2	5	5	1	15

The number of fine wares per grave never exceeded three vessels and in the majority of cases was limited to one. A high proportion of the graves contained a beaker and/or a flagon with accompanying storage vessels both hand and wheel made types. Bronze fibulae were also fairly common but other items were less frequent. These, when they do occur, range from iron knives and shears; weaponry such as shield bosses,

spearheads; trade tools, clay spindlewhorls, beads, bronze rings and mirrors. The coins range from two or three Celtic issues up to Antoninus Pius (A.D. 138-161) and are evenly spread across the cemetery. A high proportion of those occurring within the enclosures are of Augustan date as are most of the examples occurring with Gallo-Belgic vessels. The latest to occur with Gallo-Belgic wares are two graves of Flavian date.

The great variety in vessel form throughout the cemetery seem to imply that no characteristic form was designed specifically for funerary use and indeed most of the vessels can be found on domestic sites. The ashes were either scattered across the grave, placed in a heap or put in one of the vessels. The platters and cups when they occur together do not appear to form 'matching sets', a variety of combinations being found and often a combination of oxidised and reduced vessels. Thus there does not seem to be any set pattern in the deposition of Gallo-Belgic wares or samian in graves beyond that of providing tablewares. This pattern of deposition with only one or two fine wares per grave is found elsewhere, for example Snailwell, Cambridgeshire, Fouches, Belgium Luxembourg and Noyelles-Godault, Pas de Calais. At Noyelles-Godault a total of 10 (43%) graves out of the 23 excavated graves contained Gallo-Belgic wares while at Fouches 26 (32%) out of the 86 excavated were found to contain Gallo-Belgic wares with only one grave containing samian. Pedestal beakers were also particularly common at Fouches, occurring in 11 graves.

6.7 CLASS 3 - SETTLEMENT

Eight sub-classes of settlement have been defined primarily on the basis of size and function. Any classification or aggregation will drastically simplify the diversity of settlement sites that appear to exist in the 1st centuries B.C. to A.D., but in order to be able to look at these sites and compare them it is necessary to produce some sort of classification. Many sites, particularly the smaller ones - minor settlements and farmsteads, were in existence before the conquest period and continued after with very little apparent change. Other sites, frequently the larger more economically developed major settlements and oppida became the foci for Roman administration and hence developed into Roman towns.

The availability of settlement evidence across the area of distribution of Gallo-Belgic products as defined by the preceding burial evidence is extremely variable. Britain has a far better inventory of settlement data and excavation for the period when compared to the Continent, but even this when examined in detail is tantalizingly inadequate. It is difficult to predict whether the discrepancy in data between Britain and the Continent reflects a real difference in the distribution of the Gallo-Belgic wares or simply the biases introduced by a very poor excavation and publication history in northern Europe. When excavation has been undertaken it has concentrated more on cemeteries, military sites and towns to the exclusion of both small and large native type settlements and oppida. Many of the earlier settlement sites occur below present day conurbations where more often than

not the modern town has succeeded a medieval and Roman one. Obviously there is a chronological distinction which must be taken into account in both the changes in social organisation and the rate of spread of romanising influences across the Continent compared to Britain.

In the British late Iron Age there were basically four types of settlement: hillforts, enclosures, unenclosed settlements and oppida. Each type will first be considered separately followed by a general discussion.

(i) Hillforts

The term hillfort is applied to a wide range of sites of differing size, function and chronology, although all have one aspect in common - defence. The construction of hillforts was not an exclusive innovation of the British Iron Age since evidence suggests that similar earthworks existed on the Continent from the early La Tène period. In the later Iron Age many of the hillfort sites, particularly in Southern Britain were abandoned, consequently it is perhaps not surprising that only a very few sites have yielded imported 'Gallo-Belgic' wares and then in such small quantities that secure dating is impossible. The number of hillforts that have been excavated is quite considerable when compared to other Iron Age sites, but the emphasis has been on the defences rather than the inhabited enclosed area. There is no apparent pattern to these hillforts beyond the fact that they are all in southern England (Dorset, Wiltshire and Sussex). None of the sherds recovered was in such a context that it could be definitely assigned a pre-conquest

date and most of the sherds were single base fragments. The sherds from Oare, Wiltshire, whose status as a hillfort is perhaps questionable, included two with the potter's stamp ATTISSV which are probably pre-conquest imports.

(ii) Enclosed and unenclosed settlements

As in the case of hillforts these terms cover a wide variety of sites, many of which were presumably of similar status to the hillforts. The enclosed examples like Gussage-all-Saints, Dorset, Casterley Camp, Wiltshire, Worthy Down and Owslebury, Hampshire are surrounded by single or multiple systems of banks and ditches (Cunliffe 1974,161). Several of these sites are located in lowland environments. The unenclosed (or minor open) settlements are perhaps less well known but fairly numerous, and sites like Boscombe Down West, in Wiltshire, Little Waltham, Essex and Ancaster, Lincolnshire fall into this category (Champion 1979,374) as well as the recently excavated site at Ower, Dorset (Woodward forthcoming). All the sites mentioned above with additional examples in the gazetteer have produced imported 1st century items including pottery. This would support the suggestion that many of these sites, like the hillforts and later oppida, were involved in some way with commercial activities embodying the exchange of 'trade' items over some distance. Many of these 'minor' settlements can be shown to have Iron Age origins which continue well into the 1st century A.D.

Still within the broad category of enclosed settlements are some of the small farmsteads consisting of single houses set within small enclosures. Very few sites of this nature have

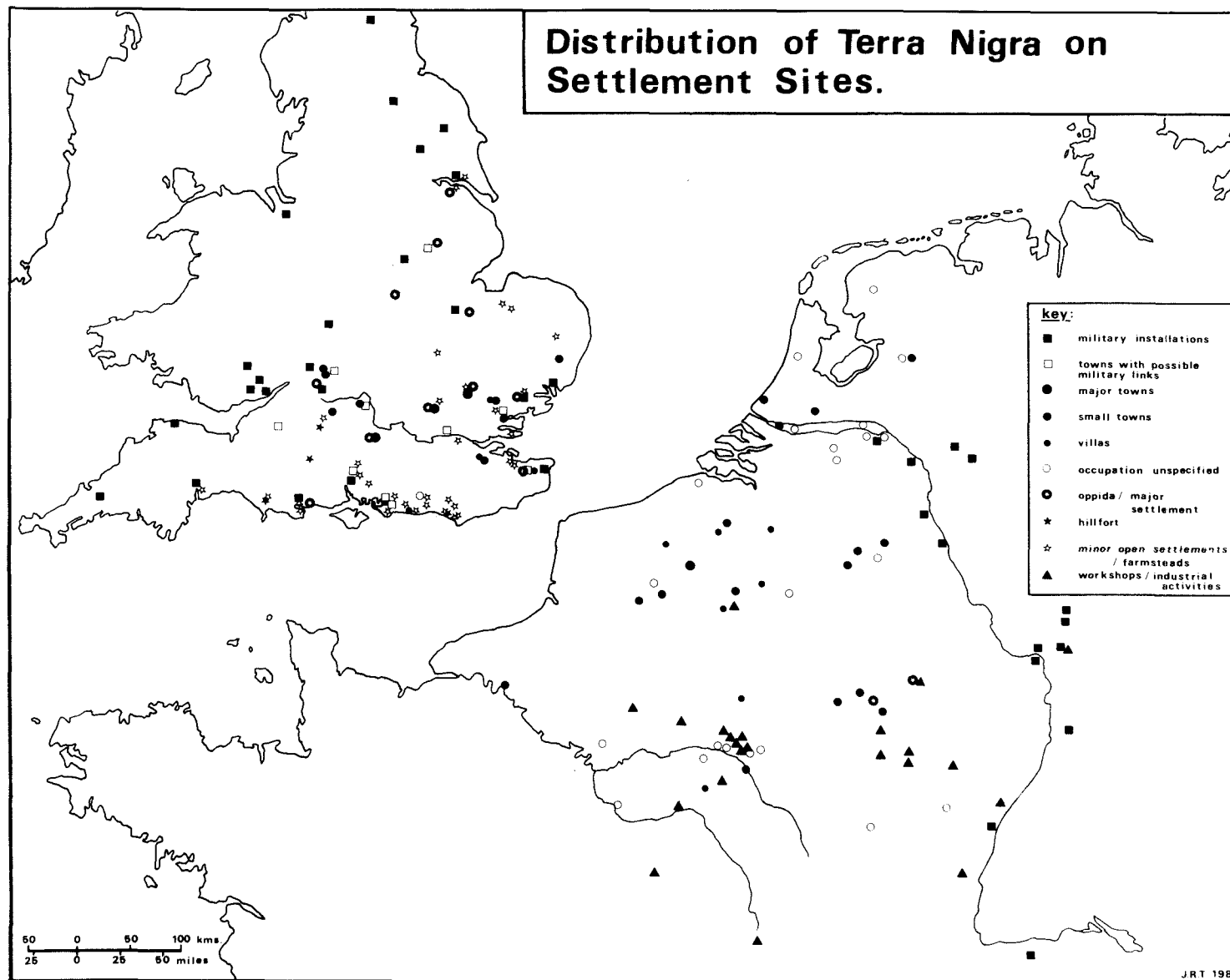


Figure 50.

produced other than local domestic wares suggesting such sites are at the lower end of the market when it comes to luxury or prestigious items. A notable exception is the 'Belgic' farmstead at Wyboston, Bedfordshire, abandoned at the time of the conquest, but from which Arretine, T.N., T.R. and amphora were recovered. A distribution map of the various classes of settlement site where T.N. has been found (Fig.50) shows a clustering of these farmstead and minor settlements along the south coast, particularly in the Sussex stretch, with a sparse scatter across Essex and East Anglia.

(iii) Oppida

By the final phase of the Iron Age a number of large nucleated sites had begun to emerge in Britain which are comparable to some extent with the oppida of Central Europe which had been developing since the 3rd century B.C. The term 'oppida' was first used by Caesar himself to describe fortified sites including hillforts. He used the term 'urbs' for those economically developed or proto-urban sites which are now classified as oppida in the literature. Oppida vary greatly in size and are characterised by evidence of economic and industrial activities, craft specialisation, minting and the concentration of small denomination coinage and imported material including pottery, and amphora. In Britain some of the sites are defined by complex dyke systems, for example at Colchester (Rodwell 1976); Chichester (Bradley 1971) and Bagendon (Clifford 1961); whilst others like Baldock, Cambridge, Rochester and possibly Canterbury have no recognisable system (Champion 1979, 374). In the East Midlands

there are a similar range of large nucleated settlements, - Dragonby, Old Sleaford and Leicester located in the vicinity of ironstone deposits. These may not be as big as some of the southern oppida but probably fulfilled similar functions.

Such sites are considered indicative of 'urban' life. In Gaul many of the oppida are sited in major river valleys or on important routes of trade. Archaeological finds from these have been rare due to subsequent occupation; the Gallic native settlements providing the organisational basis for Roman imperial administration (Nash 1976). Several of the 'oppida' sites however continued to be occupied into the 1st century A.D. Prominent amongst these in the north are Petrisberg, near Trier (Loeschcke 1939) and the Titelberg near Petange, Luxembourg (Oxé 1938; Thomas et al. 1976). Both these sites have been partially excavated although the pottery finds remain substantially unpublished. Both sites however, have produced significant quantities of early fine ware pottery including Italian sigillata and other Mediterranean wares and appear to be thriving centres of activity during the Augustan period. The sequence of occupation beginning to emerge from such sites, in particularly the Titelberg would suggest that other sites might show similar development in northern and central France. Possible candidates might be Mont Beuvray and Alesia in the Central region; Namur, Belgium (Graff 1963); Vertault, Côte d'Or and Pommiers, Soissons, Aisne (Wheeler and Richardson 1957).

A number of oppida sites have now been identified in Britain and many of these have produced significant quantities of

imported Gallo-Belgic wares. Among these sites in particular are those described by Cunliffe as territorial oppida, for example, Silchester, Colchester and Bagendon, and as 'unenclosed nucleated settlements', for example, Leicester, Braughing and Canterbury (Cunliffe 1976, Fig.9). Most of the sites involved have subsequent Roman occupation but in the majority of cases the pottery could date to anywhere in the first half of the 1st century A.D. These concentrations of imported pottery, together with other imported goods and coins, emphasise the commercial involvement of these centres which, by the time of the Roman conquest, acted as tribal capitals each within a well defined territory. Those sites identified as enclosed oppida, either on hill tops, Oldbury and Bigbury, Kent, or on valley sides, for example, Loose, Dyke Hills and possibly Wheathampstead have only as a group been subjected to minimal excavation and consequently little is known about them. Such sites have yet to produce imported pottery. Wheathampstead appears to have been abandoned before these wares were available. One slight anomaly to the pattern of 'oppida' containing imported pottery is the fortified enclosure at Stanwick, Yorkshire (Wheeler 1954). Only one sherd from a cup T.R. Cam. 56 was recovered from the excavations, but there were a number of other imported wares including Pompeian Red, as well as butt beakers. Some sites underwent a minor shift in location in the 1st century A.D., the population from Bigbury for example, appeared to move downhill to a valley site, below modern Canterbury.

The territory of the Durotriges in the west country shows a contrasting pattern of social and economic development to

the south-east of the country. The hill forts continued to dominate the settlement pattern up to the conquest period, with sites like Maiden Castle (Wheeler 1943) and Hod Hill (Richmond 1968). The Welsh borderland and North Wales show a similar development (Cunliffe 1976,153).

(iv) Military establishments : forts

In contrast to the settlement forms already discussed the following types are a direct result of Roman influence and organisation. The first of these are the military sites usually established in networks and along frontiers to control the movements of the natives within newly conquered areas. The term fort, following the definition of Jones (Jones 1975,2) is used here to cover all military sites (including fortresses and fortlets) of some permanence. The military fort first made its *début* on the Rhine frontier from 16-13 B.C. (Fig.51). Caesar's earlier campaigns in Gaul had only involved the construction of temporary camps with the occasional hiberna (winter quarters). The first forts constructed on the Rhine in the Augustan period were generally irregular in plan but by the Claudian period the shape had become more standardised, and typical of the sites found in Britain. Most of the forts excavated on the Rhine, particularly the lower reaches, have produced early fine ware pottery including Gallo-Belgic types and Italian and early provincial Arretine. The legionary fortress at Vindonissa is the most southerly site to produce wares of similar form derivation to the 'Gallo-Belgic' products if not strictly in T.N. as defined on p.20. The more northerly forts, for example Neuss, Haltern, Friedberg and Hofheim

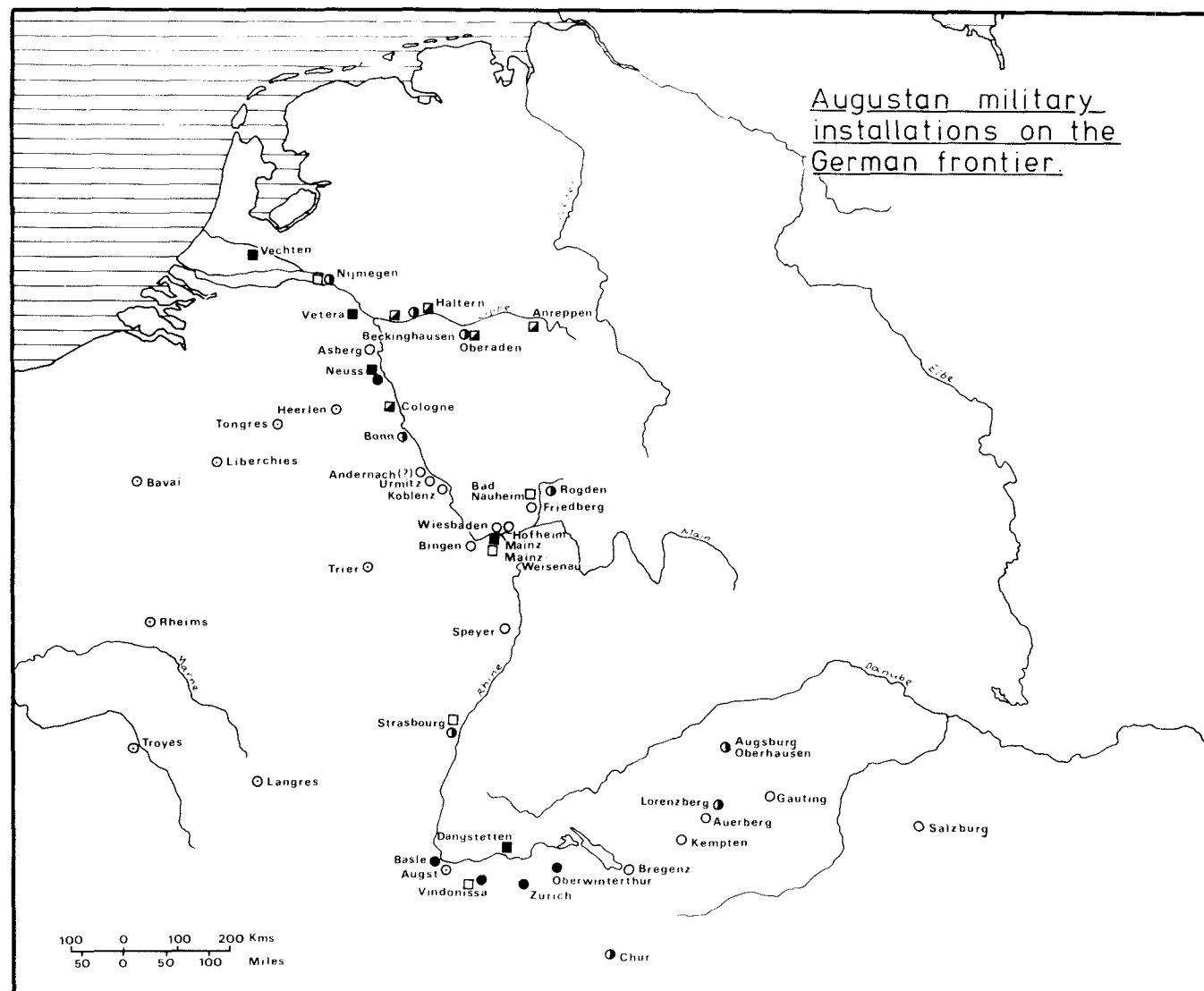


Figure 51.

(after Wells 1972).

and the supply base at Rödgen all show a wide range of both T.R. and T.N. products. Platters, form Cam. 5 and cups Cam. 56 seem to be particularly popular in T.R. (Figs.52 and 53). Three of the four legions which participated in the invasion of Britain in A.D. 43 were taken from garrisons on the Rhine. The military zones in Britain in the 1st century were usually characterised by a network of forts averaging 12-15 miles apart and linked by a road system. The series of successive military situations in the second half of the 1st century have been succinctly summarised by Webster (Webster 1970,179 ad passim). Each major advance northwards and westwards was marked by a fresh system of occupied forts with reoccupation of earlier abandoned forts at the re-emergence of local rebellions. The earliest campaigns of the conquest period occupied a territory south-east of a frontier established along the line of the Fosse Way stretching from the Humber to Exeter. The principal military base was established at Colchester where Legio XX was stationed, and there were probably at least three Claudian coastal supply bases at Fishbourne, Sussex, Richborough, Kent, and Fingringhoe Wick, on the Colne estuary, Essex. In A.D. 48-49, further campaigns under Ostorius Scapula involved an advance towards the west and, after the defeat of Caractacus, the establishment of a new frontier probably beyond the Severn. By this time the south-west peninsula had already been occupied and a chain of forts extended down to Nanstallon, in Cornwall. A permanent legionary base was probably sited at Gloucester. The actual line of the frontier has yet to be established but it is likely that the recently excavated fort at Usk belongs

Histogram showing the Distribution of individual Terra Rubra
vessel forms from military contexts.
(expressed as a percentage of the total no. of available examples).

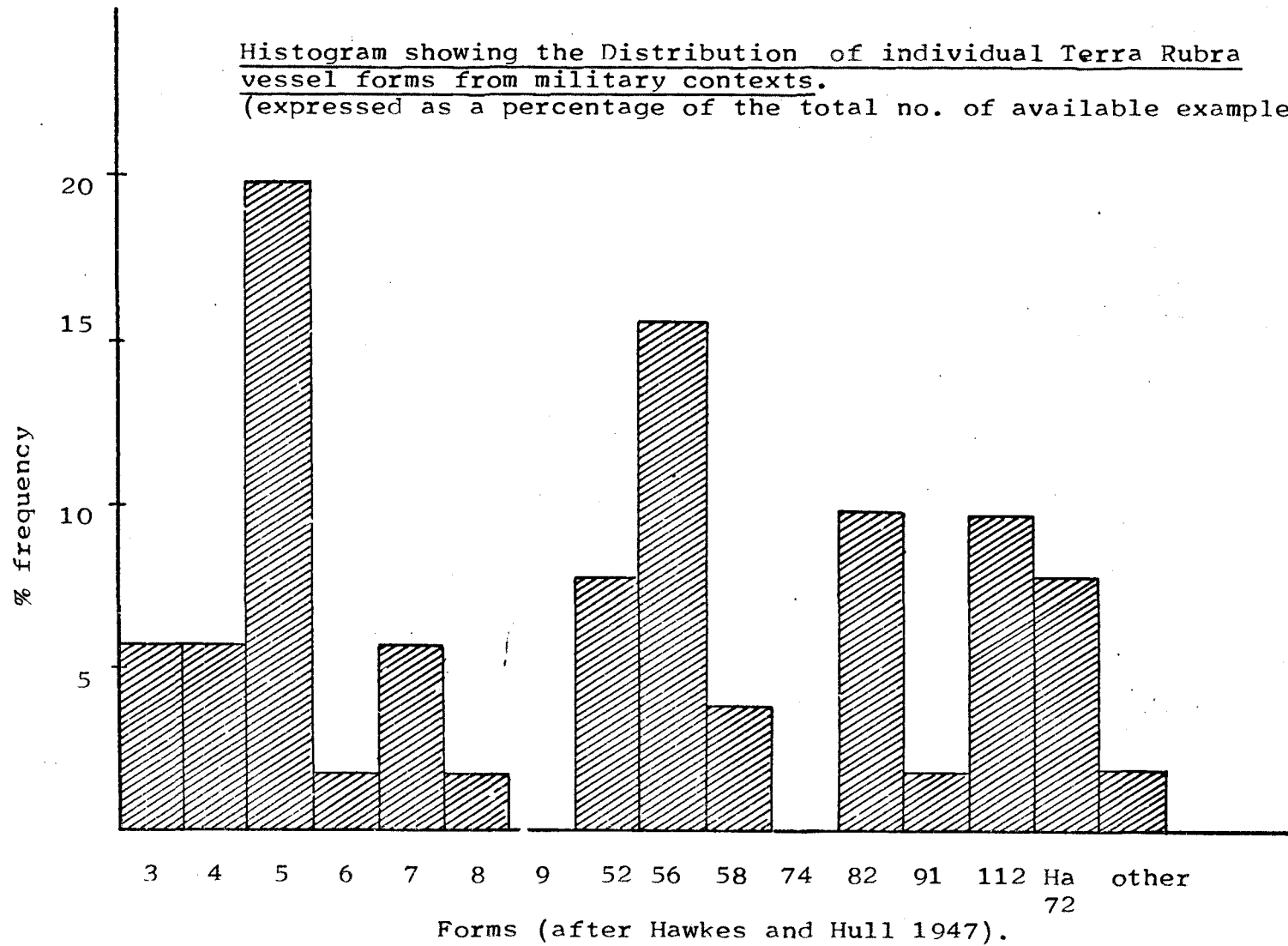


Figure 52.

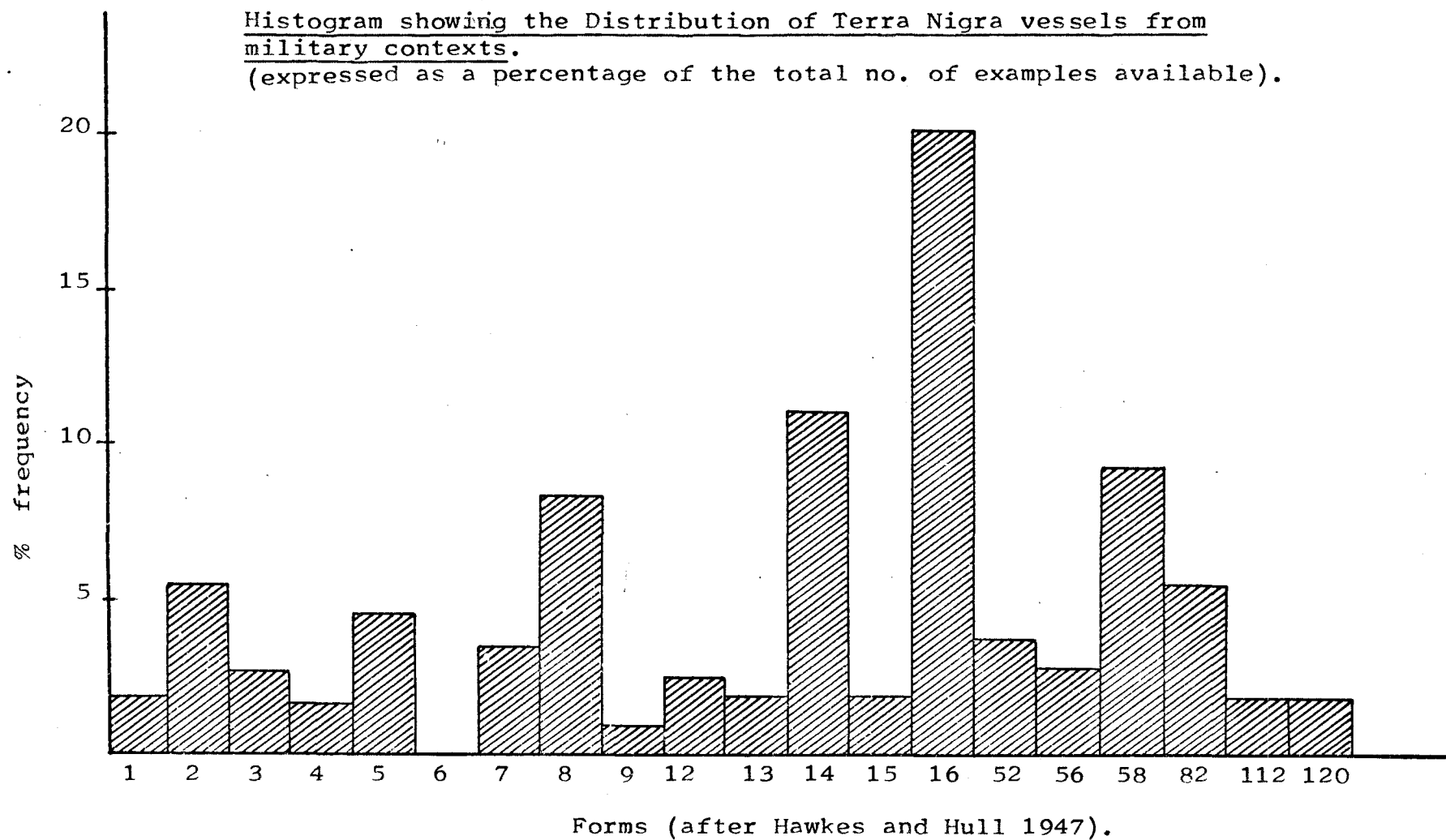


Figure 53.

to this advance, with other forts at Caerleon and Abergavenny. It is significant here that all these sites have produced T.N. wares.

Scapula, on his death in A.D. 52, was succeeded by Didius Gallus until A.D. 60. The conquest of Wales was continued by Q. Veranius and later Suetonius Paulinus, which probably involved the building of a number of new forts. The large store base at Usk is probably connected with this campaign. A major change was brought about in the military pattern in A.D. 60 with the revolt of Boudicca. The majority of the troops were withdrawn from the north in order to reoccupy territory already abandoned. The focus of the trouble was East Anglia and the instigators, the tribes of the Iceni and Trinovantes. Traces of the army in East Anglia probably date to this period, together with sites at Chelmsford and Great Chesterford and a number of reoccupied sites in the Midlands. In addition ten auxiliary units were sent from Germany to replace Roman losses. Peace was restored in the 60's and troops were gradually returned to the frontier zones, in particular the north to occupy Brigantia and the Scottish Lowlands.

Several of the fort sites belonging to these campaigns have been identified through the techniques of aerial photography and quite a few of them partially excavated; a number of these have in turn produced imported Gallo-Belgic wares. The incidence of forms however, on either side of the Fosse Way frontier is very different. The military sites to the south and east of the Fosse Way appear to have a greater

range of wares from the Gallo-Belgic repertoire. Unfortunately almost all these sites are inextricably linked with contemporary native or civil occupation, and it is impossible to isolate a military pottery assemblage from a civilian one. The forts at and beyond the Fosse Way frontier however are more distinctive. Unlike their continental counterparts the range of Gallo-Belgic wares found on these sites is very limited and almost exclusively restricted to T.N. The most commonly occurring types are the Cam. 16 platter and the Cam. 58 flanged cup, which may well have formed a complementary set. In addition to these, bowls of Cam. 46 and 50 type are less frequently found. The presence of Cam. 16 platters seems to be particularly characteristic of these forts and single sherds have turned up as far north as Castlecary on the Antonine Wall (Laing 1966) and Corbridge just south of Hadrians Wall (Gillam 1957) down to Nanstallon in Cornwall (Rigby 1973). At Clausentum 75% of the Gallo-Belgic assemblage, presumably associated with a military base or even a supply depot consisted of these platters, comprising of some 100 vessels, second only to Colchester itself (Timby n.d.). It could be suggested from this limited and recurring repertoire of military forms that Cam. 16, 58, 46 and 50 have some direct bearing on the organisation of the military supply system, a point which will be discussed later.

Until recently there has been an apparent void in the distribution of Gallo-Belgic products in the Midlands despite the attested concentration of forts (Rigby 1973). Recent work however is beginning to suggest that this void is only a temporary one in our knowledge of the area which is gradually

being filled. T.N. sherds for example, have now been recovered from the excavations at Chester (Timby in Ward 1981) and Droitwich, (unpub.) and possibly one or two examples from Wall, Staffordshire (Lyon and Gould 1964). Of further note in considering the incidence of Gallo-Belgic wares on military sites is the co-occurrence of other imported wares of 1st century date, in particular Lyons ware and Pompeian Red which seem to appear less regularly on civilian sites.

(v) Civil settlement : small towns

Romano-British civil settlement took a number of forms ranging from the farmstead or villa through to the municipia and coloniae. One of the more common intermediate types is the 'small town' (vicus) found in all the Roman provinces. Small towns seem to have developed from a number of different origins most of which can be linked with some sort of official presence (Frere 1975). A great number seem to have developed from extra-mural settlement around a fort while others are marked by the presence of an official agency such as the cursus publicus (public post). Some, on the other hand, appear to have developed out of Belgic or other native sites and it is suggested by Frere that a few may have been deliberately founded by civitas authorities (Frere *ibid*). Whatever their origin Frere regards the development of these small towns as 'an economic phenomenon', in that the success of each site was unconnected with its origins (Frere *ibid*,4). Many of the 'small towns' functioned as local market centres for surrounding farms while others may have been involved with local industries; Brockley Hill, Middlesex and Neatham, Hampshire for example were both adjacent to Roman pottery

industries. There are both walled and unwalled examples of small towns and many of them show some element of planning in their street layout, particularly noticeable at Alchester Oxfordshire, Braughing, Herts, and Catterick, Yorkshire.

The occurrence of Gallo-Belgic products from Roman 'small towns' is not particularly marked, coarse ware imitations being more common. This is presumably for two main reasons, firstly such settlements had not fully developed until the later years of the 1st century and early 2nd century A.D. when the Gallo-Belgic wares were no longer on the market having been superceded by the large influx of samian, and secondly these 'small towns' seem to be involved with commercial activities more at the local level. A number of 'small towns' have been identified from the early Roman period on the Continent, particularly the Rhineland, for example, Bitburg, Alzey and Arlon (Johnson 1975), but few of these have been excavated.

(vi) Civitas Capitals

One step up from the 'small towns' in the settlement hierarchy are the civitas capitals. The Roman administration of Britain, like France was based on a system whereby the pre-existing tribes were given regional centres of government in their tribal areas. More often than not these coincided with the most important existing centres of the pre-conquest period, for example Silchester, Canterbury, Leicester.

Above the civitas capitals were the municipia (chartered towns) of which there were two in Britain, London and Verulamium, and finally the Coloniae which were established

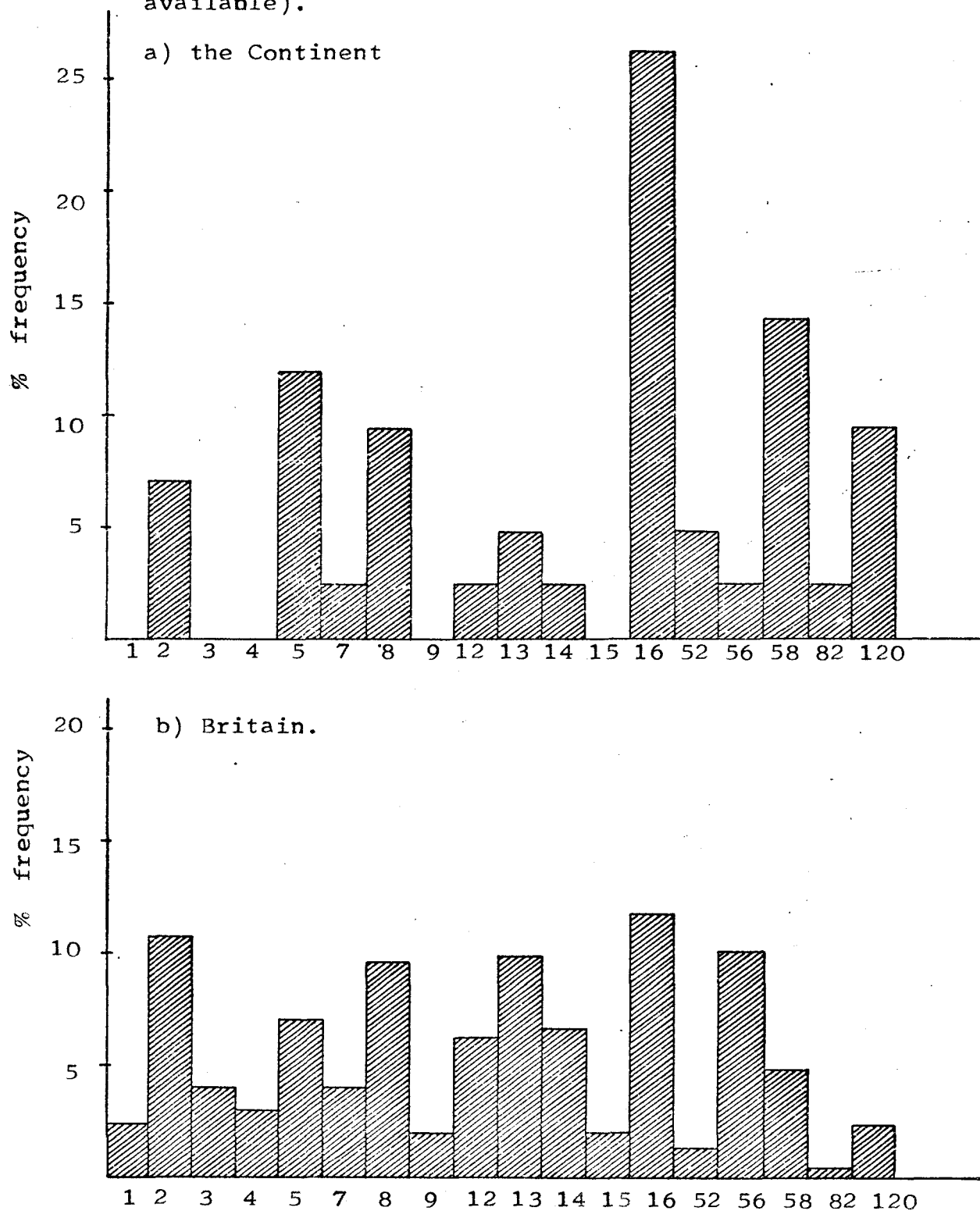
for the veterans of the legions then serving in the province. The first of these was established at Colchester in A.D. 49, followed by Lincoln and Gloucester at the very end of the 1st century A.D., and finally quite a bit later, York. During the Flavian period there was considerable expansion of the civilian areas in particular towns like Cirencester, Leicester, Dorchester and Wroxeter.

Many of the civitas capitals have produced quantities of Gallo-Belgic material, but it is unclear in most cases whether this material can be attributed to pre- or post-conquest activity, or to early military occupation. Since many of the designated civitas capitals pre-existed as tribal centres it seems likely that much of the material related to pre-conquest or immediate post-conquest activity.

(vii) Villas/farmsteads

The final class of Roman settlement at the other end of the scale to the above is the Roman villa/farmstead. Again, as in the towns the effects of Roman occupation were fairly slow at making themselves felt and in the countryside the changes had far less impact in general. Thus the Roman villa does not feature greatly if at all in the distribution of Gallo-Belgic wares being already replaced by samian. The only possible example that can be quoted is the villa at Wingham (Jenkins unpub.) where T.N. and T.R. were recovered but it is possible that these belong to earlier phases of occupation. Histograms showing the relative percentages of the various T.N. wares present on settlement sites (Fig.54) show a similar pattern for the British and continental

Histograms showing the distribution of Terra Nigra vessels from settlement contexts (excluding military).
(expressed as a percentage of the total no. of examples available).



Forms (after Hawkes and Hull 1947).

Figure 54.

examples, Britain shows a slightly higher overall incidence of vessels Cam. 12-14 and cups Cam. 56 whilst the continental settlements show a slight preference for platters Cam. 16, cups Cam. 58 and biconical urns Cam. 120; otherwise there is no difference.

The occurrence of forms on settlement sites seems to differ very little from those in the cemeteries. This lends support to the proposal that none of the Gallo-Belgic products were specifically designed for funerary use and that the observed grave goods were derived from the household. That few of the vessels were brought new as offerings to the deceased is also demonstrated by the number of worn interior surfaces exhibited. It appears therefore, from the preceding discussion that only the later military contexts show some distinction in the distribution of 'Gallo-Belgic' products, reflected in the assemblages from military sites in Britain. In all other contexts the presence and range of Gallo-Belgic wares present is insufficient on its own to characterise the context in which they have been found.

(viii) Workshops/Industrial sites

Most of the information pertaining to this class of site can be found at the end of chapter five. The majority of the sites are poorly or incompletely published and a full range of products thus unobtainable. In cases where T.N. or T.R. occur at workshops not producing Gallo-Belgic fine wares, for example, Labussière, Pas de Calais, adjacent occupation to the site is likely.

6.8 The Distribution of potters' stamps

Gallo-Belgic potters' stamps are prolific but extremely diverse. The occurrence of two or more identical dies from different sites is relatively rare although the same name does crop up at several sites as different dies, with differences of spelling, letter formation or abbreviation. There are three main groups of stamps: legible names, those designated as illegible or senseless marks on imported fine ware and stamps on native imitations of the fine wares, also generally illegible. Further discussion of these, together with a gazetteer can be found in appendix 4.

Distribution maps could be compiled for every recognisable potter but for the majority of examples the sample is too small to draw any valid conclusions, and in most cases the origin of the distribution is uncertain. If, alternatively the several dies with one name are plotted then there is the problem of distortion both geographically and chronologically and the question as to whether more than one potter or firm is represented. There are several instances where different names have been executed using similar styles of letter shape, size and spacing suggesting the work of a single specialist die cutter. This would place a chronological constraint upon the information but not a geographical one since a die cutter may have been mobile moving between clients. The association of die styles is further examined in chapter 7 in connection with fabric analysis.

Distribution maps have been compiled here for three of the better documented potters, namely Attissus, Canicos and

Medi(illus) (Figs.55, 56 and 57) and a comparison of these three distributions shows slight differences. The wares of Canicos (Fig.56), who may have been based at Sept Saulx for at least part of his working life, appear to be distributed largely to the area west of Reims up to the Rhine. In contrast Attissus shows a more widespread distribution both east and west of Reims, which contains the largest concentration of his stamps and is likely to be the site of his workshop. The pattern of distribution suggests two lines of communication with Britain; one via the Rhine and the other via the Seine, linking with the east and south coasts. Correspondingly, examples of Attissus' wares have been found in both the Colchester and Chichester regions.

In contrast to the wares of many of the other known Gallo-Belgic potters, the vessels made by Medi do not appear to occur at any of the recognised military sites either along the Rhine or in Britain. Finds are confined to a small group in the Marne-Luxembourg-Hainaut region and to coastal sites in Britain, with one or two exceptions. Medi is also unique amongst the Gallo-Belgic potters at present, since his name has been identified on a mortarium, the die being identical to one used on his T.N. wares (Rigby 1973,17).

Stamped vessels occur in various contexts, both burial and settlement with no particular predilections. In Britain, approximately half the known stamps have been recovered from Colchester where approximately 500 examples have come to light, a figure unparalleled elsewhere. Other British sites with noteworthy collections are St. Albans with a total of

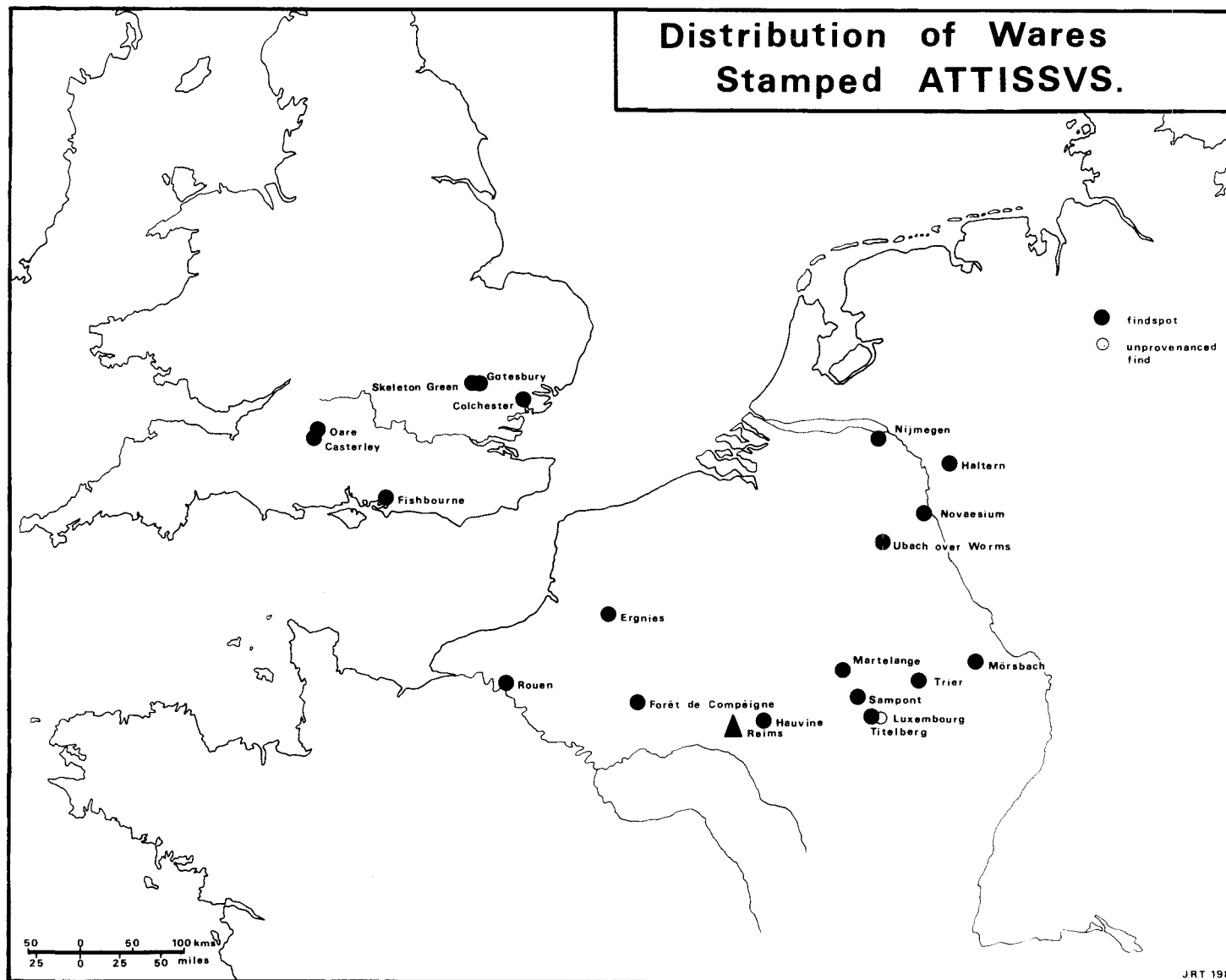


Figure 55.

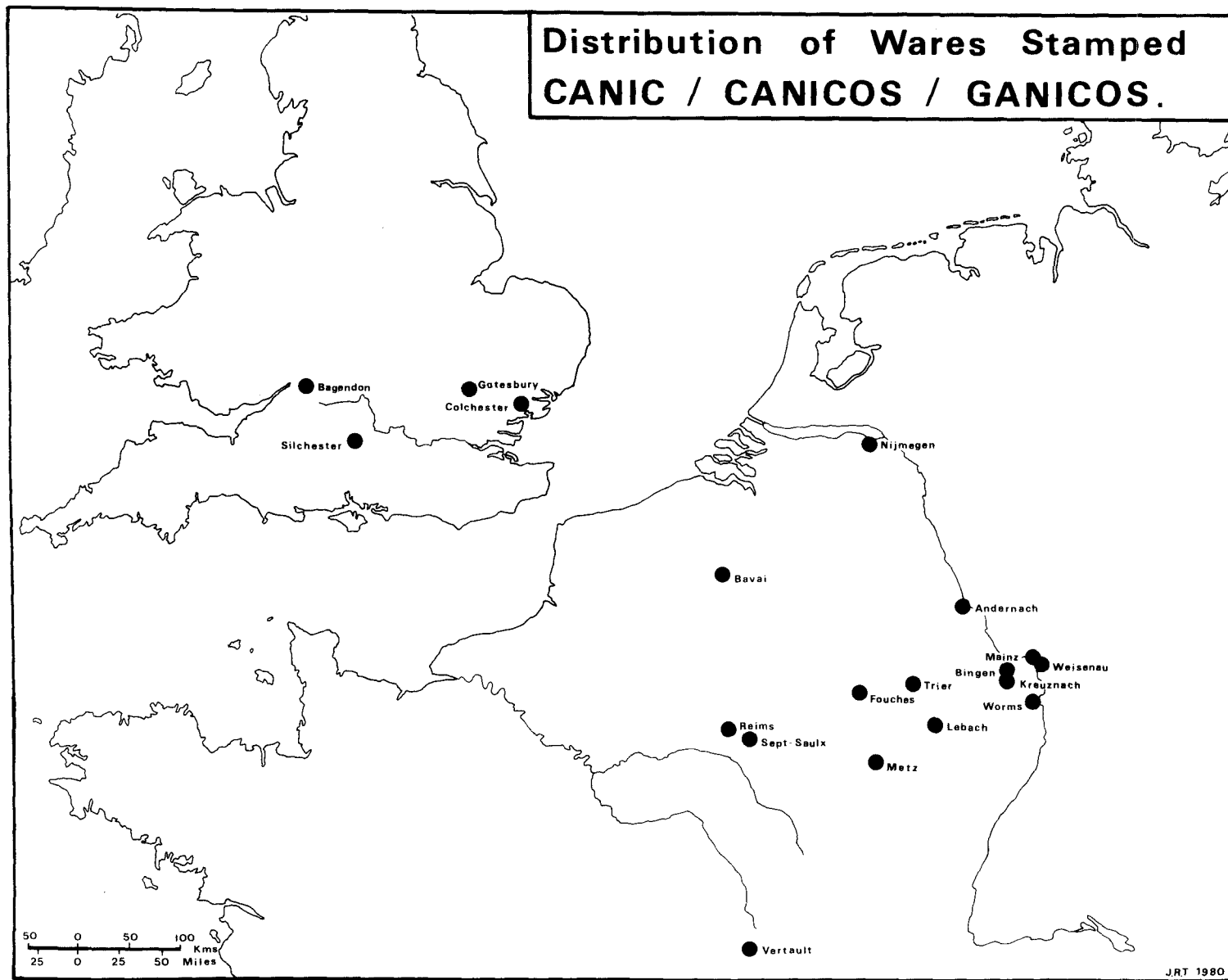


Figure 56.

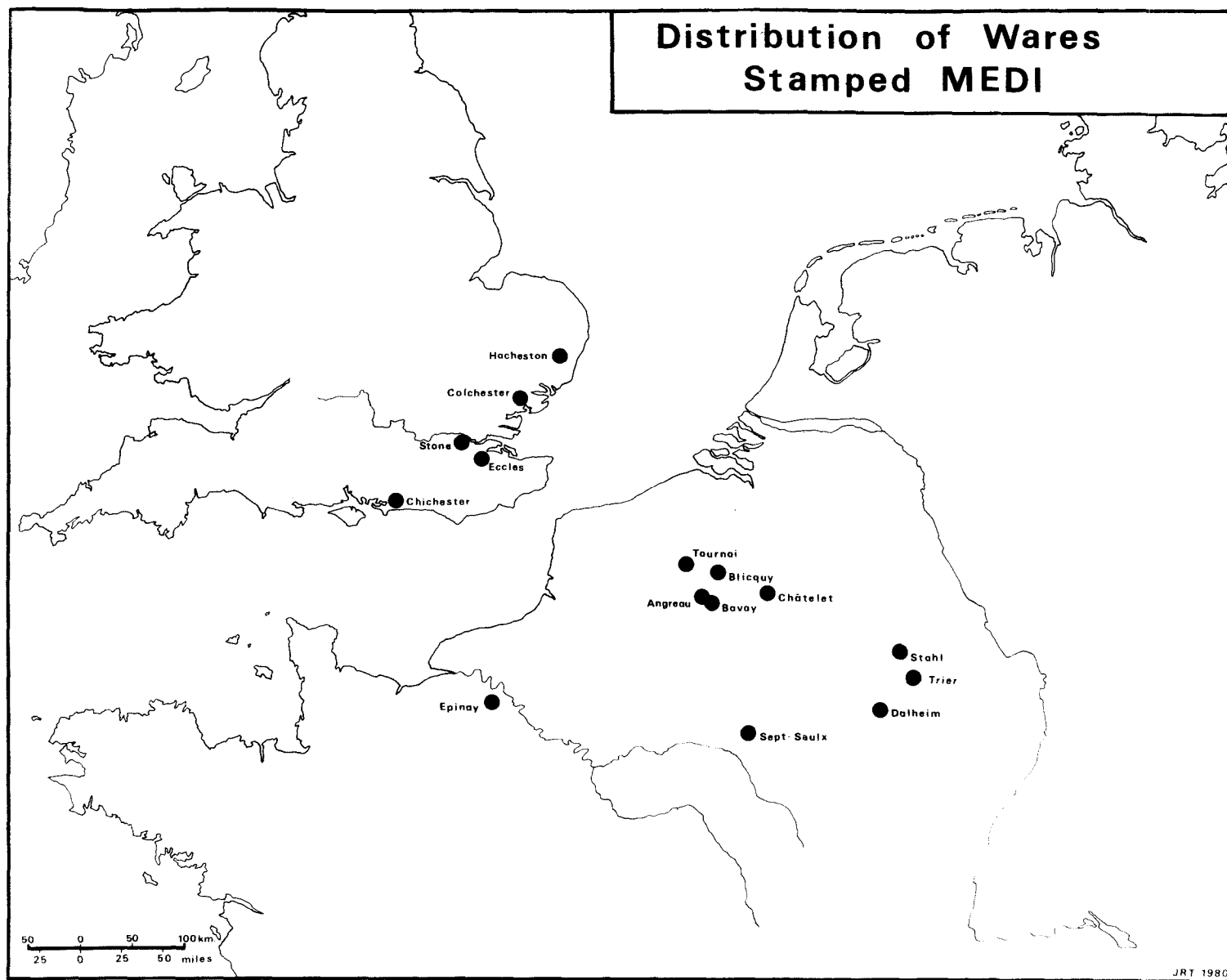


Figure 57.

about 50 stamps (Rigby 1973,17) and Silchester and Chichester with rather less. On the Continent large concentrations of stamped vessels have been recovered from Nijmegen (c. 150-200 different names/dies (Holwerda 1941; Kam museum unpub.)), Trier (94 different names/dies (Koethe 1937)), Luxembourg museum collections (48 different names/dies, c. 120 stamps (Rink 1950)) and Vertault, Côte d'Or where 410 stamps belonging to 27 potters were recovered (Bohn 1922; Lorimy 1923).

6.9 The Distribution of Central Gaulish wares

The existence of fine ware production other than that of samian in Central Gaul in the late 1st century B.C. has long been recognised, and the wares figure prominently amongst the assemblages from the two well known oppida sites of Mont Beuvray and Gergovia. Until very recently however, there has been little or no work on defining these wares as a type, recognising their places of manufacture or identifying them on sites outside Central Gaul. Throughout the course of this research it has become increasingly clear that a number of vessels, particularly platter forms were being distributed northwards in the late 1st century B.C. and early 1st century A.D., whose origins appear to be in Central Gaul, specifically the Allier. The fabrics of these vessels are distinctive in that they are characterised by a highly micaceous clay and a mineral assemblage indicative of a region of metamorphic geology (see chapter seven, p.303). Many of the platters and dishes in this micaceous fabric are black or grey in colour being the result of reduced firing

and elements of Campanian or Arretine inspiration is evident in their forms. Platters analogous to Cam. forms 1 and 2 with prominent footrings are amongst the more common types. The characteristics of form and appearance have led some workers to term this ware 'micaceous T.N.', an unfortunate and somewhat confusing nomenclature, since it is geographically and culturally distinct from true Gallo-Belgic T.N. There has been no published work on the occurrence of Central Gaulish wares in north-west Europe and their identification from available excavation reports is impossible without clearly set out details of the fabric since the forms are so closely similar to some of the Gallo-Belgic types. It is possible that the platters from the Goeblingen-Nospelt graves are of this type. The single example from grave A is oxidised with a red exterior surface and is internally decorated with two concentric circles and fine rouletting (Thill 1967, Taf.1.19). Two similar examples, but in a reduced fabric occur in grave B (Thill op.cit. Taf.II.7,10).

The identification of these wares in Britain has been a little more successful since all the examples during the course of this research have been personally examined, thus allowing the compilation of a provisional distribution map (Fig.58). The number of examples known from each site is fairly small, in most cases restricted to less than two or three vessels. The fabric is sometimes described as mica-dusted (e.g. Rigby 1979, 43-4) but this is only the surface reflection of a totally micaceous fabric and should not be confused with those vessels which do have a micaceous slip applied to them. Platters with footrings are the most

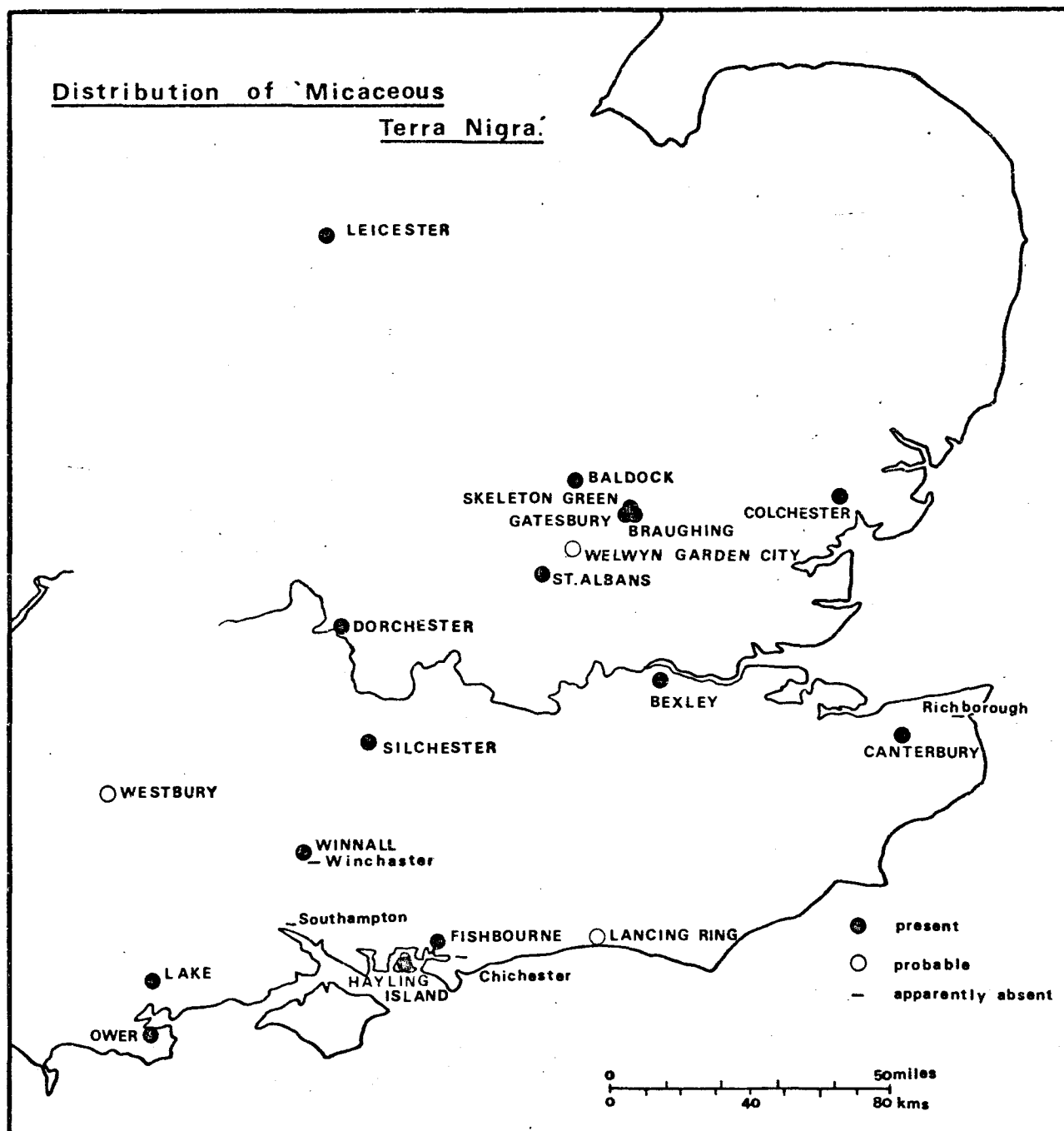


Figure 58.

commonly occurring types although other forms such as cups analogous to Cam. form 52, for example from Canterbury (RLF C/B) unpub.) and a platter with an out-turned rim from Lake, near Wimbourne, Dorset which can only be paralleled with finds from Augustan-Tiberian sites in Central Gaul such as Nérès-les-Bains (Allier) and Châteaumeillant (Cher) (Timby unpub.m/s), are increasingly being recognised. Oxidised versions of the same ware are also found albeit rarely, for example at Canterbury (St.MS79), and Baldock. Only one site in Britain has at present produced evidence for other accompanying vessels from Central Gaul, an unenclosed settlement at Ower, Poole harbour, Dorset. The unique assemblage of imported fine ware pottery from the 1978 excavations at this site included a single rimsherd from a 'classic' Roanne painted bowl (cf. Périchon 1974, type 16) and flagon sherds comparable to Central Gaulish examples, as well as reduced micaceous ware platters (Timby forthcoming).

The majority of Central Gaulish ware finds in Britain can be dated to the pre-conquest period, with one or two exceptions such as the vessel already cited from the military fort at Lake, Dorset. Many of the sherds are from 'oppida' or major settlement sites such as Leicester (Blackfriars unpub.), Colchester (Sheepen 1970, Dunnet unpub.), Canterbury (e.g. 16 Watling St. 1978, Rosemary Lane, and St. Margarets 1977-79, Canterbury Archaeological Trust unpub.) and the Skeleton Green-Braughing-Gatesbury complex (Partridge 1979;1981). It is also interesting to note that the two temple complexes in the south, Lancing Ring (Frere 1940; Bedwin 1981) and Hayling Island (King pers. comm.) have also produced examples

Figure 59.

Examples of micaceous T.N. vessels found in Britain.

1. Colchester (1970 excavations unpub.)
2. Gatesbury (Partridge 1979, fig. 33.10)
3. Skeleton Green (Partridge 1981, fig. 77.22).
- 4a, b, 5. Baldock (unpub. info. J. Foster).
6. Westbury, Wiltshire (unpub. info. Col. Shaw).
7. Canterbury (unpub. Canterbury Arch. Trust).
8. Lake, Dorset (unpub. info. M. Darling).

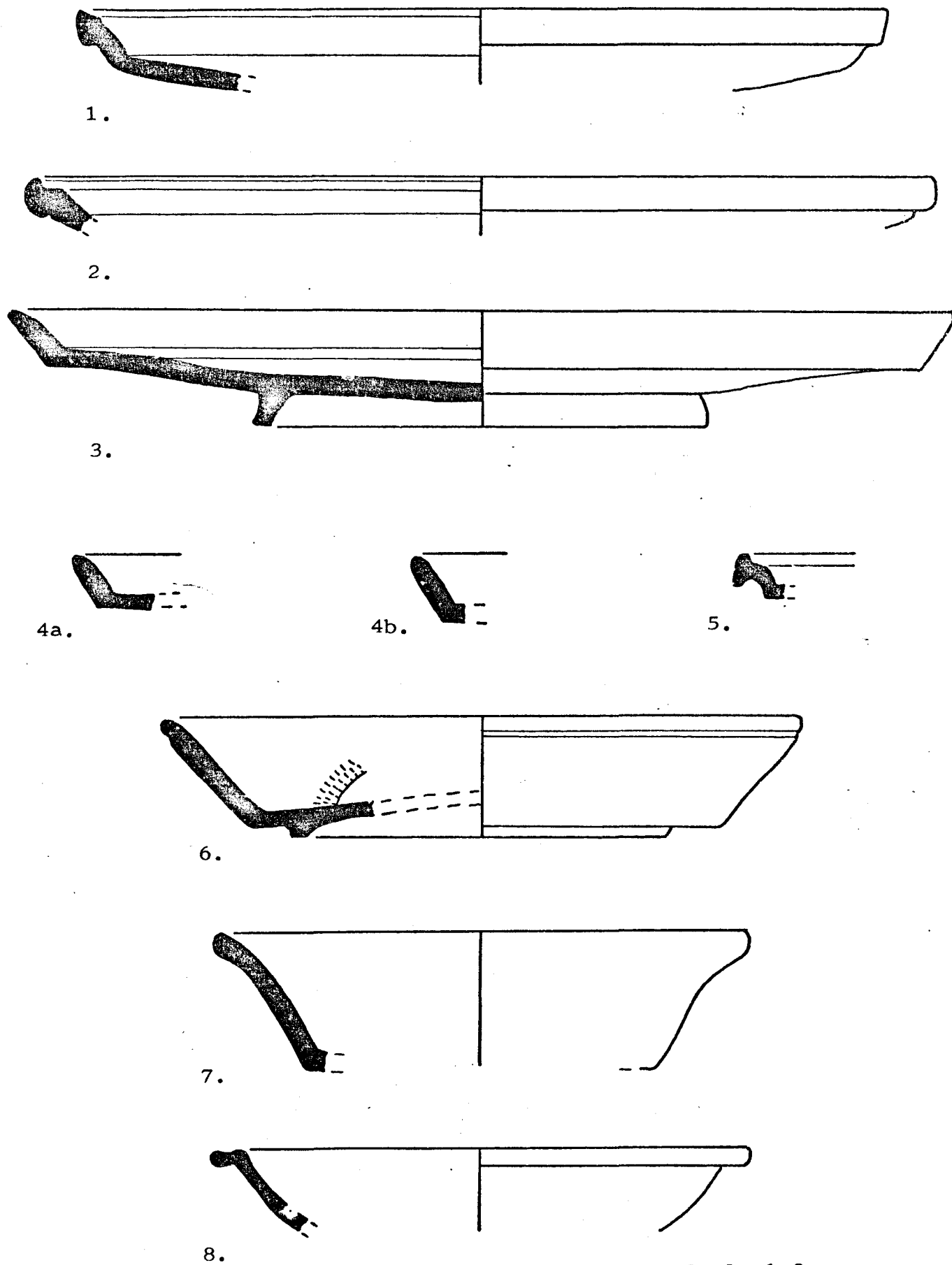


Figure 59.

of this ware. The overall distribution, concentrated largely along the south coast and in the Hertfordshire-Cambridgeshire-Essex region is similar to that of other imported items of Roman manufacture coming into pre-conquest Britain. Figure 59 shows a selection of these wares.

CHAPTER SEVEN

FABRIC CHARACTERISATION THROUGH THE USE OF PETROLOGICAL AND PETROGRAPHICAL TECHNIQUES

'Characterisation involves the examination of properties of ceramics with a view to isolating materials of different origin and ultimately establish their source where possible'. (Peacock 1970,376)

7.1 Introduction

In the past, the primary role of a fine ware was that of a chronological indicator by which the excavator could date an archaeological context. Consequently much time was devoted to working out typologies and the apparent changes through time. In recent years however attention has turned towards fabric description and the identification of the products from specific workshops. A wide range of analytical techniques are now available for the discrimination of fabric types based on either the mineral or the chemical components of the clays from which the vessels were prepared. In the case of fine wares this discrimination has been mainly carried out by using various techniques of chemical analysis because the less refined techniques of thin-sectioning were only considered to have 'limited application', (Tite 1972, 228). Two preliminary programmes of work carried out by Williams, one on late Bronze Age pottery from Thera, the other on Arretine and early samian has demonstrated that fine grained wares are susceptible to characterisation through thin-sectioning (Williams 1978a,b) which would suggest that other classes of fine ware pottery might similarly

be subjected to this method of analysis with some result.

One of the primary objectives of this research was to attempt to establish a range of characteristic fabric types within the Gallo-Belgic series that could, using available analytical techniques, be related to the ceramic types. It was hoped that once these fabric groups were established some progress could be made in to isolating possible sources for them, which would in turn contribute to understanding the mechanisms of movement, be it trade or exchange of the products from their source to the points at which they are found.

7.2 Analytical techniques

(i) Macroscopic description

The first step in the fabric characterisation of a group of wares is that of a visual macroscopic description where colour, hardness, texture and basic fabric type are determined. One of the main problems with this in the past has been in the detail and degree of accuracy of the description; where this is too vague or inexact it is impossible to make realistic comparisons between individual or groups of sherds. In order to try and standardise and therefore maximise the information content from the macroscopic description, Peacock (1977,29ff) has developed a scheme based on a pre-defined nomenclature which should potentially aid the formulation of ceramic fabric groups. The scheme takes the following properties into account: colour, hardness, feel, fracture, surface finish and composition of inclusions. The

frequency, sorting average size, rounding and where possible the petrological identification of the inclusions are also noted.

(ii) Microscopic analysis

In many cases most of the information concerning a vessel and its fabric can be derived from macroscopic examination. In a few cases where additional refinement is required a programme of microscopic analysis by thin-sectioning can be resorted to. Generally this is used ^ewhere there is some uncertainty as to the identification of minerals in the fabric; to test the validity of the fabric groups as determined by the macroscopic examination, to compare fabrics with known kiln material or, to gain a fuller insight into the mineral assemblage of a sherd which suggests to be from a region with a distinguished geological make-up. In addition to identifying the mineral components of the clay, thin-section study also has useful application in studying the technology used in the preparation of the pot, the surface finish of the vessel (Hodges 1963), and of firing conditions through mineralogical and dimensional changes in the clay (Tite 1969). Between temperatures of 750°C - 800°C for example, the optically anisotropic minerals break down to form an amorphous stage producing an optically isotropic matrix under crossed polars although at temperatures above this the matrix once more becomes anisotropic (Tite 1972, 229).

Most pottery however, is characterised not by a distinctive mineral suite but by the more ubiquitous quartz sand occurring both naturally in the clay and as an additive. In such

cases the alternative method of heavy mineral analysis might be applicable through the isolation of heavy minerals from the quartz sand component. Sands derived from different sources tend to contain differing types and concentrations of specific heavy minerals like rutile, tourmaline or garnet for example. The method by which these minerals are extracted from a sample of pot is a very time consuming one and disadvantageous in that it requires a large sample (20-30 gm.) which is subsequently destroyed.

A further technique only recently brought to the ceramic analyst's attention and which is becoming increasingly used in attempts to discriminate ceramic products originating from areas of predominantly sedimentary geology, is that of textural analysis, borrowed from the sedimentary geologists. This is a qualitative and quantitative technique first used by Peacock in 1971 as an approach for studying the 'coarse sand wares' from the excavations at Fishbourne between 1961 and 1969 (Peacock 1971). The method, which will be discussed in greater detail later (see p.243) allows the collection of a large body of data which can be manipulated statistically. On its own textural analysis does not permit the identification of production sources but allows the discrimination of similar and dissimilar ceramic products.

(iii) Chemical analysis

In contrast to the above procedures, chemical analysis as a technique is not so readily available to most ceramic analysts. On its own chemical analysis is unable to aid the identification of clay sources for individual sherds unless

reference material is available, although it is possible to group wares on the basis of type and relative proportions of minerals present within the clay. It is thus a more detailed method of analysis and one which should ideally provide a useful secondary source of information once microscopic analysis has been undertaken. A number of techniques are available for determining the chemical composition of ceramic material which basically represent the innovation of techniques from other disciplines. The most widely used are, optical emission spectroscopy, x-ray fluorescence, neutron activation and atomic absorption. Further information on firing conditions based on the mineralogical composition are obtainable through the use of x-ray diffraction or Mössbauer spectroscopy (Tite 1972,315). Until recently the favoured method was that of optical emission spectroscopy used in such work as that on mortaria kilns in Britain (Richards and Harley 1960), and on inscribed stirrup jars from Thebes (Catling and Millett 1965). X-ray fluorescence and neutron activation have been successfully used in trying to discriminate products from early samian/Arretine workshops in Central Gaul (for example, Picon and Vertet 1970; Picon et al. 1971; Picon and Vichy 1974; Widemann et al. 1975); Eastern Gaul (Schneider et al. 1978) and Italy (Banterla et al. 1973). Neutron activation is advantageous because it is capable of simultaneously measuring a large number of trace elements with considerable precision (Perlman and Isaro 1969) and is one of the most popular techniques used in ceramic studies at present. Recent research however has demonstrated that atomic absorption has

many advantages over previous techniques, notably increased sensitivity and versatility (Magalousis 1979).

Many authors consider the results obtained from the above analyses invalid unless the predicted clay sources are sampled and compared with the vessel fabrics (for example, Prag et al. 1974; Picon 1973; Slenczka 1974). This is obviously not always possible in practice since it is often found that the prepared clay little resembles the original natural deposit. In such circumstances the role of thin-section analysis to identify possible sources is limited. Differences may be caused by the mixing of two different clays to obtain the required colour or consistency. The addition of tempering material to the clay, for example crushed rock fragments, shell, or sand to improve the quality of the clay, its firing capabilities and durability may also radically alter the overall composition. This may be a particular problem in chemical analysis where the tempering material may bias the results, making interpretation very difficult. Much information is lost on the other hand, if the clay has been extensively refined through levigation or similar processes since many of the original diagnostic components may have been removed. Finally the search for the original clay beds may prove fruitless should that source be lost, exhausted through successive workings or simply inaccessible due to modern development (Wilson 1978).

(iv) Selection of methods

The usefulness of macroscopic description in identifying distinctive classes of fine ware goes without saying, but when

it comes down to trying to characterise the actual fabric groups within a class it has its limitations. Difference in colour need not necessarily reflect differences in fabric, only differences in firing practices, while inclusions in the clay are rarely visible to the naked eye. Macroscopically T.N. and T.R. are consistently described as 'hard, fine textured sandy wares' which may well cross-cut any real fabric differences. If any headway is to be made therefore in the characterisation of fabrics within such a group of defined fine wares, an alternative more refined technique must be sought. The obvious choice is microscopic analysis by thin-sectioning which allows a large number of samples to be processed relatively quickly. Once specific problem areas have been identified it may then prove useful to turn to chemical analysis.

The analysis of the pottery fabrics here is divided into three groups. The first group is that of the imported fine wares, namely T.N. and T.R., which include cups, platters and beakers. The second group of wares are those vessels which typologically demonstrate a close similarity to these forms but which appear in other fabrics reflecting native response in Britain. The third group covers other imported fine wares in particular the class of wares referred to as 'micaceous T.N.'.

7.3 Imported Terra Nigra and Terra Rubra

(i) Macroscopic description

The first step towards the definition and grouping of these

wares is to isolate those examples which can be easily recognised. This has been possible to a certain extent with T.R. fabrics since these can on macroscopic traits be subdivided into three types (see p.18 for the definition of these), although the sub-divisions are based on firing and finish rather than actual fabric types. No such classification exists for T.N. The obvious alternative ways of distinguishing sherds are on typological grounds, i.e. grouping together and comparing similar forms, or by grouping together the products of one potter. In the first case, it is evident that different potters were ostensibly producing identical forms, suggesting that similar forms could have been produced at different workshops. On the other hand the association of a potter or group of potters with a workshop or production area is difficult where so few workshops have been thoroughly excavated. Present evidence suggests that it was not uncommon for several different potters to be working at one site. However, in the cases where sufficient quantities of identical stamps occur at one workshop, suggesting that the potter in question spent at least part of his working life at that site, for example Nadna and Papilos at Vertault (Lorimy 1923), there are very few stamps recorded away from the workshop site. In other cases where only single examples of stamps are represented at a kiln site, the evidence is not sufficiently concrete to postulate the potter's presence also at these sites. The presence of four identical stamps may still only represent one vessel. It was clear therefore at the outset of the programme of analysis that none of the potters stamps available could be taken

as representative of any one kiln site, and that in the initial stages it could only be hoped that different potters could be associated with one another.

An alternative method, and one that has largely been worked on by Rigby, is the identification of name stamps made by the same die maker (Rigby 1973). Each potter used several different dies to mark his products (see Plate IV for two contrasting dies belonging to the potter Attissus) and different potters appear to have used the same die maker, apparent by similarities in style (see Plate V showing Canic and Medi who possibly used the same die maker). If this approach is to be of some validity in grouping together different potters' products it has to be assumed that the die maker confined his activities to one area or one workshop complex. This is possibly a rather tenuous assumption since a die maker has nothing to transport but his skill and literacy and therefore might be expected to move between workshops.

(ii) Microscopic analysis

It was decided that the programme of thin-sectioning should ideally concentrate initially on those wares with potters' stamps, to be followed with unstamped examples which could be compared with them. This was not so easy to put into practice; the main problem being the limited number of imported Gallo-Belgic sherds in Britain with potters' stamps, outside Colchester. Such a scarcity made museum curators understandably reluctant to release these pieces for thin-sectioning and it was apparent that if any progress was to be made unstamped vessels would have to be sampled at the

outset. A further problem encountered was the contrasting state of preservation of the material. Many of the vessels from burials tended to be more or less complete and therefore items of display in the museums whereas sherds from settlements tended to be so fragmentary that in some cases it was difficult to identify the forms beyond the broad categories of cups, small platter, large platter,^{or} beaker. It was from this latter context that most of the samples for thin sectioning were obtained. Initially work concentrated on finds in Britain and this was later added to by a small number of continental examples.

A preliminary programme of thin-sectioning made it clear that neither T.N. nor T.N. wares could be characterised by petrology due to a total lack of a distinctive or diagnostic mineral suite. In all cases the field of view was dominated by quartz grains with occasional fragments of micro-crystalline silica (flint/chert) and discrete inclusions of ironstone. Other minerals present, for example, tourmaline, epidote, augite and occasionally sandstone were insufficient in quantity to be useful and in most cases could be regarded as detrital. This suggests that the potters were working in an area of sedimentary geology and that an alternative method for discriminating the samples had to be found.

In the past, one of the more favoured and successful methods for looking at coarse sandy wares has been heavy mineral analysis, (for example the black burnished industry, Williams 1977). This is a laborious and time-consuming technique which has the immediate disadvantage for this work

in that it requires a sample of 20-30g potsherd which is destroyed from further use. Potentially the method could have some validity since all sand contains a number of heavy minerals which differ in type and frequency depending on the source of the sand. Unfortunately the quantity of pottery required made it impracticable to use in this study since samples were not available.

A second technique available was that of x-ray diffraction using the powder camera method. X-ray diffraction can be employed for the characterisation of pottery by identifying minor and trace elements present in the clays. The method has already been used successfully by Perinet in distinguishing Greek and Graeco-Italian amphorae from Roman amphorae recovered from the wreck of the Grand Congloue (Perinet 1956) and by Young and Whitmore analysing oriental ceramics (Young and Whitmore 1957). The technique is of further value in studying the firing conditions used in the production of pottery (Tite 1972,315). A pilot study was carried out using five sherds and the equipment available. Unfortunately the films obtained from this did not show any clearly detectable differences between the samples. This is possibly explained by the high silica content (quartz) masking the smaller quantities of other more diagnostic clay constituents. This problem can be theoretically overcome by floating off the quartz and other light minerals and testing the residue, although the technique was not pursued in this work.

The final technique available and the one that was subsequently adopted for the preliminary analysis of the Gallo-Belgic

wares is that of textural analysis. This technique was originally introduced into archaeological ceramic work by Peacock (1971) who adopted standard geological procedures to differentiate the coarse sandy wares from the 1961-1969 excavations at Fishbourne (Cunliffe 1971). The techniques used were developed by sedimentary geologists for studying sediments, in particular marine and riverine deposits. From this work Peacock selected three textural parameters:

- a) Percentage of inclusions after Shvetsov (Terry and Chillinger 1955);
- b) Roundness and sphericity (Krumbein 1941 and Rittenhouse 1943); and
- c) Size analysis (Pye 1943).

The first two of these are assessed on a visual comparative basis, where the grains from a particular section are compared with a number of graded charts, for percentage of inclusions and shape. These methods are therefore to a certain extent subjective. The third parameter, size analysis, has received most attention from ceramic researchers, possibly due to the substantial body of data that can be produced for statistical manipulation. The technique generally adopted involves counting a predetermined number of randomly selected grains in each thin-section slide. In order to achieve a random count, an approximation of the total number of quartz grains in each sample is estimated by counting the number of rows, shown by moving a point counter fixed to the microscope turntable 0.03mm through a vertical scale. Two rows are selected at random and the total number of grains in each is counted to produce an average which is multiplied

by the number of rows to give an estimate of the total number of grains present. The total number arrived at is divided by the number of counts to be made to determine which grains are to be measured. The size measurements obtained are grouped into class intervals initially as millimetres and then into phi units. The phi curve which has all the properties of a conventional 'normal distribution curve' is obtained when a logarithmic variable is substituted in the Gaussian function (Krumbein 1938,244). Cumulative percentages are plotted onto probability paper and the 5th, 16th, 25th, 50th, 75th, 84th and 95th percentiles read off according to the methods outlined by Folk and Ward (1957). These are then used to calculate the following parameters: mean size, standard deviation, skewness and kurtosis, which are defined below:

Mean size (M_z), the arithmetic mean of ϕ values.

Standard deviation (σ_I), a measure of the spread of grains over the different size classes.

Skewness (SK_I), a measure of the degree of symmetry of the distribution, i.e. a relative spread of the data on one side or other of the mean.

Kurtosis (K_g), a measure of the 'peakedness' of the distribution curve. The formula used in these calculations are those proposed by Folk and Ward (1957). Such parameters are routinely used by sedimentary geologists, but there appears to be a lack of general agreement as to how they should be estimated or the distributions be described (Jones 1970). In general the formulae suggested by Folk and Ward (1957) still seem to be the most widely used together with the

accompanying verbal descriptions based on several hundred analyses, (see Appendix 3, p.484).

The use of textural analysis in archaeological ceramic work is still in its infancy. It is seen both as a qualitative and quantitative technique that can be used to great advantage in attempts to discriminate ceramic products originating in areas of predominantly sedimentary geology (Darvill 1979; Darvill and Timby 1982; Mackenna 1978; Peacock 1971; Streeten 1979). It cannot, however, identify the sources from which the products originated and the method depends on the acceptance of a number of assumptions relating to the inherent and measurable variability within the grain size, distribution. Sedimentologists use several different methods to assess grain size notably sieving and thin-sectioning. Pye (1943) undertook a comparison of two of the methods favoured; projection and analysis and thin-section analysis. In most cases the mean grain size arrived at was similar for both methods although the sorting was poorer in the latter. Pye attributed this observation to the fact that the thin-section was composed of very thin sedimentation units and that one field was not representative of the slide as a whole (Pye 1943, 94.f.f.).

The first problem encountered in grain size analysis is whether or not a single sample taken from the vessel is representative of the variability displayed in the pot as a whole, i.e. the homogeneity of the fabric. In ceramic terms this depends on how the pot was prepared, for example, how much the clay has been 'wedged', whether any tempering material has been added or whether two clays of differing origin have been blended together. This latter practice finds many

ethnographic parallels; the potters of Srinagar, Kashmir, when preparing cooking pots use two separate lumps of clay. One of these comprises a mixture of hard clay with 50% added sand and is used to prepare the bottom of the pot. The second lump consists of similar clay but with only 10% added sand and is used to make the upper part of the vessel. A similar technique is used by the potters of Jaisaier, India, where the base of the cooking pot is made from a more durable sandy clay and the neck and body from an alluvial clay (Saraswati and Behura 1966,45). Instances such as these make it necessary to establish at the beginning of any textural study, the variability to be expected from a given pot. Work on examples of wheel-thrown Roman pottery from the Purton kilns, Wiltshire, where several samples were taken from each of several different vessels has demonstrated that for these wares a single thin-section was indeed representative of the vessel as a whole (Darvill and Timby 1982). In general one can expect the bodies of wheel-thrown vessels to have been produced from a single lump of prepared clay, presenting therefore a fairly standardised fabric throughout the body of that pot. A test of the homogeneity of the fabrics under study here was also made by comparing two sections taken from the same vessel for a number of examples. The results confirmed the above hypothesis for wheel-thrown vessels - the fabrics proving to be relatively homogeneous in texture throughout the vessels examined.

Once this has been established, the number of grains required to be counted in each thin-section in order to achieve a statistically valid assessment of the grain size

distribution needs to be determined. A series of experiments undertaken by Pye (1943,98) concluded that a count of 300 grains, the number usually used for determining the physical properties of a sand sample was excessive. After measuring series of 25, 50, 75, 100, 200 and 300 grains, Pye found that 50 grains gave a relative error usually less than 2%. For size analysis the approach to the true mean, assumed to be established by measuring 300 grains, is very gradual after 50 grains. This gradual approach is due to the fact that the error of the mean of a set of observations varies inversely as the square root of the number of observations (Krumbein and Pettijohn 1938,41-3). Similar observations have been made during experiments with archaeological material. Wandibba has compared the mean size and standard deviation of eight samples of Iron Age pottery from Hampshire subjected to counts of 50, 100 and 200 grains, (Wandibba 1980). The results showed very little difference in mean size between 50 and 200 although more precise measurements such as standard deviation suggest larger rather than smaller counts are preferable. These results compare well with those of Pye for geological samples. Comparative counts were similarly made for a sample of Gallo-Belgic fabrics to ensure a similar pattern for fine wares. The results from the three different counts were indeed comparable confirming the trends established in Wandibba's work (op.cit.). Throughout this study however, a count of 100 grains has been used, partly to achieve a larger sample in a fabric composed of essentially just fine grains to enable a more precise calculation of skewness and kurtosis values, and

partly to facilitate calculations. It should be remembered that a thin-section represents a random cut through the particles and therefore one is only observing and comparing an apparent and not a true grain size. This can be remedied by applying a correction factor based on probability theory (Sahu 1968); for ceramic comparisons however where one thin-section is being compared with another this correction is generally unnecessary. A decision also has to be made as to which linear dimension should be measured on the individual grains. This can be resolved in a number of different ways but for this work the longest axis is used in each case. No assumptions are made in the use of the technique by sedimentary geologists concerning the spatial distribution or orientation of particles in a sample. This is of slightly more importance when dealing with archaeological sections, particularly those from wheel-made wares where the inclusions are usually aligned parallel to the vessel walls. Care was taken therefore to compare sections cut perpendicular to the vessel wall. The grain count also avoided including quartz grains from the surfaces of any vessels which had been slipped since this would tend to bias results. The grains were measured using a calibrated graticule in the microscope and were selected using a point counter attached to the microscope turn table by the method described above.

Initially the measurements taken from each sample were grouped in two ways; the first as individual ungrouped measurements and the second as grouped measurements following Krumbein and Pettijohn (1938). The purpose of the first was to assess whether any additional information could be gained

by looking at individual rather than grouped measurements in terms of grain size frequency. The grouping of measurements into classes tends to obscure some of the finer detail, for example grains coarser than ϕ 5 and finer than ϕ 95 are ignored in the calculation of the standard deviation. The second method becomes more useful as the number of samples under consideration increases since one is comparing sets of figures rather than frequency graphs although it should be noted that the Krumbein phi scale is expressed in reference to a normal distribution and therefore does not take account of bimodal distributions (Jones 1970). In the case of sedimentary samples, a normal or single population can usually be assumed, whereas in a ceramic sample many intervening factors, in particular the addition of a quartz sand temper, will affect the statistics. A tempered pot will contain at least two different populations, i.e. produce two peaks in the normal distribution curve, which will not be reflected in the skewness figure. Thus when comparing the statistical figures arrived at following the methods of Krumbein (1938) and Folk and Ward (1957) the vessels being compared must belong to a single class of ware, i.e. in which the methods of preparation, - tempering, levigation, wheel or hand-made, and firing can be assumed to be fairly consistent.

Recent work by Swan et al. (1978) has shown that although the grouping of data into size classes is a possible source of error in calculating statistical parameters, in practice it compares well with parameters calculated from ungrouped data, with the exception of highly skewed distributions.

To summarise; for grain size analysis to be useful in an archaeological situation it must be established that 1) the sample taken from the pot is representative of the variation within that vessel; 2) that the observed variability within a sampled vessel is equal to or less than the variability displayed by the output from its production source; and 3) that the observed variability in output from a given production source is less than the variability displayed in the total output of similar products from different sources, i.e. that the inter workshop difference is greater than the intra workshop difference.

(iii) Results of Characterisation : Imported Terra Rubra
and Terra Nigra

A list of all thin sections made relevant to this work can be found in Appendix 2. The data obtained from the textural analysis has been manipulated in a number of different ways. The purpose of this is two fold; firstly to compare and contrast the results from using different methods of presentation and secondly to establish whether any one method is more sensitive and thus of more use in the characterisation of fine ware products.

(a) Ungrouped data

The data collected as individual ungrouped measurements was plotted as size against frequency graphs for each potter, so that different products of the same potter and similar products from different potters could be visually compared. Several interesting features emerged from these graphs. Firstly in the majority of cases the plotted curve showed

there to be a single or uni-modal population present, for example with the potters Novii (Fig.60) and Andeco (Fig.61), although several products indicated the presence of a bi-modal or even multi-modal population, for example, Fig.62 for Attissus and Fig.63 for Viriodacus. Secondly, it was considered at the outset that some variation in fineness of paste might be expected between different forms produced by the same potter, a small cup for example may be finer than a large radially stamped platter. In the cases where this could be tested, similar frequency graphs were constructed for several potter's products irrespective of form. The results are illustrated in Fig.64 with two small platters and a cup, Cam. 56 stamped by the potter Julios, in Fig.65 with a radially stamped large platter and a small cup by Atta and in Fig.62 with two large and one small platter by Atissus, each of which produce almost identical graphs. It should be noted that these vessels did not necessarily have identical dies.

A comparison between a large T.N. platter radially stamped with the name Acuto and one in T.R. stamped Acutus (Fig.66) shows in contrast two different frequency plots suggesting that Acuto and Acutus are two different potters and not different die versions of the same potter (see Plate VI for a comparison of the dies). This generalisation is not always true, as is shown by the potter Medi (probably short for Meddillus) (Fig.67). Three platters, one small and two larger samples produced three completely different frequency against size plots. Several explanations could be proposed to account for this; Medi may have worked at more than one

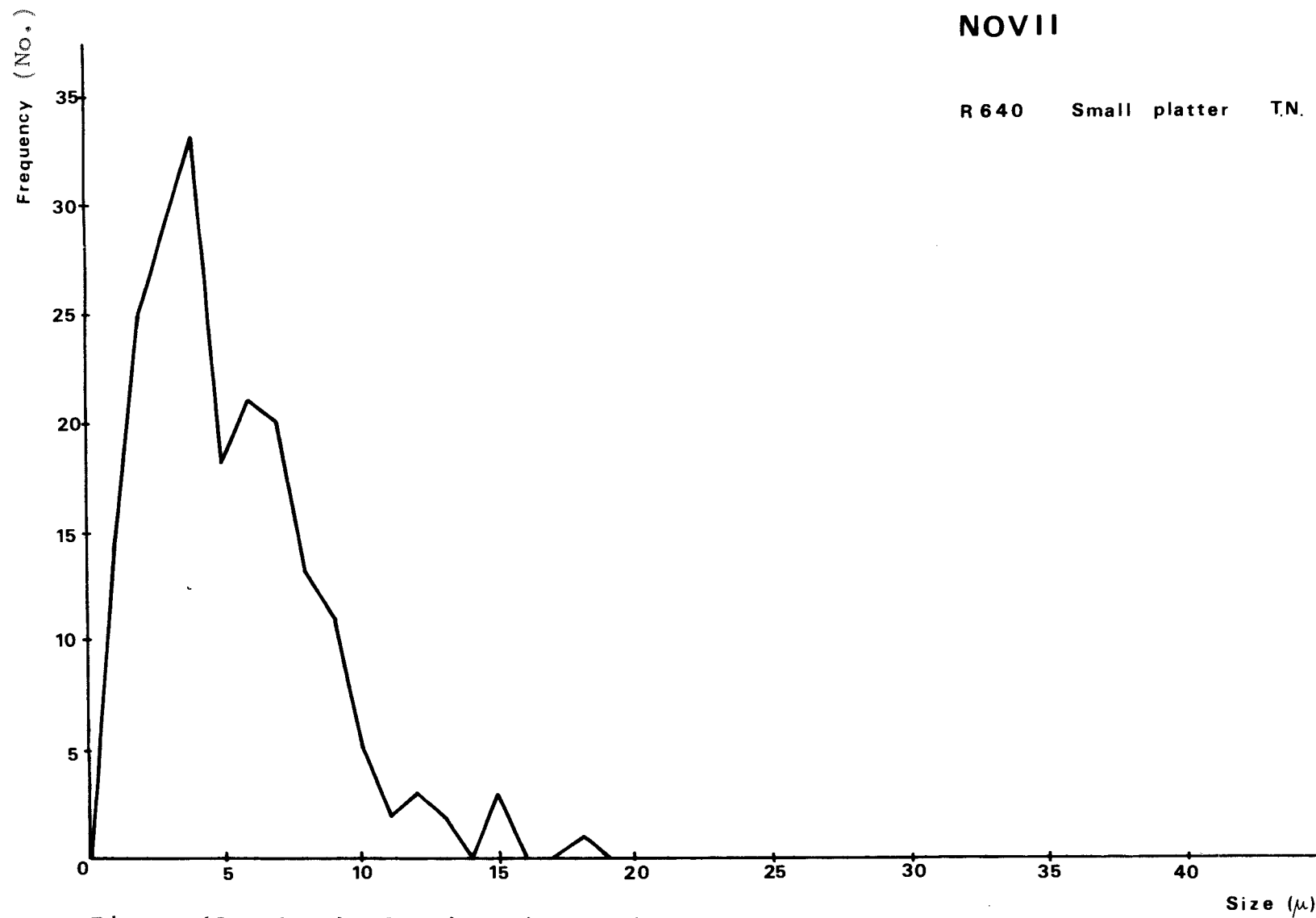


Figure 60. Graph plotting size against frequency of quartz grains.

ANDECO

R 445 Large platter T.R.

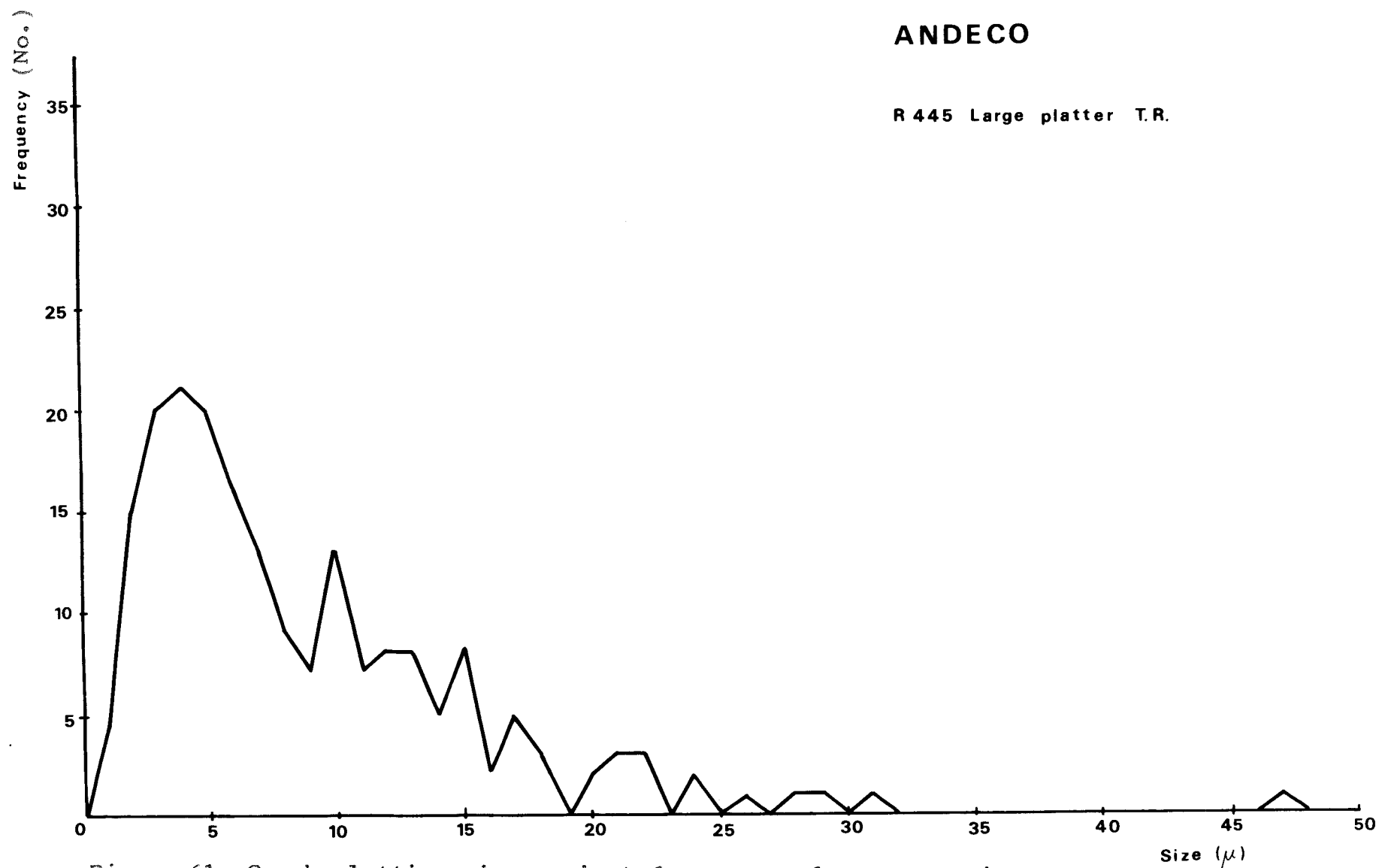


Figure 61. Graph plotting size against frequency of quartz grains.

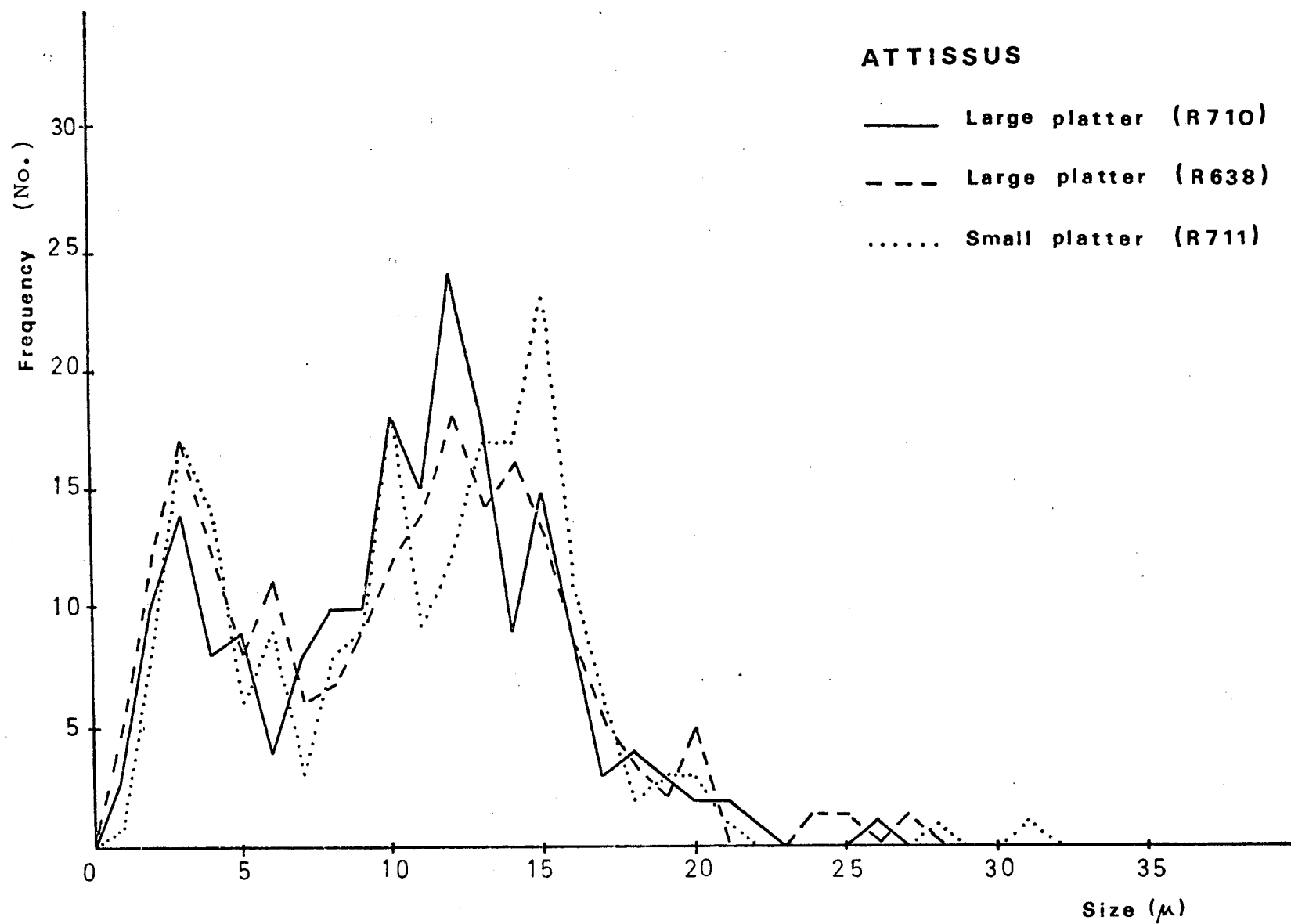


Figure 62. Graph plotting size against frequency of quartz grains.

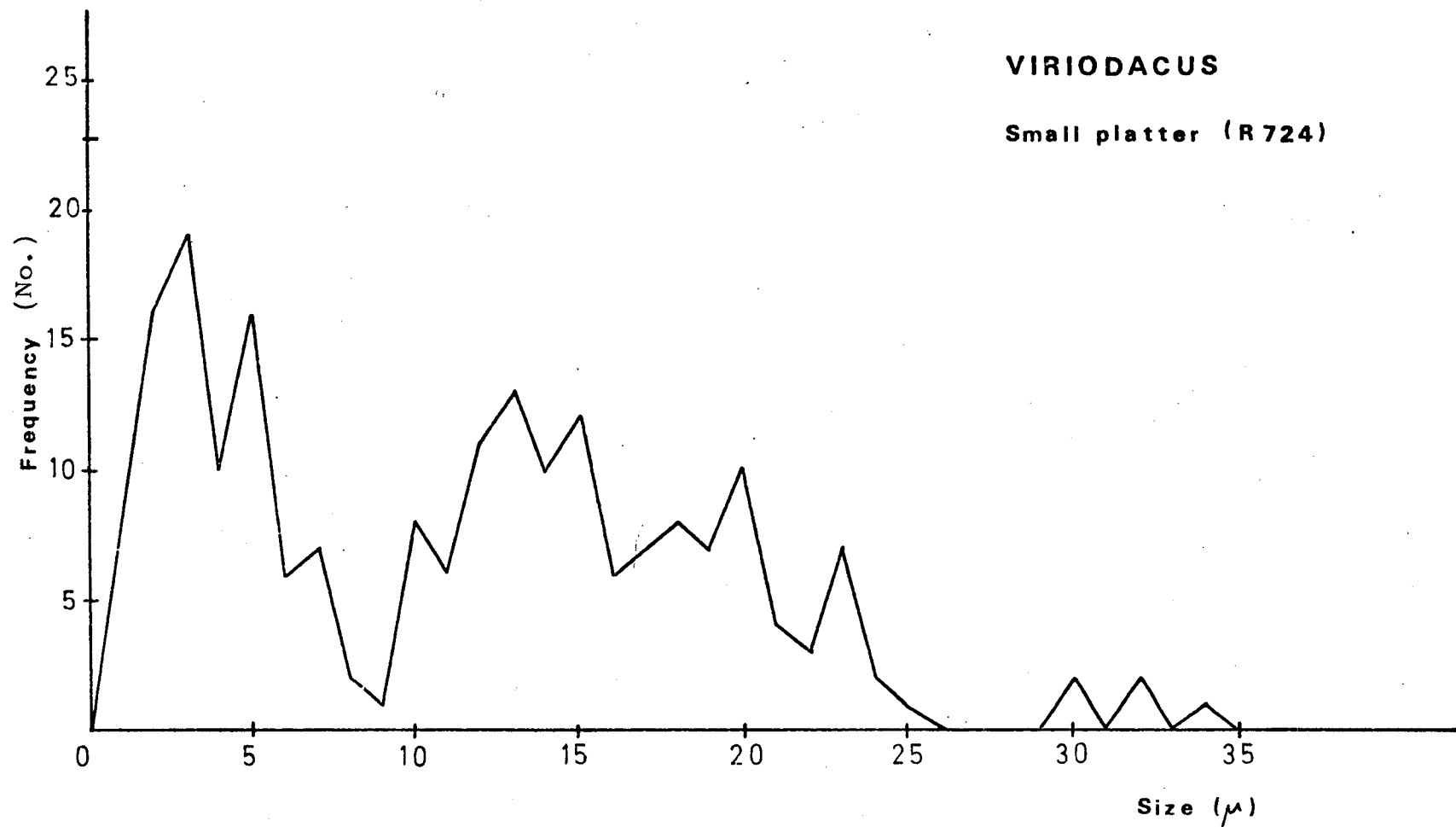


Figure 63. Graph plotting size against frequency of quartz grains.

JULIO

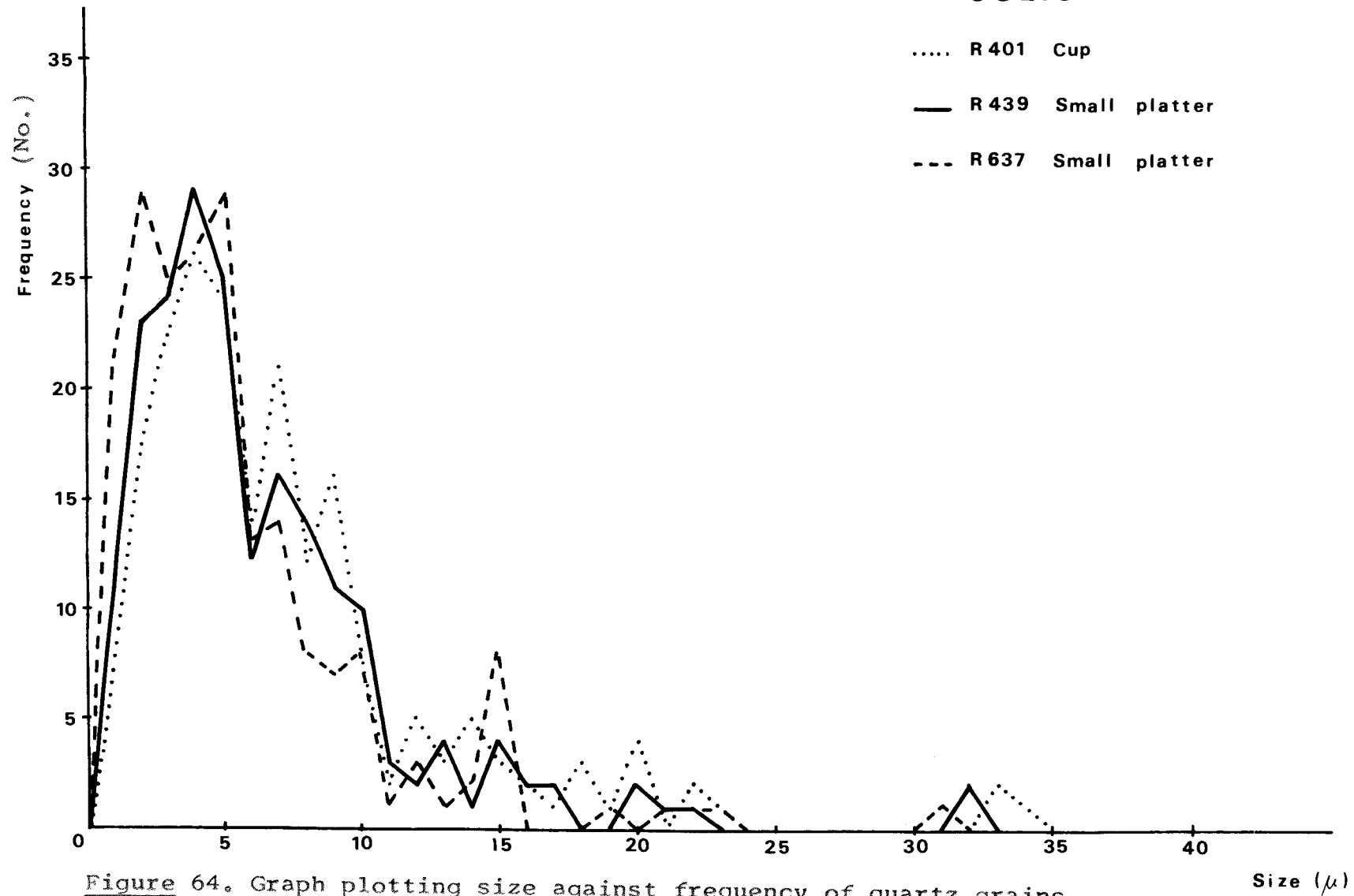


Figure 64. Graph plotting size against frequency of quartz grains.

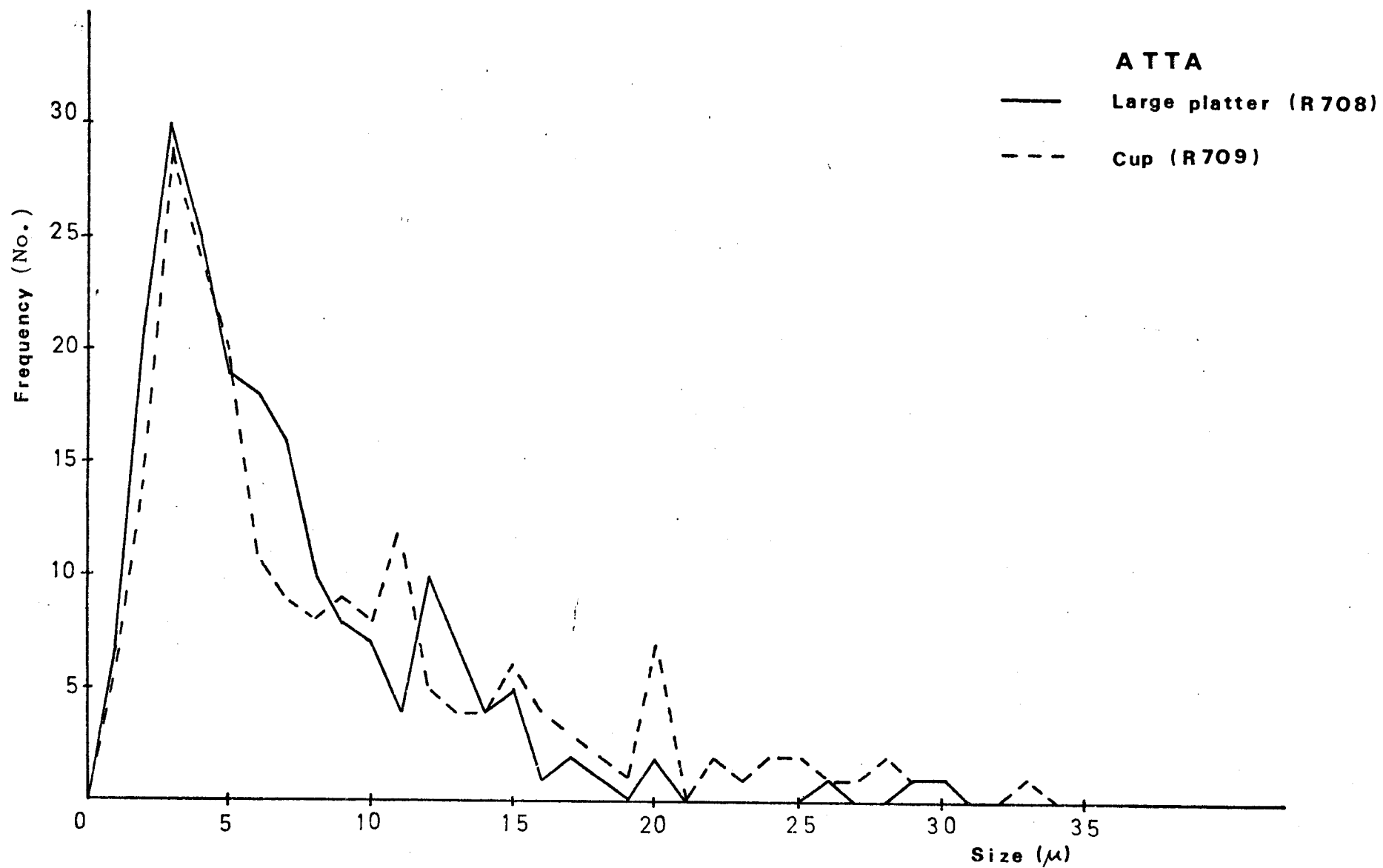


Figure 65. Graph plotting size against frequency of quartz grains.

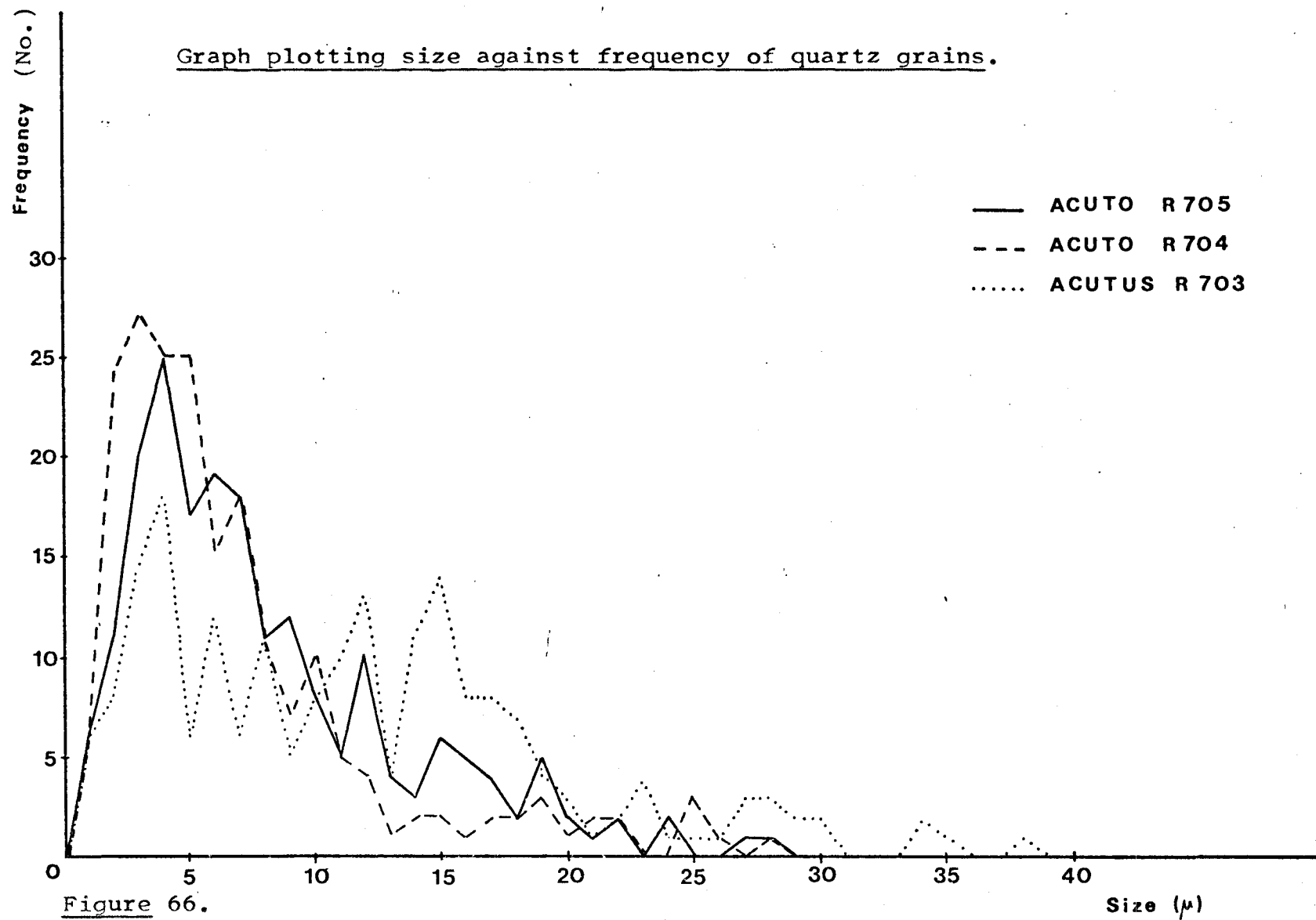


Figure 66.

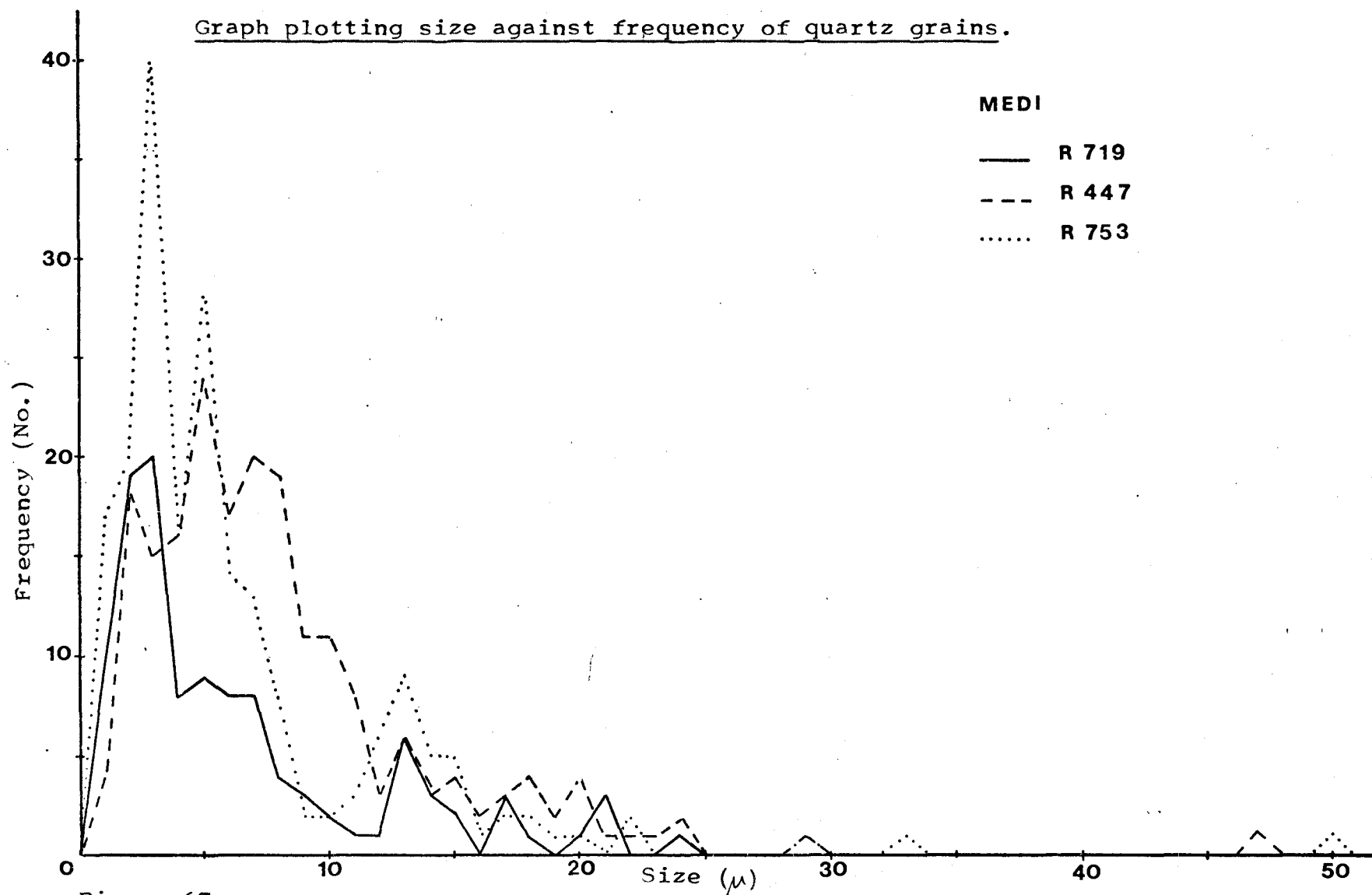


Figure 67.

workshop in his working life, exploited different clay outcrops but working from the same centre or may have simply been inconsistent in his clay preparation.

These results would suggest that many of the potters used the same clay preparation irrespective of the size or form of the vessel being produced, and that if one assumes that the potter remained fairly sedentary during his working life it should be possible to characterise the products of each potter or group of potters. An argument in favour of this is the fact that Gallo-Belgic wares result from carefully controlled firing conditions and therefore require a properly constructed kiln. Duhamel has suggested that the average working timespan of a Roman kiln was c. 25 years (Duhamel 1975). Even if this figure is a slight overestimation it could be assumed that a sufficient number of products would be produced at one workshop in order to be able to group those products.

A number of statistical tests are available which are designed to compare and assess the difference between two independent samples. These tests require a null hypothesis to be set up which suggests that the two samples have been derived from the same population. Two such tests are 'Snedecor's 'F' test and the Kolmogorov-Smirnov test. The latter is particularly quick to use and is sensitive to any kind of difference in the distributions from which the samples have been drawn. It is concerned with the amount of agreement between the cumulative percentage of the two samples (Siegel 1956, 127). This test was applied to a few

examples, the results of which seemed to show a general agreement to the more subjective visual differences discernable on the frequency graphs. Julio (R 439) compared with Julio (R 637) demonstrated that the null hypothesis, i.e. that the samples have not been derived from the same population, could be rejected at a 95% level of significance, but when Julio was compared in turn with Andeco (R 445), Atissus (R 638) and Assino (R 442) the null hypothesis could be accepted implying that these samples were derived from different populations. Similarly Acuto (R 704) compared with Acuto (R 705) showed that both these fabrics were derived from the same population but when these were compared with Acutus (R 703) two different populations were indicated.

(b) Grouped data

Grouped data was used to calculate the four statistical moments, of M_z , 6_I , SK_I and K_g for each section. The calculated values can be found in Appendix 3. Frequency distributions were compiled for the values of these four parameters which combine to approximately characterise Gallo-Belgic fine wares. Mean sizes ranged from 3.05 to 5.3 μ m and produced a multi-modal distribution with peaks at 3.8 and 4.2 μ m (Fig.68). Standard deviation values (Fig.69) range from 0.2 ϕ to 1.5 ϕ and showed a marked uni-modal distribution with the greatest percentage of values occurring at 0.9 ϕ , i.e. moderately well sorted. The skewness values were less consistent and showed a wide range from -1.0 to +0.5, peaking at -0.5 with a second minor rise at 0.1, (Fig.70). Kurtosis values (Fig.71) range from 0.5 to 2.0 with the highest percentage of values occurring at 0.8 emphasising the

Frequency Distribution of Mean Size values for a
sample of T.N. and T.R. products.

(expressed as a percentage of the total no. of samples analysed).

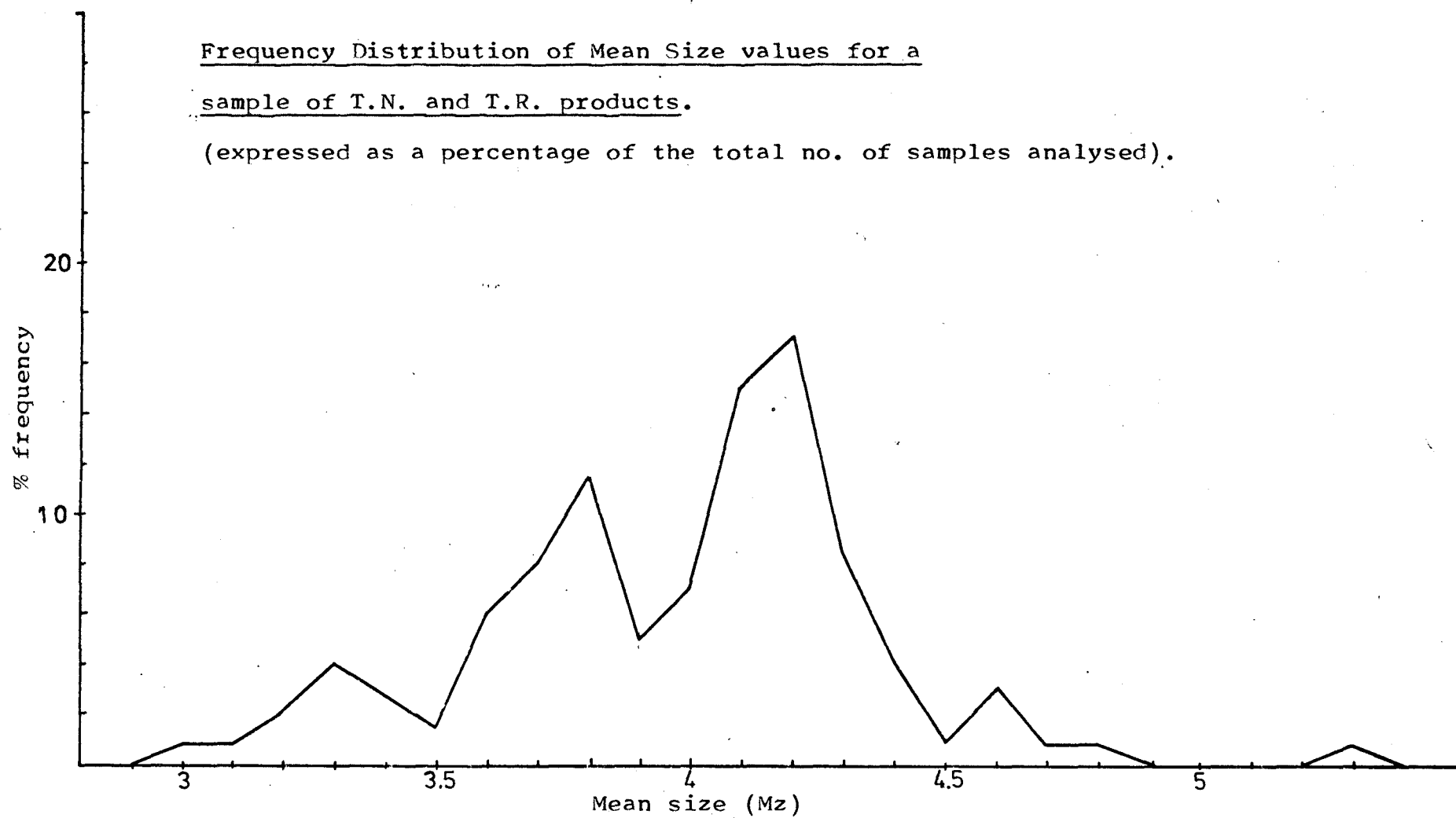


Figure 68.

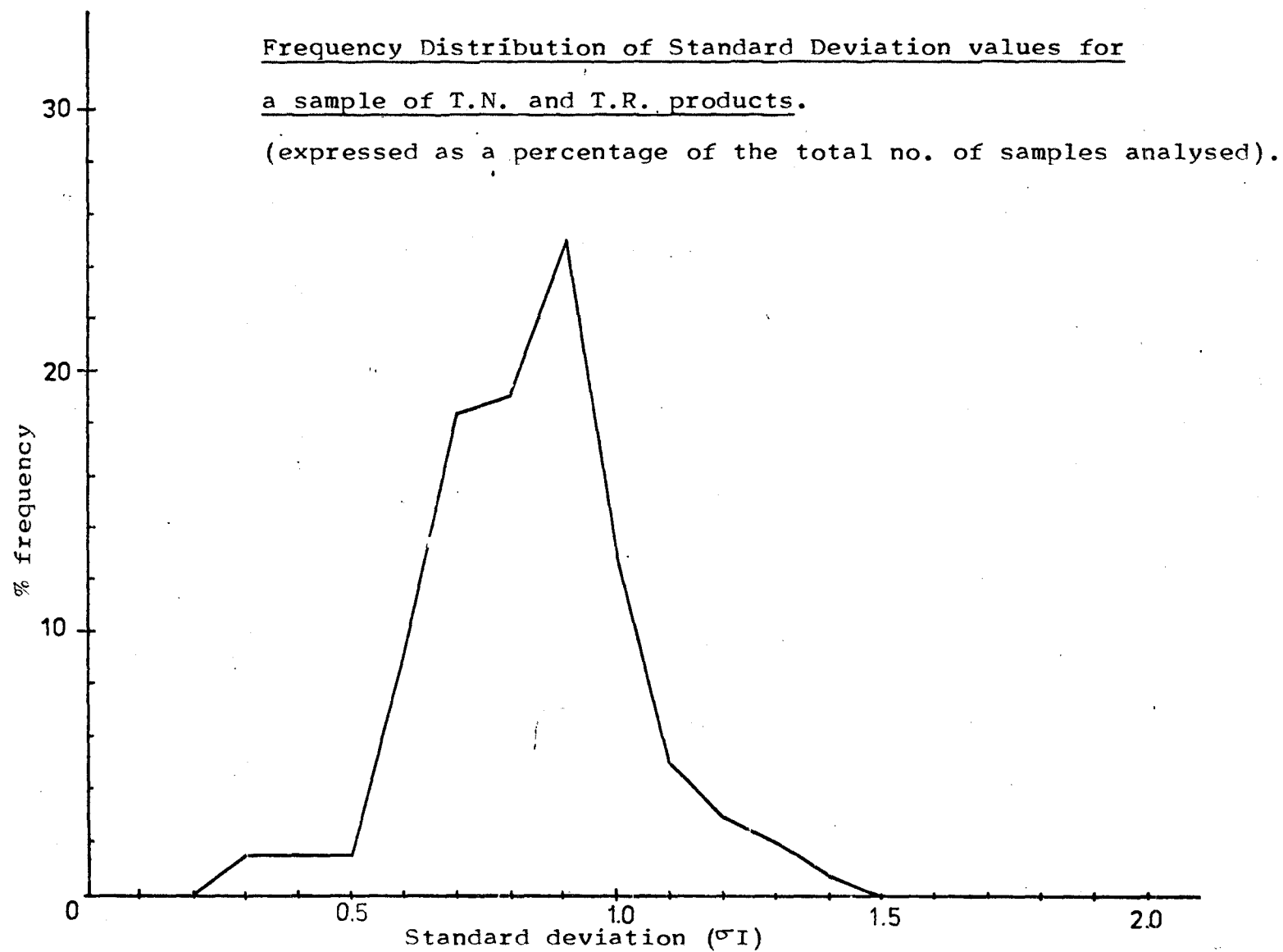


Figure 69.

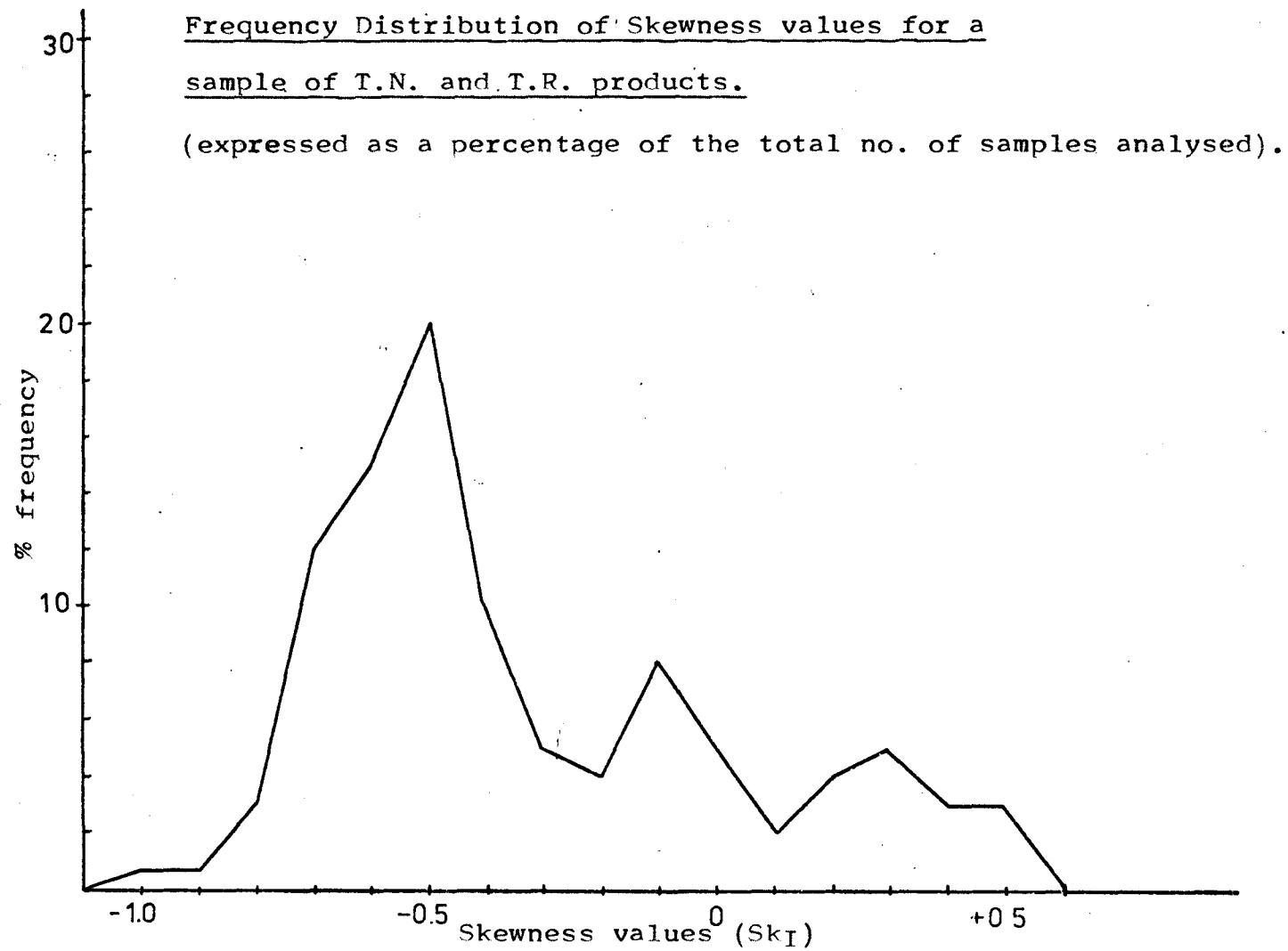


Figure 70.

Frequency Distribution of Kurtosis values for a sample of
T.N. and T.R. products.

(expressed as a percentage of the total no. of samples analysed).

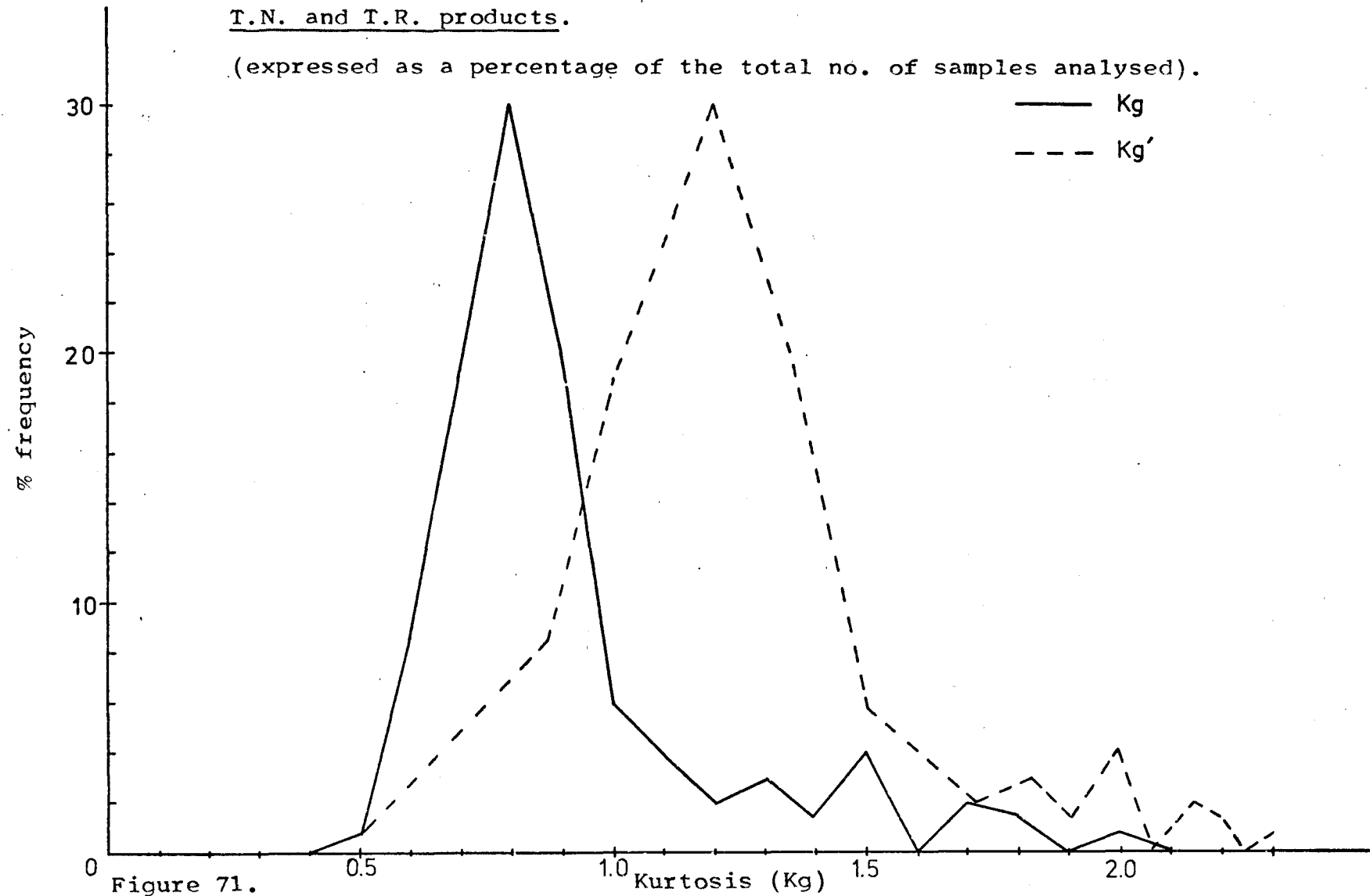


Figure 71.

platykurtic nature of the curve, i.e. it is deficiently peaked when compared to the normal curve. Since each sample is characterised by the relative proportions of grains in each size interval it would seem logical to compare the samples on a computer using a multi-variate analysis. This should provide a quick method of comparing several samples and provide greater objectivity. The programme built up from individual packages, used the techniques of principal components analysis and cluster analysis to discriminate the data (Wishart 1978).

If a number of points, each representing a thin-section are located in a multi-dimensional Euclidean space, essentially defined by a set of orthogonal axis, the purpose of principal components analysis is to find a new set of orthogonal axis with the same origin with certain required properties (Doran and Hodson 1975,194). The origin of the axes is assumed to be at the centroid of a point scatter, and the main purpose in producing new axes (or components) is to find one which passes along the direction of greatest spread. In many cases, including that of thin-section data, most of the variation is accommodated by the first few components. The actual process by which the new axes are found is fully described in Doran and Hodson (1975,194).

Cluster analysis is a statistical method of dividing an observed sample population into classes in which the degree of association is high between members of the same group, in order to produce an operational classification (Wishart 1978). This firstly involves the computation of a similarity matrix and K-linkage (i.e. nearest neighbour) list from

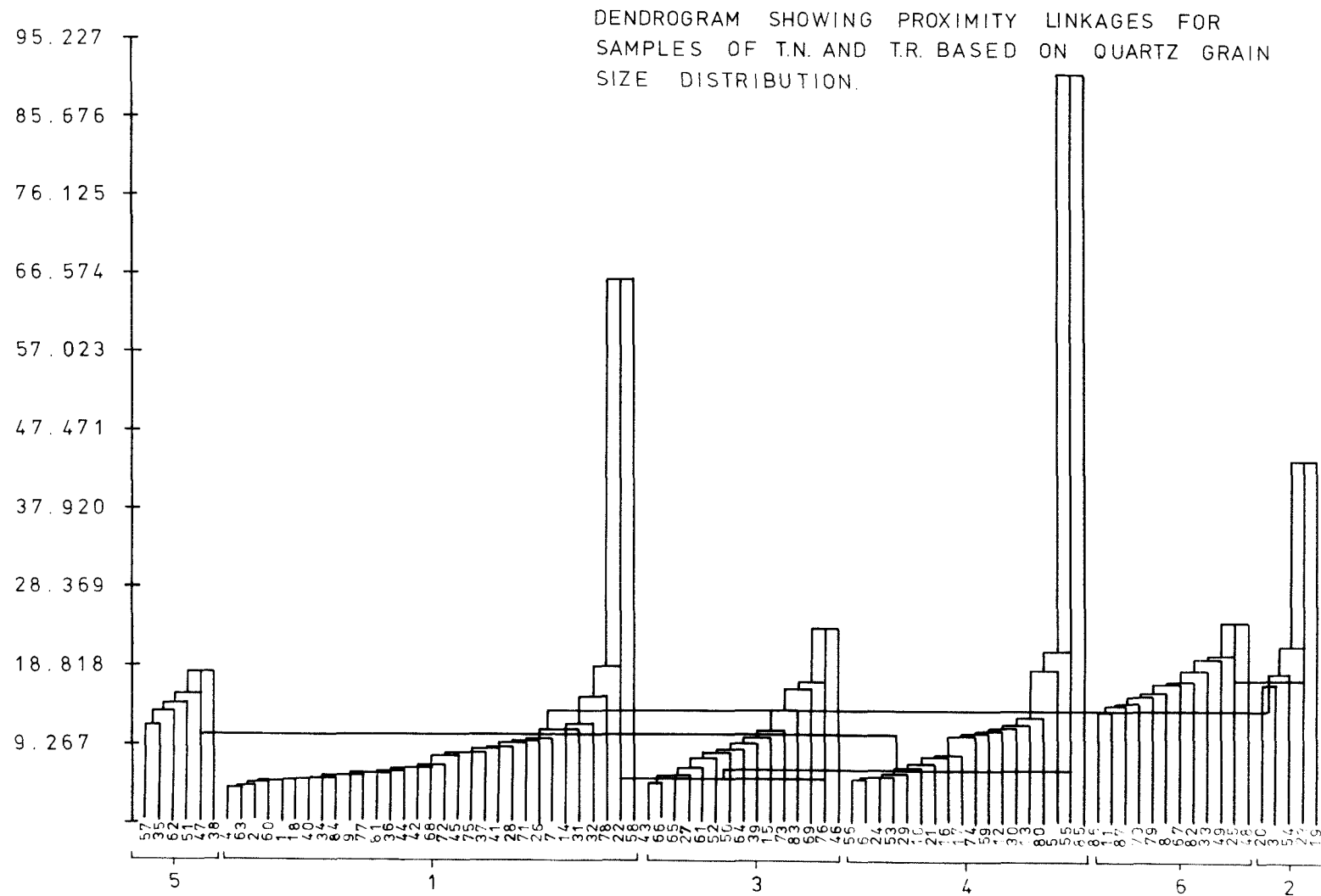


Figure 72.

Figure 73. Gallo-Belgic imports: cluster analysis.

the available data (itself a matrix with the samples as rows and the class intervals as columns). By using the sub-routine hierarchy, it is possible to create a dendrogram which shows the successive fusioning of most similar clusters. The fusion method selected was that proposed by Ward which combined these two clusters whose fusion yields the least increase in the error sum of squares, which is defined as the sum of the distances from each individual to the centroid of its parent cluster (Wishart op.cit.).

Results

Eighty-seven samples of T.N. and T.R. representing a range of different forms and including both stamped and unstamped examples were analysed using the computer programme described above. Plates VII to XII illustrate the range of fabrics encountered whilst Figs. 72 and 73 show the dendrogram and cluster diagram resulting from this analysis. As can be seen from these Figures six clusters were initially identified but the intervals between each of these clusters in terms of the density values is very fine. The greatest difference is between clusters 2 and 6 and those of 3,5,1 and 4 which suggests that perhaps only two groups can be regarded as useful archaeologically. The dendrogram illustrates several important points. Firstly it is clear that there is no distinction in terms of fabric between T.N. and T.R. and all the clusters contain an admixture of both types. A second point to emerge is that vessels of similar form and size do not necessarily group together. The clusters singled out cannot be assumed to represent single production sources as it was not possible at the outset of the research

to assess the output variability from one workshop since none have been excavated using modern techniques. However, if the assumption that the observed variability in output from a given production source is less than the variability displayed in the total output of similar products from different sources, it could be suggested that the two groups identified here may represent at least two production sources or areas.

Group 1 (Clusters 2 and 6)

Group 1, clusters 2 and 6 on Fig.73, is interesting in that it shows a high proportion of T.R. and includes three examples of the potter Attissus under two different die types. A more detailed look at the die forms of the other stamped examples within this group show a certain similarity in terms of letter shape, spacing and legibility, see for example, Attissus, Acutus, Dann, Durotix and Illos in Appendix 4 and Plates IV and VI. In all cases the dies are well cut and the name placed within a bordered rectangular box. In Britain the products of Attissus are amongst the best known Gallo-Belgic vessels of the Augustan period and examples have been found at Fishbourne, Sussex (Cunliffe 1971, Fig. 80.1), Oare, Wiltshire (Rigby 1975), Colchester, Essex (Hawkes and Hull 1947, pl. XLV, 41-43) and Skeleton Green, Hertfordshire (Partridge 1981, Fig. 76.4). The vessel range includes platters of Cam. type 3, 5, 7 and 8 and cups, Cam. type 56.

The spatial distribution of Attissus stamps shows a concentration of finds in Reims, north-east France which includes

a collection of 30 stamped sherds found in 1918 near to a group of kilns and in association with a large number of wasters (Frézouls 1971, 295). A series of excavations carried out since 1968 and still continuing in the St. Remi district of Reims have produced further evidence of large scale pottery production, including a kiln containing T.R. platters stamped with the name Arantedus (R. Neiss pers. comm.). Subsequent to the initial analysis, four samples of T.R. were provided by the St. Remi museum for thin sectioning. Three of these were from platters; R 857 which is typical macroscopically of both Arantedus and Attissus wares with an orange-red self coloured fabric and polished interior surface (T.R.2), R 858 a similar self-coloured fabric with an internal red polished slip (T.R.1^c), and R 859 with a buff to pinkish sandy fabric and a dark red internal slip (T.R.1A). The fourth, R 860, was from a large ovoid beaker, and is typical of T.R.3 fabrics, with a dark orange paste and fumed exterior surface commonly occurring as either girth or butt beakers. The Reims beakers, however, are not strictly butt beakers in the Cam. 112 style and are decorated both with zones of narrow-wheel, vertical line rouletting producing a cubed effect and with incised lattice patterns.

Sections R 857 and 858 (Plate VII) proved to be identical with the examples occurring in Group 1 in terms of quartz grain size, sorting and shape. On the basis of this analysis it is possible to suggest that at least six T.R. producers were based at the workshops at Reims together with two T.N. potters: Aucilio and Viriodacus. Although T.N. has been found in quite large quantities at Reims, it is by no means

as prolific as the T.R. and has yet to be found associated with an actual kiln. On the other hand M. Neiss has pointed out that only a very small sample of the total area considered to be covered by the potteries and other 'extra-mural' industrial activities has been excavated to date (Neiss pers. comm.). By combining the results of fabric analysis with the incidence of potter's stamps relating specifically to the analysed examples, a provisional distribution map can be compiled for products emanating from Reims (see Fig.74). Similarities in die type would suggest that further potters could be added to this group, in particular Smertucos, Cariivir, Dacovir, Abalus and Vritues/Cincos although fabric samples belonging to these have yet to be analysed to test this.

Group 2 (Clusters 1,3,4 and 5)

This group is the larger of the two and includes products from a number of potters, several of which occur more than once, as for example Julio (R 637, 439, 401, 717, 718 and 444), Medi (R 719, 447 and 753) and Assino (R 442, 706). Amongst the range of potters falling into this group are some which have been identified in association with two production sites: Sept Saulx, Marne and Vertault, Côte d'Or. The identification of the latter as a kiln site is based on the excavation of a large deposit of ceramic material much of which was burnt or deformed by intense heat (Lorimy 1923). The fact that vessels in group 1 are associated with both these sites creates problems if the latter is indeed a production site since both are geographically located some distance from one another. Furthermore, the sites are sited on

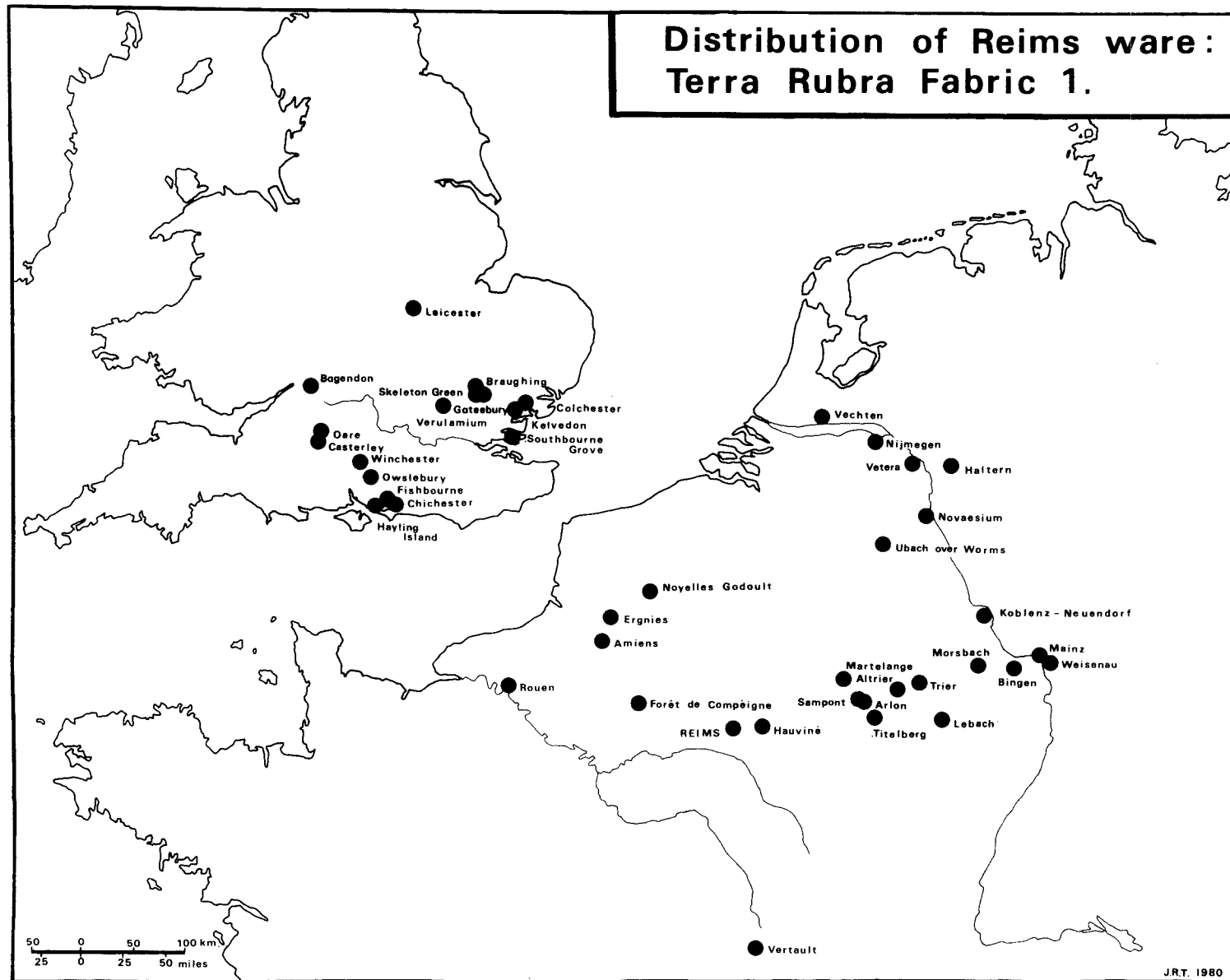


Figure 74.

different geological outcrops, Sept Saulx on cretaceous deposits, Vertault on Jurassic which should according to the assumptions made appertaining to the method used have been discriminated from one another. It is possible that the potters at both centres used alluvial deposits with a similar geochemical and environmental history which cannot be discriminated at the microscopic level. Alternatively Vertault may not have been a production site, but functioned as a redistribution centre, although if so, it is the only example where wares are moving south from the focus of production. This will be discussed further in chapter 8.

The vessels in cluster 4 initially seem to be particularly well grouped suggesting that this collection of wares could be seen as separate from group 2. However, the presence of potters with products in both suggests that again the variation simply reflects variation in the products of one region. If all the wares sampled ^{are} from a single production area, i.e. from a number of small workshops located along a river valley such as that of the river Vesle the question is raised as to whether the products need to be discriminated at all and that the whole assemblage should be treated as one homogeneous group to be distinguished from other contemporary wares. This suggestion is reinforced by the apparent absence of samples from Metz and the Trier district to the east. The geology around Trier might be expected to be particularly diagnostic petrologically due to the presence of the volcanic intrusions of the Hunsrück to the south and the Devonian Old Red Sandstone to the north. All the vessels

examined at Trier museum, reputed to have been produced locally, were typologically similar to the products of the Marne industry but differed in fabric. This was particularly noticeable in the marked presence of white mica and iron in the clay, visible macroscopically. The fabrics were also generally denser, with a coarser texture and tended to display a slightly clumsier finish. A high proportion of the potter's stamps on the Trier vessels are senseless or illegible, whilst those with recognisable names like Atiasus, Cavra, Datveio, Iantasio and Moltus identified by Koethe as Trierer potters do not seem to be represented amongst the wares found in Britain (Koethe, 1938). The T.R. fabrics at Trier are generally deep orange in colour with a polished interior surface and a matt exterior which is prone to flaking. Cups of Cam. form 56 and platters of Cam. form 8 dominate the range of forms.

(iv) Vessel case study : Camulodunum form 16 platters

Having considered a wide range of different vessel types in both T.N. and T.R. it was decided to concentrate on one specific form using the same programme of analysis. The vessel chosen for this was the platter Cam. 16 (Hawkes and Hull 1947,202). Cam. type 16 platters are among the most common forms of T.N. found in Britain, and are often found in association with Cam. 58 flanged cups with which they are considered to have formed a 'set' (Rigby 1977,38). The platters are standardised in shape and size and are characterised by curved walls, a concave base and a footring which becomes increasingly functionless to eventually disappear altogether in some later examples. Some platters bear

stamps (cf. Cotton and Gathercole 1958, Fig. 19.1; Rigby 1975a, Fig. 10.10), but the majority are unmarked. The main period of introduction in Britain seems to have been between A.D. 40-70, thus making it one of the later forms to be imported. It is frequently found at sites with military connections although in the present state of knowledge it is hard to be sure about the contexts of examples from composite sites, particularly in southern England. It is interesting however, that many examples have been found beyond the putative Fosse-Way frontier and the majority of these are from exclusively military contexts (see Fig. 75 for distribution).

The platters occur in several different fabrics and can be divided into a number of different groups visually on the basis of colour, finish and texture. One of the more distinctive varieties for example, has a dark blue-grey highly polished finish with a light grey, very hard, compact fabric. A second type is characterised by a fine white fabric with a metallic grey polished interior surface. Two contrasting fabrics are shown in Plate X, from Winnall Down, Hampshire, potentially a civilian site, and Chester, a military site. The aim of this analysis therefore, was to test for any correlation between fabric and the nature of the context in which the particular example was found, e.g. military versus civilian. This is of some importance since it has been suggested that certain workshops may have been working exclusively to fulfill military requirements while others may have been supplying the domestic market.

Thin-sections were prepared from all the available samples

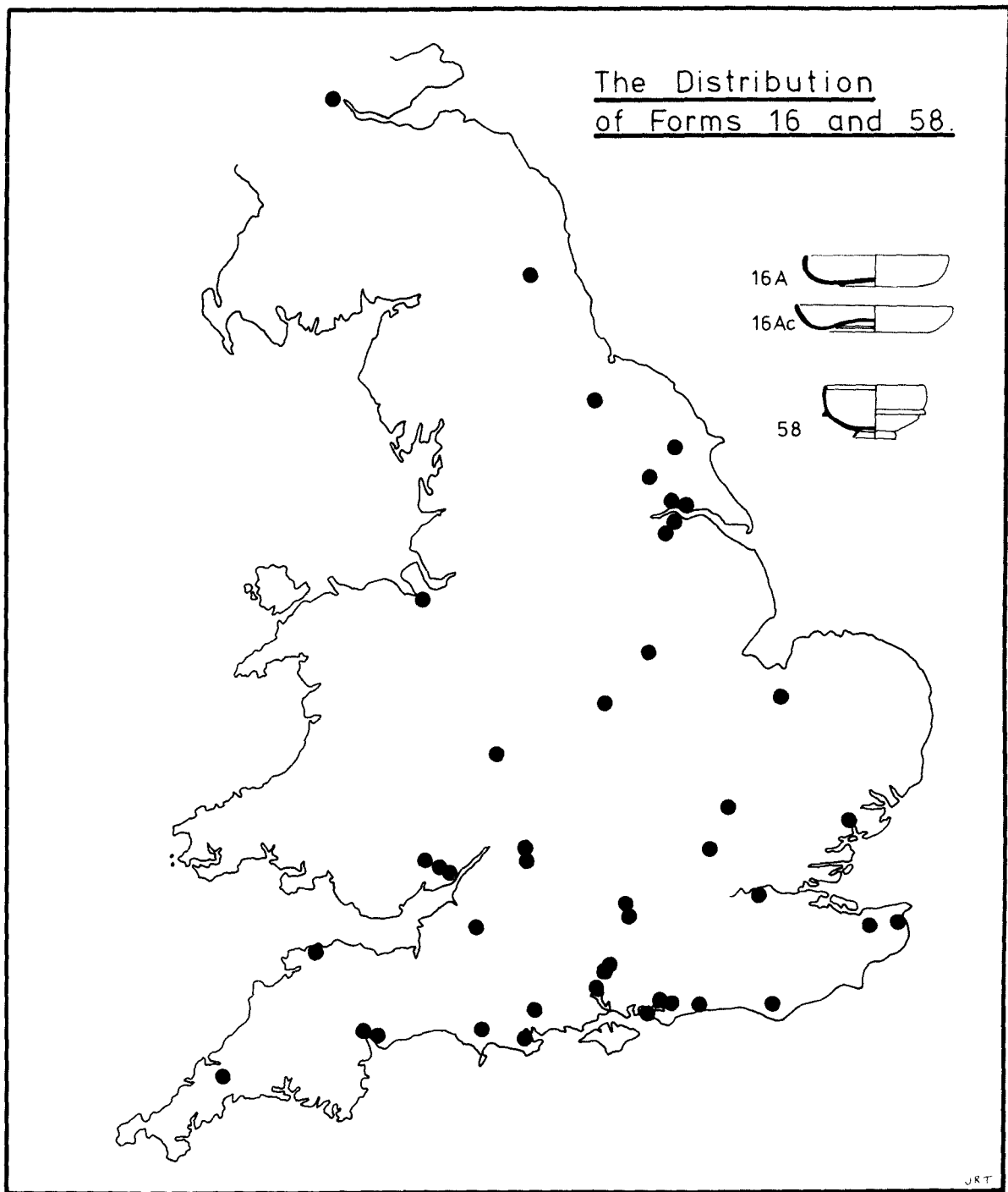


Figure 75.

and in the absence of mineralogical variability grain size analysis was undertaken using the programme discussed above. The resulting dendrogram is shown on Fig.76 and shows the presence of at least two, possibly three distinct groups which in fact cross cut the macroscopically determined fabric classifications. Furthermore, there is no apparent correlation between fabric group and find context. In several cases where more than one platter was sampled from a site, examples occur in both groups, for example Winchester and Cirencester. At present it is not clear how these two or three groups should be seen. On the basis of the results obtained in the initial analysis using both T.N. and T.R. samples, it would be unwise to state categorically that two or three different sources are involved, but the fact that the difference in density values linking members of each cluster is so different from the density value which links the two main clusters makes it likely that this is so.

Two production sites are known to have been producing this form of platter: the Louis Linzstrasse kiln 3 at Trier (Amand 1959,302) and Courmelois, in the Marne, north east France (Fromols 1938,50). A stamped platter found during the 1951-54 excavations at Clausentum is identical to one of the die forms found at the Courmelois kiln,(see Fig.28e and Cotton and Gathercole 1958, Fig.19.1). A single kiln sample from Courmelois was analysed and added to the programme, (see pl.XII) and the sherd fell within the samples of the second cluster as defined in Fig.76. It would however be unwise to draw any conclusions from this on the basis of a single sample.

TERRA NIGRA PLATTERS
CAM. 16

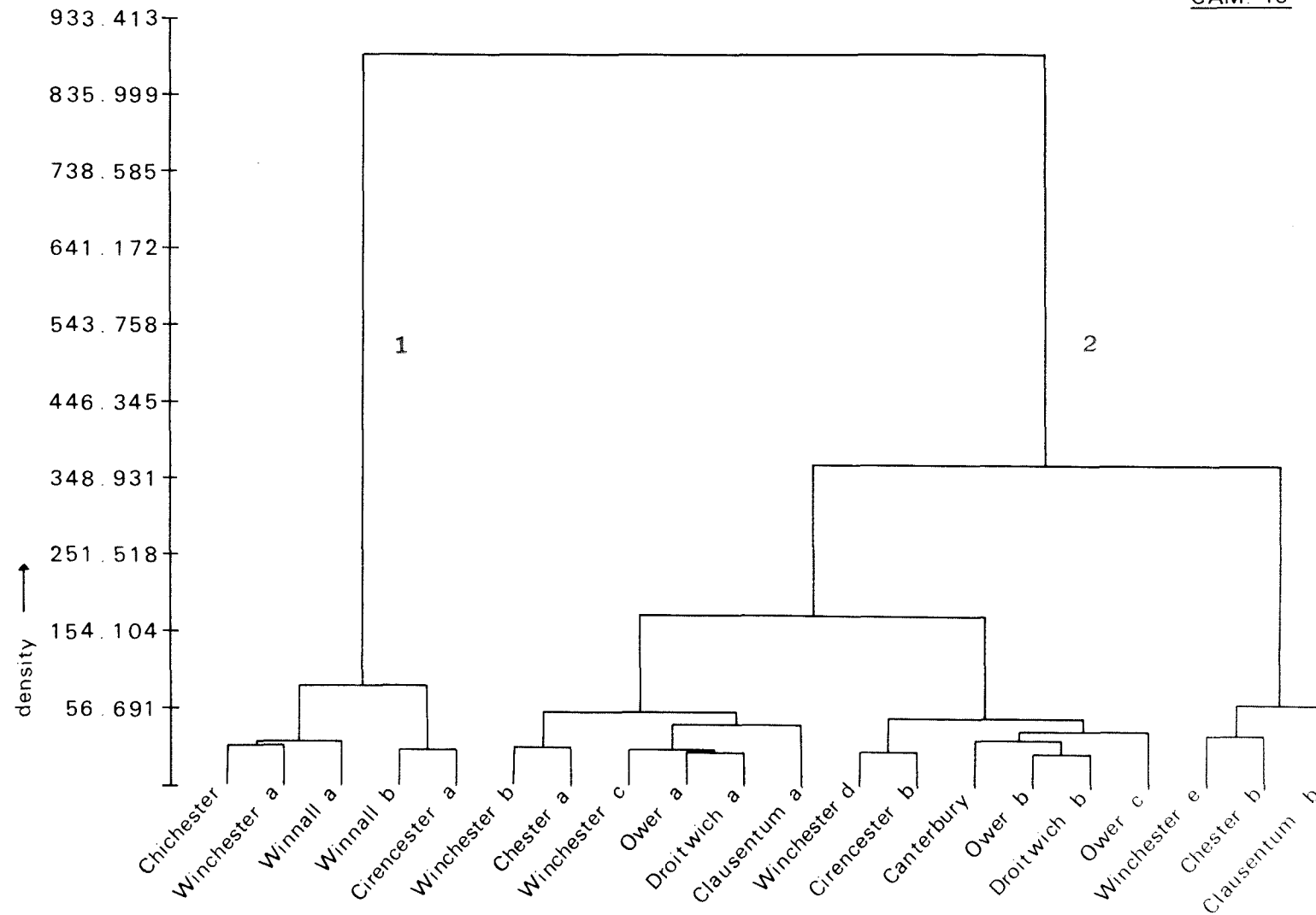
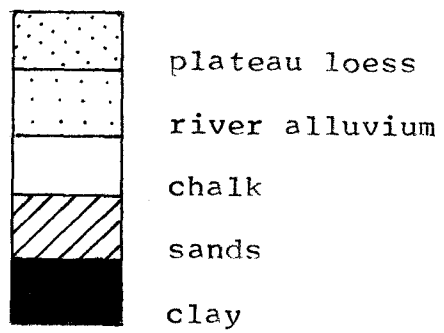


Figure 76. Cluster analysis.

(v) Sources of Clay

The identification of at least one major fine ware production centre at Reims and knowledge of several other workshops along the valley of the river Vesle, south of Reims, allows some speculation as regards the possible sources of clay available to the potters of the region. A geological map of the Reims district, Fig.77, shows that the majority of the pottery sites are sited on alluvial deposits. The river Vesle cuts a course through solid chalk belonging to the Cretaceous period and the nearest clay beds, outcrop at the base of an escarpment running parallel to the river to the south-west. At its nearest point to the river, this outcrop is still 7-8 km. from the potteries and in many cases further, besides being on the opposite bank. It has been suggested that the potters obtained their raw materials not from this outcrop but from beds of a very fictile clay deposited by the river itself (Fromols 1938,49). If this is the case, the clays are likely to be characterised by a fine texture and a high lime content. The presence of lime in the clay may be important since it provides additional properties, amongst which is the reduction of pore size of the vessel walls thus making them less porous. Vessels made with calcareous clays are also more compact, harder and sonorous when compared with vessels of a non-calcareous clay fired at the same temperature (Picon and Vertet 1970). There are, however, additional technical problems when using calcareous clays since they require careful preparation in order to disperse the lime. Large grains likely to remain as free chalk after firing need to be removed otherwise there is a high

Key to Figure 77.



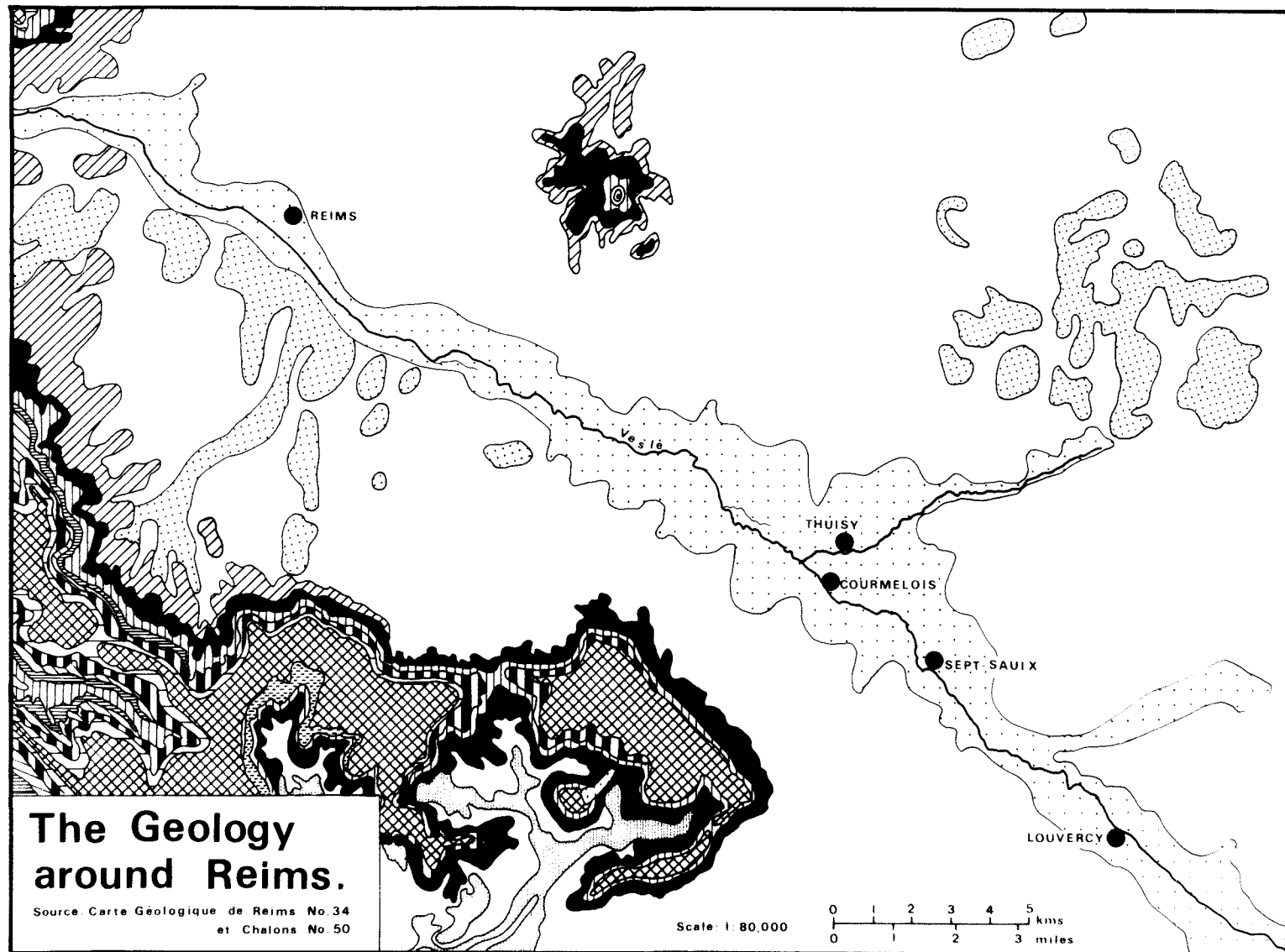


Figure 77.

risk of swelling or blistering. Finally the firing temperature has to be carefully controlled since the interval between the temperature necessary to combine the chalk with the other clay minerals and that at which the pieces begin to deform is critical (Picon and Vertet 1970,211). Another consequence resulting from the use of calcareous clays in a reducing atmosphere is the formation of certain compounds among the products from the reaction of the calcium with other clay constituents. These compounds have a low resistance to damp ground conditions and as a result tend to disintegrate causing the vessel walls to flake. Many authors have attributed this phenomenon to poor firing whereas it is in fact due to the poor preservation of the fabric under certain environmental conditions. The compounds do not usually form in oxidised wares fired at the same temperatures (Picon and Vertet 1970,210). A tendency to flake is common among many Gallo-Belgic products and is typical, for example of the T.N. wares produced by Benio and Tornus. Picon argues that without a sophisticated kiln technology it would be impossible to produce wares from calcareous clays (Picon and Vertet 1970). This has further important implications for the origin of the Gallo-Belgic potters and will be discussed further in chapter 9.

7.4 Imitation Gallo-Belgic Wares

The prestige and display value of the fine ware vessels, together with their specialist production made them particularly susceptible to replication (Clarke 1976,463). The imitation of both the form and style of Gallo-Belgic wares,

by continental potters, such as those at Howardries (Amand 1971) and numerous British potters, is evident throughout the 1st century A.D. By the end of the 1st century, however, the forms become less recognisable amid the general development of standard Roman pottery types.

The great variety of forms appearing in each region during the 1st century and the admixture of Roman and 'Belgic' techniques makes it difficult to assess how great the influence of the imported forms was and how much was due to indigeneous developments to an already extant production. As a result a complex and rather meaningless terminology such as "developed belgic", "sub-belgic" and even "belgicised" appears in reports to describe both indigeneous and copied products.

When considering the numerous native copies of Gallo-Belgic products which appear in the 1st century A.D. on a wide range of sites, several questions present themselves, not least of which is who were the potters? Were they immigrants versed in Roman techniques of production? Were they employed directly by the army or subcontracted as individual immigrant potters? Or even existing civilian potters with Gallic connections? Did the immigrant potters work alongside the native potters catering for the military market rather than the civilian one?

Some supporting evidence for immigrant potters working alongside native potters is derived from the recently excavated sites at Rushden, Northamptonshire and Longthorpe, Huntingdonshire. The military fortress at Longthorpe was

occupied from c. A.D. 44-48 until c. A.D. 62 and possessed within its complex five pottery kilns producing fine ware imitations of flagons, beakers and platters (Frere and St. Joseph 1974). Nearby at Rushden a number of civilian potters were also working around the conquest period producing decorated vessels of late 'Belgic' type. The kilns however, were similar in construction to those excavated in the fort complex (Dannell and Wild 1974), contrasting with the traditional types found elsewhere in the Nene valley. The vessel types are native but the technology is Roman. At Oare, Wiltshire (Swan 1975), a similar tradition is represented with two distinct fabrics, one a Roman wheel-made, the other a hand or wheel finished late Iron Age type, both of which were used to make an identical range of forms. One explanation for this may lie in the fact that some of the more enterprising local potters saw a source of entrepreneurial profit by supplying the military at this specific point in time, hence the apparent proliferation of small kilns in the 1st century. In certain areas it has been suggested that the army relied upon local pottery. At Exeter, Waddon Hill, Devon and Hod Hill, Dorset, 70-80% of the pottery was supplied from sources which had operated before the conquest and in the same range of forms (Fulford 1977).

A brief survey shows that most areas in Britain with access to imported wares, both Gallo-Belgic, Arretine and samian, show some native response reflected in local products, in particular Kent, Sussex, Hampshire, Essex and the Midlands as far west as Gloucester and Warwickshire and north as far as Lincolnshire and Leicestershire. A similar response to

fine wares can be seen in northern France, Belgium and perhaps Germany, where potters also imitated the new forms in coarser fabrics. It is unlikely that these were exported any great distance but instead served a predominantly local market. Imitation wares can be divided into two groups, firstly cups and platters and secondly butt beakers.

(i) Cups and platters

Platter imitations occur more commonly than cups and follow a wider range of types, in particular imitating Cam. forms 1/2, 7/8, 12-14 and 16. In some cases the footrings and mouldings are copied quite closely whilst in others these remain only as slight vestiges or disappear altogether. Cup forms when they do occur tend to imitate Cam. 56. Prior to the introduction of fine wares these forms did not occur amongst native assemblages; their presence therefore must post-date the earliest acceptable date for the importation of such wares.

Amongst the imitation cups and platters studied during the course of this work, several regional variations were noted which reflected both local geology and prevailing pottery traditions.

(ii) Butt beakers

The butt beaker occurs in Britain in four basic fabric types, three of which are considered to be home produced; the fourth an import. The three British categories include one in a 'Belgic' type fabric, often undecorated apart from horizontal cordons, a 'romanised' type in a lighter wheel-made fabric and the white ware variety typified by the Cam.

form 113 (Hawkes and Hull 1947,238). The first two types (like the imitation cups and platters) tend to show an apparently fairly localised distribution, reflecting local geology and potting traditions. In contrast the white wares are found over most of southern England and as far north as the Humber estuary. Due to the widespread and varied occurrence of 'imitation' Gallo-Belgic wares in Britain the following discussion relates to regional potting zones. The regions chosen broadly reflect separate potting traditions albeit with many minor local variations of more widespread practices. The same general problems encountered in the fabric discrimination of vessels produced from sedimentary clay sources also applies to this material. To be totally comprehensive a much more systematic and detailed treatment of pottery production from the point of view of technology, pre-existing regional traditions and imitation would be required but this is outside the scope of the present research. The following is therefore, a very provisional analysis of what would probably prove to be a very complicated subject. The regions selected for discussion below are: a) Kent, including the Thames estuary, b) Central Southern England, c) the Midlands, di) Wiltshire and Dorset, dii) Lincolnshire and diii) East Anglia.

Southern England:

a) Kent and the Thames Estuary

As shown on Fig.78 finds of imitation Gallo-Belgic wares, in this case cups, platters and butt beakers excluding the white-ware Cam. 113 type, are well represented in Kent and

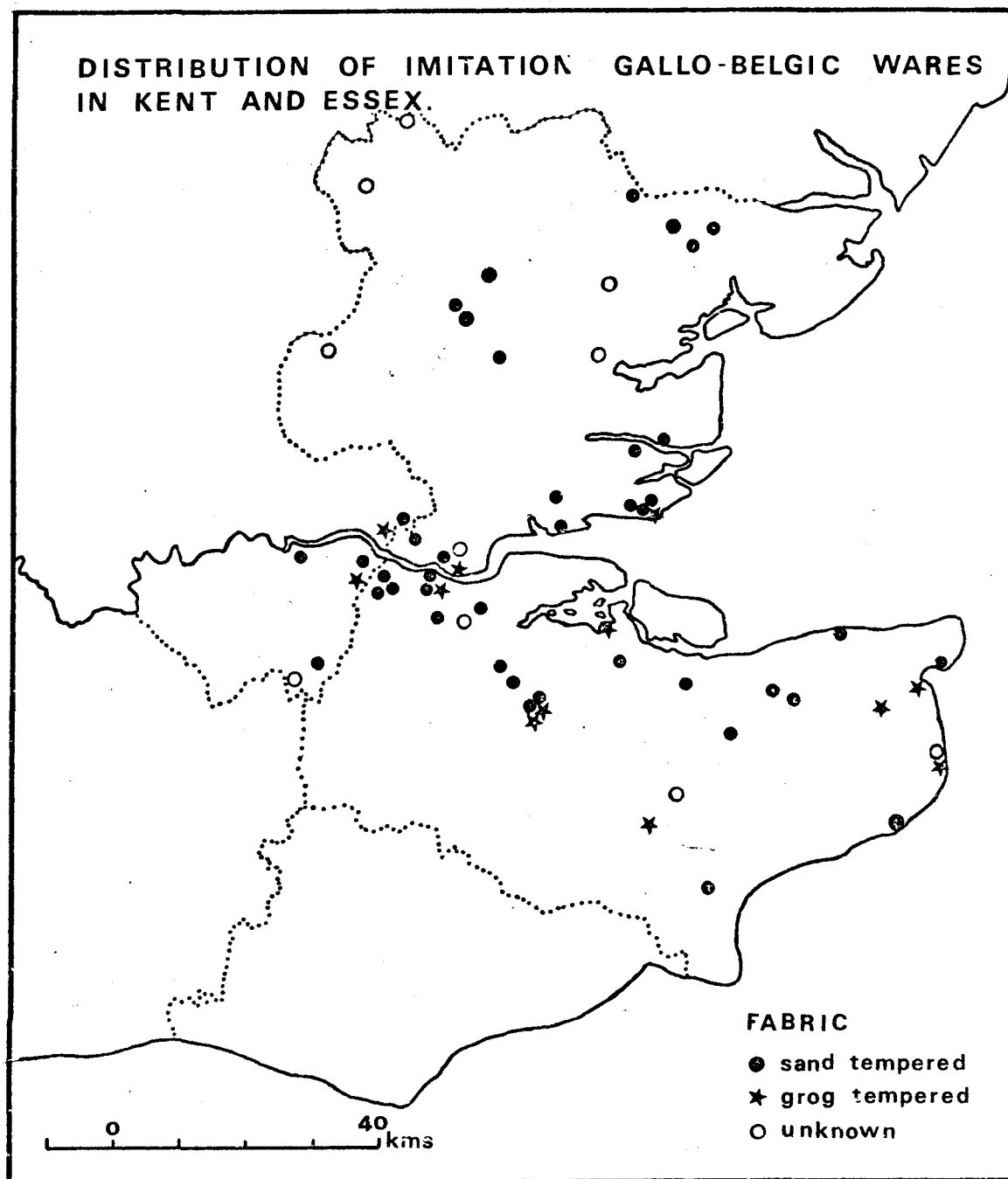


Figure 78.

Essex, with a marked concentration around the Thames estuary. The vessels occur in two basic fabric types: sand tempered and grog tempered. Examples of the latter are found scattered over north and east Kent with a few vessels along the north bank of the Thames, identical to those in Kent. Sandy wares occur in both 'belgic' and lighter 'romanised' fabrics and show a more dispersed distribution across Essex and north and east Kent. The western part of Kent, particularly along the east Sussex border appears to be devoid in examples of either fabric.

At least two 1st century pottery producing sites are known from this region; the 'Upchurch marshes' complex about which little is known, and a small centre at Eccles, near Aylesford (Detsicas 1977). Production in the Upchurch marshes seems to have been underway by the second half of the 1st century A.D. (Hume 1954). The vessels are invariably produced in a grey reduced wares with a polished black lustrous surface. The core is characteristically light grey in colour with a dark grey centre and the fabric very fine in texture. Many of the wares show definite 'belgic' affinities in form, for example, carinated jars, beakers and bowls (Jackson 1962) with rouletted or incised decoration. Also present are flanged cups of Gallo-Belgic or more likely samian (Dragendorff form 24) inspiration. The kilns at Eccles seem to have been producing a number of platter forms imitating T.N. and T.R. (Detsicas 1977,20), of which Cam. 12-14 and 16 are best represented. The fabrics are romanised fine and sandy and the colour ranges from grey buff or pink sometimes with a red colour-coat. Neither of these kilns

account for many of the vessels represented on Fig.78, which are for the most part heavier with a denser paste and thicker walls. A high proportion of the butt beakers found in Kent are in heavy 'belgic' fabrics like many of the platters. White-ware types are not widely represented and only occur on four sites; Canterbury, Holborough, Hartlip and West Wickham. Apart from the high concentration of finds from Colchester where it is suggested the Cam. 113 was made (Hawkes and Hull 1947,238), Essex like Kent is not prolific with examples in a white fabric, a greater number of sites having 'belgic', 'roman' or imported types.

b) Central Southern England; Sussex, Hampshire and Surrey
(Figs.79 and 80)

Imitation forms are well represented in Hampshire and the Sussex coastal plain, but are scarce or absent in the far east of Sussex along the Kent border, in the northern half of West Sussex and over most of Surrey. Cups and platters are perhaps less prolific in East Sussex compared with the West and Hampshire and only occur on three sites; Garden Hill, Rancombe Hill, South Malling (one vessel only) and Newhaven. The majority of the finds occurring along the Sussex plain are from small Romano-British settlements or farmsteads occupied from the late 1st century; consequently many of the examples are in a sandy 'romanised' fabric as opposed to the majority of the Kent examples. The butt beaker shows a wider distribution across the area including East Sussex where it is represented on at least five sites. Three kiln complexes with production commencing in the second

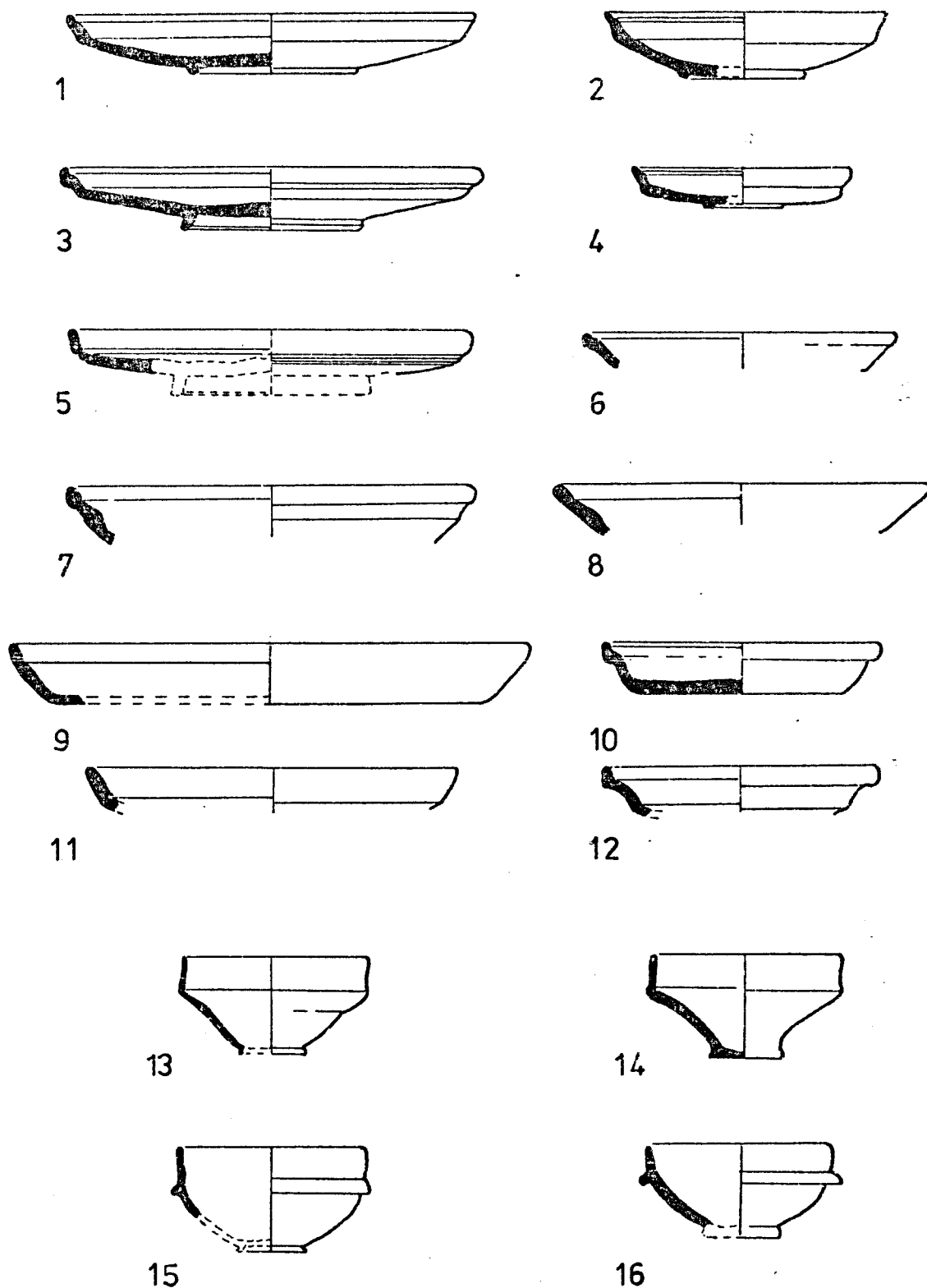


Figure 79.

Scale 1:4

Examples of imitation Gallo-Belgic wares from Hampshire and west Sussex.

1. Winnall Down (unpub. MARC 3, site R17).
- 2,4. Clausentum (unpub. Southampton museum).
- 3,5. Hurstbourne Tarrant (Hawkes and Dunning 1930, fig.32).
6. Winchester (unpub. Winchester Research Unit).
- 7,8. Chichester (Down 1978, fig.10.7.39,38).
- 9-11,13-16. Fishbourne (Cunliffe 1971, fig.84,14.2,16.2,15.1, fig.87,48.2,48.1,51.1,52.2).
12. Bury Hill (Hawkes 1940, fig.14.3).

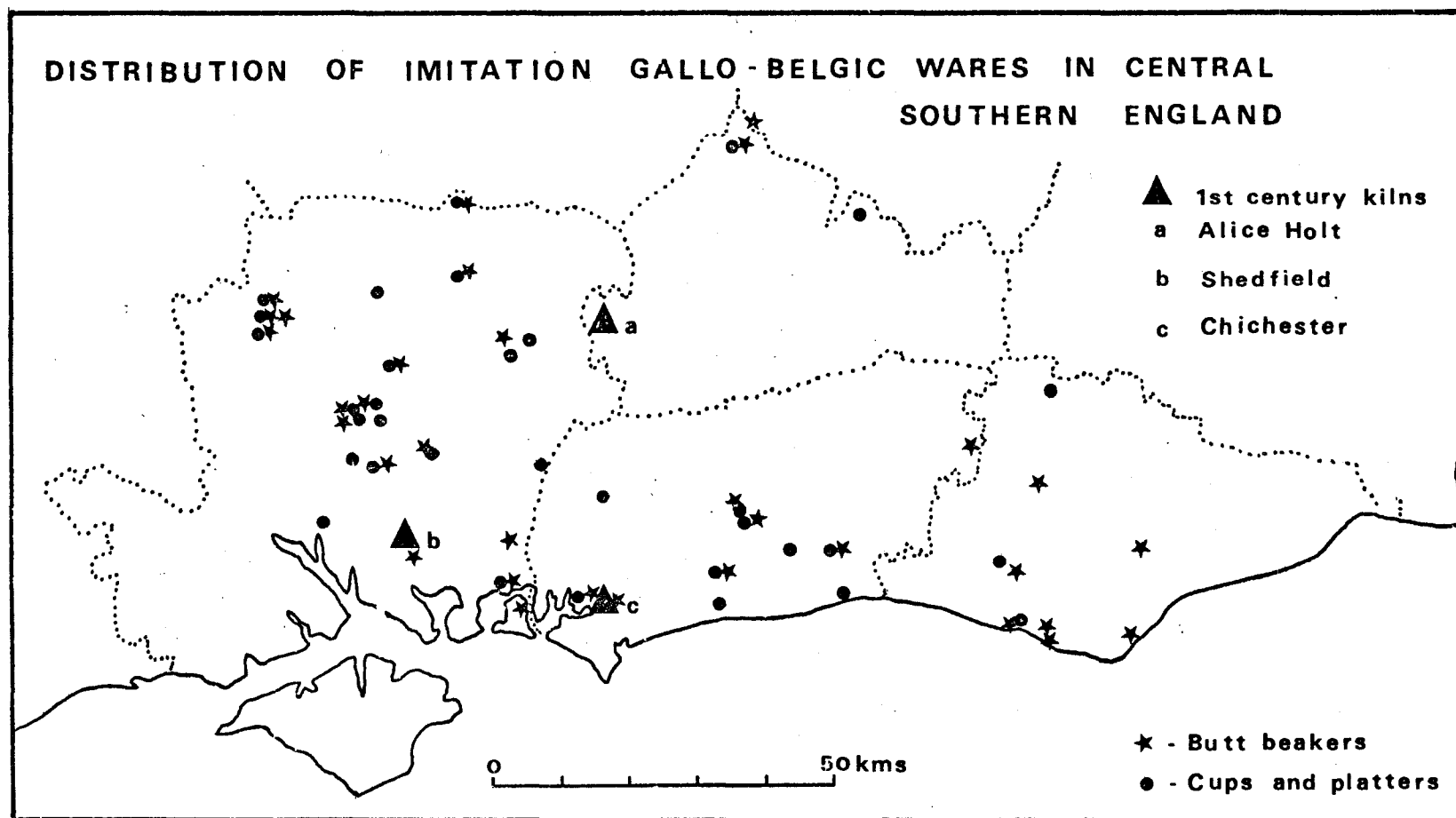
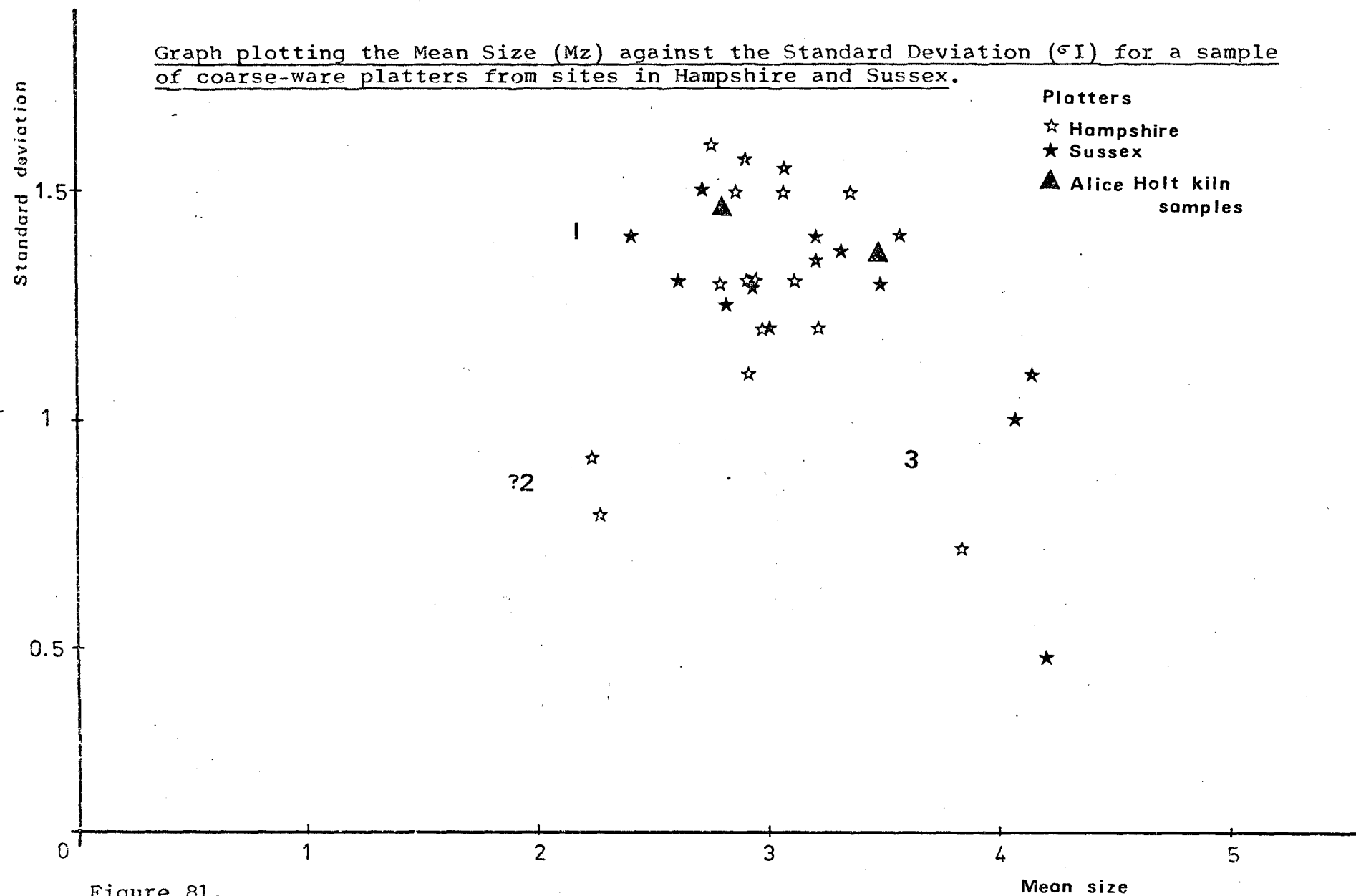


Figure 80.

half of the 1st century A.D. are known from the area at Alice Holt, Shedfield and Chichester. The Alice Holt kilns on the Surrey-Hampshire boundary near Farnham, appear to have been producing a limited number of platter and butt beakers in a grey sandy ware, sometimes with a polished black surface (Lyne and Jefferies 1979,25,31). The single kiln at Shedfield, Hampshire produced a variety of wares mostly derived from belgic prototypes but, in a hard grey 'romanised paste', with additional flint tempering in some of the larger vessels (Cunliffe 1961). Platters and butt beaker forms may have featured amongst the products but not to any great extent. The third kiln group at Chichester produced a variety of wares including butt beakers and platters (Down 1978,204).

Thin-sections were prepared from a selection of coarse ware imitation vessels from Hampshire and West Sussex in an attempt to establish fabric groups possibly indicative of different production centres within the region which may or may not include the kiln sites mentioned above. All the vessels were characterised by a sand tempered fabric (see for example Plates XIIIa,b and XIVa), and therefore petrographical rather than petrological techniques were resorted to. One hundred quartz grains were counted in each sample and the measurements used to calculate the mean size, standard deviation, skewness and kurtosis values as discussed on p. 244 above. The results are listed in Appendix 3f. In addition to the size analysis, the ratio of quartz to matrix was also calculated for each sample. Work by Hodder on Savernake ware established that the use of a graph plotting average



quartz grain size against the ratio of quartz to matrix was a useful method of distinguishing Saverlake wares from other contemporary wares (Hodder 1974). The method applied here however, did not prove to be a useful one and no discrete clusters were formed. As an alternative, the mean grain size was plotted against the standard deviation for each sample to enable samples to be visually compared. The resulting graphs, one for platters (Fig.81), the other for butt beakers (Fig.82) both show three clusters. In Fig.81 a high proportion of the platters grouped together in cluster 1 (Plates XIIIa and XIVa) which included two fabric samples from the Alice Holt kilns. Only a few butt beakers in Fig.82 fell into the same cluster although these did include an example from Winnall Down (Plate XIIIb), typologically identical to the Alice Holt products. The bulk of the butt beakers occur in cluster 3 (Plate XVa), including examples from the Chichester kilns. A few platters and beakers fell outside these two main clusters and these have been labelled cluster ?2 (see Plate XIIIa for an example of a cluster 2 fabric). The graphs are simply a reflection of the different quartz grain size range in the vessels sampled, the platters tending to be coarser than the beakers. It is not possible to state at present whether or not the three clusters shown on the two figures represent single production centres, or an agglomeration of several centres, but the present indications are that both Chichester and Alice Holt kiln products feature prominently in the distribution.

c) The Midlands (Fig.83)

Imitation cups, platters and butt beakers show a widespread

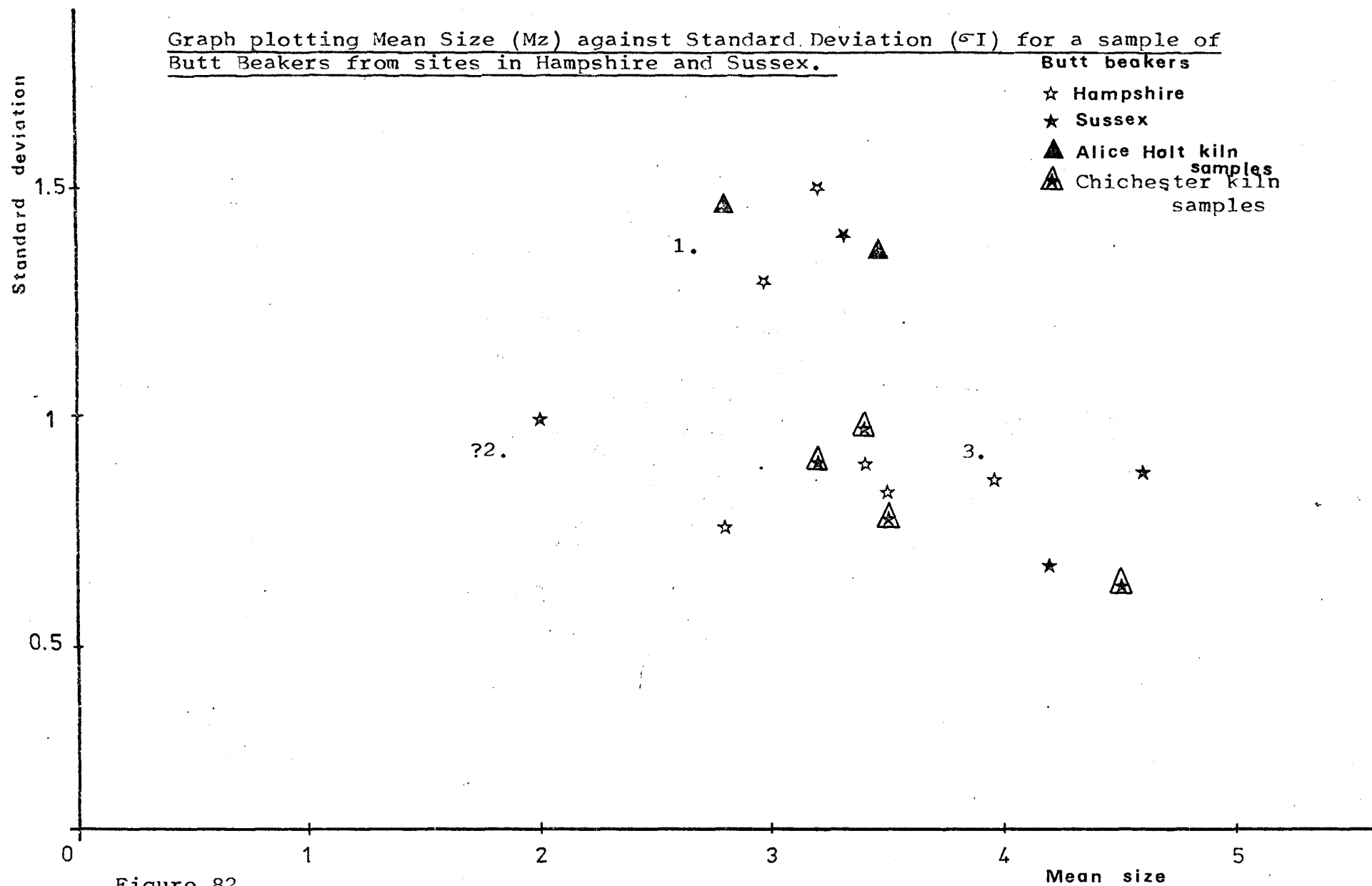


Figure 82.

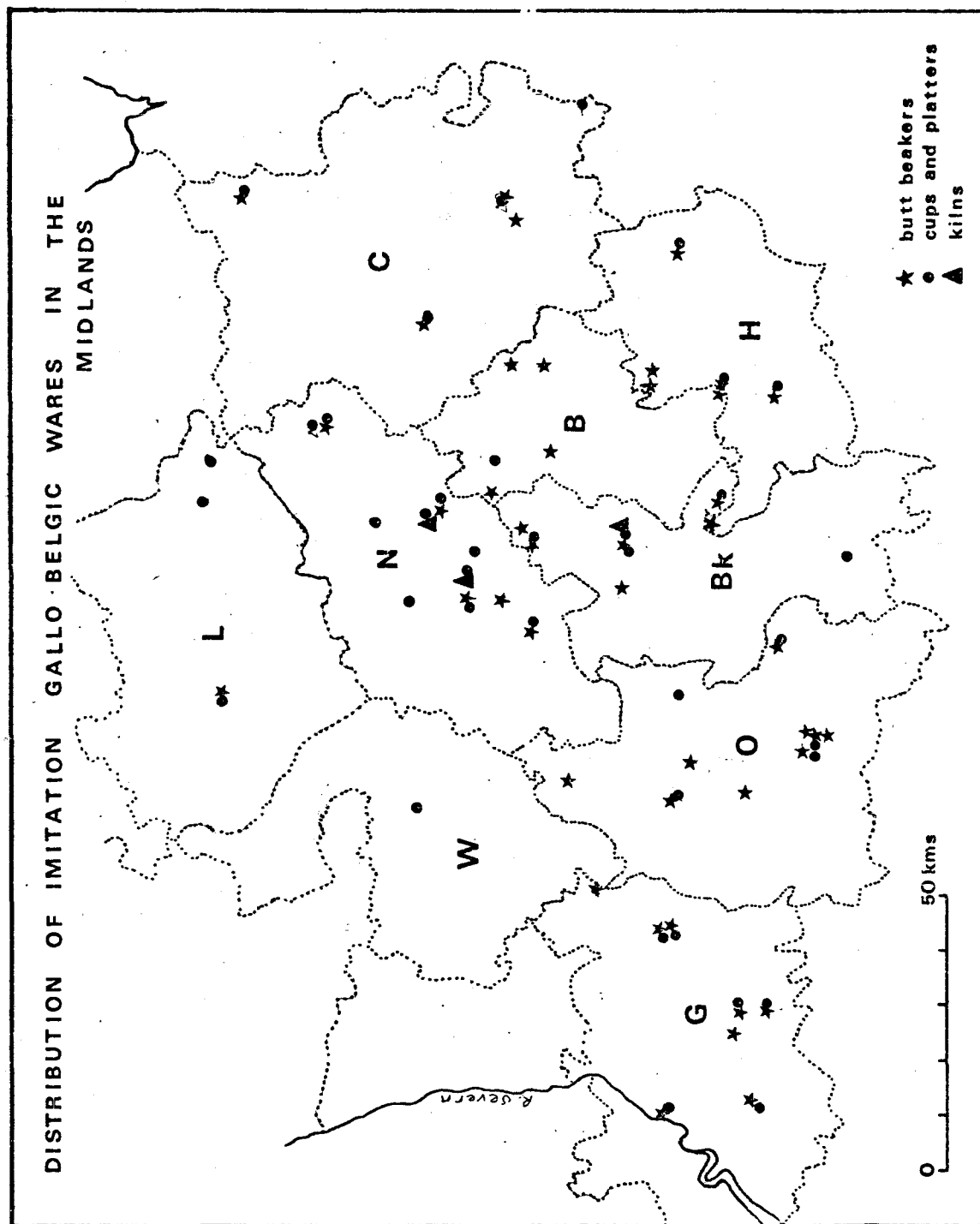


Figure 83.

Key to Figure 83.

L- Leicestershire, C- Cambridgeshire, N- Northamptonshire,
W- Warwickshire, G- Gloucestershire, O- Oxfordshire,
Bk- Berkshire, B- Buckinghamshire, H- Hertfordshire.

occurrence in the Midlands particularly in the area from Gloucestershire to Cambridgeshire. In contrast to the sandy wares in the south, these vessels occur in a range of fabrics including flint, sand⁵shell and limestone tempered types reflecting the differing geology of the region. The late 1st century saw a sudden proliferation of small kilns in this area particularly in the Nene valley and Oxfordshire region. A few of the Nene valley kilns, for example Weston Favell (Bunch and Corder 1954) and Southwick (Smith and Todd 1974) were producing amongst other wares, platters probably derived from Gallo-Belgic originals. A limited number of the Oxfordshire kilns were also producing a fine ware fired in reducing conditions creating a product analogous to T.N. The Oxfordshire dishes appear to owe their inspiration to samian prototypes, in particular Dragendorff 18 (Young's type 60) (Young 1975, 224, Fig. 83). Several examples have illiterate potter's stamps and a burnished or highly polished finish. The fabrics are very fine and usually dark grey in colour, with little or no visible inclusions. Microscopically the fabrics show a field of view dominated by the presence of fine grains of rounded to sub-angular quartz grains in an anisotropic groundmass (see Plate XIVb). In addition there are occasional fragments of chert and fairly frequent flecks of iron-ore. The processes of adoption for both forms and techniques in the Oxfordshire industry appear to be a repetition of those causing the emergence of the Gallo-Belgic industry itself. The reduced Oxfordshire fine wares, like their counterparts in T.N., did not enjoy a long lived popularity and were only produced in the late 1st and possibly early 2nd century A.D. (Young op.cit. 203).

d) Other Regions

A light scatter of imitation platter forms and more frequently butt beakers occur in other counties peripheral to those already discussed. These tend to peter out towards the north and west occurring only on the larger sites. Particular mention should be made of the Wiltshire-Dorset, Lincolnshire and East Anglian areas:

i) Wiltshire-Dorset

Stamped platters and butt beakers occur at several sites across Wiltshire, mostly on lower status sites and often in small numbers. One exception is the collection from Wanborough which includes several stamped wares both from the Oxfordshire region and more local sources (see Plate XIX for two examples of these stamps). Wanborough also had access to imported wares. The Dorset sites are with the exception of Gussage-all-Saints, in the far east of the county, located along the coast and around Dorchester. In all cases the sites have access to imported fine wares in the 1st century A.D.

ii) Lincolnshire

A sparse scatter of assemblages in which butt beakers predominate. Like the Dorset distribution, the wares tend to be concentrated at the larger sites receiving imported wares, for example Old Sleaford, Old Winteringham and Dragonby.

iii) East Anglia

Although not particularly well represented on the distribution map for imported wares, both Norfolk and to a lesser extent Suffolk have quite a few imitation forms. There are in addition two kilns known to have been producing platters,

West Stow, Suffolk (Rodwell 1978,270) and Brampton, Norfolk (Green 1977), both dating to the later 1st century A.D.

7.5 White Wares

The white wares can, on the basis of probable origin, be divided into two groups; one imported the other British. The imported wares mainly consist of flagons, for example Cam. 161 produced in Belgic Gaul and imported alongside the T.N. and T.R. fine wares, and beakers Cam. type 114. The beakers display a variety of decoration including applied herring bone, or barbotine dots, or are plain with a mica gilt slip, and sometimes with a red painted interior.

The second group of products which are considered to be of native origin include the classic butt beaker Cam. form 113. The British butt beakers show a number of distinct typological features which distinguish them from their continental counterparts in the Cam. form 112. These mainly manifest themselves in the shape of the rim, the slightly less ovoid body shape and the use of rouletted zones as the only form of decoration. The production of Cam. 113's in Britain has been ascribed to two main sources, Chichester and Colchester, with possibly a third at Verulamium. Only the Chichester examples have been found in direct association with a kiln, which dates to the Claudian period. The vessels are mostly thin-walled, with the Cam. 113 rim form and rouletting on the body. The fabric colour ranges from red to pale pink when oxidised and from dark grey to light grey when reduced, some examples having an additional white slip. Pure white

versions do not seem to feature amongst the kiln products although examples have been found in Chichester.

The white ware beaker is thought to have been produced at Colchester although examples have yet to be found in association with a kiln. The Sheepen excavations in the 1930's brought to light in the region of 3,000 vessels (Hawkes and Hull 1937,238). The incidence of a number of white ware beakers from Verulamium of slightly different form to the Colchester examples may indicate a further kiln site in this region. The differences are reflected in the rather more squat body shape, slightly less regular bevelled rim and the recurrent use of three zones of rouletted decoration compared to the two of the Colchester types (Hermon 1968).

Microscopically the Chichester and Colchester fabrics initially appear identical. The field of view under a petrological microscope is dominated by the presence of rounded to sub-angular quartz grains in an anisotropic matrix/ (see Plate XV) Occasional grains of microcrystalline silica (flint/chert), iron-ore and mica are present in all cases. Textural analysis was therefore carried out on 30 samples of 'white wares' from a number of British sites, including both flagons and beakers. Examples from the Chichester butt beakers were also included for comparative purposes. The data collected (see Appendix 3) was then used in a cluster analysis which produced the dendrogram shown in Fig.84. Two main clusters were formed but unfortunately there did not seem to be any clear-cut pattern in the vessels separated into these two groups. Several suggestions could be proposed to account

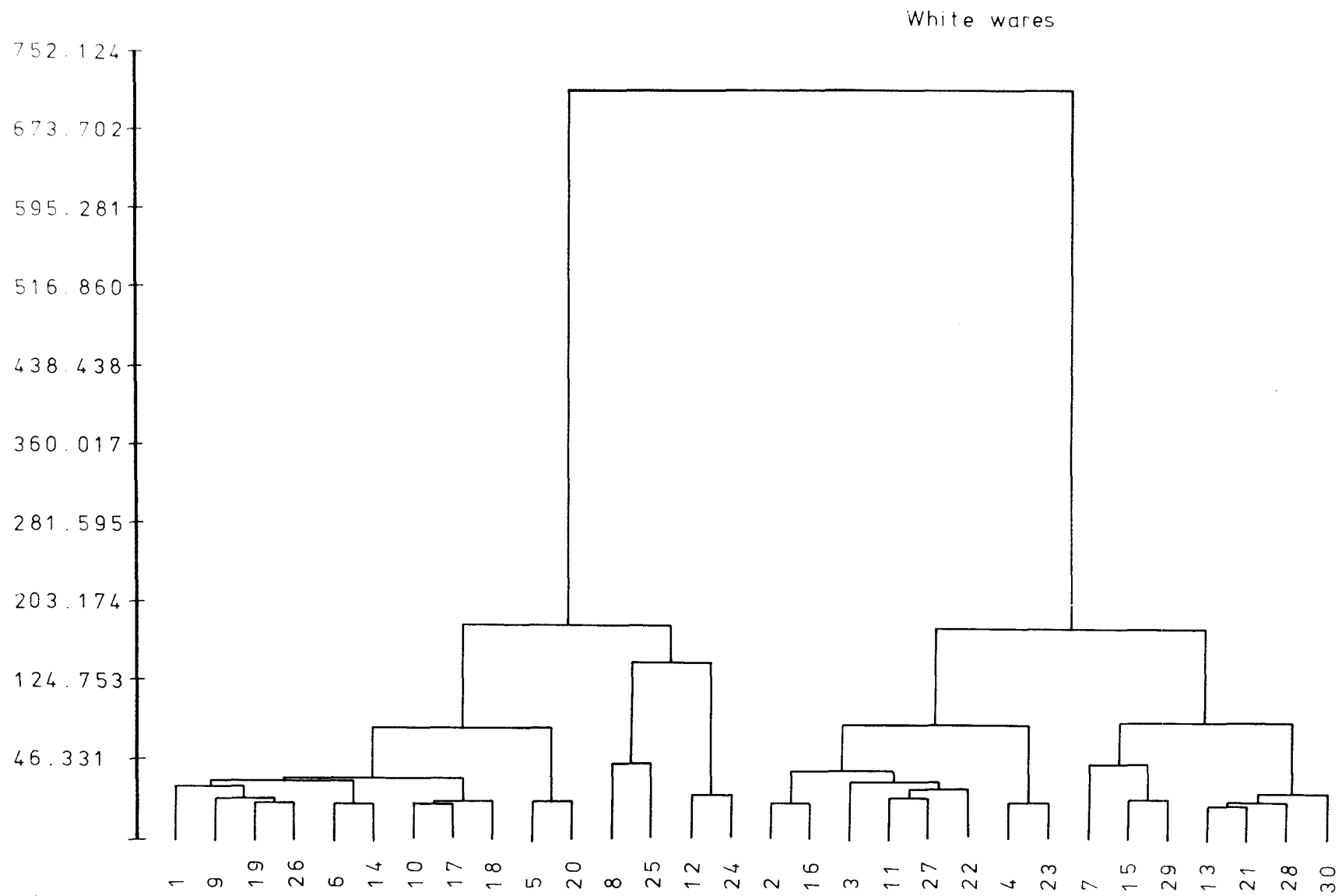


Figure 84. Cluster analysis.

for this: either the vessels sampled were from two as yet unidentified sources which is unlikely since samples 1, 25 and 26 were considered to be Chichester wares. Alternatively the clays used for the vessels may be from a similar geological deposit which cannot be discriminated geographically. The Chichester potters were probably exploiting the Reading beds outcropping in the Chichester Harbour area since deposits of this clay were found in puddling pits adjacent to the kilns (Down 1978,205). Reading beds clay also outcrop in the Colchester and Verulamium regions, and thus it is highly probable that the same clay beds were being exploited by potters, in these three regions. It is possible that the method being employed here to discriminate the data is not refined enough for the information required. A final possible cause for the two internally disparate clusters formed is that a chronological or technological difference is alluded to rather than a geographical one.

As an alternative approach the relative percentages of matrix to other inclusions, notably quartz, iron-ore, mica and micro-crystalline silica (flint/chert) were measured in a selected number of examples. Again there was no clear-cut difference that could be considered statistically significant, although there did seem to be a slightly higher percentage of iron in the Chichester vessels. This is perhaps predictable since the majority of the Chichester products are not pure white in colour.

It seems at present therefore that little headway can be made in the discrimination of the various white wares current

in the 1st century A.D. through the use of either petrographical or petrological techniques, and that further results may only be achieved through the use of chemical analysis.

7.6 Allied Fine Wares : Micaceous Wares

Among the class of wares classified as T.N. there are a number of vessels with a highly micaceous fabric generally referred to as 'micaceous T.N.'. The origin of these wares has never been discussed in English and their presence has only been touched upon in French^{literature} without being placed into a wider context (for example, Vertet 1961; Bemont 1972; Poncet 1974). The forms include platters of Cam. types 1 and 2 and straight sided dishes often with an out-turned rim (see Figs.21 and 58). The vessels are usually grey in colour as a result of reduced firing conditions. Oxidised examples are known, for example at Baldock, Hertfordshire (section R 825) and Canterbury, Kent (section R 754), but are less common. The two brown platters with a 'micaceous fabric' from the Welwyn Garden City burial ((see Fig.40), Stead 1967) may well belong to this group of wares. Examples of micaceous T.N. are of relatively rare occurrence in Britain and most of the known sherds have been discovered in recent excavations. Finds are mostly restricted to pre-conquest deposits although this cannot be clearly demonstrated in many cases. Sherds have been identified at the 'oppida' sites of Leicester (Blackfriars excavations, unpub.), Colchester (1970 excavations at Sheepen, Dunnett forthcoming) and Silchester (Fulford and Corney pers. comm.), and from 1st

century A.D. deposits of uncertain date at Canterbury and Bexley, Kent, and Ower, Dorset. A sherd from a dish has been recovered from a post-conquest context on the site of the legionary fortress at Lake farm, near Wimborne, Dorset (Darling pers. comm.).

Petrologically the fabric of these wares is very distinctive when compared with the normal T.N. since the field of view is not dominated by quartz grains but by elongate flecks of both black and white micas (see Plates XVI, XVII and XVIII). This, combined with the smaller quantities of various feldspars, phlogopite (brown mica commonly associated with metamorphic limestone), sanidine, augite and fragments of various metamorphic rock fragments would suggest that the clays used to produce these vessels were obtained from a region affected by metamorphic activity. Although the sections examined were broadly similar in fabric composition there were a number of minor differences between sherds in terms of relative amounts of different inclusions and in texture, as demonstrated by the examples in Plates XVI-XVIII. The presence of a large number of vessels of comparable form on sites in Central Gaul would suggest a possible origin somewhere in this region. In order to test the similarity in fabrics between the Central Gaulish and British wares a number of samples were obtained from sites in Gaul in particular, Roanne, Vichy, Nérès-les-Bains and Bègues in the Allier and from Châteaumeillant, Cher. Three of these sites, namely Roanne, Nérès-les-Bains and Bègues are known to be pottery producing centres from the early 1st century A.D., together with several other centres in the area including Vichy,

Toulons-sur-Allier, St. Bonnet and Thiel-sur-Acolin for the production of white ware figurines (Fontes et al. 1978) and St. Rémy-en-Rollat for Roman glazed wares. Typologically the products found in the Roanne/St. Rémy-en-Rollat region compare best with vessels found in Britain, and like their counterparts in the north Gaulish T.N., several of the platters have potter's stamps and rouletted decoration. The sections from the French wares showed a similar range of variation in mineral composition to those examined from Britain and only the Roanne example was particularly distinctive by virtue of having a very high frequency of biotite mica, (Plate XVIa). Several of the British imports compared favourably with the Roanne sherd, in particular R 594 and R 582 from Jewry Wall, Leicester, R 773 and R 602 from Canterbury, R 728 from Colchester and R 825 from Baldock. The sherds from Châteaumeillant did not compare with any of the other samples and it is possible that the wares from this site belong to a slightly different tradition to those in the Allier region. The Allier has a long history of potting activity, not just confined to these micaceous T.N. vessels which can only have played a minor role. Better known are the white-ware figurines and glazed wares already mentioned, the early samian and colour coated wares from Lezoux and possibly Pompeian Red wares (Peacock 1977, fabric 3) which are suggestive also of a Central French origin.

CHAPTER EIGHT

THE DISTRIBUTION OF GALLO-BELGIC WARES AND THE SOCIAL,
POLITICAL AND ECONOMIC ORGANISATION OF THE
1ST CENTURIES B.C.-A.D.

'... there is a very great amount of labour employed not in bringing the product into existence but in rendering it, when in existence accessible to those for whose use it is intended'. (Mill J.S. 1848)

8.1 Introduction

The following discussion is concerned with some of the ways in which the Gallo-Belgic industry fitted into the more general context of the prevailing cultural system of the period between the mid 1st century B.C. and the later 1st century A.D. In addition a review is presented of the possible factors which contributed to the formation of the observable distribution of Gallo-Belgic products as preserved to the present day. These factors are considered in terms of the political and economic organisation of the period. The political system is seen as being concerned with those processes which relate to the functioning of the society and includes within it foreign relations, defence, organisation of activities and the specification of access to goods, resources and services. The economic system is concerned with production, exchange, distribution and consumption (Kohl 1975).

Two basic relationships are widely accepted both by historians and social scientists, namely that the social structure

of a society and its politics are partly determined by its economy, and that in turn the operation of the economy is partly determined by its political and social framework (Rostow 1953,20). Crucial to an understanding of political and economic relationships, both within and between social groups, is the reconstruction of exchange systems. In recent years there have been numerous discussions, theories and models proposed to explain exchange and to identify it within the archaeological record, particularly where it is concerned with traded artifacts and material, (c.f. for example the obsidian trade (Renfrew et al. 1966) and the trading in Theban stirrup jars (Catling and Millett 1965)). Studies such as these have largely been achieved through characterisation work where the application of scientific techniques has allowed the identification of products from specific sources.

The identification of specific production loci for the products of the Gallo-Belgic industry may not be quite as clear cut as one would like, but it is hoped that sufficient information has been collated in this research to allow some hypothesis to be proposed regarding the inception, organisation and decline of the industry as well as considering, albeit within a somewhat pragmatic framework, its place within the social and economic organisation as a whole. Before considering these problems in more detail, it is first necessary to note briefly the changes in the social organisation during the period between Caesar's conquest of Gaul in the fifties B.C. and the later 1st century A.D.

8.2 Social Organisation

The development of socio-political organisation has been traditionally regarded as an evolutionary process transcending from the simple band through the increasingly complex stages of tribe, chiefdom and state; in the terminology of Fried from egalitarian society through ranked, stratified and finally to state organisation (Fried 1960). The distinguishing criteria for each of these discrete categories have been extensively discussed by social anthropologists, notably Service (1962), Sahlins (1960;1972) and Fried (1960) for the most part using criteria derived from the empirical observation of living societies. Evolution from one category to another is now no longer seen as a series of stages but as a continuum (Renfrew 1974) although the impetus for change along the continuum, and furthermore its recognition in the archaeological record, is still a matter of debate.

The later pre-Roman Iron Age is unique, because for the first time in European prehistory there are available to us a number of contemporary written accounts and observations which allow the identification of both individuals and events. From these accounts by both Greek and Roman authors two facts can be adduced concerning the socio-political organisation; firstly that south-east Britain was in many ways very similar to Gaul, and secondly that there were three distinct levels of society. These consisted of the upper classes or nobility who held political authority and could 'command allegiance from a group of followers' (Nash 1978, 467); the learned and religious class represented by the

'druids' and thirdly at the other end of the scale the bulk of the populace, the peasant class. This tripartite class division seems to be upheld by other evidence, in particular the excavation of oppida sites in Central Gaul (Nash 1976).

The particular period and area covered here is a difficult one since it consists of three distinct phases traceable successively but not synchronously in each of the two areas of Britain and Gaul; - the Celtic, the Roman and the transition phase between the two. The later Iron Age sees the culmination of a series of socio-political changes which have much earlier origins. Its position on the continuum of socio-cultural evolution has long been debated, but would appear to fall somewhere between a chiefdom and a state. Chiefdoms are difficult to recognise archaeologically but cogent arguments have been proposed for their existence in one form or another in Britain from the late 3rd millenium B.C. (Renfrew 1974). Amongst the characteristics attributed to a chiefdom based society are ranking, a marked degree of craft specialisation, nucleated settlements, a redistributive economy, greater productivity, and more clearly defined tribal boundaries. Indexes of these in the late Iron Age can perhaps be seen in the emergence of central places in the guise of 'oppida' which played an important political and economic role, the issuing of coinage by central authorities or individuals, technological improvements in artifact production with a marked increase in quality and standardisation, the existence of 'trade' as evidenced by exotic imports and the attested presence of a ranked society with a wealthy elite. Both Britain and Gaul appear to have consisted

of a number of socio-political units of varying size controlled by 'chiefs' or 'kings' who were appointed on a hereditary basis. The exact boundaries of these units are vague and archaeologically undetectable except in the broadest terms and it is quite likely that they were in a state of constant flux. From the written evidence of Caesar, many of these units have been identified with specific 'tribal' names.

In contrast to the Celtic society, that of the Romans was considerably more advanced and in the terminology of the anthropologists approximated a state or even empire-state organisation. Defining characteristics include a well marked centralised political organisation, sharply defined social classes, an ability to impose order by force by military action, a system of laws, and an intensive and diversified pattern of economic activity and craft specialisation.

The impact of Roman authority and administration had a profound effect on the social and political development of the Celts. Luxury items were made available presumably in exchange for other goods, which probably included agricultural produce and slaves, allowing an increase in the absolute levels of wealth in a small sector of Celtic society. Contact with the Roman world stimulated a number of other changes or more realistically acted as a catalyst to an already dynamic situation, which is reflected in increased levels of technology and economic organisation. It would be misleading to regard the northern provinces, including Britain after the conquest, as a new extension to Roman society.

The territory was indeed annexed into the Roman empire but it is unlikely, certainly in the 1st century A.D., that any further radical elements were introduced to change the structure of ongoing processes already at work in the Celtic social system. Consequently, after passing through the simplified stages seen in the meeting of any two forces, particularly where one is more politically advanced than the other, of opposition and conflict, imitation and aggregation or assimilation (Balandrier 1951), a new 'acculturated' Romano-Gallic or British social organisation would be expected to evolve with its own cultural determinants, distinct from both the contemporary Roman in the Mediterranean and the preceding Celtic.

8.3 Aspects of the Economy

As already stated, the term economy is taken here to embrace aspects of production, and by implication technology, exchange, distribution and consumption. By considering these, questions will be raised as to why and for whom did the Gallo-Belgic pottery industry arise and how were its products distributed. For the archaeologist artifacts constitute the only evidence to socio-economic development, and as a result trade and exchange have developed as particular foci for research. In an ideal situation the reconstruction of ceramic exchange systems should require the discrimination of products from different centres. Unfortunately this ideal is rarely achieved, especially where dealing with the production of composite products. On present evidence, based on the distribution of known kilns and concentrations

of the finished products, the Gallo-Belgic industry per se seems to be concentrated in two main regions, in the Marne at Reims and in the Vesle valley, and along the Moselle valley particularly at Metz and Trier. The only conjectured major 'kiln' site falling outside these two areas, with the exception of the military producers along the Rhine, is Vertault, an 'oppida' in the Côte d'Or (Bohn 1922; Lorimy 1923), which produced a large collection of T.N. and T.R. much of which had been burnt. The evidence was interpreted as residue from kilns although it should be stressed that no structural evidence for these was recovered. The location of the pottery dump seems to be in an areas of shops which might in itself suggest the pottery was present as a saleable commodity brought in from elsewhere. This would still be a unique phenomena because there has been no other evidence of the bulk movement of Gallo-Belgic pottery south of the main production centres. Vertault therefore at present remains an enigma.

(i) Production

A concomitant aspect of exchange is production. This can be viewed both in terms of the input and output and of the actual level of organisation or 'mode of production'. Both these aspects have already been discussed in Chapter 5, and the whole process is summarised as a flow diagram (Fig.85). The suggested mode of production is that of a workshop industry, where considerable time and investment was expended, on either a full time or more likely a part time basis. The location of the known kilns seem to conform to a simple spatial optimisation model. That is to say, they are

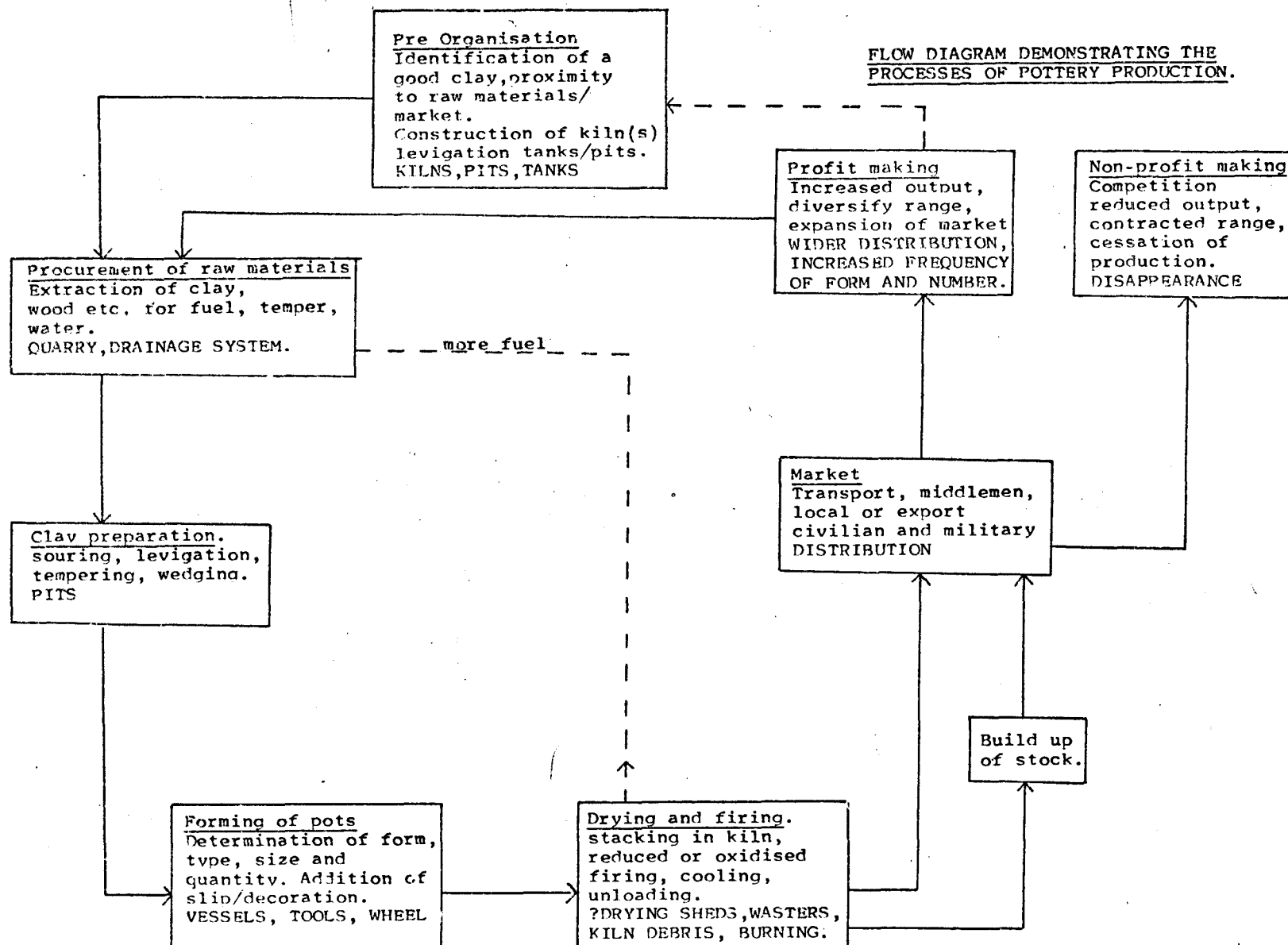


Figure 85.

dotted line - optional

located in the optimum location for maximum efficiency at minimum expenditure in terms of time, labour and cost with regards to raw materials, and an easy access to a market or commercial centre via rivers which form a cheap and easy method of transport. The kilns are mostly sited alongside rivers, in particular the Vesle, leading north to Reims, the Moselle and the Rhine. The clays were probably derived from deposits in the river alluvium (Fromols 1938,49) and were of a high enough quality to require little in the way of additives. The proximity of the Rhine frontier would have assured a ready market both from the military and civilian populations.

(ii) Exchange

The study of economic theory and its application to anthropological and archaeological studies has developed considerably in the last decade, inspired by the earlier work of Malinowski, Steward and Polanyi. The formalist approach based on the concept of supply and demand has more recently been joined by the substantivist school of Polanyi and Sahlins who consider the economy as being "embedded in social relationships which are not necessarily economic by modern standards (Polanyi 1957; Sahlins 1972). Exchange "provides for the transfer of goods and services from the specialist who produces them to the consumers" (Brumfiel 1980,459). Generally a distinction is made between internal trade, where the movement tends to be within a particular social unit, and external trade where movement is between different socio-cultural groups. Various definitions, typologies and evolutionary schemes have been devised with

respect to exchange, notably by Polanyi (1957,1977), Sahlins (1972), Dalton (1975), Renfrew (1972,1975), Kohl (1975) and Pryor (1977), all of which basically arise from a three-fold division of reciprocity, redistribution and market exchange. The former two mechanisms have been rigorously defined, discussed and identified in ethnographic contexts by Sahlins (1972), whilst the latter is the subject of a vast range of literature both general and specific (see for example, Lloyd and Dicken 1972; Smith 1974; Smith 1978).

Exchange for the archaeologist is specifically concerned with the processes responsible for producing an observed distribution of artifacts in space. This introduces a number of biases at an early stage. Firstly, the true distribution of that artifact will never be totally recovered so that one is dealing with a sample distribution which hopefully reflects the parameters of the total distribution. Secondly it is only representative of one small facet of the culture of a particular society which due to its inherent properties of durability has been preserved in the archaeological record.

The reconstruction of ceramic exchange systems should ideally involve the discrimination of products from different centres, whether they originate from full-time workshop specialists or from part-time household industry. Gallo-Belgic pottery is a fine ware of a distinctive kind and as a type is sufficiently diagnostic to be readily identified within a mixed assemblage. The discrimination of individual workshop products within the general class is not fully possible

except in a general sense, with the exception of the T.R. fabric identified with several potters who appear to be working at Reims. Even with the aid of potter's stamps there is no absolute proof that these potters were working in-situ at one site. Since there has been no evidence to the contrary it is assumed that the wares under consideration originate from the Marne and Moselle regions and the exchange systems will be viewed with these as the points of origin for any distribution. The details of the distribution have already been described in chapter 6. Suffice it to say that the products are found in a fairly wide but in a sense geographically limited area, across north-east France, Belgium, Luxembourg, Holland, Germany west of the Rhine and Britain. The main trend of movement therefore is to the north and east of the source region. Finds are rare to the south, to the east of the Rhine unless associated with military installations and to the west beyond Somme and Oise. These restrictions are probably the result of cultural factors, the presence of competing pottery industries and the strong marketing pulls to the north and east with the presence of the army.

A number of hypotheses could be proposed to account for the observed distribution of Gallo-Belgic fine wares. Unfortunately it will not be possible to prove whether any or all of these were in operation, but the possibilities will be explored. One factor that is certain however is that one mechanism alone is not sufficient to account for the dispersal of wares, the dichotomy being most apparent in the pre- and post-conquest evidence in Britain.

The first obvious distinction to be made is the difference between the distribution of fine wares and coarse wares. There is evidence for considerable coarse ware production in the same or adjacent kilns used for the fine wares, but the dispersal of the former suggest a very much more restricted and localised distribution from the kilns, constituting what Sabloff and Toutellot term 'domestic trade'. The fine wares are conversely the subject of 'controlled trade' (Sabloff 1975,236).

(iii) Modes of controlled exchange

a) The Roman army

The labour, time and investment involved in the setting up of a new pottery geared to producing specialised products using new technologies, would presumably have not been undertaken without some already established outlet for the products. The most obvious consumer in the 1st century B.C. - A.D. is the army. The role of an army on the move as an auxiliary to trade is one mechanism that has not been considered to any great extent in any of the theoretical discussions of trade, although the impact of the Roman army on technological and more particularly commercial development in the northern provinces is one aspect that has not gone unrecognised amongst the Romanists.

The role of pottery in the military supply system is one that has raised many questions in the past and it is only in recent years, as the result of the recognition and excavation of a number of exclusively military sites in Britain and the Continent, that some patterns are beginning to emerge.

The exploitation of the commercial opportunities created by the army in the northern provinces is seen in the movement of potters from Italy to Gaul in the 1st century B.C. Much of the output of Ateius and others of these newly established Gaulish potters has been found on military sites along the Rhine, as well as at some of the larger native settlements like the Titelberg (Thomas et al. 1976). An army on the move probably had little need for extra supplies, carrying only what was necessary, but once established a supply system would be fairly quickly inaugurated for the provision of food and equipment. The Roman army frequently seems to have made use of locally produced coarse wares where these were available, as with the Dorset black-burnished industry (Williams 1977). If local wares were unsuitable, or non-existent, as seemed to be the case for much of the Rhineland, military potteries were set up associated with the forts. Examples of such potteries in the 1st century have been documented at Haltern (Schnurbein 1977), Neuss (Filtzinger 1972), Nijmegen (Holdeurn ware) (Van der Waals 1966), Mainz-Weisenau (Behrens 1915), Xanten (Hagen 1912) and Cologne. It is unclear whether these potteries were actually run by the soldiers or by civilian potters attached to the army. Most of the pottery produced appears to have been utilitarian in nature; mostly flagons, jugs, beakers, bowls and jars, and did not include fine tablewares. The lack of locally available pottery in parts of Britain necessitated similar self-sufficiency on the part of the army. The two legionary sites at Usk and Wroxeter, for example, had their own kilns. The pottery produced from these is

interesting because although produced in a homogeneous local fabric, the forms are continental in origin with no local influence. The forms especially suggest affinities with the Upper Rhine-Danube area (Greene 1973; Darling 1977) which would reinforce the suggestion that the potters were actually attached to the legions, since epigraphic evidence suggests that many of the legions originated in the provinces of Noricum, Dalmatia and Raetia (Webster 1969,108). As with the Rhineland sites, the fine wares and mortaria used in British military establishments were imported.

There are no contemporary accounts available which shed light on how the army obtained its pottery. It is not known for example whether military contracts were made with civilian potters or traders, or if consignments were obtained directly from the workshop or purchased on the open market. Caesar mentions several tribes who contributed to troop supplies amongst which are the Remi and possibly the Treveri in Gallia Belgica (Wightman 1977,76). Breeze has made a study of contemporary documents concerning the ownership of arms in the army (Breeze et al. 1976), finding that according to a 2nd century B.C. document by Polybius items of armour, clothes, food and other basic equipment were provided by the army for every soldier, but that a fixed deduction for these items was taken from the soldiers' pay. The equipment was returned to the unit on the soldier's death or retirement. This would explain why some items of equipment were re-used by different owners. Whether pottery was also included in this practice it is impossible to say.

A further question raised is whether fine wares were available to anyone or whether they were restricted to just those who could afford them. The answer may be furnished by an illuminating study on the distribution of samian wares within the fort complex at Bearsden sited on the Antonine wall (Breeze 1977). The distribution of samian sherds within the barrack blocks at Bearsden, backed up by similar evidence from other military sites, suggests a higher incidence of use in the officers' quarters with a virtual absence of sherds in the areas occupied by the ordinary soldiers. It would be an interesting exercise to see if similar patterns held for Gallo-Belgic wares in earlier fort complexes but this is confounded by the fact that there is no such data available at present. The Bearsden study does, therefore suggest that fine table wares were only available to the officer class. The backgrounds of the officer classes were possibly a little more sophisticated and more adjusted to Romanised eating and drinking habits compared to the bulk of the men, many of whom were drawn from various sources as mercenaries which thus may explain the observed pattern.

Gallo-Belgic wares appear to be present on all early Augustan-Tiberian military sites excavated to date along the Rhine frontier and a wide range of different forms are represented in both T.N. and T.R. In contrast the British sites show a much more restricted range of forms with little or no T.R. Prior to the conquest of A.D. 43 the distribution of Gallo-Belgic imports into Britain was mainly confined to the south-east. After the conquest the distribution became considerably extended to the north and west. The most

frequently occurring forms on these military outliers are the curved platters Cam. type 16, flanged cups Cam. type 58, and slightly less frequently, bowls, Cam. 46 and 50, all in T.N. These are amongst the later forms to be introduced into the Gallo-Belgic potters' repertoire and consequently amongst the longest surviving. The recurring association of Cam. 16 and Cam. 58 on military sites promotes speculation with regard to military supplies. Although it is obvious from their occurrence on civilian sites they were not exclusively produced for the army, it is possible that certain workshops specialised in their production in order to supply the army. This proposition, namely that the military platters originated from different workshops to the examples found in civilian contexts, has not gained much support from the thin-section analysis described on pp.275-9 which did not show any differences between Cam. 16 platters derived from military contexts compared with those from civilian contexts (see also Darvill and Timby 1982 forthcoming). It could be argued on the basis of the lower numbers represented at most of the sites that the vessels did not arrive through the supply system but came over in the possessions of their owners during the invasion period from their various Rhenish posts, and were subsequently broken and discarded to be replaced by other wares, such as samian. A counter argument to this, supporting the import of bulk consignments of platters, is provided by the finds from a number of unpublished excavations at Clausentum (Southampton/Bitterne) which has been traditionally accepted as the site of a Claudian military base. From three unpublished sites excavated by Waterman

during the 2nd world war (sites B, F and G) a number of Gallo-Belgic vessels were recovered of which 75% consisted of Cam. 16 platters (minimum number by rimsherd = 100 vessels). Cups Cam. 58 formed a further 8%. This number of Cam. 16 platters is second only in Britain to the 142 examples from the Sheepen excavations by Hawkes and Hull (1947, 220). A similar quantity of platters was also recovered from the military fort at Hofheim founded c. A.D. 40 (Ritterling 1912,335).

One final aspect of distribution that should be mentioned in connection with the army is the question of selling off surplus stock through the civilian market. This is a problem that cannot be proved one way or the other because firstly the chronology is not refined enough and secondly none of the vessels were exclusively military in original use but were also available to the public. The occurrence of vessels in later contexts than might be expected could simply be explained by a number of alternative hypotheses particularly where more expensive or better quality goods are concerned.

b) Gift Exchange

The presence of Gallo-Belgic wares in pre-conquest deposits in Britain demonstrates the operation of some kind of distributive mechanism unrelated to military movements. The limited distribution of wares before the mid 1st century and the fact that they are mostly confined to burials and major settlements in the area south of the Fosse Way further argues for differential access to such imports by certain

members of society. Some of the earliest imports are associated with the series of rich burials in the Hertfordshire-Essex area which are taken by Renfrew as evidence for an emerging hierarchy due to external trade (Renfrew 1975). Although the interpretation of burial deposits should only be undertaken with an understanding of cultural transforms, (Schiffer 1978) and the realisation that grave goods do not necessarily correlate with wealth in life (Ucko 1971), the evidence does point to the emergence of a wealthy elite in pre-Roman Iron Age society. Gift exchange, defined by Polanyi as linking the participating partners in relationships of reciprocity (Polanyi 1957) is generally acknowledged as widespread among 'tribal' societies. It is conceivable that some of the early Gallo-Belgic products along with other 1st century B.C. - A.D. imports are the result of gift trade between the Roman empire and those tribes with some sort of acknowledged political allegiance. Treaties are known to have existed between certain tribes and Rome from the mid 1st century, apparently including one with the Trinovantes whose tribal capital was located in the Colchester area (Caesar B.G.V,20,21). The majority of the rich burials fall within a 70-80 km. radius of Colchester in among a series of less rich burials, the area corresponding with the territories of the Trinovantes and Catuvellauni as defined by numismatic evidence. Further evidence of the Roman interest in ensuring political stability between Britain and Rome is seen in the appointment of client kings, - rulers who were considered to be reliable in furthering Roman interests. At least two client kingdoms are known

from the 1st century A.D.; the Atrebates in the south ruled by Verica and later Cogidubnus, and the Iceni of Norfolk. The Brigantes in the north may have formed a third (Wacher 1979,136).

Mauss has argued that domestic and reciprocal exchange serve not only as a cohesive force internally but also as a substitute or replacement for external conflict (Mauss 1954). An advantageous economic position with wealth and resources is also a determinant of political power. Whether those who already wielded the power had sole access to imported luxury goods or whether the acquisition of these turned a loosely stratified society into a more overtly differentiated one is impossible to say. Similarly the presence of Gallo-Belgic wares as items of gift trade in pre-Roman Britain cannot be proven one way or another. It is simply suggested here as one of the possible mechanisms that could account for the initial infiltration of Gallo-Belgic products and other goods to a small sector of the society. The observable distribution could equally well be explained by other processes such as those of redistribution and market trade.

c) External Trade

With the results from a number of recent excavations to hand it is possible to argue most persuasively for the existence of extensive trading contacts between the classical world and the northern provinces from at least the 1st century B.C. The evidence for these contacts is to be found in the distribution of wine and oil amphorae, Campanian and Arretine fine wares, metalwork of various forms and coins. External

trade, following Rowlands definition is, 'exchange ... carried on between groups on an extra-community and often extra-regional basis' (Rowlands 1973,589). Exchange of this type may have taken a number of forms ranging in scale and complexity from the free lance middleman to the organised competitive market. Although the latter is unlikely at this point in time it does appear that exchange in the pre-Roman Iron Age was becomingly increasingly "disembedded" from the socio-political contexts to become part of a more formal institutionalised process. Traditionally, trade has been considered coterminus with market and money. This is only true if trade becomes market trade and money becomes exchange money. All three can equally well exist independently from one another.

The market is the spatial locus of exchange and is frequently difficult to identify archaeologically. There has been much literature on how and why markets developed and their connection with the rise of urbanisation (Alexander 1972; Wheatley 1972; Haselgrove 1976) drawing mainly on models from geography and anthropology. Weber suggested that organised markets were first developed as a result of external trade and therefore external trade preceded domestic trade (Weber 1981,215ff). This theme is developed further by Polanyi who also states that the first markets did not evolve from the internal economy and are instead located on trade routes or at the frontier between two ecologically or culturally differentiated regions (Polanyi 1957). Converse arguments by others contend that external exchange arises out of internal local exchange and already established

markets (Hodder and Lee 1975). Data from East and Central Africa generally supports the former hypothesis, where it has been observed that market places frequently form the foci of communications and not the nuclei of settlements (Hodder 1965).

It is now widely recognised that many of the major hillforts and 'oppida' in the late Iron Age acted as economic and political central places. They possessed many incipient urban traits which has led them to be labelled proto-urban (Rodwell 1976,291) including that of acting as the loci of market exchange. If this was indeed one of the functions of the oppida then high concentrations of both rarer imported goods as well as more mundane domestic everyday items might be expected. This has been borne out by excavation especially on the Continent where more detailed work has been carried out. The sites are generally on or near important trade routes, at the junction of two ecologically different zones or near important resources like iron-ore deposits. Sites like Manching, the Titelberg, Mont Beuvray and Gergovia all show elements of planning in their internal layout with different quarters allocated to different activities. Industrial activities cover pottery production, wood working, smithing, leather working, glass working and coin minting whilst other areas are reserved for housing. Large quantities of imported material have been recovered, particularly goods from the Mediterranean regions as well as high concentrations of coinage of all denominations. The presence of low denomination coinage is especially relevant since it is rare elsewhere, thus emphasising the probability

of commercial activity at these centres. Collis sees the oppida as 'major marketing centres each with a network of satellite sites or sub-centres and a peripheral zone from which it draws its supplies' (Collis 1971,102).

A number of potential oppida sites have been recognised in the region of Gallia Belgica and in Britain, but of these, few have been excavated. One exception from Gallia Belgica, although yet to be published in detail apart from the coinage, is the Titelberg, Luxembourg, which has produced considerable quantities of Gallo-Belgic and other fine wares (Thomas et al. 1976). The identification of oppida in Britain is not quite as clear cut as in Central Gaul and elsewhere in Europe where many have prominent defences, since it is clear that north of the channel there were a number of undefended or unenclosed settlements with a similar range of functions to the larger defended sites like Colchester, Chichester and Bagendon with their extensive systems of dykes. Amongst these undefended 'oppida' are the Lincolnshire sites of Old Sleaford, Ancaster and Dragonby all located near important iron-ore resources, Braughing-Puckeridge in Hertfordshire and Ower, Dorset. Other contemporary sites have been postulated at Silchester, Sheepen and Gosbecks, Leicester, Canterbury and Verulamium (Prae Wood) all of which, with the exception of Gosbecks which is almost totally unexcavated, have produced large concentrations of Gallo-Belgic wares. This is illustrated in Figs.86 and 87 showing the distribution of T.N. and T.R. respectively in Britain on a roughly quantified basis. In most cases the larger dots, representing ten or more vessels, are those of

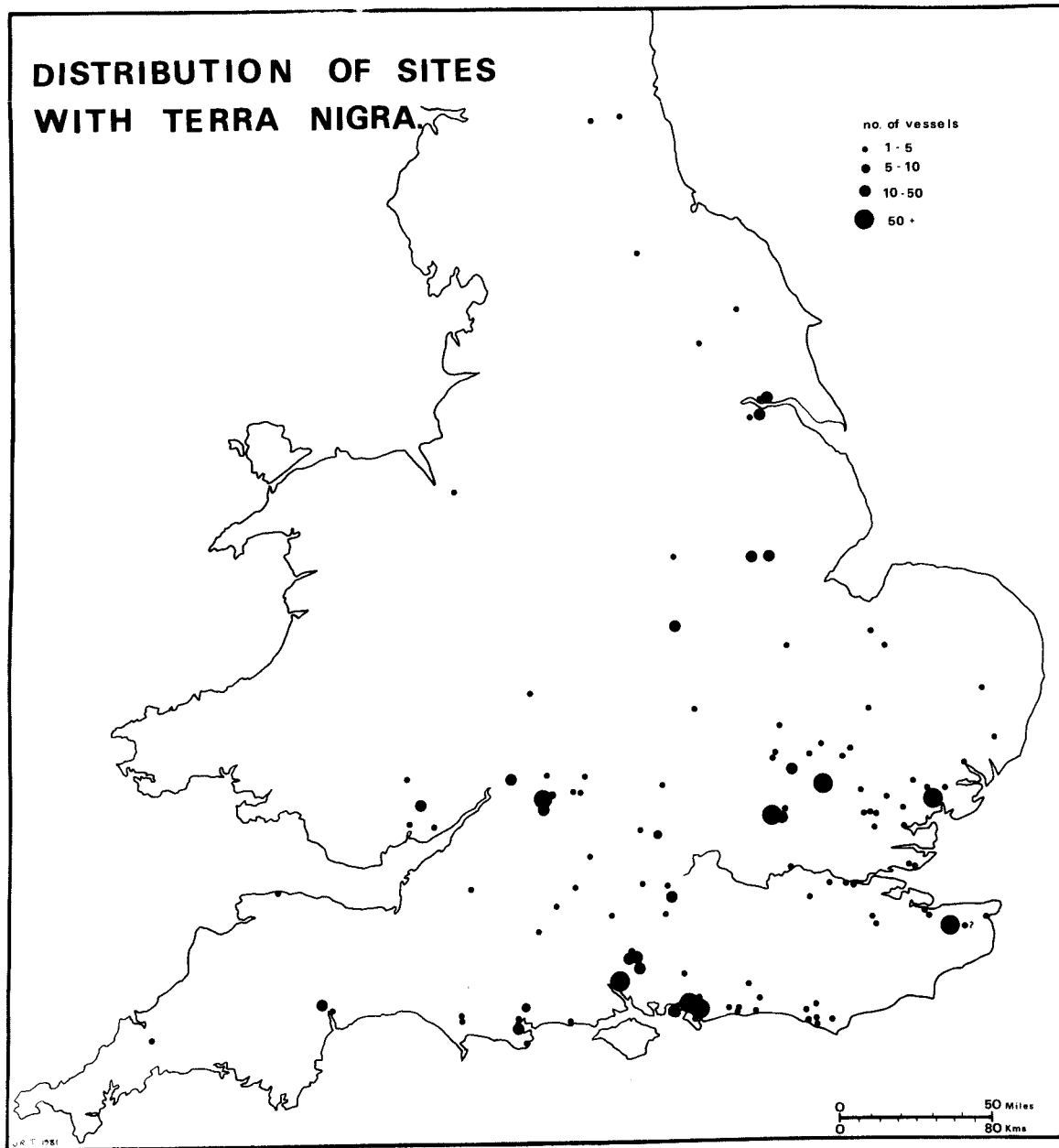


Figure 86.

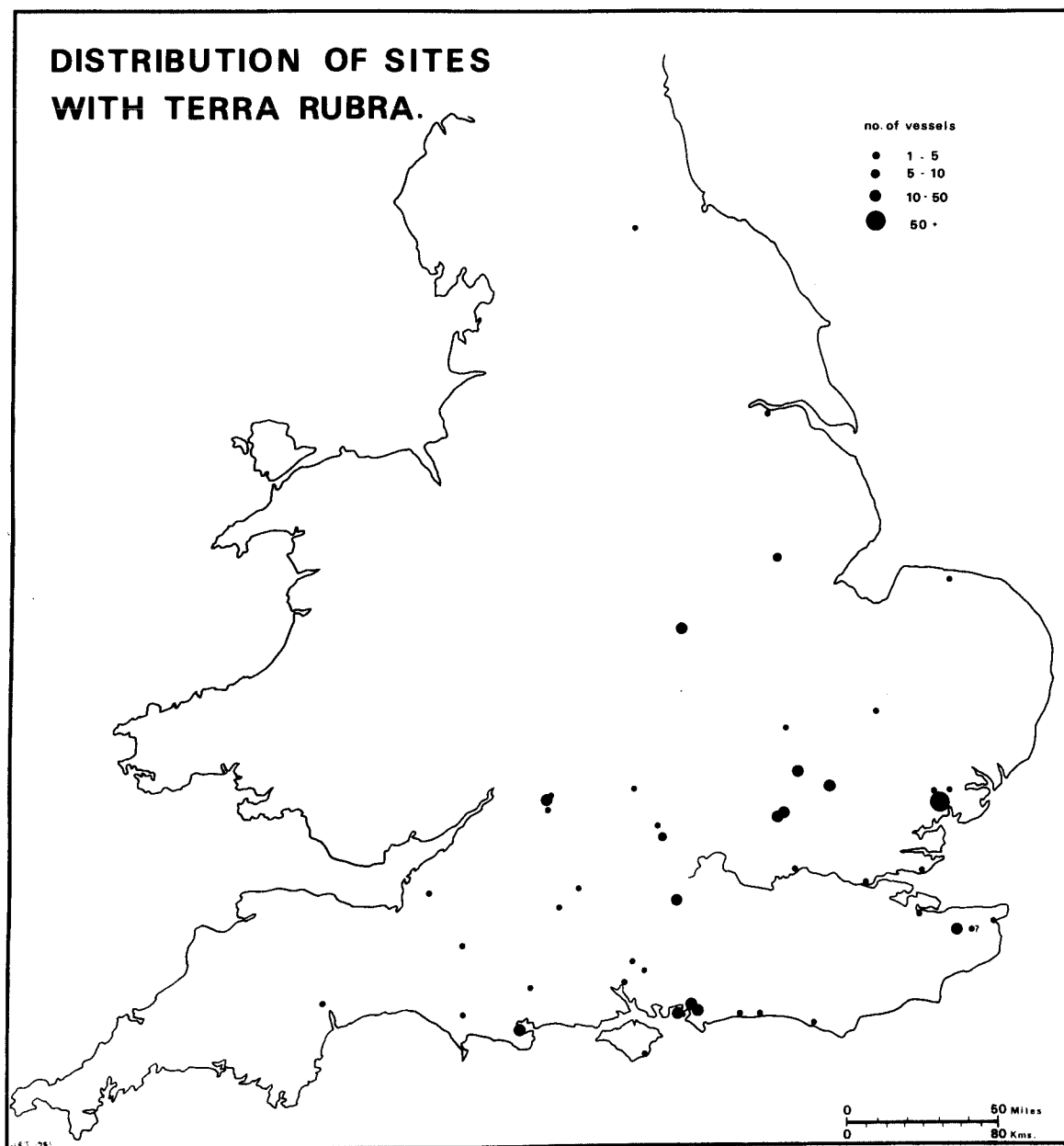


Figure 87.

the 'oppida' or major settlements. Unfortunately since all of these sites continued to be occupied after the conquest there can be no distinction made between the pre-conquest and the post-conquest arrivals. Other imports on these sites are represented by Arretine wares, amphorae and more rarely Central Gaulish vessels including micaceous T.N.

One factor that is very much still in dispute is whether or not the exchange of goods in the late Iron Age was based on a monetised economy. Several types of coinage were being minted in Britain from c.50 B.C. whose distributions are fairly restricted and appear to define tribal territories. Primitive coinage had a variety of different uses summarised by Polanyi as payment for use, as a standard of value, for hoarding to accumulate wealth and for exchange (Polanyi 1957). The Mediterranean regions had, by the Augustan period, a coinage system that was both stable and comprising a range of denominations. From literary and documentary evidence it is clear that money was used in both major and minor transactions (Crawford 1970). This was probably less the case in the northern provinces especially with tribal issues. It is likely that transactions were carried out with more traditional commodities like cattle, grain, iron, weapons, cloth and slaves. The noticeable correlation between army camps in Germany and Belgium and large numbers of high value coins have supported the proposal that one of the main uses for money was the payment of mercenary troops (Allen 1976; Wightman 1977). The corresponding absence of low denomination coinage at the same sites further suggests that there was little use for exchange coinage of this type and that

coinage in the northern provinces served more as a store of wealth and as a method of paying taxes (Crawford 1970).

Temple sites like the oppida, may also have acted as the loci of periodic or annual markets possibly linked with specific religious festivals. The large numbers of low denomination coins recovered from the temple site at Harlow, Essex (Allen 1968; Collis 1971) would support this. Likewise the same methods might account for the presence of fine wares at Hayling Island.

After the initial conquest period new markets were probably established by the army, both in and around the forts which often attracted extra-mural settlement, and in the towns developed for Roman administration, many of which relate to the earlier pre-Roman centres.

Having isolated the 'oppida' and major settlements as the main nodes in the external trade network the question still remains as to who were the traders? The most likely answer is professional merchants or traders either Gallic or Roman acting as middlemen between the producers and the consumers. Inscriptions from Lyons and elsewhere show the existence of negotiatores artis cretariae who were independent traders in fine wares (Hassall 1978,44). It was considered normal for the traders to buy products direct from the centres of production for further redistribution. Named pottery traders have been documented in literary sources as operating in the Rhineland military zones, including one from Trier and another from Metz (Middleton 1979,85). The density of cemeteries and burials in the Rhineland containing Gallo-Belgic

fine wares points to a fairly considerable home market particularly in the late Augustan-Tiberian period. This concentration of burial finds is shown as a trend surface diagram in Fig.88. The densest concentration falls adjacent to the production regions and to the immediate east of these with lesser concentrations in the Pas de Calais, south Belgium and the lower Rhine. An increased density re-occurs on the other side of the channel in the Hertfordshire-Essex region. The traders may well have had already established contacts across the channel with colonial enclaves created by the series of folk migration following Caesar's conquest of Gaul, since the ties binding a colony to its country of origin are frequently commercial in nature. If the traders were Roman merchants then the trade may have been conducted through governmentally controlled channels.

(iii) Distribution

The author Strabo suggested that four trade routes existed between the Continent and Britain: the Rhine, Seine, Loire and Garonne (Strabo IV.5.2). There is little doubt that the main arterial trade routes through Gaul are by way of navigable waterways and the Romans were quick to exploit these natural routeways. It has been argued by Middleton that long distance trade was 'parasitic upon official supply lines' (Middleton 1979,81). The presence of military supply lines may well have increased the efficiency and quantity of trade but cannot be held totally responsible for its existence and the use of the water routes as trade axes certainly predated the Romans' arrival in the area. Traders in Gallo-Belgic wares presumably exploited already established trade

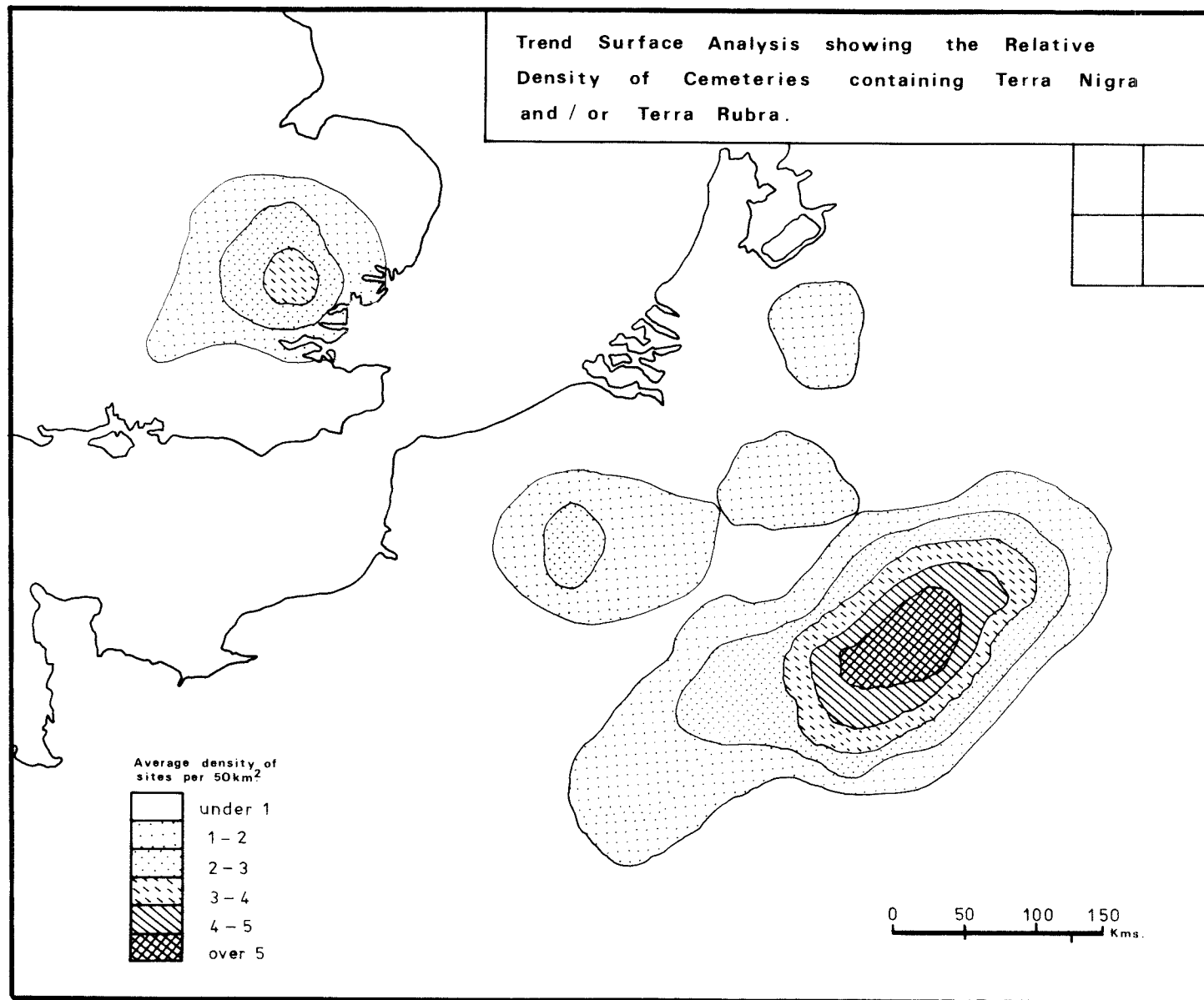


Figure 88.

routes to Britain. Earlier cross channel contact is documented by the waves of Gallo-Belgic coins, later replaced by the British series which themselves presumably required imported raw materials, for their manufacture. The imposition of tolls and other payments to ensure safe conduct through various different territories may have had an important effect on the transportation of products and the routes available. An extract from Cicero's Pro Fonteio, for example, shows that an unofficial tax was levied for each amphora transported through the cities of Transalpina (Cunliffe 1982,42). Other complications may have been caused by the ban on Roman imports and thus traders by the Belgic Nervii and Suebi mentioned by Caesar (B.G.II.15).

Waterways provided a means of cheaper and sometimes quicker transport than overland routes. There are a number of pictographic representations of river barges and cargo dug-outs loaded with barrels, amphorae or bales of textiles as witness to the widespread use of waterways (Ellmers 1978). Recent excavations at Pommeroeul, Hainaut, located between Blicquy and Bavay, have uncovered a river port with a quay-side and five boats dating from the mid 1st to mid 3rd century A.D. (De Boe and Hubert 1977). Much of the cargo seems to have been pottery with mixed loads of both coarse and fine wares. The coarse wares are of local manufacture whilst the fine wares are of various origins. Both this find and the pictorial evidence would seem to suggest that each cargo was limited to one commodity and that perhaps merchants specialised in particular fields such as wine, textiles, or pottery rather than in mixed consignments.

Presumably the river transporters were exchanged for sea-going craft at the mouths of the rivers and certainly there is evidence for a large entrepôt at the mouth of the Garonne on the Gironde estuary (Gourvest pers. comm.), even though little detail is known about this side of the operations. On the British side of the channel at least two fairly major entrepôts have been suggested; Hengistbury Head on the south coast and Colchester on the east coast. The earlier of these appears on present evidence to be Hengistbury whose main period of trading activity dates to the 1st century B.C. Trade comprised both 'short distance' trade with Brittany as well as more long distance links with the Mediterranean, and is attested by extensive deposits of imported pottery, amphora and Armorican coinage. It would seem that there was a decline in trade from c. 56 B.C. with Caesar's conquest of Armorica although at Hengistbury it continued in a less intense manner up into the 1st century A.D. In the later years of the 1st century B.C. and the first half of the 1st century A.D. the main focus of trade on the south coast seems to have shifted to Poole harbour, suggested by the evidence recovered during the recent excavations at a large unenclosed settlement at Cleaval Point, Ower (Woodward forthcoming). One particularly interesting aspect of the evidence from Ower is that of trade from at least two directions; from the east and from the west. The earlier material shows a continuance of the links with the western seaways already noted at Hengistbury Head and is attested by the presence of coarse ware jars which may originate from Brittany, amphorae (Dressel I - Pascual 1) from

the Barcelona region, Spain (Williams 1981,128) and black polished fine wares considered to originate from the Saintes kilns in Aquitaine (Timby forthcoming). The amphorae and fine wares suggest a date of c. 10 B.C. for this material. After this time trade links appear to have been first accompanied and eventually succeeded by alternative links with north and Central Gaul, again demonstrated by the fine ware component of the assemblage studied from Ower. The central Gaulish wares include sherds of 'micaceous T.N. platters' and white slipped orange ware flagons which are probably pre-conquest in date, two sherds of Lyons ware and a sherd from a Roanne painted bowl dating to the later 1st century A.D. These wares could have arrived through a variety of different routes, including the Loire, Seine or Rhine. The latter of these probably featured in the transport of the Gallo-Belgic wares which also occur at Ower in some quantity in the first half of the 1st century A.D. More far reaching trade links are also demonstrated by the presence of Arretine from Italy and a single abraded sherd of black gloss Campanian ware, unfortunately from a residual context but the first to be recognised in Britain to date (Timby *ibid*).

The transition from western to eastern orientated links with the Continent is accompanied by increased evidence for contact with the southern and eastern areas of Britain. In the past Colchester, not unnaturally, has formed the focus of interest when considering the import of Gallo-Belgic wares into Britain, particularly in the pre-conquest period, as the overwhelming number of finds has tended to direct

interest away from other coastal entry points for such trade. There can be little doubt that Colchester, like Hengistbury Head, acted as a port-of-trade channeling goods to its hinterland, but the growing testimony for pre-conquest contact with other areas as demonstrated by Ower and by the collection of sites on the south coast in the Chichester region exemplified by the temple site at Hayling Island should now receive more attention. If the available evidence for Britain is plotted as a trend surface analysis using the grid generalisation technique, and for the present disregarding pre- and post-conquest chronology and the status of sites concerned, an interesting pattern emerges (see Fig.89). Two major zones with concentrations of imports emerge, one based on the south coast between Dorset and east Sussex focusing on Hayling Island, Chichester and Fishbourne and extending north via the Winchester axis as far as Oxfordshire and Gloucestershire. The other concentration is on the eastern side of the country focusing on the area between Colchester and Hertfordshire. A third, rather less concentrated zone, appears round the Humber estuary area embracing the sites of North Ferriby and Old Winteringham. Minor concentrations occur at Exeter, south Wales and Yorkshire, all of which can be attributed to military presence, with a fourth zone in the Lincolnshire area with no visible coastal link. The importance of this group of sites should not be underestimated as they seem to have been able to obtain such imports from some distance and thus show a strong marketing pull. The two major zones of Colchester and Chichester seem to be spatially exclusive of one another and separated by a

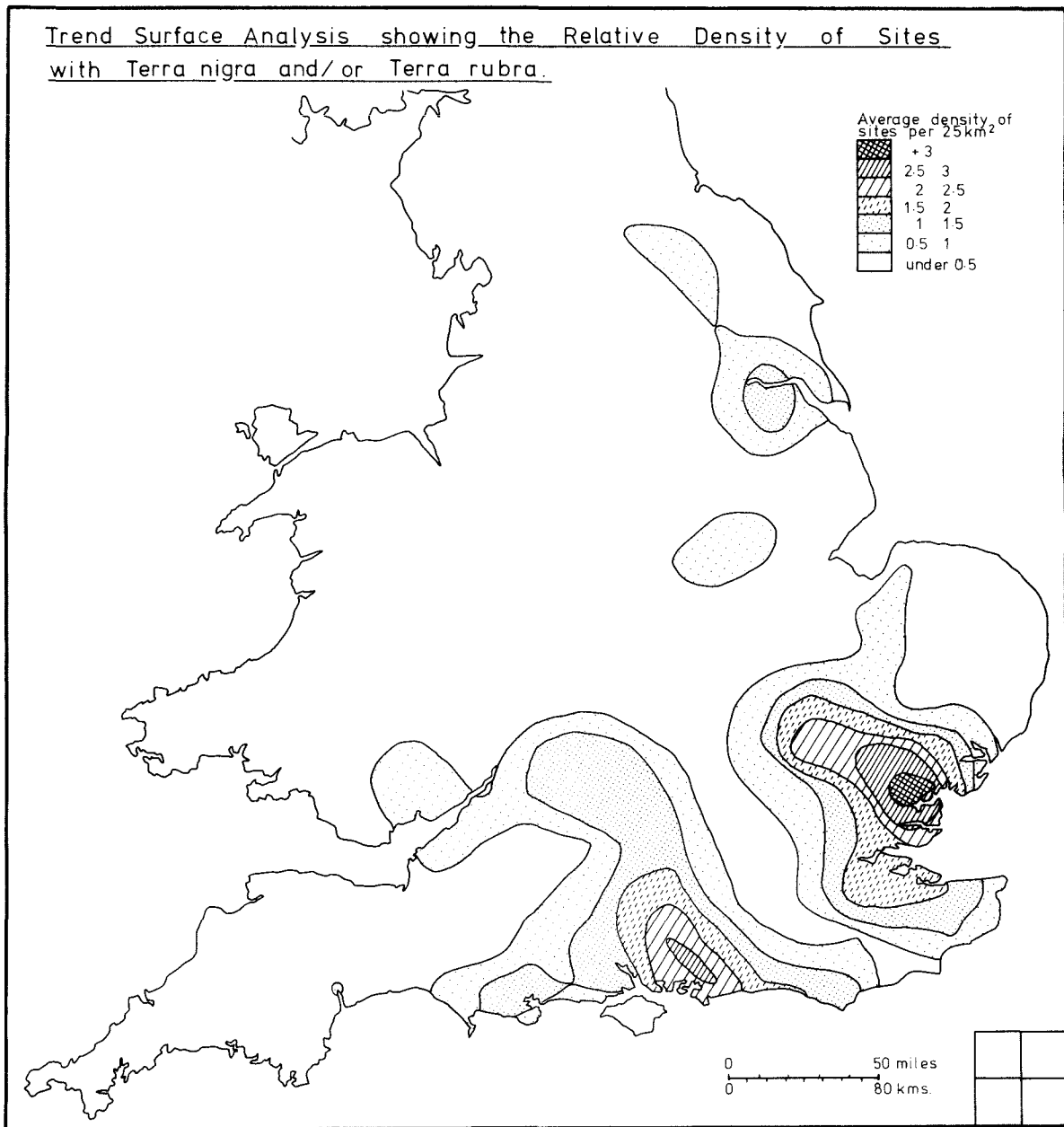


Figure 89.

narrow zone extending through Buckinghamshire, Surrey and west Kent, where relevant sites are absent. Furthermore the distribution does not appear to respect any of the postulated tribal boundaries which cut the area. This is perhaps not surprising since there is already evidence for the inter-tribal exchanges of pottery manufactured in the Malverns suggesting that a well organised internal trading network was in existence by the late Iron Age (Peacock 1968).

The definition of a T.R. fabric associated with at least six potters (Arantedus, Attissus, Acutus, Durotix, Dannomarus and Illos), two of which were known to be working at Reims from the discovery of their wares in some recently excavated kilns, has allowed a more detailed insight into the distribution of wares. A preliminary distribution map of the products of these potters based on fabric analyses and die similarities is shown in Fig.74. Attissus was in production in the late Augustan period since examples of his ware have been found at Haltern (Loeschcke 1909, Taf.XXX.8). Acutus, Durotix and Arantedus all appear to be roughly contemporary with Attissus. The distribution of products from the Reims potters follow two main axes; eastwards across to the Rhine and then north up the Rhine and to the north-west towards the Somme. In Britain the pattern corresponds to that already discussed, namely from the south coast following a line up to Gloucestershire and from the east coast across to Verulamium, Hertfordshire and up to Leicester. This suggests two trade routes, one via the Rhine which is already well documented and the other via the Aisne-Somme-Oise river networks. Fig.90 shows the decay in the frequency of stamps

The Distribution of stamped vessels from Reims, Marne in terms of distance
from source.

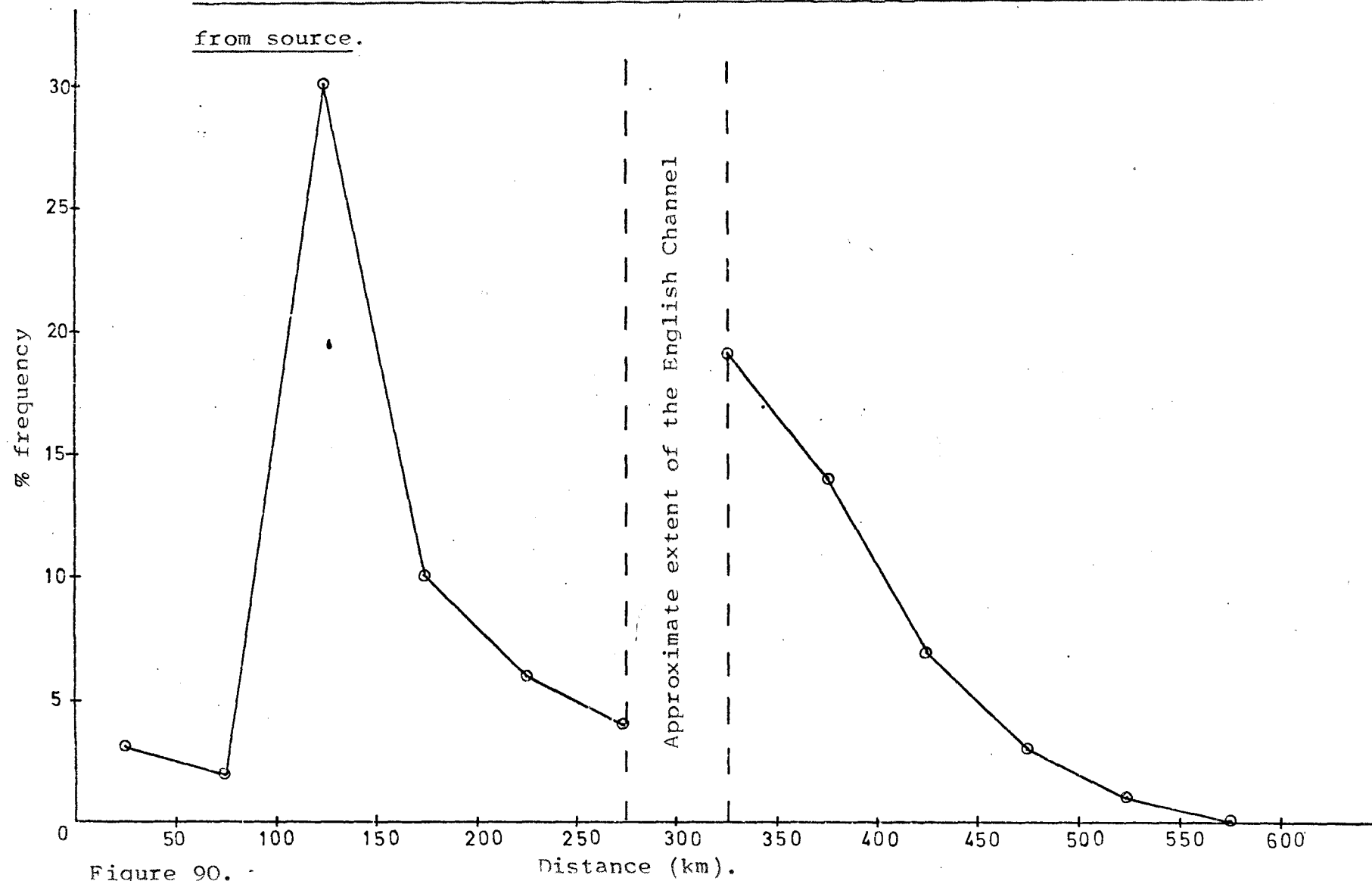


Figure 90.

away from the source. Two peaks are formed corresponding with the Luxembourg-Trier region and with south-east Britain, whilst the area immediately around Reims and the coastal zone south of the channel show a low density of occurrence. This pattern suggests the operation of specific marketing operations with regard to the export of these products.

8.4 Summary

To summarise briefly the above discussion; the distribution of Gallo-Belgic wares to Britain seems to be the outcome of three main systems of exchange. The first is that of frontier exchange whereby goods are being traded or exchanged across a frontier from one social system (the Roman) into another (native Britain). The two frontiers at this point in time are demarcated by the Rhine and the English channel. It is well known that frontiers tend to act as magnets in attracting individuals in search of new opportunities both commercial and political. A full explanation of the initial influx of Roman imports into pre-conquest Britain is not possible at the present time because it pre-supposes an analysis of the economic and political significance of Roman goods within late Iron Age society. At present the pattern suggests at least two possibilities. The occurrence of some of the earliest Gallo-Belgic imports in the rich graves of the Welwyn series suggests that along with other imported items of metalwork and pottery they were looked upon as high value prestigious objects only available to the higher ranking members of the social system and possibly used for display rather than for eating off. As such their presence

might be attributed to a gift trade possibly promoting the formation of political alliance with Roman government.

Alternatively the fine wares may have been traded commodities from the beginning reaching Britain via already established commercial routes through the activities of the more entrepreneurial merchants or free lance traders. The distribution can be used to suggest that the political and economic power of the receiving areas exerted a strong influence on the direction of trade if this was the case.

The second influx of imported pottery seems to occur at and immediately after the conquest itself in A.D. 43, presumably as a result of increased access to traded goods and market expansion. The wares become more widely available and the increased demand stimulated imitation of imported forms by British potters.

The third influx, partly coinciding with those above, was via the military supply system. Although it is unlikely that an invading army would carry much with it in the way of equipment, once established an efficient supply system would have been brought into existence particularly in areas where suitable pottery was not locally available. The T.N. cup and platter forms Cam. 58 and 16 seem to have featured prominently in this supply operation.

The continental distribution shows greater emphasis on the role of the military in the dissemination of Gallo-Belgic products, especially along the Rhine frontier. In addition, the greater concentration of cemeteries west of the Rhine suggests a healthy home market and the widespread

availability of Gallo-Belgic fine wares from the Augustan period.

CHAPTER NINE

THE RISE AND DECLINE OF THE GALLO-BELGIC

POTTERY INDUSTRY

'Thus Roman and Celtic styles in pottery fuse into one another and bring out wholly new styles derived from both alike, as two chemical compounds, each drawing something from both the originals'.
(Collingwood 1923,74)

9.1 Introduction

From the work described in the foregoing text some attempt can now be made to answer the questions posed at the outset. These questions, following a somewhat simplistic approach were basically concerned with how, why, when and where did the Gallo-Belgic pottery industry first appear, how was it organised and how did it fit into the prevailing social, political and economic systems of the period. Before discussing these points in more detail it would perhaps be salutary to summarise some of the more salient features concerning the Gallo-Belgic industry to emerge in the preceding chapters:

- (i) The Gallo-Belgic industry is one of several contemporary fine ware industries to appear in Gaul in the later 1st century B.C.
- (ii) Production appears to have been concentrated in two main areas: the Marne and the Moselle.
- (iii) There was no typological or technological antecedence in north-east Gaul.
- (iv) Two basic fine ware fabrics were produced, terra nigra (black) and terra rubra (red); both in a

variety of forms.

- (v) The industry possessed an admixture of Roman and Gallic elements reflected in both the forms produced and in the potters' names.
- (vi) A group of early T.R. producers have been isolated through fabric characterisation and appear to have been based at Reims, in the Marne.
- (vii) The production techniques used were of a fairly sophisticated nature including the use of a fast wheel and permanent kiln structures.
- (viii) The clays exploited were probably calcareous in nature, and locally available.
- (ix) The main phase of production was restricted chronologically from the late 1st century B.C. (c. 20 B.C.) to the later Claudian-early Neronian period.
- (x) The potters supplied both civilian and military markets.

9.2 The Beginning of Production

The 1st century B.C. saw the proliferation of pottery production in many parts of Gaul. A number of new production techniques were introduced and widely adopted and a variety of new forms appeared, mostly through inspiration from Mediterranean prototypes. The Gallo-Belgic industry was just one of these new production networks to manifest itself during the Augustan period, forming the northern most link in a chain of pottery regions extending through south and central Gaul. In some cases these new activities were grafted on to pre-existing potteries producing late La Tène

wares, as for example in the Allier region, whilst in other areas there is no evidence for such continuity. The Gallo-Belgic industry appears, on present evidence, to belong to this second category, although the presence of tall pedestal vases and other wares characteristic of the Marne, typified by some of the wares found in Britain attributed to the 'Belgae', suggests that some local potting traditions were active before 50 B.C. This tradition however seems to have had little impact on the Gallo-Belgic potters who introduced a complete new range of fine wares into the early Roman ceramic assemblage. The question posed therefore, is why did the Gallo-Belgic and other contemporary industries suddenly appear and who were the potters?

Following the conquest of Gaul in 58-55 B.C., a number of garrisons were installed to maintain peace and order among the Gallic tribes. In 27 B.C. when Augustus started his census of wealth and prosperity in Gaul for taxation purposes the army seems to have been concentrated in three strategic areas, in Aquitaine, and in the territories of the Remi and Lingones (see Fig.1). Both Saintes in Aquitaine and the area around Reims became important potting centres at this time. There is less evidence for potting in the territory of the Lingones which coincides with the present Côte d'Or, although it would include the postulated production site at Vertault, if its authenticity could be proven. It was from these three regions that the army subsequently moved to the Rhine frontier to defend Gaul from German invasion. In the following period (25 B.C. - A.D. 16) a number of permanent or semi-permanent posts were established along

the Rhine frontier stretching from Zurich in the south to Vechten in the north. The presence of the army placed new demands on the local economy, for not only were supplies of food and equipment required but also men to be trained as auxiliary troops. Pottery must have formed a fairly minor but necessary part of these requirements and where unavailable locally was produced by the army itself in kilns located within or adjacent to the forts. The range of vessels considered normal for daily use by the Romans differed considerably from those used by the local Gallic population. Consequently a number of new forms were introduced, notably fine table wares, - cups, beakers and platters, flagons, mortaria and lamps which in turn created a new demand from the local population eager to adopt Roman tastes and habits.

The Mediterranean potters were not slow in reacting to this new demand from the northern provinces and the steady flow of imports from Italy to Gaul was accompanied from c. 30 B.C. (Greene 1979,140) by the potters themselves. Business must have been sufficiently prosperous to allow firms like that of Ateius and Aco to risk setting up branch offices in recently conquered territory. One of the earliest of these new offices was based at Loyasse, Lyon to be shortly followed by a second site in the neighbouring quarter of La Murette. Once established the migrant potters continued to produce Arretine and other fine wares similar to those made in Italy using Italian moulds brought with them. Further fine ware workshops were created at Lezoux and La Graufesenque shortly after.

The bulk of the products produced by the new workshops consisted of oxidised wares with only a very small percentage of reduced wares. A programme of chemical work undertaken by Picon and his colleagues on the fabrics of Italian Arretine and its Gaulish counterparts have produced some interesting results (Picon and Vertet 1970; Picon and Vichy 1974; Widemann et al. 1975). The Italian fine wares, including both Campanian and Arretine were invariably produced from a calcareous clay, where the calcium or lime content averaged around 9-11% and was very finely disseminated throughout the clay (Picon and Vertet *op.cit.* 207). The wares produced in Gaul however showed two contrasting uses of clay, non-calcareous and calcareous. The potters at Lyons and the south Gaulish sites, like their Italian colleagues, used calcareous clays whereas those at Lezoux used non-calcareous clays only changing to calcareous ones in the 2nd century A.D., despite the fact that both were available. Similarly the late La Tène fine wares of Central Gaul were almost exclusively produced from non-calcareous clays. Calcareous clays have very specific properties which manifest themselves on firing. Whereas a non-calcareous clay will become darker in colour as it is fired, a calcareous clay becomes progressively lighter. The latter also fires to a harder more compact fabric with a finer pore size and when slipped produces a better quality high gloss finish. Despite these obvious advantages there are some problems in using calcareous clays if they are not prepared and fired carefully. The lime needs to be equally distributed throughout the clay to prevent blistering and the firing temperature

needs to be carefully controlled since the temperature required to combine the calcium with the other elements in the clay to produce a good fabric, is only just below that which would cause total vitrification and vessel distortion (Picon and Vertet 1970,211). Non-calcareous clays on the other hand are far more refractory and can be fired using primitive firing techniques. On the basis of these experiments Picon has argued that it would be impossible to produce wares from calcareous clays without a sophisticated kiln technology unless a very high wastage rate is incurred (Picon and Vertet *ibid.*). By implication this would suggest that those potters using the calcareous clays were of Roman or Mediterranean extraction and those using the non-calcareous clays were native. The potters of Lezoux attempted to reproduce Arretine copying the observable features of colour, form, details of moulding and fineness of paste but through using a non-calcareous clay. Consequently the vessels do not have the same quality as Arretine proper. In the 2nd century the Lezoux potters changed to using calcareous clays with a subsequent improvement in product (Picon and Vertet *ibid.*,215). The method by which the potters identified a calcareous clay from a non-calcareous clay was probably based on colour after firing and the fact that a calcareous clay can be used for both oxidised and reduced firings. This would account for the small percentage of reduced wares found at all the production centres in forms identical to the oxidised products.

This dichotomy of calcareous and non-calcareous clays and hence Roman versus Gallic potters seen in Central Gaul may

well repeat itself in north-east Gaul. The variety in forms produced showing a mixture of Roman and native traits and the mixture of Latin and Celtic names reflected in the Gallo-Belgic potters' stamps is already suggestive of this. Detailed chemical analysis has yet to be undertaken on Gallo-Belgic fine wares but it is probable that much of the T.R. and T.N. were produced from calcareous clays. The vessels are generally hard, fine textured and compact while the core is often light grey, white or pink in colour. The kilns on the Marne are located in a region where Cretaceous geology dominates and the clays were probably obtained from lenses of river alluvium deposited by a river flowing through chalk bedrock. The flaking of the surface on many of the vessels after deposition in certain soil conditions already noted in chapter 7, further confirms a clay with a high lime content. Bearing in mind Picon's conclusions regarding the Central Gaulish fabrics it is difficult to imagine how the Gallo-Belgic industry could have independently developed the technology to efficiently exploit clays of this type without some contact with the Mediterranean potters, or with Gallic potters versed in Roman techniques.

The adoption of a new technique or style of vessel can perhaps be expressed very simply as three stages; antecedence, process and results (Rogers 1962). The first stage of antecedence relates to the factors present prior to the introduction of the innovation. The second stage considers the process by which an individual or group becomes aware of the innovation. This can only occur through the movement of the artifact away from its source by trade or some other

ANTECEDENCE.

PROCESS.

RESULTS.

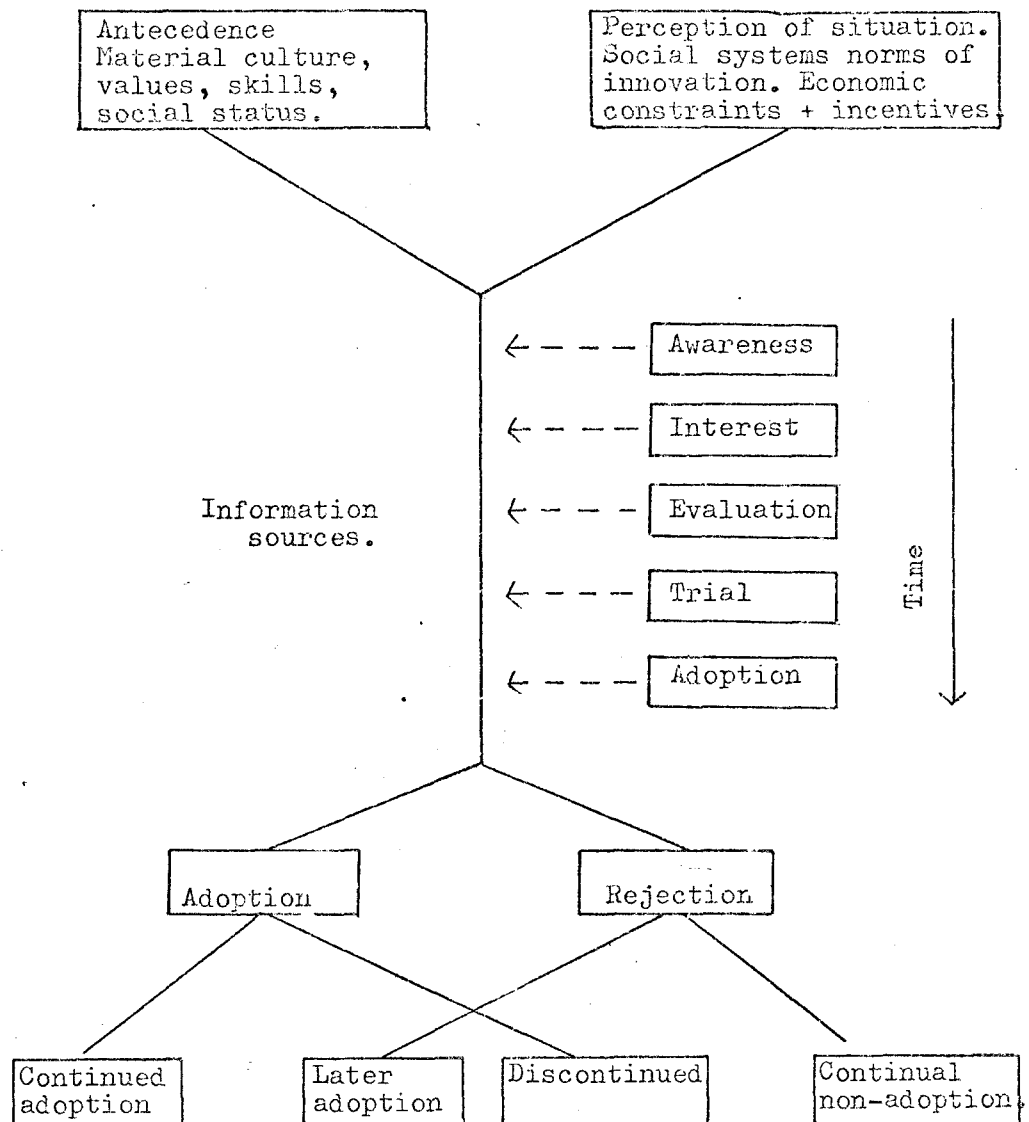


Figure 91.

Stages in adopting or rejecting an innovation.

kind of redistributive mechanism, or by the movement of the people with the necessary knowledge either by migration or simple inter-group contact. The conclusion of this stage is either the adoption or rejection of the idea or technique. The innovation may be adopted and used continually or rejected at a later date or vice-versa or continually rejected from the start. These processes are summarised in Fig.91.

The development of fine ware production in Gaul can perhaps be seen as an example of the diffusion of innovations through a central-periphery model (Schön 1980,192). This model has three basic elements; firstly that the innovation, in this case the technology, existed in a completely realised form prior to its diffusion. Secondly that the diffusion is the movement of this innovation from a centre out (Fig.92a) and thirdly that 'directed diffusion' is 'a centrally managed process of dissemination, training and provision of resources and incentives (Schon op.cit.,193).

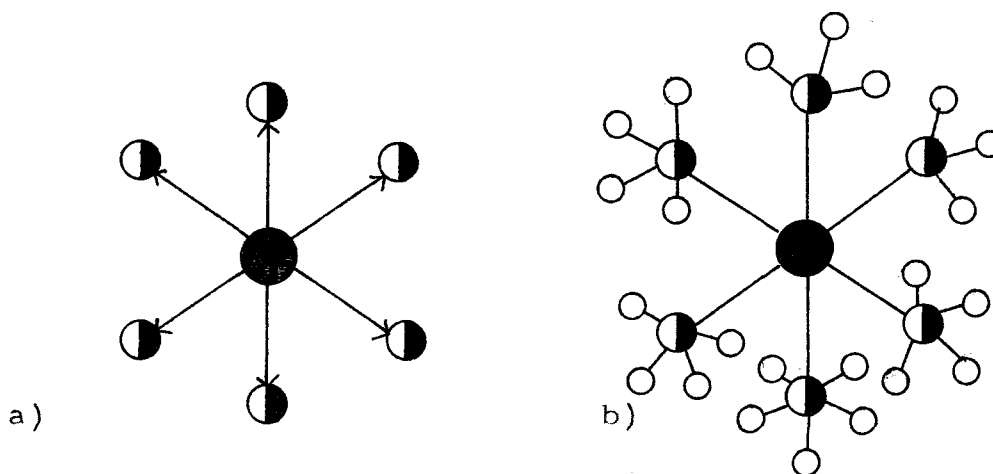


Fig.92 Diffusion of an innovation from a centre

In time the number of centres multiplies forming primary and secondary centres (Fig.92b). The effectiveness of the model depends on the level of resources and energy at the centre, on the number of points at the periphery, the distance through which diffusion takes place and the energy required to adopt a new idea. In this case the propagating centre is that of the Mediterranean, in particular Italy, and the primary centres those workshops set up as branch offices of the Italian firms in south and Central Gaul and possibly Spain. The Gallo-Belgic industry thus forms one of the secondary centres perhaps branching off from Central Gaul, as a result of the potters themselves moving north. The obvious focus for such a movement would be Reims itself, by then a flourishing commercial centre, and possessing certainly in the early 1st century A.D. if not before, an established industrial quarter including pottery production. Associated with this early period of production are the potters Attissus and Arantedus, both potters with Roman ending names and who, together with a group of other potters linked to them through fabric characterisation, concentrated on producing red oxidised wares (T.R.). The main problem with this hypothesis, namely that Gallo-Belgic production originated with a collection of Roman migrant potters based at Reims, lies in the chronology. There are very few potters' stamps associated with the earliest period of production and the five that can be dated to the period between 15 B.C. - A.D. 1 (see Fig.24) are Celtic rather than Roman. Attissus and his co-patriots can only be dated roughly to the period A.D. 15-30, when the industry was presumably already well

established. It is possible that with further excavation some of these gaps will be filled and that an earlier phase of production will be identified at Reims, where excavation is still in progress with the bulk of the pottery as yet unprocessed. Supporting evidence for an origin in the Reims-Vesle valley lies in the wide range of forms produced here compared with the kilns to the east, the predominance of ^{T.R. T.N.}over and the apparent higher incidence of the later forms, particularly the cup Cam. 58 and the platters Cam. 16 to the east, for example at Trier. These all suggest a spread of potting activity from the west to the east and hence towards the Rhine.

The first Gallo-Belgic potters may not have been Roman but of Gallic extraction as the early names suggest, perhaps literate Gauls moving north from Central Gaul to set up in competition with the Italian migrant potters. Some of the Central Gaulish black, micaceous ware platters have similar ending names, for example Maximos and Decimos (Bemont 1972). Finally it is perhaps significant that some of the earliest known Gallo-Belgic vessels namely those from the grave groups of Goebtingen-Nospelt and Wincheringen are unstamped so the first potters may not have left a record of their names anyway, only of their wares.

An alternative to this hypothesis of migrant potters would be the independent development of the industry among pre-existing potters in the north-east, perhaps arising through stimulus diffusion. This would require a period of experimentation by the local potters to perhaps attempt to

reproduce Italian forms and fabrics whilst at the same time retaining some of their own cultural identity by continuing to produce the more traditional forms. Under such circumstances one might expect a wide and varied range of vessels in the earliest period of production which gradually becomes more standardised through time which does seem to be the case here.

Stimulus diffusion in this form is not unknown in the field of ceramic change and can be paralleled by many examples in the ethnographic and historical record. The mixture of both modern and traditional forms recognised for example, amongst the products of the potters of the Central Moluccas, Indonesia reflects a response to new forms introduced by Dutch colonial life. Thus amongst the traditional pots there are ash trays, flower pots, tea-pots and moulds for baking bread made in an attempt to cater for the newly perceived needs of European influenced households (Ellen and Glover 1974). A second even more pertinent example of stimulus diffusion can be seen in European attempts to reproduce Chinese porcelain during the 18th century A.D. The problem in this case was very similar to that of the Arretine producers, namely to find suitable materials and develop the necessary technical skills to imitate the ware. Again this was not achieved without considerable experimentation but eventually a 'European porcelain' was developed at Dresden, Germany. Invention was not in itself independent because a goal had been set by artifacts already in existence, although imported from another culture (Kroeber 1944,2). The presence of Arretine ware may have stimulated

Gallo-Belgic pottery producers to imitate it as a response to the new demands from the Roman army and Gallic households adopting Romanised habits. It is unlikely, given the time available, that the necessary firing technology could have been developed, especially if it is accepted that they were exploiting temperamental calcareous clays. The process of imitation repeats itself with the copying of Gallo-Belgic, Arretine and samian forms by potters in Britain and Belgium in coarse ware during the 1st century A.D. With such copies no attempt was made to replicate the fine fabric, presumably because the technology did not exist.

In conclusion it is possible to see the inception and spread of the Gallo-Belgic industry as the outcome of both the processes already outlined, that is to say the movement of potters with the necessary technical skills, combined with a local spread of activity through stimulus diffusion once a centre of production and an outlet for the wares had been established. Evidence for the movement of both Arretine and samian potters is continually being accrued through the study of their stamps at different production centres.

Hartley has documented some of these peregrinations which include both short distance moves, for example from La Graufesenque to Montans as well as longer distance transfers, for example from La Graufesenque to Lezoux, and from Lezoux to Chemery-Faulquemont, East Gaul (Hartley 1977). Even more extreme is the movement of the Aldgate-Pulborough samian potter from Lezoux to Britain in the early 2nd century A.D. (Webster 1975). Thus the movement of potters seems to have been a common phenomenon in the early Roman period whatever

their motives, and that it was probably as a result of such movement that the Gallo-Belgic industry was developed.

9.3 Organisation

Considerable information can be gleaned as to how the Gallo-Belgic industry was organised in terms of the techniques of production from a study of both the finished products and of the workshop debris from the few sites that have been excavated. After an initial foothold in the area had been established, whether at Reims or elsewhere, it did not take long for activities to mushroom and a number of small kiln sites appeared from the Augustan period, especially along the river valleys of the Vesle and Moselle. In the earlier period T.R. tends to figure more prominently than T.N. but from c. 40 A.D. this changes and T.N. becomes more common, eventually outliving T.R. altogether. Through time the range of forms decreased and some of the latest forms to be introduced were never made in T.R., as for example, with the Cam. 16 platters. Some potters are known to have been producing vessels in both T.R. and T.N. whilst other concentrated on just one or the other. It is not known how much time was expended on the production of these fine wares and in what proportion they contributed to the total output from a workshop. Evidence from many of the kilns suggests that a certain amount of concomitant coarse ware production of domestic vessels was also carried out.

The Gallo-Belgic potters' predilection to produce identical vessel shapes in both a red and black fabric is perhaps

slightly strange, especially when the apparent vogue amongst Romans at the time was for red tablewares, demonstrated by the popularity of Arretine and samian. The latter industries were producing a few annexe products in a reduced ware but these only formed a minor percentage of the total output, and their role was more likely one of a control to test the qualities of the clays rather than to fulfill a demand. The Gallo-Belgic potters on the other hand, presumably produced both types because there was a demand for both, which can perhaps be divided simplistically into Roman and Gallic.

If the first potters were of Roman extraction, making T.R. wares following the Arretine tradition, the market focus for their wares was presumably the military garrisons along the Rhine. Having got this underway, local potters adopting the new techniques and styles or even the same Roman potters may then have seen an equally lucrative market amongst the local populace but for a black ware rather than a red. Traditionally pottery produced in northern Europe prior to the Roman conquest had been black, brown or grey in colour, not so much by choice but through the restrictions enforced by primitive firing techniques. The sudden appearance of a red ware may not have been as socially acceptable as the more familiar black wares, thus prompting the potters to emulate the new forms in a black fabric. This preference, or perceived preference, was not restricted to north-east France but can be paralleled by the workshops both in Aquitaine and Central Gaul, where the potters although influenced by Mediterranean derived forms, retained a strong La Tène element in their products. Black wares predominate in these

two regions, particularly as platter and bowl forms, including the range of 'micaceous T.N.' vessels from Central France.

The process by which a new fashion or style of consumption good is introduced, initially via the socio-economic elite and then passed down the status hierarchy, often as cheap imitations of the original, has been termed the 'trickle effect' in a paper by Fallers (1967). The trickle effect would seem to be true of Gallo-Belgic wares which first appear in rich graves, presumably of local high status individuals in the Rhineland and Britain, and in Roman military contexts. Once in circulation further demand was probably generated by virtue of Roman affiliations and the transition from a black to a red fashion in tablewares established. The mixture of red and black wares at the military sites may be an indication of the extent to which local men had been drafted in to defend the frontier. For those who could not afford the real thing there were the coarse ware imitations produced by many native workshops.

Less can be said of how the Gallo-Belgic industry was organised in terms of the marketing or distribution of finished products. It is not known for example whether the potters themselves had any control over their market or whether the entire operation was in the hands of professional traders or merchants. If the number of potters identifiable from the stamps is any guide, the demand must have escalated quite quickly with a wide market threshold extending east to the Rhine frontier and north to Britain. One of the key

contributors to the potters' viability was obviously that of the army but again it is not known whether certain potters had specific military contracts or whether the wares were available on the open market. What is certain however is that the potters were catering for a diverse market both local and export reflected in the range of their output in both coarse and fine wares.

9.4 Decline

Pottery trade is often highly dependent on sufficient demand, and as the samian industries in south and Central Gaul expanded so the Gallo-Belgic industry declined, unable to compete. Increased colonisation and consequent Romanisation of the northern provinces precipitated a fashion for Roman eating and drinking habits and hence greater use of tablewares. T.R. was the first of the Gallo-Belgic fine wares to be affected by this transition being increasingly substituted by samian and production ceased around the middle of the 1st century A.D. T.N. output continued a while longer having no major competitor until it too disappeared in the third quarter of the 1st century A.D., presumably through lack of demand. Originally, whilst the samian industries were still in their formative stages, Gallo-Belgic wares must have provided a cheaper and more readily accessible commodity for the northern markets, incurring lower costs and less risks in transportation. Since very few Gallo-Belgic wares appear to the south of the production areas these may have effectively formed the limits of the market threshold for the samian producers, for economic reasons. As the

popularity of samian grew and the industry gathered momentum the market threshold was able to expand, at which point T.R. may no longer have been able to compete. The collapse of the Gallo-Belgic industry may have been further precipitated by the non-renewal of military contracts, again in favour of samian. Although fine wares were no longer produced, pottery production certainly continued at Reims. Domestic grey wares, known locally as 'craquelée bleutée', for example, were manufactured on quite a large scale. Fine ware production did not completely die out in the north-east but reappeared in a new guise as the East Gaulish samian industry based in the Alsace-Lorraine area, from the later 1st century A.D.

9.5 The Scope for Further Research

In attempting to understand economic and political developments in north-east Gaul and Britain in the first centuries B.C. and A.D. the evidence presented in this thesis is only the first stage. Naturally in achieving such aims it suffers from being based on a single artifact type. Not only is there the constant emergence of fresh distributional data as new sites are being discovered, earlier levels in old sites uncovered or backlog material published, but there are large gaps waiting to be filled regarding the identification and scientific excavation of kiln sites. The recent revival of archaeological interest in north-east France will hopefully contribute to this in the future.

One channel of work which could not be explored in the

course of this research is that of chemical analysis. A pilot study is planned in conjunction with the Oxford Laboratory in the near future using atomic absorption spectroscopy. The analysis will be used to test the significance of the results obtained from textural analysis and to look into the question of the use of calcareous clays in Gallo-Belgic pottery production. Again the lack of reference material from attested kilns, with the exception of Reims and Courmelois, may limit the information which can be gained from this in efforts to pinpoint the sources of T.N. or T.R. Chemical analysis should, however, be able to establish the validity or otherwise of textural analysis as a means of discriminating fine wares.

The organisation of pottery production in Britain during the transition period in the 1st century A.D. is another field of further work, in particular, a consideration of the changes brought about by the availability of new technologies and vessel styles may prove illuminating with regards later production. Finally the role of the army, although much dwelt on in the literature, cannot yet claim to be fully understood in terms of the production, organisation, distribution and consumption of pottery.

APPENDICES

APPENDIX 1

GAZETTEER OF GALLO-BELGIC WARES

Introduction

Appendix 1 is a gazetteer of Gallo-Belgic wares in Europe. Entries are ordered by the contexts discussed in chapter 7, namely temples, burials and settlements. Finds within each are listed alphabetically by county, département or Bundesland. T.N. and T.R. are catalogued separately for each country. Details of form are entered where known using the Hawkes and Hull (1947) vessel classification, supplemented by other references where necessary. A list of abbreviations used is given below. In the fourth column any known associated wares of specific note are given whilst the fifth column records bibliographical references or sources of information, for each site.

List of abbreviations used

Locations : For British counties, standard abbreviations are used.

Rhinel. Palat. = Rhineland Palatinate

Nord-Rh. Westfalen = Nord-Rhine Westfalen

Baden-Württ. = Baden-Württemberg

St. Albans K.H.L. = St. Albans, King Harry
Lane

Canterbury G.C. = Godfrey's Cellar

Canterbury R.L.F. = Rosemary Lane

Canterbury 16 W.S. = 16, Watling Street

Forms :	Cam.	= Camulodunum (Hawkes and Hull 1947)
	Hol.	= Holwerda (1941)
	Ha.	= Haltern (Loeschcke 1909)
	G.	= Gose (1950)
	Ober.	= Oberaden (Albrecht 1942)
	Koethe	= Koethe (1938)
	B.	= Blicquy (De Laet and Thoen 1968)
	*	= vessel unclassified (see chapter 2)
	pl.	= platter
	v.	= variant
	(s)	= stamp

Associated wares :	A	= amphora
	ACO	= Aco beaker
	Arr	= Arretine
	BB	= butt beaker
	F	= flagon
	GB	= Gräternbecher
	LW	= Lyons ware
	PR	= Pompeian Red ware
	S	= samian
	T.N.	= Terra Nigra
	TN(mic.)	= micaceous Terra Nigra
	T.R.	= Terra Rubra
	VB	= vase bobine

Bibliographical abbreviations :

A.E.	= Archaeological Excavations (H.M.S.O.)
B.J.	= Bonner Jahrbücher
C.I.L.	= Corpus Inscriptionum Latinarum

F.A. = Fasti Archaeologici
T.Z. = Trierer Zeitschrift
B.M. = British Museum

BRITAINIncidence of Terra Nigra

Context	Location	Forms	Associated wares	References
<u>Temple</u>				
	Great Chesterford (Essex)	pl.	-	Goodburn 1979:309
	Hayling Island (Hants)	2,3,7,8,12, 13,14,16,56 58	F.,PR.,S.,TR	info. A.King
	Lancing Ring (Sussex)	2	A.,F.,S.,TN(mic). TR.	Bedwin 1981 Frere 1940
<u>Burial</u>				
cremation cemetery	Shefford (Beds)	8(s)	S.	Dryden 1845 Fox 1923:201
2 graves	Stanfordbury (Beds)	pls.	A.,S	Dryden 1845
single cremation	Burghfield (Berks)	8(s)	BB.,F.	Boon & Wymer 1958

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
single cremation	Foxton (Cambs)	8(s)	A.,Arr.,BB.	Fox 1923:201
single cremation	Linton (Cambs)	13(s),56	A.,F.	Lethbridge 1927
cremation cemetery	Littlington (Cambs)	8(s)	-	Fox 1923:201
single cremation	Snailwell (Cambs)	56(s)	A.,F.,BB.,TR.	Lethbridge 1954
single cremations	Colchester (1942) (Essex)	8(s),12(s)	Arr.,F.,S.,TR.	Colchester museum
	Colchester (west) (Essex)	16(s)	-	
cremation cemetery	Elmstead (Essex)	pl.	-	<u>Rescue News</u> 1981,no.25:3

BritainIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
barrow cremation	Lexden (Essex)	pls.(s)	A.,BB.,TR.	Laver 1927 Birchall 1965
single cremation	Little Waltham (Essex)	14(s).56(s)	F.,BB.	Drury 1978
single cremation	Mount Bures (Essex)	2	A.,Arr.	Smith 1852:25 Smith R.A. 1912 Stead 1967
grave group	Pleshey (Essex)	1	Arr.,S.	Hull 1963:227
grave group	Southbourne Grove (Essex)	56	A.,TR	unpub. Southend museum
barrow cremation	Hurstbourne Tarrant (Hants)	2	TN(mic).,BB.	Hawkes & Dunning 1930:306 Knocker 1963

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
single cremation	Milland, Winchester (Hants)	16(s)	LW.,S.	Collis 1978:93
cremation cemetery	Owslebury (Hants)	2	BB.,F.,TR.	Collis 1968
cremation cemetery	Winnall, Winchester (Hants)	8(s),16(s), 58(s)	S.,F.	Collis 1978:61 et seq.
cremation cemetery	Baldock (Herts)	2,4,5,7,8,13, 16,56,58	PR.,TN(mic).,TR.	info. J.Foster
cremation cemetery	Braughing (Herts)	14	F.,BB.	Partridge 1979
cremation cemetery	St. Albans (K.H.L.) (Herts)	2,3,5,7,8,11/ 12,12/13,13,16, 56	S.,TR.	Rigby 1981:195
single graves	St. Albans (Ickneild Way) (Herts)	8(s),56(s)	F.,S.	info. A.Havercroft

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
single grave	St. Albans (Kayser-Bonder) (Herts)	8(s)	-	info. A. Havercroft
single cremation	Stone (Kent)	13(s)	BB.	Cotton & Richardson 1941
? cemetery	Duston (Northants)	8(s)	-	unpub. Northampton museum

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
<u>Hillforts</u>				
	Maiden Castle (Dorset)	12	A.,BB.,S.,TR.	Wheeler 1943
	North Cerney (Gloucs.)	2,8	TR.	unpub. info. S.Trow
	Newhaven (Sussex)	pl.	F.,BB.,TR	Field 1939
enclosed settlement	Casterley Camp (Wilts)	pl.	BB.,TR.	Cunnington 1911
?hillfort	Hanging Langford (Wilts)	pl.	-	Cunliffe 1973 Brailsford 1958:115
?hillfort/ minor settlement	Oare (Wilts)	pls.	F.,BB.,TR.	Cunnington 1909 Swan 1975

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
<u>Oppida/major settlements</u>	Sheepen (Essex)	1-16,50-58	A.,Arr.,F.,BB., LW.,PR.,S.,VB., TR.,TN(mic).	Hawkes & Hull 1947 1970 excavations unpub.
	Bagendon (Gloucs)	3,5,7,8,12, 13,14,16,56	A.,Arr.,BB.,F., PR.,S.,TR.	Clifford 1961 info. S.Trow
	Hengistbury Head (Hants)	2	A.,Arr.,F.,S.,	Bushe-Fox 1915
enclosed settlement	Gatesbury (Herts)	2,2v,3,5,7,7v, 8,13,15,16,53, 56,120,Ober.91	A.,Arr.,F.,PR.,S. TR.,TN(mic).	Partridge 1979;1981
unenclosed settlement	Skeleton Green (Herts)	1,2,2v,3,5,7, 7v,8,11/12,12, 13,14,15,16,53, 56,58	A.,Arr.,F.,PR.,S. TR.,TN(mic).	Partridge 1981
	Prae Wood, St.Albans (Herts)	1,2,3,5,13	A.,Arr.,F.,S., VB.,TR.	Wheeler 1936

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>oppida/major settlements</u>				
	Leicester (Leics)	2,5,8,13,16, 56	A.,Arr.,F.,BB., S.,TR.,TN(mic).	Goodburn 1978:435 Kenyon 1948 unpub. info. P.Clay
	Dragonby (Lincs)	5,7,16,56	A.,F.,BB.	May 1970 unpub. info. J.May
	Old Sleaford (Lincs)	4,5,8,12,13, 14,16,52,56	F.,LW.,GB.,TR.	unpub. info. M.Jones
<u>'farms and other minor open settlement</u>				
'farm'	Wyboston (Beds)	pl.	A.,Arr.,TR.	Tebbutt 1956
minor settlement	Bierton (Bucks)	?TN	?TR	unpub.info.

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
'farms' and other minor open settlements	Topsham (Devon)	8,16,58,50	F.,LW.,S.	Cottrill 1937 Jarvis & Maxfield 1975
	Hamworthy (Dorset)	4,8	-	Smith 1930 Rigby 1979
	Poundbury (Dorset)	16,58	A.,S.	unpub.info. C.Green
'occupation'	Langton Matravers (Dorset)	12/13	A.,F.	Calkin 1959:121
open settlement	Ower (Dorset)	2,5,7,12,13, 16,56,58, Hol.128/140	A.,Arr.,F.,LW., S.,TR.TN(mic).	Timby forthcoming
minor settlement	Ardleigh (Essex)	8,13,14,56	F.,TR.,BB.	Erith & Holbert 1974

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
'farms' and other minor open settlements	Great Wakering (Essex)	pl.(s)	A.,BB.,S.	Hull 1963:194
'occupation'	White Notley (Essex)	12/13(s)	A.,BB.,S.,TR.	Hull 1963:163-4
minor settlement	Huckswood Quarry (Hants)	pl.	-	Collins 1955
enclosed settlement	Owslebury (Hants)	2,4v,14	A.,TR.	Collis 1970
enclosed settlement	Worthy Down (Hants)	14	BB.	Hooley 1931
'occupation'	Crookhams (Herts)	2(mic.)	BB.,A.	Rook 1968

BritainIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
'farms' and other minor open settlement	North Ferriby (Humberside)	5,8,14,16,56	F.,S.,BB.	Corder & Pryce 1938
	Cold Blow,Bexley (Kent)	2(mic.)	-	Caiger 1958
enclosure	Faversham (Kent)	2,13/14	-	Philp 1968
minor settlement	Oare (Kent)	56	-	Canterbury Museum
	Springhead (Kent)	?TN	BB.,F	Penn 1958
farm	West Wickham (Kent)	pls.	BB.	Philp 1973

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
'farms'and other minor open settlement	Old Winteringham (Lincs)	2,3,5,7,8,9, 13,14,16,56, 58	BB.,F.,TR.	Stead 1976
minor settlement	Needham (Norfolk)	pl.	BB.	Frere 1941
minor settlement	Runcton Holme (Norfolk)	16	BB.	Clarke 1939 Hawkes 1933
agricultural settlement	Bishopstone (Sussex)	pl.	A.,BB.,F.,S.	Bell 1977
'farm'	Charleston Brow (Sussex)	16	BB.	Parsons & Curwen 1933
enclosure	Newhaven (Sussex)	pl.	F.	Bell 1976

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
'farms' and other minor open settlement	Kingston Buci (Sussex)	?TN	-	Wilson 1955
	Pulborough (Beedings wood) (Sussex)	8,56	TR.,S	Lewes museum
	Rancombe Hill (South Malling) (Sussex)	pl.	S	Green 1978:251
	Seaford (Sussex)	82-4	BB.,F.	Smith 1939
	Shepherd's Garden (Sussex)	?TN	BB.,S.	Hearne 1936
below Roman villa	Sidlesham (Sussex)	?TN	-	Wilson 1955

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
'farms' and other minor open settlement	Singleton (Sussex)	?TN	-	Hawkes 1935:143
	Steypning (Sussex)	?TN	-	Wilson 1955:76
<u>military installations</u>	Nunstallon (Cornwall)	16,58	LW.,S.	Rigby 1975
legionary fortress	Chester (Cheshire)	16,Hol.138/140	S.	Ward 1981
legionary fortress	Exeter (Devon)	8,16,50,58	A.,F.,LW.,PR., S.,TR.	Bidwell 1979
fortlet	Martinhoe (Devon)	58	A.,F.	Fox & Ravenhill 1966

BritainIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>military</u> <u>installations</u>				
?fort	Dorchester (Dorset)	16	-	unpub.info.P.Woodward
fort	Lake,Wimbourne (Dorset)	16(s),56,58	A.,F.,LW.,PR., S.,TN(mic).	Wilson 1973:316 unpub. info. M.Darling
fort	Cirencester (Gloucs)	16,46,58	A.,F.,LW.,PR., S.,TR.	Brown & McWhirr 1967 Brown et al. 1969 Rennie 1971 Rigby 1977 Wacher 1962;1964;1965 Wacher & McWhirr 1982 Webster 1959
auxiliary/ legionary fort	Kingsholm (Gloucs) Gloucester (Gloucs)	16,58	F.,LW.,PR.,S	Darling 1977 Hurst 1975
fort	Abergavenny (Gwent)	16/58	-	Rigby 1975

BritainIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>military installations</u>				
	Caerleon (Gwent)	14	-	Rigby 1979
	Usk (Gwent)	16,46,58	A.,F.,LW.,PR., S.	Greene 1979
	Claudentum (Bitterne) (Hants)	5,8,10,16,46, 50,58,91,pl.* Hol.81	A.,F.,LW.,PR., S.,TR.	Cotton & Gathercole 1958 Laing 1966 Waterman 1952 unpub. Southampton museum
	Droitwich (Heref.&Worcs)	16	S.,BB.	unpub. info. H.Rees
auxiliary fort	Brough-on-Humber (Humberside)	16	A.,F.,S.	Wacher 1969
fortress	Longthorpe (Hunts)	8	A.,F.,LW.,PR., S.	Frere & St.Joseph 1974

BritainIncidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>military installations</u>				
fort/supply base	Richborough (Kent)	5,8,16,50	A.,F.,LW.,PR., S.,TR.	Bushe-Fox 1926;1928;1932 1949 Cunliffe 1968
	Burrow (Northumb.& Durham)	16	-	Gillam 1957:213
	Corbridge (Northumb.& Durham)	16	-	Gillam 1957:213
fort	Margidunum (Notts)	16	-	Oswald 1923
	Wall (Staffs)	50	A.,LW.	Lyon & Gould 1964
	Camelon (Stirlingsh.)	16	-	Laing 1966

BritainIncidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>military installations</u>				
	Castlecary (Stirlingsh.)	16	-	Laing 1966
(?) fort	Burgh-by-Woodbridge (Suffolk)	3,5,7,9	A.,Arr.,LW.,TR.	unpub. Suffolk Arch. Unit
supply base/ occupation	Fishbourne (Sussex)	2,3,8,12,14, 16,56,58,120	A.,Arr.,F.,LW., PR.,S.,TR.	Cunliffe 1971
'camp'	Catterick (Yorkshire)	16	-	Rigby 1977
	Malton (Yorkshire)	16	-	Corder 1930:62-3
legionary fortress	York (Yorkshire)	TN	F.,LW.,S.	<u>A.E.</u> 1976:101

BritainIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
towns/settlement with probable military assoc.	Camerton (Avon)	TN	A.,S.	Wedlake 1958
	Kelvedon (Essex)	TN	A.,Arr.,F.,S., TR.	A.E.1970:61 Rigby 1981:328 Rodwell & Rodwell 1975 Wilson 1974:442
	Bourton-on-the Water (Gloucs)	TN	-	O'Neil 1972
	Eastington (Gloucs)	46	-	Rigby 1977:38
	Silchester (Hants)	1,2,3,4,5,7, 8,12,13,16, 56,58,120	A.,Arr.,F.,BB., LW.,PR.,S.,TR.	Boon 1957;1958;1969 May 1916 info. M.Fulford
	Winchester (Hants)	2,14,16,58	A.,BB.,F.,S., PR.,TR.	Bennet-Clark 1954 Cunliffe 1965 unpub. Winchester unit.

BritainIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
town/military				
	Canterbury (Kent)	2,3,5,8,13, 14,16,56,7	A.,BB.,F.,LW., PR.,S.,TR.	Frere 1954;1970 Jenkins 1950;1952 Williams 1975 Williams & Frere 1948 unpub. Cant.Arch.Trust Timby forthcoming
	Ancaster (Lincs)	TN	-	Todd 1975 unpub.
	London (City)	2,8	-	Chapman & Johnson 1974 Hawkes & Hull 1947:210 unpub. Museum of London
	Alchester (Oxon)	8(s)	S.	unpub. Ashmolean museum
	Dorchester-on- Thames (Oxon)	3,12,16	A.,BB.,F.,S., TR., TN(mic).	Frere 1962 Hogg & Stevens 1937 unpub. Ashmolean mus.

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
town/military				
	Chichester (Sussex)	2,4,5,7,8,9, 12,13,14,16, 56,58	A.,BB.,F.,LW., PR.,S.,TR.	Cunliffe 1962 Down 1978 Pilmer 1956 White 1935 Winbolt 1935
palace/ supply base	Fishbourne (Sussex)	see under military		
small towns				
	Braintree (Essex)	16(s)	-	Drury 1976
	Heybridge (Essex)	1,2,56	TR	Hull 1963:146
	Wycomb (Gloucs)	TN	-	Corinium museum index

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
small towns	Baldock (Herts)	TN	-	Applebaum 1932 unpub. info. J.Foster
	Maidstone (Kent)	2(s)	-	unpub. Maidstone museum
	Abingdon (Oxon)	TN	TR	Parrington 1978 Rigby 1981:162
	Hacheston (Suffolk)	TN(s)	-	Rigby 1973:17
major town	St. Albans (Verulamium) (Herts)	8	BB.,F.,S.,TR	Frere 1972

BritainIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
Roman villas				
?	Stebbing (Essex)	16	-	Hull 1963:183
	Eccles (Kent)	TN	F.,BB.,TR.	Detsicas 1972;1977 Rigby 1973:17
	Wingham (Kent)	TN	TR	info. D.Kelly
	Angmering (Sussex)	16	S.	Scott 1938
unknown	Thatcham (Berks)	pls.	-	Rigby 1981b
	Basing House (Hants)	?14	S.	Combley et al. 1966
	Ipswich (Suffolk)	TN(s)	-	Clarke 1930:108 Rigby 1978:190

Britain

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
unknown	Wilmington (Sussex)	pl.(s)	-	Hawkes & Hull 1947:210

Incidence of Terra Nigra / Terra Rubra, details unknown.

settlement (Red Hill)	Canvey Island (Essex)	TN/TR	S.	Rodwell 1965:265
settlement/ supply depot	Fingringhoe (Essex)	TN/TR	Arr.,S.	Hull 1963:130
occupation	Wickford (Essex)	TN/TR	S	Hull 1963:200

BritainIncidence of Terra Rubra.

Context	Location	Forms	Associated wares	References
<u>Temple</u>				
	Hayling Island (Hants)	3,5,8,112	F.,PR.,S.,TN., TN(mic).	info. A.King
	Lancing Ring (Sussex)	5v,6,74,84, 112	A.,F.,S.,TN., TN(mic).	Bedwin 1981 Frere 1940
<u>Burial</u>				
single cremation	Snailwell (Cambs)	7,74,112	A.,F.,TN.	Lethbridge 1954
single cremation	Colchester (1942) (Essex)	7,56(s),77	Arr.,F.,S.,TN.	Colchester museum
tumuli with cremation	(i)Lexden (Essex)	74/9,112	TN	Laver 1927
inhumation	(ii)Lexden (Essex)	112	A.,TN.	Birchall 1965

BritainIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
<u>Burial</u>				
single cremation	Southbourne Grove (Essex)	58(s)	A.,TN.	unpub. Southend museum
cremation	Owslebury (Hants)	pls.(s),112	F.,TN.	Collis 1968
cremation cemetery	Baldock (Herts)	4,5,6,8,56, 73/5,91,112	PR.,TN.,TN(mic).	info. J.Foster
cremation cemetery	(i)St.Albans (K.H.L.) (Herts)	5,7,53,54,56, 74/9,76-7,82-4, 112	S.,TN.	Rigby 1981:195
	(ii)St.Albans (Verulam Hills field)(Herts)	8(s),112	F.	Anthony 1970

BritainIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
hillforts	Maiden Castle (Dorset)	3	A.,BB.,S.,TN.	Wheeler 1943
	North Cerney (Gloucs)	56,82/4,112	TN.	unpub. info. S.Trow
	Newhaven (Sussex)	4,5,5v	BB.,F.,TN.	Field 1939
	Stanwick (Yorks)	56	PR.,S.	Wheeler 1954
enclosed settlement	Casterley Camp (Wilts)	pl.(s)	BB.,TN.	Cunnington 1911
?hillfort/ minor settlement	Oare (Wilts)	pls.(s)	F.,BB.,TN.	Cunnington 1909 Swan 1975

BritainIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
Oppida/major settlement	Sheepen (Essex)	3-8,11,53-6, 58,74-9,82-4, 91,112	A.,Arr.,BB.,F., LW.,PR.,S.,VB., TN.,TN(mic).	Hawkes & Hull 1947 1970 excavations unpub.
	Bagendon (Gloucs)	3,5,7v,8,56, 73,74/9,84, 112	A.,Arr.,BB.,F., PR.,S.,TN.	Clifford 1961 info. S.Trow
enclosed settlement	Gatesbury (Herts)	3,5,7,7v,11/12, 53,56,76/7,79, 112,112v,Ober.87, Ober.91.	A.,Arr.,F.,PR., S.,TN.,TN(mic).	Partridge 1979;1981
unenclosed settlement	Skeleton Green (Herts)	3,5,6,7,7v,11/12, 54,56,58,74/9, 76/7,82-4,112, 112v	A.,Arr.,F., PR.,S.,TN., TN(mic).	Partridge 1981
	Prae Wood (St.Albans) (Herts)	53,74/9	A.,Arr.,F.,S., VB.,TN.	Wheeler 1936

BritainIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
Oppida/major settlement	Leicester (Leics)	4v,5,6,53, 112	A.,Arr.,BB.,F., S.,TN.,TN(mic).	Kenyon 1948 unpub.info. P.Clay
	Old Sleaford (Lincs)	6,56,75-9, 84,112	F.,LW.,GB.,TN.	unpub. info. M.Jones
'farms'and other minor open settlement				
	Wyboston (Beds)	112	A.,Arr.,TN.	Tebbutt 1956
	Bierton (Bucks)	pl.	TN?	unpub. info.
	Gussage-all-Saints (Dorset)	5,112	A.,Arr.,F.,S.	Wainwright 1979
open settlement	Ower (Dorset)	5,8,73/4,82-4, 91,112	A.,Arr.,F.,LW., S.,TN.,TN(mic).	Timby forthcoming

Britain

Incidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
'farms' and other minor open settlement	Ardleigh (Essex)	TR	BB.,F.,TN.	Erith & Holbert 1974
	Mucking (Essex)	74/9,112	BB	info. M.Jones
'occupation'	White Notely (Essex)	TR	A,BB.,S.,TN.	Hull 1963:163-4
	Owslebury (Hants)	8,56,82-4, 112	A.,TN.	Collis 1970
'occupation'	Ventnor (I.O.W. Hants)	7	-	Benson 1953
gully	Winnall (Hants)	pl.,82-4	A.,F.,S.	Collis 1978

BritainIncidence of Terra Rubra cont.

<u>Context</u>	<u>Locations</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Settlement</u>				
'farms' and other minor open settlement	Old Winteringham (Lincs)	8,56,58,82-4, 112	BB.,F.,TN.	Stead 1976
	Warham (Norfolk)	77	-	Clarke 1930:57
	Pulborough (Beedings Wood) (Sussex)	pl.,82-4	S.,TN.	Lewes museum
<u>military installations</u>				
legionary fortress	Exeter (Devon)	pl.	A.,F.,LW.,PR., S.,TN.	Bidwell 1979
	Cirencester (Gloucs)	56	A.,F.,LW.,PR., S.,TN.	Brown & McWhirr 1967 Brown et al. 1969 Rennie 1971 Wacher 1962;1964;1965 Wacher & McWhirr 1982 Webster 1959

BritainIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
military installations	Claulentum (Bitterne) (Hants)	5,112	A.,F.,LW.,PR., S.,TN.	Cotton & Gathercole 1958 Laing 1966 Waterman 1952 unpub. Southampton museum
	Richborough (Kent)	5,82-4	A.,F.,LW.,PR., S.,TN.	Bushe-Fox 1926;1928;1932; 1949 Cunliffe 1968
	Burgh-by-Woodbridge (Suffolk)	3,6,7/8,8, 56,82-4,91, 112	A.,Arr.,LW.,TN.	unpub.Suffolk Arch. Unit
supply base/ occupation	Fishbourne (Sussex)	3,5,56,82-4, 112	A.,Arr.,F.,LW., PR.,S.,TN.	Cunliffe 1971
towns/settlement with probable military assoc.	Kelvedon (Essex)	TR	A.,Arr.,F.,S., TN.	A.E. 1970:61 Rigby 1981:328 Rodwell & Rodwell 1975 Wilson 1974:442

BritainIncidence of Terra Rubra cont.

Context	Locations	Forms	Associated wares	References
towns with probable military assoc.	Silchester (Hants)	5,8,53,56, 74-9,82-4, 112	A.,Arr.,BB.,F., LW.,PR.,S.,TN.	Boon 1957;1969 May 1916 info. M.Fulford
	Winchester (Hants)	5	A.,BB.,F.,PR., S.,TN.	Bennet-Clark 1954 Cunliffe 1965 unpub. Winchester Unit
	Canterbury (Kent)	3,5,7,8,9, 56,58,76, 74/9,82,84, 91,112	A.,BB.,F.,LW., PR.,S.,TN.	Frere 1954:1970 Jenkins 1950;1952;1954 Williams 1975 Williams & Frere 1948 unpub. Can.Arch.Trust Timby forthcoming
	London (City)	8	-	Chapman & Johnson 1974 Hawkes & Hull 1947:210
	Dorchester-on-Thames (Oxon)	5,82-4,91,112	A.,BB.,F.,S., TN.,TN(mic).	Frere 1962 Hogg & Stevens 1937 unpub. Ashmolean museum

BritainIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
town/military	Chichester (Sussex)	3,5,7,8,9,56, 58,74/9,76,82- 84,91,112	A.,BB.,F.,LW., PR.,S.,TN.	Cunliffe 1962 Down 1978 Pilmer 1956 White 1935 Winbolt 1935
small towns	Heybridge (Essex)	84,112	TN.	Hull 1963:146
	Abingdon (Oxon)	74/9	TN.	Parrington 1978 Rigby 1981:162
major town	St.Albans (Verulamium) (Herts)	53	BB.,F.,S.,TN.	Frere 1972
Roman villa	Wingham (Kent)	TR	TN	info. D.Kelly
enclosure/ villa	Callow Hill (Oxon)	756	BB.	Thomas 1958

Britain

Incidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
unknown	Wickham (The Croft)(Hants)	?112	-	unpub. Southsea museum
unknown	Murston (Kent)	8	-	British museum
unknown	Charterhouse (Somerset)	74/9	-	Rigby 1981:162
unknown	South Cadbury (Somerset)	74/9	-	Rigby 1981:162
unknown	Wickbourne (Sussex)	74/9	-	Rigby 1981:162

FRANCEIncidence of Terra Nigra.

Context	Location	Forms	Associated wares	References
<u>Burial</u>				
cremation cemetery	Arnel,Hauvine (Ardennes)	5(s),8,56	F.,TR.	Roualet 1978
cremation cemetery	Feneux,Hauvine (Ardennes)	58(s),120	F.,TR.	Roualet 1978
cremation cemetery	Les Heurteaux, Hauvine (Ardennes)	2	F.,TR.	Roualet 1979
2 cremations	St. Clement-à-Arnes (Ardennes)	56(s),58(s)	TR.	Roualet 1979
cremation cemetery	Brumath (Bas Rhin)	56(s),	A.,F.,S.,BB.	Hatt 1962:505;1970:330 Pétry 1974:386 Schaeffer 1923 Schnitzler 1978

FRANCEIncidence of Terra Rubra.

Context	Location	Forms	Associated wares	References
<u>Burial</u>				
cremation cemetery	Arnel,Hauvine (Ardennes)	3(s),5,56(s), 82-4,74-9,112v	F.,TN.	Roualet 1978
cremation cemetery	Feneux,Hauvine (Ardennes)	8(s)	F.,TN.	Roualet 1978
cremation cemetery	Les Heurteaux Hauvine (Ardennes)	5(s)	F.,TN.	Roualet 1979
cremation	Menil-Annelles (Ardennes)	pls.,74-79	-	Bry & Fromols 1938 Rigby 1981:329
2 cremations	St.Clement-à-Arnes (Ardennes)	74/9	TN	Roualet 1979
cemetery (cremation)	Hallignicourt (Haute Marne)	TR	A.,TN.	Frézouls 1977:414

France

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
cremation cemetery	Niederroedern (Bas Rhin)	TN.	-	Pétry 1978:375
cemetery (cremation)	Hallignicourt (Haute Marne)	TN.	A.,TR.	Frézouls 1977:414
cemetery (cremation)	Bouy (Marne)	TN.(s)	A.	unpub. Epernay museum
cremation cemetery	Ecury-le-Repos (Marne)	13,56,58	A.,F.,TR.	Brisson & Hatt 1955:319 La Chanoine & Favret 1949
enclosed cemetery	Normée (Marne)	16(s)	A.,TR.	Epernay museum
cremation cemetery	Prunay (Marne)	56(s)	A.,F.,S.,TR.	Bry & Fromols 1938

France

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
cremation cemetery	Bainville-sur-Madon (Meurthe & Moselle)	TN.	S.	Burnand 1978:338
cremation cemetery	Flabeauville (Meurthe & Moselle)	pl.(s)	-	Billoret 1972:354
cremation cemetery	Grand-Failly (Meurthe & Moselle)	8(s),16,58	-	Billoret 1972:354
cremation cemetery	Arras (Pas de Calais)	x1 stamp	A.,S.,?TR.	Hawkes & Hull 1947:209
cremation cemetery	Beugin (Pas de Calais)	?bottle	-	Tuffreau-Libres 1978:123
cremation cemetery	Noyelles-Godault (Pas de Calais)	1,2,5,8,9v, BB,53,56,58,	A.,F.,TR.	Bastien & Demolon 1975 Demolon 1979
cremation cemetery	Vimy (Pas de Calais)	TN.	TR.	Tuffreau-Libres 1978:123

FranceIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
occupation ? villa	Château-Porcien (Ardennes)	pl.	-	Frézouls 1973:394 " 1975:387
occupation	Brienne-le-Vieille (Aube)	TN(s)	S.	Frézouls 1977:398 Hawkes & Hull 1947:212
fort/town	Strasbourg (Bas Rhin)	8,14	Arr.,F.,S.	Hatt 1954:497, 1968:423 Hawkes & Hull 1947:220 Schnitzler 1978
occupation	Andilly-en-Bassigny (Haute Marne)	?TN	-	Frézouls 1975:413
occupation	Horbourg (Haut Rhin)	TN	S.	Hatt 1968:434
vicus	Argenton-sur-Creuse (Indre)	?TN	-	De Kisch 1976:318
occupation	Aulnay-aux-Planches (Marne)	7,8,16,56(s)	F.,TR.	Roualet 1974

FranceIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
town	Châlons-sur-Marne (Marne)	pls., cups	A., ACO., Arr., F., S.	Frézouls 1971:293, 1973:409 1975:402 Rigby 1981:168
occupation	Dommartin-sous- Hans (Marne)	?TN	-	Frézouls 1971:294
occupation	Jalons-les-Vignes (Marne)	?TN	S.	Frézouls 1971:294
occupation	Jonchery-sur-Suippe (Marne)	?TN	-	Frézouls 1969:304
occupation	Mareuil-sur-Ay (Marne)	TN	-	Frézouls 1971:295
villa	Sezanne (Marne)	TN(s), cup	TR	unpub. Epernay museum

FranceIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
occupation	Vadenay (Marne)	TN	-	Frézouls 1971:298
occupation	Bainville-sur- Madon (Meurthe & Moselle)	pls.	-	Burnand 1978:338
occupation	Sarrebourg (Moselle)	TN	S.	Billoret 1968:290
buildings	Château L'Abbaye (Nord)	16	F.,PR.	Florin & Schrevel 1979
occupation	Haussey (Nord)	58	-	Tuffreau-Libres et al. 1976
vicus	Lewarde (Nord)	5,8,58,120	PR.,S.	Demolon et al. 1979

France

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
villa	Mauberge (Nord)	58	-	Hemmer 1975
occupation	St.Maximum (Oise)	pl.	-	Desbordes 1975:304 Piganiol 1961:304
vicus	Arras (Pas de Calais)	2,16	-	Jelski 1980
occupation	Harnes (Pas de Calais)	TN	-	Pietri 1970:528,1971:230
vicus	Rouen (Seine Maritime)	TN	ACO.,Arr.,TR.	Hawkes & Hull 1947:210 Manguard 1978:310
open settlement	Melun (Seine et Marne)	TN	A.,ACO.	Collis 1975

France

Incidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Pottery workshops/ Industrial areas</u>				
	Vauclair (Aisne)	12/13,16	-	Litt 1969
	La Villeneuve-au -Châtelot (Aube)	pls., cups	S.,	Frézouls 1967:281, 1969:299 1971:285, 1973:407 Fromols 1938:2
	Brumath (Bas Rhin)	12/13, TN(s)	-	Schnitzler 1978
	Ehl (Bas Rhin)	2, 12/13, 56, 58; TN stamp	-	Deiber 1969 Schnitzler 1978
	Usspann (Bas Rhin)	56	-	Schnitzler 1978
	Vertault (Côte d'Or)	2, 5, 8, 12, 56	TR.	Bohn 1922 Lorimy 1923
	Courmelois (Marne)	8, 12, 14, 15, 16, cup	-	Fromols 1938 unpub. Reims museum

FranceIncidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Pottery workshops/ industrial areas</u>				
	La Prosne (Marne)	56(s)	-	Bry & Fromols 1938
	Livry-sur-Vesle (Marne)	TN	S.	Frézouls 1971:295
	Louvercy (Marne)	pls.(s)	-	Frézouls 1967:287,1971:295
	Morains (Marne)	16,TN(s)	TR	Fromols 1938 Hawkes & Hull 1947:203
	Reims (Marne)	5,8,56,120	A.,Arr.,F.,S., BB.,TR.	Frézouls 1969:303,1971:295 1973:410,1975:407 unpub. Reims museum
	Sept Saulx (Marne)	1/2,2,4,5,6,8, 12,13,14,52,53, 56,79	TR	Frézouls 1971:297 Fromols 1939

France

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>Pottery workshops/ industrial areas</u>				
	Thuisy (Marne)	2,4,5,7,8,12, 13,56	TR	Bry 1944 Fromols 1938
	Bliesbruck (Moselle)	TN	-	Burnand 1978:329 Schnitzler 1978
	Boucheporn (Moselle)	TN	S.	Billoret 1968:382 Schnitzler 1978
	Chemery (Moselle)	TN	S.	Schnitzler 1978
	Florange (Moselle)	16	S.	Billoret 1968:386 Hatt 1962:483 Schnitzler 1978
	Metz (Moselle)	5(s),12(s),56, 58,120	TR	Koethe 1938:100 Reusch 1943

FranceIncidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Pottery workshops/ industrial areas</u>				
	Bavay (Nord)	5,16	A.,F.,PR.,TR	Amand 1959 Boucly & Carmelez 1974 Carmelez 1976 Fromols 1938
	St. Sauveur (Oise)	?TN	-	Pietri 1971:227
	Labussière (Pas de Calais)	pl.	TR	Demolon 1973 Tuffreau-Libres 1980
	Bussy-le-Répos (Yonne)	?TN	-	Fromols 1938:50
unknown	Bar-sur-Aube (Aube)	TN(s)	-	Frézouls 1975:394,1977:397
unknown	St. Germain-Laville (Marne)	pls.	A.	Frézouls 1971:296

France

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
unknown	Bouvines (Nord)	TN(s)	-	Koethe 1938:91
unknown	Douai (Nord)	TN(s)	-	Hawkes & Hull 1947:209
unknown	Hermes (Oise)	pls.(s)	-	<u>C.I.L.</u> XIII,10010:210
unknown	Therouanne (Pas de Calais)	TN	S.	Delamaire 1971
unknown	Wissant (Pas de Calais)	16,pls.	BB	Mariette 1966
unknown	Autun (Saone & Loire)	2,12,16	-	Hawkes & Hull 1947:216,219

FranceIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
cremation cemetery	Ecury-le-Repos (Marne)	8,8v,53,72-4	A.,F.,TN.	Brisson & Hatt 1955:319 La Chanoine & Favret 1949
cremation cemetery	Montepreux (Marne)	82-84,112	-	Epernay museum
enclosed cemetery	Normée (Marne)	7/8(s)	A.,TN.	Epernay museum
cremation cemetery	Prunay (Marne)	5(s),56(s),58(s),78/9	A.,F.,S.,TN.	Bry & Fromols 1938
cremation cemetery	Noyelles Godault (Pas de Calais)	7,8,56,58,82-4,112v	A.,F.,TN.	Bastien & Demolon 1975 Demolon 1979
cremation cemetery	Vimy (Pas de Calais)	TR.	TN.	Tuffreau-Libres 1978:123

France

Incidence of Terra Rubra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Settlement</u>				
town	Troyes (Aube)	78/9, 82-4, 91	-	Martin 1964:295
oppida	Alesia (Côte d'Or)	pl.(s)	-	Rigby 1981:168
occupation	Aulnay-aux-Planches (Marne)	8, 79	A., F., TN.	Roualet 1974
villa	Sezanne (Marne)	82-4, pl.(s)	TN.	Epernay museum
vicus	Rouen (Seine Maritime)	TR.	ACO., Arr., BB., TN.	Hawkes & Hull 1947:210 Manguard 1978:310
<u>Potter workshops/ Industrial areas</u>				
-	Vertault (Côte d'Or)	3, 5, 8, 56, 78/9, 84	TN.	Bohn 1922 Lorimy 1923

FranceIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
<u>Pottery workshops/ Industrial areas</u>				
	Morains (Marne)	75-79	-	Bry & Fromols 1938
	Mourmelon-le-Petit (Marne)	pls.(s)	-	Frézouls 1971:295
	Reims (Marne)	3,4,5,7,8, 82-84,112v F.	A.,Arr.,BB.,F., S.,TN.	Frézouls 1969:303 " 1971:295-6 " 1973:410-414 " 1975:407 unpub. material Reims museum
	Sept Saulx (Marne)	4,7,8,82-4	TN	Fromols 1939 Frézouls 1971:297-8
	Thuisy (Marne)	5,6	TN.	Fromols 1938
	Metz (Moselle)	4,5,74	TN.	Koethe 1938:100 Reusch 1943

France

Incidence of Terra Rubra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>pottery workshops/ industrial areas</u>				
	Bavay (Nord)	cups, pls.	F., PR., TN.	Amand 1959 Boucly & Carmelez 1974 Carmelez 1976 Fromols 1938
	Labussière (Pas de Calais)	pls., 56, 112	TN.	Demolon 1973 Tuffreau-Libre 1980
unknown	Champlieu (Oise)	86	-	Hawkes & Hull 1947:234
unknown	Ergnies (Somme)	TR stamp	-	Hawkes & Hull 1947:209
unknown	Poitiers (Vienne)	TR stamp	-	Hawkes & Hull 1947:210

France

Incidence of Terra Nigra / Terra Rubra, details unknown.

Context	Location	Forms	Associated wares	References
-	Soissons (Aisne)	TN/TR(s)	Arr.	C.I.L.XIII,10010:36 Hawkes & Hull 1947:210-11
-	Landreville (Aube)	x1 stamp	-	Hawkes & Hull 1947:212
-	Le Châtelet (Cher)	x2 stamps	-	Colson 1922 Drouhot 1977
-	Epinay-Ste-Beuve (Eure)	x1 stamp	-	Hawkes & Hull 1947:211
-	Evreux (Eure)	x1 stamp	-	Koethe 1938:93
-	Pitres (Eure)	x1 stamp	-	Koethe 1938:100
-	Langres (Haute Marne)	TN/TR pls. x4 stamps	Arr.	Drouhot 1977 Koethe 1938:103

France

Incidence of Terra Nigra / Terra Rubra, details unknown.

Context	Location	Forms	Associated wares	References
-	St. Dizier (Haute Marne)	x1 stamp	-	Koethe 1938:103
-	Tours (Indre & Loire)	x1 stamp	-	<u>C.I.L.</u> XIII,10010:2944
-	Auberive (Marne)	x1 stamp	-	Hawkes & Hull 1947:210
-	Bussy-le-Château (Marne)	x1 stamp	-	Hawkes & Hull 1947:212
-	Epernay (Marne)	x2 stamps	-	Boucly & Carmelez 1980
-	Scarponne (Meurthe & Moselle)	x1 stamp	-	Hawkes & Hull 1947:211
-	Pommern (Moselle)	x1 stamp	-	Koethe 1938:101

FranceIncidence of Terra Nigra / Terra Rubra, details unknown.

Context	Location	Forms	Associated wares	References
-	Cambrai (Nord)	x1 stamp	-	Hawkes & Hull 1947:212
-	Beauvais (Oise)	x1 stamp	-	Hawkes & Hull 1947:210
-	Forêt de Compeigne (Oise)	pls.,56,86 x7 stamps	-	Hawkes & Hull 1947:209,211 Koethe 1938:103 Rigby 1978:193
occupation	Vendeuil-Caply (Oise)	TN/TR	Arr.	Desbordes 1975:308 Dufour 1964
-	Paris	pls.,cups x4 stamps	S.	Fromols 1959 Durand-Lefebvre 1963
-	Boulogne (Pas de Calais)	x2 stamps	-	Hawkes & Hull 1947:211-12
-	Amiens (Somme)	x3 stamps	BB.	Koethe 1938:100,104 Pietri 1970:528 Roffin & Vasselle 1966

BELGIUMIncidence of Terra Nigra.

Context	Location	Forms	Associated wares	References
<u>Burial</u>				
cremation cemetery	Courtrai (East Flanders)	5,16,58,82-4	PR.,S., TR.	F.A.XIII (1958):350 Leva & Coene 1969
single cremation	Baudour (Hainaut)	16(s)	F.,TR.	Amand 1959
cremation cemetery	Blicquy (Hainaut)	5,8,13,14,16, 58,B6	F.,PR.,S.,TR.	De Laet 1964 De Laet & Thoen 1968 De Laet et al. 1972
cremation cemetery	Péronnes-lez- Binche (Hainaut)	2(mic.)	TR.	Faider-Feytmans 1947
single cremation	Peruwelz (Hainaut)	2(mic.)	-	Faider-Feytmans 1947 :85
cremation cemetery	Speinnes (Hainaut)	Hol.225/228	TR.	Amand 1959:295

BelgiumIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
tumulus with cremation	Beringen (Limburg)	-	-	<u>F.A.</u> XXIV-V (1974):683
cremation cemetery	Koninksem (Limburg)	-	-	<u>F.A.</u> XIV (1959):345
inhumation	Tongeren (Limburg)	pl.	-	Koethe 1938:95 Mertens et al. 1975
cremation cemetery	Chantemelle (Luxembourg)	2,7,8,9,58, G284.	F.,S.,TR.	Roosens 1954b
cremation cemetery	Fouches (Luxembourg)	5,8,9,12,16, 58	A.,F.,S.,TR.	Roosens 1954a
cremation cemetery	Fontenouille (Luxembourg)	5(s),7/8(s), 12(s),56(s),120	F.,TR.	De Loe 1905
tumuli with cremations	Hachy (Luxembourg)	5,13,74	A.,F.,TR.	Nöel et al. 1971

BelgiumIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
single cremation	Hives (Luxembourg)	cup	F.,S.	<u>F.A.</u> XIII (1956):332
cremation cemetery	Lavaux (Luxembourg)	7/8,pls.	-	Bourgeois 1967
cremation cemetery	Sampont (Luxembourg)	5,8,13,16,56, 58,82-4,120, G284	A.,S.,TR.	Nbel 1968
single cremation	Rognee (?Namur)	2(mic.)	-	Faider-Feytmans 1947:85
cremation cemetery	Sombreffe (Namur)	pls.x2	-	<u>F.A.</u> XVII (1962):408

Settlement

?occupation	Harmignies (Hainaut)	2,16,?53	TR	Amand 1959

BelgiumIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
occupation	Liberchies (Hainaut)	13,16,84	ACO.,Arr.,TR.	Claes 1969 Claes & Milliau 1965
occupation	Stambruges (Hainaut)	16	-	Amand 1959:302
town	Tournai (Hainaut)	5,12,58	F.,PR.,S.,TR.	De Laet & Thoen 1969:28 Hawkes & Hull 1947:211
villa	Haccourt (Liège)	16,120	PR.,S.,TR.	De Boe 1974
settlement	Tongeren (Limburg)	5,16,120, G326	Arr.,TR.	Koethe 1938:103 Mertens et al. 1975
pottery workshops	Arlon (Luxembourg)	TN	TR	Bertrang 1960
vicus	Vertunum (St.Mard) (Luxembourg)	5,8,16,58	S.	Mertens & Cahen-Delhayé 1970

BelgiumIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
occupation	Hofstade (East Flanders)	8,16,58,120	F.,S.,TR.	De Laet 1947
ditch / buildings	Velzeke (East Flanders)	TN	S.,TR.	<u>F.A.XX</u> (1969):384 Wankenne 1972:56
occupation	Werwik (Flanders)	2,13,14,16, 120(s),G326	A.,S.,TR.	Carpentier 1955:49 Goeminne 1970 Wankenne 1972:28
unknown	Ghent (East Flanders)	x1 stamp	-	Hawkes & Hull 1947:211
unknown	Angreau (Hainaut)	x1 stamp	-	Hawkes & Hull 1947:211
unknown	Peissant (Hainaut)	13	-	Hawkes & Hull 1947:220

Belgium

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
unknown	Wasmes (Hainaut)	x1 stamp	TR	Koethe 1938:97
unknown	Tongeren (Limburg)	x2 stamps	-	Koethe 1938:102
unknown	Martelange (Luxembourg)	x1 stamp	TR	Koethe 1938:97
unknown	Poncel (Luxembourg)	x1 stamp	-	N8el 1968

BELGIUMIncidence of Terra Rubra.

Context	Location	Forms	Associated wares	References
<u>Burial</u> cremation cemetery	Courtrai (West Flanders)	7,112	PR.,S.,TN.	F.A. XIII (1958):350 Leva & Coene 1969.
single cremation	Baudour (Hainaut)	58(s)	F.,TN.	Amand 1959
cremation cemetery	Blicquy (Hainaut)	3,5(s),8,9	F.,PR.,S.,TN.	De Laet 1964 De Laet & Thoen 1968 De Laet et al. 1972
cremation cemetery	Péronnes-lez- Binche (Hainaut)	Hol.104	-	Faider-Feytmans 1947
cremation cemetery	Spiennes (Hainaut)	56(s)	TN.	Amand 1959:295
cremation cemetery	Chantemelle (Luxembourg)	5,56,74,76, 82-4,112	F.,S.,TN.	Roosens 1954b Nöel 1968

BelgiumIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
cremation cemetery	Fontenouille (Luxembourg)	58,112	F.,TN.	De Loe 1905
cremation cemetery	Fouches (Luxembourg)	5,7,8,9,56, 58,74-79, 82-84,112	F.,S.,TN.	Roosens 1954a
tumuli with cremations	Hachy (Luxembourg)	8,56,58,112	A.,F.,TN.	N8el et al. 1971
cremation cemetery	Sampont (Luxembourg)	5,7,8,56,58, 74-77,85,112	A.,S.,TN.	N8el 1968
<u>Settlement</u>				
occupation	Hofstade (East Flanders)	82-84	F.,S.,TN.	De Laet 1947
ditch/ buildings	Velzeke (East Flanders)	TR	S.,TN.	<u>F.A.XX</u> (1969):384 Wankenne 1972:56

BelgiumIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
occupation	Werwik (Flanders)	5,8,Hol.11b	A.,S.,TN.	Carpentier 1955:49 Goeminne 1970 Wankenne 1972:28
?occupation	Harmignies (Hainaut)	79	TN.	Amand 1959 Hawkes & Hull 1947:232
occupation	Liberchies (Hainaut)	53,84	ACO.,Arr., TN.	Claes 1969 Claes & Milliau 1965
town	Tournai (Hainaut)	8	F.,PR.,S.,TN.	De Laet & Thoen 1969:28 Hawkes & Hull 1947:211
villa	Haccourt (Liège)	82-4,112,BB	PR.,S.,TN.	De Boe 1974
settlement	Tongeren (Limburg)	112,BB	Arr.,TN.	Koethe 1938:103 Mertens et al. 1975

Belgium

Incidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
pottery workshops	Arlon (Luxembourg)	3(s)	TN.	Bertrang 1960 Koethe 1938:103
unknown	Brussels (Brabant)	stamp	-	Hawkes & Hull 1947:210
unknown	Wasmès (Hainaut)	stamp	-	Koethe 1938:97
unknown	Martelange (Luxembourg)	stamp	TN.	Koethe 1938:97

LUXEMBOURGIncidence of Terra Nigra.

Context	Location	Forms	Associated wares	References
<u>Burial</u>				
cemetery	Goeblingen-Nospelt	1,Ha.72B	A.,Arr.,ACO,F., PR.,S.,TR.	Thill 1966; 1967.
cemetery	Krëckelbiërg	8,16	F.,TR.	Thill 1969;1970.
<u>Settlement</u>				
oppidum	Titelberg	pl.&cups	A.,Arr.,ACO.,C., F.,S.,TR.	Oxé 1938 Thomas et al. 1976
small town/ villa	Dalheim	1,2,12,56	Arr.,TR.	Metzler & Zimmer 1978
'occupation/ burials.	Dalheim 'Petzel'	2,5,5v,16, 56,Hof.120	F.,PR.,S.,TR.	Krier 1980
unknown	Wasserbillig	pl.	-	Rink 1950:254

LUXEMBOURG

Incidence of Terra Rubra.

Context	Location	Forms	Associated wares	References
<u>Burial</u>				
cemetery	Goeblingen-Nospelt	52/53,Ha.72B, Ha.73a	A.,Arr.,ACO.,F., PR.,S.,TN.	Thill 1966; 1967
cemetery	Kröckelbierg	53,56,112,81 Ha.72b,Hof.110	F.,TN.	Thill 1969; 1970
<u>cremation</u> <u>Settlement</u>	Livingen	112	A.,Arr.,F.	Krier 1979
oppidum	Titelberg	pls.& cups	A.,Arr.,ACO.,C., F.,S.,TN.	Oxé 1938 Thomas et al. 1976
small town/ villa	Dalheim	3,5,8,53	Arr.,TN.	Metzler & Zimmer 1978
'occupation'/ burials	Dalheim 'Petzel'	3,5,5v,7,8, 74,78/9,84.	F.,PR.,S.,TN.	Krier 1980
unknown	Altrier?	stamp	-	Rink 1950:no.4

HOLLANDIncidence of Terra Nigra.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Burial</u>				
single cremation	Hatert (Gelderland)	pls.	S.	<u>F.A.</u> XVII (1962):398
tumuli	Moyland (Gelderland)	stamp	S.	Koethe 1938:95 <u>F.A.</u> XV(1960):367
cremation cemeteries	Nijmegen (Gelderland)	2,4,5,7,8,12, 13,14,15,16,50, 52,54,56,58,112, 120,Hol.1262	A.,F.,PR.,S.,VB. TR.	Holwerda 1941 Vermeulen 1932
cemetery	Maastricht (Limburg)	pl.	S.	Bloemers 1973:237
cemetery	Gaalse Heide (Noord Brabant)	?	S.	Moddermans & Isings 1962
single cremation	Vechten (Utrecht)	? x6 stamps	A.,F.,S.	<u>F.A.</u> XXIV (1974):692 <u>F.A.</u> XXVI/VII (1975-78):722

HollandIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>Settlement</u>				
fort	Nijmegen (Gelderland)	2,5,7,8,12-14, 15,16,56,58, 112,120.	-	Kam museum
occupation	Ewijk (Gelderland)	82-4	-	Hulst 1969:112
occupation	Ubbergen (Gelderland)	58 stamps	A.,Arr.,S.	Bry & Fromols 1938 <u>F.A.</u> XXVI-VII (1975-78):756
occupation	Ubach-over-Wörms (Limburg)	-	F.,S.,TR.	Bloemers 1971:115 <u>F.A.</u> XXVI-VII (1975-78):756
occupation	Vaals (Limburg)	?TN	A.,S.	<u>F.A.</u> XXIII (1972):407
wells	Sint-Michielsgestel (Noord Brabant)	?TN	S.	Bogaers 1966:93

Holland

Incidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
occupation	Krommenie (Noord Brabant)	?TN	S.	<u>Helinium</u> 4 (1964):154-6
occupation	Dalfsen (Overijssel)	?TN	-	van Es 1966:172
occupation	Papendrecht (Zuid Holland)	TN	S.	<u>F.A.XXI</u> (1970):388

HOLLAND

Incidence of Terra Rubra.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
cremation cemeteries	Nijmegen (Gelderland)	5,7,8,56,58, 72-9,82-4,91, 112,Hol.694-5, Hol.912	A.,F.,PR.,S.,VB. TN.	Holwerda 1941 Vermeulen 1932
<u>Settlement</u>				
fort	Nijmegen (Gelderland)	as above		Kam museum
vicus	Ubach-over-Wörms (Limburg)	pl.	F.,S.,TN.	Bloemers 1971:115 <u>F.A.XXVI-XXVII</u> (1975-8):756

GERMANYIncidence of Terra Nigra.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Burial</u>				
single grave	Hofheim (Hessen)	pl.(s)	-	Rigby 1981:329
grave group	Gressenich (Nord-Rh.Westfalen)	8(s),Hol.149	-	Haupt 1973
cemetery	Andernach (Rhinel.Palat.)	4,5,7,8,12, 15	TR	Behn 1910 B.J.86(1888):taf 5 Hawkes & Hull 1947:211-12 Koethe 1938:105
cemetery	Bauler (Rhinel.Palat.)	16,56	TR	<u>T.Z.</u> 14(1939):255
cemetery	Bingen (Rhinel.Palat.)	7,8,12,15,16, 56,82-5	TR	Behn 1910 Koethe 1938:98 Koethe & Kimmig 1937

GermanyIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
grave group	Bosen (Rhinel.Palat.)	56	TR	Behrens 1950
grave group	Ferschweiler (Rhinel.Palat.)	16v,56	A.,F.,TR	<u>T.Z.</u> 15(1940):72 <u>T.Z.</u> 16-17(1941-42):236
cemetery	Gillenfeld (Rhinel.Palat.)	pl.,cup	-	<u>T.Z.</u> 16-17(1941-42):225
grave group	Harzheim (Rhinel.Palat.)	TN.,Hol.1153	S.	Petrokovits 1963:535
cemetery	Hoppstädten (Rhinel.Palat.)	TN(s)	TR	Behrens 1950:50
cemetery	Koblenz-Neuendorf (Rhinel.Palat.)	2,5,7,12,15	TR	Günther 1901 Koethe & Kimmig 1937
grave group	Kreuznach (Rhinel.Palat.)	8,16,52/3,56	A.,BB.,F.,S., TR	Hussong 1939 Oxé 1938:238

Germany

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
single grave	Kyllburgweiler (Rhinel.Palat.)	2	-	Koethe 1938:102
tumuli	Leudersdorf (Rhinel.Palat.)	5,16,120	F.,S.,TR	Koethe 1939:130
cemetery	Meckel (Rhinel.Palat.)	pls.	-	Koethe 1938:100,105
cremation cemetery	Mesenich (Rhinel.Palat.)	8,16	TR	<u>T.Z.14</u> (1939):260
cremation cemetery	Morsbach (Rhinel.Palat.)	5,58	TR	Metz museum
tumuli	Nannhausen (Rhinel.Palat.)	8,56,58	A.,TR	Koethe 1939:148

GermanyIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
tumuli	Obergonderhausen (Rhineland-Palat.)	pl.	-	<u>B. J.</u> 77(1884):219
single grave	Philippsweiler (Rhineland-Palat.)	16, cup	S	<u>T. Z.</u> 14(1939)
tumuli	Rieweiler (Rhineland-Palat.)	5	-	<u>B. J.</u> 142(1937):324
cremation cemetery	Speyer (Rhineland-Palat.)	TN	TR	Koethe 1938:94,98
cemetery	Sponsheim (Rhineland-Palat.)	2, 12/13(s)	A., F., TR	Behn 1941
cemetery	Stahl (Rhineland-Palat.)	3, 14, 52v, 56, G284	F., BB., TR	<u>T. Z.</u> 5(1912):33 Koethe & Kimmig 1937

Germany

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
?grave	Temmels (Rhinel.Palat.)	Ha.72A(s)	A.,S.,VB.,TR	<u>T.Z.</u> 30(1967):277
cemetery	Trier (Rhinel.Palat.)	2,3,5,7,8,13, 14,15,16,Ha.72B, 56,58,Koethe V	Arr.,F.,S.,TR	Behn 1910 Koethe 1938 Koethe & Kimmig 1937 Wightman 1970
grave group	Urmitz (Rhinel.Palat.)	4,12,13,15,53, 58	TR	Hawkes & Hull 1947:210 Thill 1967 <u>T.Z.</u> 14(1939):255
grave group	Waldrach (Rhinel.Palat.)	16	TR	<u>T.Z.</u> 33-34(1970-71):276
grave group	Wallerstheim (Rhinel.Palat.)	16,53,85	TR	Koethe 1938:94,102 Koethe & Kimmig 1937

GermanyIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
cremation cemetery	Wederath (Rhinel.Palat.)	1,2,3,5,7,8, 15,16,53,56, 58,112	A.,BB.,F.,S.,VB., TR	Haffner 1971;1974;1978
cemetery	Weissenau (Rhinel.Palat.)	9,16	TR	Behn 1910 Koethe 1938:105
cemetery	Welschbillig (Rhinel.Palat.)	pls.,16,112v	TR	<u>T.Z.</u> 33-34(1970-71):277
grave group	Wincheringen (Rhinel.Palat.)	1,2,Ha.72B	A.,F.,TR	Koethe & Kimmig 1937
cemetery	Lebach (Saar)	14,pls.	TR	Koethe 1938 Rigby 1981:329
single grave	Losheim (Saar)	cup(s)	-	Reusch 1943:148
cemetery	Roden (Saar)	x2(s)	TR	Koethe 1938:103 Koethe & Kimmig 1937:46

GermanyIncidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Temple</u>				
	Wallenborn (Rhinel.Palat.)	TN	-	Binsfeld 1969
<u>Settlement</u>				
oppida	Petrisberg (Rhinel.Palat.)	1	BB.,TR	Loeschcke 1939 Thill 1967
<u>military installations</u>				
	Aislingen (Baden Wurtt.)	58	-	Schnitzler 1978 Ulbert 1959
	Rheingönheim (Baden Wurtt.)	7/8,46,50, Usk 1	A.,F.,PR.,S.	Ulbert 1969
	Bad Nauheim (Hessen)	1,2,8,13,15, 53,82-4,112v	A.,Arr.,F.,PR., S.,TR	Simon 1960 Schönberger 1976

Germany

Incidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>military installations</u>				
	Friedberg (Hessen)	1/2,82-4	Arr.,F.,PR.,VB., TR	Mager & Roth 1939 Schönberger 1976
	Hofheim (Hessen)	3,4,5,7,8, 16,56,58	PR.,S.,TR	Ritterling 1912
	Wiesbaden (Hessen)	2,5,82	Arr.,S.,TR	Koethe 1938:97
	Haltern (Nord-Rh. Westfalen)	1,2,3,4,5,7, 8,12,53,56, 82-4,Ha.79,81, 82	A.,Arr.,ACO.,F., GB.,PR.,VB.,S., TR.	Loeschcke 1909
	Köln (Cologne) (Nord-Rh. Westfalen)	2,pls.,cups	A.,Arr.,F.,S., TR.	Filtzinger 1963

GermanyIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
military installations	Neuss (Novaesium) (Nord-Rh.Westfalen)	2,3,5,7,8,9, 12,13,16,52, 56,58,82-4,91, 112v,120	A.,Arr.,ACO.,F., GB.,PR.,VB.,TR.	Filtzinger 1972 Vegas 1975
	Oberaden (Nord-Rh.Westfalen)	1,2,52-3,pls., cups	A.,Arr.,ACO.,F., TR.	Albrecht 1942
	Vetera (Nord-Rh.Westfalen)	pls.,cups	Arr.,ACO.,TR.	Fromols 1938 Hawkes & Hull 1947:211 Koethe & Kimmig 1937:51 Rigby 1981:168
	Mainz (Rhinel.Palat.)	1/2,5,7,15, 16,56,58	Arr.,A.,ACO., F.,VB.,TR.	Behn 1910 Behrens 1912 Loeschcke 1909:265
<u>kiln area</u>	Heddernheim (Hessen)	TN(s)	-	Hawkes & Hull 1947:212

GermanyIncidence of Terra Nigra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>UNKNOWN</u>				
-	Ladenburg (Baden-Wurtt.)	TN	S.	Heukemes 1971
-	Tuttlingen (Baden-Wurtt.)	16	-	Filtzinger 1974
-	Aachen (Nord-Rh.Westfalen)	?TN urn(s)	-	Koethe 1938:95
-	Bardenberg (Nord-Rh.Wurtt.)	BB	-	Piepers & Haupt 1972
-	Hochneukirch (Nord-Rh.Westfalen)	BB	S.	Hollmann & Haupt 1972:523
-	Pulheim (Nord-Rh.Westfalen)	BB	-	Gross & Haupt 1972:534
-	Weilerwist (Nord-Rh.Westfalen)	TN	-	Gross & Haupt 1972:540

GermanyIncidence of Terra Nigra cont.

Context	Location	Forms	Associated wares	References
<u>unknown</u>				
-	Albig (Rhinel.Palat.)	3	-	Koethe & Kimmig 1937:49
-	Detzem (Rhinel.Palat.)	5(s)	-	Koethe 1938:103
-	Gondorf (Rhinel.Palat.)	2(s)	-	Koethe 1938:103
-	Hermesdorf (Rhinel.Palat.)	pl.	-	Koethe 1938:98
-	Osthofen (Rhinel.Palat.)	12/14(s)	-	Koethe 1938:104
-	Wörms (Rhinel.Palat.)	TN(s)	TR	Koethe 1938:95
-	Grügelborn (Saar)	2(s)	-	Koethe 1938:103

Addenda

Germany

Incidence of Terra Nigra

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>Temple</u>				
	Kornelimünster (Nord Rh. Westfalen)	16(s)x2	A., PR., S.	Haupt 1972:526
<u>Burial cremation cemetery</u>	Xanten (Nord Rh. Westfalen)	16(s)x2	-	Heimberg 1981:555-568

GERMANY

Incidence of Terra Rubra.

Context	Location	Forms	Associated wares	References
<u>Burial</u>				
cemetery	Andernach (Rhineland-Palat.)	3,4,5,7,8, 79,82,Ha.72B	TN	Behn 1910 Hawkes & Hull 1947:211-12 Koethe 1938:105
cemetery	Bauler (Rhineland-Palat.)	82-4	TN	<u>T.Z.</u> 14(1939):255
cemetery	Biewer (Rhineland-Palat.)	53,74-9	-	Koethe & Kimmig 1937
cemetery	Bingen (Rhineland-Palat.)	3,5,8,Ha.72AB, 56,74-9,82-4	TN	Behn 1910 Koethe 1938:98 Koethe & Kimmig 1937
grave group	Bosen (Rhineland-Palat.)	56	-	Behrens 1950

GermanyIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
cemetery	Ferschweiler (Rhinel.Palat.)	pls., cups 82-4	A., F., TN	<u>T.Z.15</u> (1940):72 <u>T.Z.16-17</u> (1941-2):236
grave group	Hoppstädten (Rhinel.Palat.)	58	TN	Behrens 1950:50
tumuli	Keidelheim (Rhinel.Palat.)	pl.	S	<u>B.J.78</u> (1884):242 Koethe 1939
cremation cemetery	Koblenz-Neuendorf (Rhinel.Palat.)	5, 53, 78-9	TN	Günther 1901 Koethe & Kimmig 1937
grave group	Kreuznach (Rhinel.Palst.)	56, 112	A., BB., F., S., TN	Hussong 1939 Oxé 1938:238
tumuli	Leudersdorf (Rhinel.Palat.)	7	F., S., TN	Koethe 1939:130

Germany

Incidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
cremation cemetery	Mesenich (Rhinel.Palat.)	5,56	TN	<u>T.Z.</u> 14(1939):260
cemetery	Morsbach (Rhinel.Palat.)	56,58	TN	Metz museum
tumuli	Nannhausen (Rhinel.Palat.)	82-4	A.,TN	Koethe 1938:97
single grave	Reinsfeld (Rhinel.Palat.)	53	A.,L.	Trier museum
cremation cemetery	Speyer (Rhinel.Palat.)	TR	TN	Koethe 1938:94,98
cemetery	Sponsheim (Rhinel.Palat.)	56	A.,F.,TN	Behn 1941
cemetery	Stahl (Rhinel.Palat.)	56	F.,BB.,TN	Koethe 1938:104 Koethe & Kimmig 1937 <u>T.Z.</u> 5 (1912):33

GermanyIncidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
?grave	Temmels (Rhinel.Palat.)	Ha.72Ba(s),82	A.,S.,VB.,TN	<u>T.Z.30</u> (1967):277
cemetery	Trier (Rhinel.Palat.)	3,5,7,8,53,56, 74-77,82-84	Arr.,F.,S.,TN	Behn 1910 Koethe 1938 Koethe & Kimmig 1937 Wightman 1970
cemetery	Urmitz (Rhinel.Palat.)	4,5,7,Ha.72B, 82-4	TN	Hawkes & Hull 1947:210 Thill 1967 <u>T.Z.14</u> (1939):255
grave group	Waldrach (Rhinel.Palat.)	5(s)	TN	<u>T.Z.33-34</u> (1970-1):276
grave group	Wallersheim (Rhinel.Palat.)	pls.	TN	Koethe 1938:102 Koethe & Kimmig 1937
cremation cemetery	Wederath (Rhinel.Palat.)	5,8,56,112	BB.,F.,S.,VB., TN	Haffner 1971;1974;1978

Germany

Incidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
cemetery	Weissenau (Rhinel.Palat.)	pls. 82-4	TN	Behn 1910 Koethe 1938:105
grave group	Welschbillig (Rhinel.Palat.)	56(s)	TN	<u>T.Z.</u> 33-34 (1970-71):277
grave group	Wincheringen (Rhinel.Palat.)	53, Ha72B 81	A.,F.,TN	Koethe & Kimmig 1937
cemetery	Lebach (Saar)	5(s)	TN	Koethe 1938
cemetery	Roden (Saar)	x2 stamps	-	Koethe 1938 Koethe & Kimmig 1937

Settlement

oppidum	Petrisberg (Rhinel.Palat.)	pl.,Ha.72B	BB	Loeschcke 1939

GermanyIncidence of Terra Rubra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>military installations</u>				
	Bad Nauheim (Hessen)	3,4,5,56,8, 82-4,112	A.,Arr.,BB.,F., PR.,S.,TN	Simon 1960 Schönberger & Simon 1976
	Friedberg (Hessen)	53,56,82-4,112	A.,Arr.,BB.,F., PR.,VB.,TN	Mager & Roth 1939 Schönberger & Simon 1976
	Hofheim (Hessen)	3,4,5,7,8, Ha.72B,56,58	F.,PR.,S.,TN	Ritterling 1912
	Rödingen (Hessen)	5,52/53,56	Arr.,ACO.,BB.,F., S	Schönberger & Simon 1976
	Haltern (Nord-Rh.Westfalen)	3,4,5,7,12,56, 82-4,91,112, Ha.72B	A.,Arr.,F.,PR., S.,VB.,TN	Loeschcke 1909
	Köln (Cologne) (Nord-Rh.Westfalen)	5,TR(s)	A.,Arr.,F.,S., TN	Filtzinger 1963

GermanyIncidence of Terra Rubra cont.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
<u>military</u> <u>installations</u>				
	Neuss (Nord-Rh.Westfalen)	5,8,56,78-9, 82-4,91,112, Ober.90	A.,Arr.,ACO.,F., PR.,S.,VB,TN	Filtzinger 1972 Vegas 1975
	Oberaden (Nord-Rh.Westfalen)	5,53,Ha.72B, 82-4,pls.	A.,Arr.,ACO.,F., TN	Albrecht 1942
	Vetera (Xanten) (Nord-Rh.Westfalen)	53,pls.,cups	Arr.,A.,ACO.,F., TN	Koethe & Kimmig 1937
	Mainz (Rhinel.Palat.)	5,7,Ha.72B, 56,74/9	A.,F.,S.,VB.,TN	Behn 1910 Behrens 1912;1915 Loeschcke 1909:265
unknown	Weinheim (Baden- Württemberg)	pls.	-	Koethe 1938:95
unknown	Nierstein (Hessen)	TR(s)	-	Koethe 1938:93

Germany

Incidence of Terra Rubra cont.

Context	Location	Forms	Associated wares	References
unknown	Wahnwegen (Nord-Rh.Westfalen)	pls(s)	-	Koethe 1938:98
unknown	Bernsdof (Rhinel.Palat.)	pl.(s)	-	Koethe 1938:98
unknown	Gabsheim (Rhinel.Palat.)	TR(s)	-	Koethe & Kimmig 1937:49
unknown	Trimport (Rhinel.Palat.)	56(s)	-	Koethe 1938:104
unknown	Wörms (Rhinel.Palat.)	8(s)	TN	Koethe 1938:95

Germany

Incidence of Terra Nigra or Terra Rubra, details unknown.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>References</u>
-	Konigshofen (Baden-Wurtt.)	x1 stamp	-	<u>C.I.L.</u> XIII, 10010:210
-	Bonn (Nord-Rh. Westfalen)	x2 stamps	-	<u>B.J.</u> 74:152, 84:118, 107:221
-	Rheinhausen (Nord-Rh. Westfalen)	x1 stamp	-	Tischler 1956:490
-	Frankenthal (Rhinel. Palat.)	TN/TR	-	Koethe 1938:102
-	Kalt (Rhinel. Palat.)	x1 stamp	-	Koethe 1938:94
-	Kobern (Rhinel. Palat.)	x4 stamps	-	Hawkes & Hull 1947:208 Koethe 1938:102
-	Minden (Rhinel. Palat.)	x1 stamp	-	Koethe 1938:103

Germany

Incidence of Terra Nigra or Terra Rubra, details unknown.

Context	Location	Forms	Associated wares	References
-	Niederhosenbach (Rhinel.Palat.)	x1 stamp	-	Koethe 1938:97
-	Offstein (Rhinel.Palat.)	x2 stamps	-	Koethe 1938:93
-	Rheinzabern (Rhinel.Palat.)	x2 stamps	-	<u>C.I.L.</u> XIII, 10010:201
-	Waldsee (Rhinel.Palat.)	TN/TR 84	-	Hawkes & Hull 1947:233
-	Ensdorf (Saar)	x1 stamp	-	Koethe 1938:93
-	Mettlach (Saar)	x1 stamp	-	Hawkes & Hull 1947:209

SWITZERLAND

Incidence of Terra Nigra.

<u>Context</u>	<u>Location</u>	<u>Forms</u>	<u>Associated wares</u>	<u>Reference(s)</u>
<u>Burial</u>				
cremation cemetery <u>Settlement</u>	Neu-Allschwil	52/53,56	A.,F.,S.,TR.	Ettlinger 1944
legionary fortress	Vindonissa	2,46,82-4,120	A.,Arr.,F.,S.,VB.	Ettlinger & Simonett 1952

Incidence of Terra Rubra.

<u>Burial</u>				
cremation cemetery	Neu-Allschwil	5,8,56,82-4, 112	A.,F.,S.,TN.	Ettlinger 1944

Form and fabric unknown.

vicus	Avenches	1 stamp	-	Hawkes & Hull 1947:211

APPENDIX 2

A catalogue of the thin sections prepared in the course of this research. The numbers refer to the thin section library catalogue, Department of Archaeology, Southampton University.

Thin section number	Site name and reference code.	Vessel description
R 401	Ickneild Way (St. Albans)	TN 56 st. (..)O
R 402	Ickneild Way (St. Albans)	TN platter st.(c) BENIO
R 404	Prae Wood '47 enclosure A	TN platter st.(c) (..)SETVS
R 405	Prae Wood VA'33 34	TN platter st.(c) illeg.
R 406	Chichester CH'73 CS M83 19	native platter
R 407	Chichester CH'72 CS L131	native platter
R 408	Chichester CH'69 CS 10 3E	TR3 girth beaker
R 409	Chichester CH'72 CS A26	native butt beaker
R 410	Chichester CH'69 CS E84	colour-coated bowl
R 411	Chichester CH'69 CS E103	TR 7/8
R 412	Chichester CH'70 CS G kiln 1	native butt beaker
R 413	Chichester CH'70 CS kiln G2	native butt beaker

R 414	Chichester CH'69 kiln G2	butt beaker
R 415	Chichester CH'69 A2 E159	colour-coated bowl
R 416	Chichester CH'70 CS kiln G1	butt beaker
R 417	Chichester CH'72 CS L146	TR 5
R 418	Chichester CH'69 CS A38	?TR beaker
R 419	Chichester CH'73 CS Pit O 48/9	TR 3
R 420	Chichester CH'70 CS G125	TR platter
R 421	Chichester CH'71 CS J98	TR 7/8
R 422	Chichester CH'72 CS Pit 81(d)	TN platter 12-14
R 423	Chichester CH'70 CS G64	native platter
R 424	Chichester CH'71 CS J78	white-ware barbotine jar
R 425	Chichester CH'70 CS H43	TN platter
R 426	Chichester CH'70 CS G64	TN 2
R 427	Chichester CH'73 CS M37	TN dish unclassified
R 428	Chichester CH'70 CS kiln G1	TN 58
R 429	Chichester CH'70 CS slot G14	butt beaker
R 430	Chichester CH'70 CS slot G14	TN platter
R 431	Chichester CH'70 CS slot G14	TN platter

R 432	Chichester CH'70 CS slot G14	butt beaker
R 433	Chichester CH'70 CS slot G14	native platter
R 434	Chichester CH'73 CS pit)29	TN 16
R 435	Chichester CH'70 CS H43	native platter illegible stamp
R 436	Chichester CH'70 CS 625	TN platter st.(r) VXV.V.
R 437	Chichester CH'71 CS 2166	TN platter st.(r) VIIIICO
R 438	Chichester CH'70 517 Kiln 1	TN platter st.(c) RA/...IT
R 439	Chichester CH'70 CS 603 kiln G2	TN platter st.(c) IVLIUS
R 440	Chichester CH'70 516 slot G14	TR platter st.(c) SOLLOS
R 441	Chichester CH'70 484 slot G14	TN platter st.(c) VIIBRVS
R 442	Chichester 1956	TN platter st.(r) (A)SSINO
R 443	Chichester CH'70 CS 487 G14	TN platter st.(c) AVCILI ^o
R 444	Chichester CH'70 641 G39	TN platter st.(c) IVLIO/AVOT
R 445	Chichester CH'69 CS 153 E141	TR platter st.(r) (AN)DECO
R 446	Chichester CH'71 CS 2176 W28	native platter illegible stamp
R 447	Chichester CH'70 CS 634 H19	TN platter st.(r) MEDI

R 448	Chichester 1934 no.286	TN platter st.(r) Λ...
R 449	Chichester CH'69 CS E161	native platter
R 450	Chichester CH'70 CS pit 228	cup/bowl st.(c) illegible
R 451	Claudentum A 94.67	TN 16 st.(c) illegible
R 452	Claudentum A99 6T	TN 58
R 453	Claudentum A94.67	TN 16
R 454	Claudentum A.3.64	native platter
R 455	Claudentum A102.67	?TN bowl
R 456	Claudentum A.3.64	native platter
R 457	Claudentum Laing 1966, fig.VIII.12	bowl Greene type 6
R 467	Canterbury 16WS'78 1237	butt beaker
R 468	Canterbury 16WS'78 1041	white-ware flagon
R 469	Canterbury 16WS'78 1157	white-ware flagon
R 470	Canterbury 16WS'78 1120	butt beaker
R 471	Canterbury 16WS'78 1159	butt beaker
R 472	Canterbury 16WS'78 1237	butt beaker
R 473	Canterbury 16WS'78 1284	butt beaker
R 474	Canterbury 16WS'78 1159	white-ware flagon

R 475	Canterbury 16WS'78 1089	butt beaker
R 476	Canterbury 16WS'78 465	butt beaker
R 477	Canterbury 16WS'78 949	white-ware barbotine jar
R 478	Canterbury 16WS'78 1274	butt beaker
R 479	Canterbury 16WS'78 1026	flagon
R 480	Canterbury 16WS'78 465	butt beaker
R 481	Canterbury 16WS'78 1067	butt beaker
R 482	Canterbury 16WS'78 1157	butt beaker
R 484	Skeleton Green SG'72 F24 3 G41	TR 3 st. (r) ATTISSV
R 485	Skeleton Green GB'73 BO 1 5	TN 2
R 486	Skeleton Green SG'72 G43 F8 2	TR 3
R 487	Skeleton Green SG'72 G24 F38	butt beaker 112
R 489	Skeleton Green SG'72 G42c 5	TN 56
R 490	Skeleton Green SG'72 40AK 5 G	TN 12
R 491	Skeleton Green SG'72 40DF 6	?TN(mic).?'vase bobine'
R 492	Skeleton Green SG'72 41 ABD 5	TN platter
R 493	Skeleton Green SG'72 G24 F28	native platter
R 494	Skeleton Green SG'72 22A F57	butt beaker

R 495	Skeleton Green SG'72 22C 9	native platter
R 496	Skeleton Green SG'72 22C 9	native platter
R 497	Skeleton Green SG'72 703	TR platter
R 498	Skeleton Green SG'72 41 ABD 5	butt beaker
R 499	Skeleton Green SG'72 G41 F23	TR platter
R 500	Skeleton Green SG'72 40 9/C F10	butt beaker
R 501	Skeleton Green SG'72 41 3,4	TN platter
R 502	Skeleton Green SG'72 43 F8 2	butt beaker
R 503	Skeleton Green GB'73 5	TN 8
R 504	Worthy Down Hooley 1931:fig.62	butt beaker
R 505	Silchester May 1916	butt beaker
R 506	Silchester Mat 1916	native platter st.(c) ?EVENNI
R 507	Silchester May 1916	native platter st.(c) ?ATISO
R 508	Silchester May 1916	TN platter st.(c) ?AMTIO
R 509	Silchester May 1916	TN platter st.(c) INDVTIOS
R 510	Silchester May 1916	TN platter st.(r) COMVS
R 511	Silchester May 1916	butt beaker

R 512	Silchester May 1916	TN platter st.(c) BITOAVO
R 513	Silchester May 1916	TN platter st.(r) CANIC
R 514	Silchester May 1916	butt beaker
R 515	Silchester May 1916	TN platter st.(r) ?IUIIRINI
R 516	Silchester May 1916	butt beaker
R 517	Silchester May 1916	butt beaker 113
R 518	Pulborough (area)	butt beaker 113
R 519	Pulborough (area)	native platter
R 520	Steypning	butt beaker
R 521	Steypning	native platter
R 522	Charleston Brow	butt beaker
R 523	Charleston Brow	native platter
R 524	Beedings wood, Pulborough	butt beaker 113
R 525	Beedings wood, Pulborough	TR platter
R 526	Shepherd's Park, Arundel	native platter
R 527	Shepherd's Park, Arundel	native platter
R 528	Shepherd's Park, Arundel	butt beaker

R 529	Ashton '77 F3	bowl Greene type 6
R 530	Ashton '77 F3	butt beaker 113
R 531	Ashton '77 F3	native platter
R 532	Ashton '77 F3	native platter
R 533	Ashton '77 F3	butt beaker
R 534	Ashton '77 F3	native girth beaker
R 535	Ashton '77 F3	storage jar
R 536	Ashton '77 F3	butt beaker
R 537	Ashton '77 F3	butt beaker
R 538	Ashton '77 F3	butt beaker
R 539	Ashton '77 F3	butt beaker 113
R 540	Ashton '77 F3	native imitation Cam.91
R 541	Ashton '77 F3	native platter
R 542	Ashton '77 F3	native platter
R 543	Ashton '77 F3	native platter
R 544	Ashton '77 F3	native cup imitating Cam.56
R 554	Silchester May 1916	native platter

R 555	Winchester CY'71 XIX 1268	butt beaker
R 556	Winchester CY'69 XIH 1294 420	TR 5
R 557	Winchester BS'71 2002 7263	?bowl
R 558	Winchester BS'71 1570	butt beaker
R 559	Winchester BS'71 2224 6964	native platter st. illegible.
R 560	Winchester WP'71 1203 2711	TN 16
R 561	Winchester CY'69 1287 816	Pompeian Red platter
R 562	Winchester BS'71 1559 5787	TN 16
R 563	Winchester CACP'61 R5	TN 16
R 564	Winchester BS'71 1333 4357	TN 16
R 565	Winchester BS'71 2183	butt beaker 113
R 566	Winchester WP'67 68 403	TN platter
R 567	Winchester CY'69 1266 828	TN 16
R 568	Winchester CY'69 1266 440	butt beaker
R 569	Winchester BS'71 2086	butt beaker
R 570	Winchester CG'67 286 1695	TR 11
R 571	Winchester CY'71 1266	butt beaker

R 572	Winchester CY'71 1266	butt beaker
R 573	Winchester WP u/s	barbotine beaker
R 574	Jewry Wall, Leicester	butt beaker
R 575	Jewry Wall	native platter Cam.21c
R 576	Jewry Wall	butt beaker
R 577	Jewry Wall	butt beaker
R 578	Jewry Wall	native platter Cam. 26
R 579	Jewry Wall	butt beaker
R 580	Jewry Wall	native platter Cam. 27
R 581	Jewry Wall	TN 5
R 582	Jewry Wall	TN(mic.) 2
R 583	Jewry Wall	TN 2
R 584	Jewry Wall	TN platter
R 585	Jewry Wall	native platter st. AAAIM
R 586	Jewry Wall	'vase bobine'
R 587	Jewry Wall	TN platter
R 588	Jewry Wall	TR 5
R 589	Jewry Wall	butt beaker

R 590	Jewry Wall	TR 53
R 591	Jewry Wall	butt beaker
R 592	Jewry Wall	butt beaker
R 593	Jewry Wall	TN 2
R 594	Jewry Wall	TN(mic.) platter
R 595	Jewry Wall	colour-coated bowl/ beaker
R 596	Jewry Wall	TR platter st.(c) IOVAXV
R 597	Twitty Fee Essex	butt beaker
R 598	Rainham Essex	local storage jar
R 599	Colchester 1970 hospital site	TN platter st.(r) illegible
R 600	Colchester	butt beaker 113
R 601	Canterbury 16WS'78 1145 30	TN 16 st.(c) illegible
R 602	Canterbury 16WS'78 1259 68	TN(mic). platter
R 603	Canterbury 16WS'78 126 76	TN 13
R 604	Canterbury 16WS'78 1179 43	TN 2
R 605	Canterbury 16WS'78 1179 45	TN 13
R 606	Canterbury 16WS'78 1280 72	bowl

R 607	Canterbury 16WS'78 1120 19	TN platter
R 608	Canterbury 16WS'78 1239 67	TN 8
R 609	Canterbury 16WS'78 1187 51	TN 2
R 610	Canterbury 16WS'78 1182 50	colour-coated lid
R 611	Canterbury 16WS'78 1120 27	TR 3
R 612	Canterbury 16WS'78 1213 58	colour-coated flagon
R 613	Canterbury 16WS'78 1081 11	colour-coated bowl
R 614	Canterbury 16WS'78 1191 55	colour-coated ?bowl
R 615	Canterbury 16WS'78 1071 7	colour-coated vessel
R 616	Canterbury 16WS'78 1178 39	colour-coated vessel
R 617	Canterbury 16WS'78 1179 40	butt beaker 112 TR3
R 618	Canterbury 16WS'78 1157 37	colour-coated bowl
R 619	Cobham villa Kent	Upchurch ware beaker
R 620	Hartlip	Upchurch ware beaker
R 621	Hartlip	butt beaker 113
R 622	Hartlip	TR3 girth beaker
R 623	Hoo, Kent	flagon
R 624	Cobham villa	native platter

R 625	Allington	Aylesford type urn
R 626	West Wickham	butt beaker
R 627	Winnall WHE'55 F1/03 7	TN 16
R 628	Winnall WHE'55 F1/10 29	TN bowl
R 629	Winnall WHE'55 719.1.3/6 6	TN 16
R 630	Winnall WHE'55 F1/10 24	TN 16
R 631	Winchester KW56/3/451	TN platter
R 632	Winchester KW56 A/359	native platter
R 633	Bury Hill BH'51	native platter
R 634	Bury Hill BH'46	native platter
R 635	Basing B'78 80	native platter st. (r) illegible
R 636	Basing B'78 13	native platter
R 637	Ickneild Way (St. Albans)	TN platter st.(c) IVLIOS
R 638	Fishbourne	TR platter st.(r) ATTISSV
R 639	Fishbourne	TR platter st.(r) DANN
R 640	Fishbourne	TN platter st.(c) NOVII
R 641	Fishbourne	TN platter st.(c) ..ASV
R 642	Fishbourne	micaceous platter st. ?EIIVSI

R 643	Fishbourne	native platter st. illegible
R 644	Fishbourne	native platter st. illegible
R 645	Fishbourne	native platter st. illegible
R 646	Fishbourne Cunliffe 1972:fig.73.1	butt beaker 113
R 647	Fishbourne Cunliffe 1972:fig.83.1.3	TR 5
R 648	Fishbourne Cunliffe 1972:fig.85.1.4	TR 4
R 649	Fishbourne Cunliffe 1972: fig.83.5	TN 2
R 650	Fishbourne Cunliffe 1972:fig.83.6	TN 2
R 651	Fishbourne Cunliffe 1972:fig.84.13	native platter
R 652	Fishbourne Cunliffe 1972:fig.84.14.2	native platter
R 653	Fishbourne Cunliffe 1972:fig.84.14.3	native platter
R 654	Fishbourne Cunliffe 1972:fig.84.15.1	native platter
R 655	Fishbourne Cunliffe 1972:fig.84.16.2	native platter
R 656	Fishbourne Cunliffe 1972:fig.84.19.5	native platter
R 657	Fishbourne Cunliffe 1972:fig.86.43.2	TN 58
R 658	Fishbourne Cunliffe 1972:fig.87.51.2	native cup imitating Cam.58
R 659	Fishbourne Cunliffe 1972:fig.88.60	butt beaker
R 660	Fishbourne Cunliffe 1972:fig.88.61.1	TR3 butt beaker 112
R 661	Fishbourne Cunliffe 1972:fig.88.63.1	native girth beaker

R 662	Fishbourne Cunliffe 1972:fig.88.64.1	butt beaker
R 663	Fishbourne Cunliffe 1972:fig.88.64.2	butt beaker
R 664	Fishbourne Cunliffe 1972:fig.88.64.5	butt beaker
R 665	Fishbourne Cunliffe 1972:unpub.	TN platter
R 666	Fishbourne Cunliffe 1972:unpub.	butt beaker
R 681	Chelmsford AR 211	native platter
R 682	Chelmsford AK 62	native platter
R 683	Chelmsford S270F 406	native platter
R 684	Chelmsford S63	butt beaker
R 685	Chelmsford S 78	butt beaker
R 686	Cirencester CIR'75 LVI	TN ?2
R 687	Cirencester CIR'61 MIV	TN 16
R 688	Cirencester CIR'61 Mii 49	TN platter
R 689	Cirencester CIR'61 MIV 15	TN 16
R 690	Cirencester CIR BB296	butt beaker
R 691	Cirencester CIR BB370	butt beaker
R 692	Bagendon Clifford 1961:fig.47.8	TN 13
R 693	Bagendon Clifford 1961:fig.62.56a2	butt beaker

R 694	Bagendon Clifford 1961:fig.50.11	butt beaker
R 695	Bagendon Clifford 1961:fig.62.57B	butt beaker
R 696	Bagendon Clifford 1961	TN platter st.(c) ANDIB/CATIL
R 697	Bagendon Clifford 1961:fig.61.1	TN 5
R 698	Leicester Blackfriars '77	TN 13
R 699	Leicester Blackfriars '77	TN platter
R 700	Leicester Blackfriars '77	TN(mic.)platter
R 701	Leicester Blackfriars '77F28 15	beaker 114
R 702	Colchester	TN platter st.(c) ANDECO
R 703	Colchester	TR platter st.(r) ACVTVS
R 704	Colchester	TN platter st.(c) ACVTO
R 705	Colchester	TN platter st.(r) ACVTO
R 706	Colchester	TN platter st.(r) ASSINO
R 707	Colchester	TN platter st.(c) ATEC/NVDVS
R 708	Colchester	TN platter st.(r) ATTA
R 709	Colchester	TN cup st. ATTA
R 710	Colchester	TR platter st.(r) ATTISSV
R 711	Colchester	TR platter st.(c) ATTISSV

R 712	Colchester	TN cup st. BOUDUI
R 713	Colchester	TN platter st.(r) CANIC
R 714	Colchester	TR platter st.(c) (DURO)TIX
R 715	Colchester	TN platter st.(c) IIVDO
R 716	Colchester	TR platter st.(r) ILLOS
R 717	Colchester	TN platter st.(c) IVLIOS
R 718	Colchester	TN platter st.(r) (IV)LIOS AV
R 719	Colchester	TN platter st.(r) MEDI
R 720	Colchester	TN platter st.(c) SOLL..
R 721	Colchester	TN cup st. SOLLOS
R 722	Colchester	TN cup st. TORNO
R 723	Colchester	TN cup st. TORNOS/VOCARI
R 724 -----	Colchester	TN platter st.(c) VIRIO(DACUS)
R 728	Colchester CAM'70 IIIz20 336	TN(mic.)platter
R 729	Colchester CAM'70 VI 1	TN(mic.) platter
R 730	Colchester CAM'70 P238 1	native platter
R 731	Colchester CAM'70 V A3 1	native platter
R 732	Colchester CAM'70	native platter

R 733	Colchester CAM'70	native platter
R 734	Chester CHE/AG'75 I 261	jar
R 735	Chester CHE/NGB'75 III 58 59	native platter
R 736	Chester CHE/CRS'74 I 106	bowl
R 737	Chester CHE/AG'75 VI 87	native platter
R 738	Chester CHE/GS'73 A 437	bowl
R 739	Chester CHE/AG'75 1399	TN 16
R 740	Chester CHE/NGB'74 379	TN type fabric
R 741	Chester CHE'76 LBS 81	bowl
R 742	Chester CHE/NGB'74 I 5	TN type fabric
R 743	Chester CHE/AG'75 IV 1266	TN type fabric
R 744	Chester CHE/NGB'74 IV 237 378	TN 16
R 745	Chester CHE/HSS'79 23 IV 239	TN type fabric
R 746	Chester CHE/AG'75 u/s	TN globular jar
R 747	Holborough, Kent	butt beaker 113
R 748	Winnall MARC 3 R17	native platter
R 749	Micheldever wood MARC 3 R6	TN platter
R 750	Micheldever wood MARC 3 R6	butt beaker

R 751	Westbury, Wilts.	bottle
R 752	Westbury, Wilts.	micaceous dish
R 753	Stone, Kent	TN platter st. MEDI
R 754	Basing B'78 14	native platter
R 755	Alice Holt	kiln sample
R 756	Alice Holt	kiln sample
R 757	Alice Holt	kiln sample
R 758	Alice Holt	kiln sample
R 759	Alice Holt	kiln sample
R 760	Elsted, Sussex '75 D11	native platter
R 761	Elsted, Sussex '75 D17	native platter
R 762	Elsted, Sussex '75 E 37	native platter
R 763	Elsted, Sussex '75 D10	native platter
R 764	Leicester, Blackfriars 12 1977 F29 3	butt beaker
R 765	Leicester 12 1977 F 29 3	butt beaker Cam.115
R 766	Leicester 12 1977 F 29 3	butt beaker Cam.119
R 767	Leicester 12 1977 F 29 3	butt beaker Cam.112
R 768	Leicester 12 1977 F 29 3	beaker Cam.114

R 769	Leicester 12 1977 F 29 3	butt beaker 113
R 770	Leicester 12 1977 F 29 3	butt beaker 113
R 771	Leicester 12 1977 F 29 3	butt beaker 116
R 772	Canterbury ST.MS'79 754	TN(mic).platter
R 773	Canterbury ST.MS'79 406	micaceous platter
R 774	Ower, Dorset OWR'78 374	butt beaker 113
R 775	Ower OWR'78 643	flagon
R 776	Ower OWR'78 328	bowl
R 777	Ower OWR'78 835	flagon Cam.161
R 778	Ower OWR'78 366	micaceous beaker
R 779	Ower OWR'78 791	TN 16
R 780	Ower OWR'78 725	flagon (whiteware)
R 781	Ower OWR'78 703	TR platter
R 782	Ower OWR'78 217	TN 16
R 783	Ower OWR'78 266	bowl
R 784	Ower OWR'78 296	TN(mic.) platter
R 785	Ower OWR'78 334	TN 2
R 786	Ower OWR'78 176	TN platter

R 787	Ower OWR'78 182	TN 16
R 788	Ower OWR'78 730	Roanne bowl
R 789	Ower OWR'78 161	beaker 114
R 790	Ower OWR'78 104	butt beaker 113
R 791	Ower OWR'78 142	Campanian ware
R 792	Chichester u/s	butt beaker
R 793	Chichester u/s	butt beaker
R 794	Droitwich HWCM 603 59	TN 16
R 795	Droitwich HWCM 600 564 25	native platter
R 796	Droitwich HWCM 600 1146	dish
R 797	Droitwich HWCM 600 100 u/s	TN 16
R 798	Droitwich HWCM 603 59D	butt beaker 113
R 799	Droitwich HWCM 603 90A	butt beaker
R 800	Basing B'78 fab.59	butt beaker
R 801	Basing B'78 fab. 106	butt beaker
R 802	Lezoux	fabric sample
R 803	Lezoux	fabric sample
R 804	Lezoux	fabric sample
R 805	Lezoux	fabric sample

R 806	Chester	TN 16
R 807	Chester	TN 16
R 808	Lake Farm, Dorset LF'72 1	TN(mic.) dish
R 809	Ower OWR'78 774	TR platter

R 822	Ower OWR'78 405	imported coarse- ware jar
R 823	Ower OWR'78 631	imported coarse- ware jar
R 824	Baldock	TN(mic) platter
R 825	Baldock	micaceous platter (oxidised)
R 826	Baldock	TN(mic.) platter

R 827	Dorchester Abbey Oxon.	platter Oxford ware
R 828	Alchester Oxon.	platter st. illegible Oxford. ware
R 829	Lower Wanborough Wilts. u/s	native platter
R 830	Lower Wanborough Wilts. u/s	native platter
R 831	Lower Wanborough Wilts. u/s	native platter
R 832	Lower Wanborough Wilts. u/s	native platter
R 833	Lower Wanborough Wilts. u/s	native platter

R 853	Usk, Gwent	bowl Greene type 6
R 854	Towcester, Northants.	native platter st. illegible
R 855	Irchester	butt beaker
R 856	Second Longhills, Brafield	native platter st. illegible.

R 857	Reims, Marne	TR kiln sample
R 858	Reims, Marne	TR kiln sample
R 859	Reims, Marne	TR kiln sample
R 860	Reims, Marne	TR3 fabric sample
R 861	Reims, Marne	flagon
R 862	Courmelois, Marne	TN kiln sample
R 863	Chateaumeillant, Cher	fabric sample
R 864	Chateaumeillant	fabric sample
R 865	Chateaumeillant	fabric sample
R 866	Chateaumeillant	fabric sample
R 867	Begués, Allier	fabric sample
R 868	Neris-le-Bains Allier	kiln sample
R 869	Roanne	TN(mic.)platter
R 870	Schwankweiler,Trier Rhineland Palatinate	local coarseware jar
R 871	Cold Blow, Bexley	TN(mic.) platter
R 872	Burgh-by-Woodbridge Suffolk	TR1B 3
R 873	Burgh-by-Woodbridge Suffolk	TN 5

APPENDIX 3.

FABRIC CHARACTERISATION RESULTS

(for discussion see Chapter 7.)

1. Gallo-Belgic fine wares, (figures 68-71).

a) Mean size (Mz) values.

Mz	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
% frequency	1.5	2	4	4	1.5	6	8	11.5	1.5

Mz	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8
% frequency	7	15	17	8.5	4	0.8	3	0.8	0.8

Mz	5.3
% frequency	0.8

b) Standard Deviation (σ_I) values.

σ_I	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
% frequency	1.5	1.5	1.5	9	18.5	19	25	13	5

σ_I	1.2	1.3	1.4	1.5
% frequency	3	2	0.8	0

c) Skewness (Sk_I) values.

Sk_I	0.5	0.4	0.3	0.2	0.1	0	-0.1	-0.2	-0.3
% frequency	3	3	5	4	2	5	8	4	5

Sk_I	-0.4	-0.5	-0.6	-0.7	-0.8	-0.9	-1.0
% frequency	10	20	15	12	3	0.8	0.8

d) Kurtosis (Kg) values.

Kg	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3
% frequency	0.8	8.5	19	30	20	6	4	2	3

Kg	1.4	1.5	1.6	1.7	1.8	1.9	2.0
% frequency	1.5	4	0	2	1.5	0	0.8

Description of values (after Folk and Ward 1957).

Standard Deviation

under 0.35 - very well sorted
0.35- 0.5 - well sorted
0.5 - 1.0 - moderatly sorted
1.0 - 2.0 - poorly sorted
2.0 - 4.0 - very poorly sorted
4.0 + - extremely poorly sorted

Skewness

-1.0 to -0.3 - very negatively skewed
-0.3 to -0.1 - negatively skewed
-0.1 to +0.1 - nearly symmetrical
+0.1 to +0.3 - positively skewed
+0.3 to +1.0 - ver positively skewed

Kurtosis

under 0.67 - very platykurtic
0.67 - 0.9 - platykurtic
0.9 - 1.11 - mesokurtic
1.11 - 1.50 - leptokurtic
1.5 - 3.0 - very leptokurtic
3.0 + - extremely leptokurtic

2. Data used in the programme of Cluster Analysis for T.N. and T.R. wares, the results of which are shown in figures 72 and 73.

(numerical arrangement as in figure 72.)

Cluster 1.

No.	Thin-section no.	Description	Mz	σ_I	SK _I	Kg.
4.	R 637	TN pl. (s)	4.2	0.8	-0.5	0.8
63.	R 439	TN pl. (s)	4.2	0.7	-0.5	0.8
2.	R 512	TN pl. (s)	4.1	0.85	-0.6	0.9
60.	R 436	TN pl. (s)	4.05	0.8	-0.5	0.7
1.	R 445	TR pl. (s)	4.1	0.8	-0.5	0.8
18.	R 709	TN cup (s)	4.0	0.9	-0.5	0.8
40.	R 429	TN pl.	4.0	0.7	-0.5	0.8
34.	R 697	TN pl.	4.2	0.7	-0.5	0.8
84.	R 490	TN 13	4.0	0.7	-0.6	0.9
9.	R 603	TN 13	4.05	0.9	-0.5	0.85
77.	R 746	TN jar	4.1	0.9	-0.6	0.8
81.	R 753	TN pl. (s)	4.0	0.9	-0.6	0.8
36.	R 401	TN pl. (s)	4.2	0.75	-0.5	0.85
44.	R 427	TN dish	4.2	0.7	-0.4	0.7
42.	R 431	TN pl.	4.1	0.7	-0.4	0.75
68.	R 444	TN pl. (s)	4.0	0.9	-0.5	0.7
72.	R 689	TN 16	4.0	0.9	-0.45	0.75
45.	R 451	TN 16 (s)	4.3	1.1	-0.7	1.75
75.	R 741	TN 16	4.3	0.6	-0.5	1.0
37.	R 404	TN pl. (s)	3.8	1.4	-0.8	1.5
41.	R 430	TN pl.	4.0	1.2	-0.45	1.5
28.	R 719	TN pl. (s)	4.0	0.9	-0.5	0.7
71.	R 688	TN 16	4.4	0.55	-0.5	0.9
26.	R 717	TN pl. (s)	3.7	0.6	-0.4	0.9
7.	R 640	TN pl. (s)	4.2	0.6	-0.04	0.8
14.	R 704	TN pl. (s)	3.9	1.0	-0.55	0.9
31.	R 722	TN 56 (s)	3.8	1.0	-0.4	0.7
32.	R 723	TN 56 (s)	3.8	1.0	-0.4	1.1
78.	R 744	TN 16	4.3	0.6	-0.5	1.1
22.	R 713	TN pl. (s)	4.1	0.75	-0.4	0.8
38.	R 423	TN pl.	3.1	1.55	+0.06	0.7

<u>maximum values</u>	<u>4.4</u>	<u>1.55</u>	<u>+0.06</u>	<u>1.75</u>
<u>minimum values</u>	<u>3.1</u>	<u>0.55</u>	<u>-0.7</u>	<u>0.7</u>

Cluster 2.

No.	Thin-section no.	Description	Mz	σ_I	Sk _I	Kg.
20.	R 711	TR pl. (s)	3.4	0.9	-0.46	0.7
3.	R 638	TR pl. (s)	3.3	0.85	-0.46	1.1
54.	R 419	TR 3	3.6	0.87	-0.46	0.6
23.	R 714	TR pl. (s)	3.4	0.85	-0.3	0.8
19.	R 710	TR pl. (s)	3.05	0.7	-0.3	1.8

<u>maximum values</u>	<u>3.6</u>	<u>0.9</u>	<u>-0.3</u>	<u>1.8</u>

<u>minimum values</u>	<u>3.05</u>	<u>0.7</u>	<u>-0.46</u>	<u>0.6</u>

Cluster 3.

43.	R 426	TN 2	5.25	0.76	-0.7	0.8
66.	R 442	TN pl. (s)	4.1	0.85	-0.6	0.85
65.	R 441	TN pl. (s)	4.25	0.7	-0.6	0.9
27.	R 718	TN pl. (s)	4.2	0.7	-0.5	0.8
61.	R 437	TN pl. (s)	4.2	0.76	-0.6	1.25
52.	R 417	TR pl.	4.3	0.7	-0.67	0.7
50.	R 411	TR 4	4.3	0.6	-0.4	0.7
64.	R 440	TR pl. (s)	4.2	0.8	-0.7	0.8
39.	R 428	TN 58	4.4	0.57	-0.5	0.9
15.	R 706	TN pl. (s)	4.2	1.2	-0.7	1.7
73.	R 692	TN pl.	4.4	0.54	-0.57	1.04
83.	R 489	TN 58.	4.3	0.8	-0.7	1.7
69.	R 686	TN 2	4.06	0.96	-0.7	0.7
76.	R 739	TN 16	4.03	0.9	-0.7	0.7
46.	R 452	TN 58	4.6	0.4	-2.6	1.7

<u>maximum values</u>	<u>5.25</u>	<u>1.2</u>	<u>-0.4</u>	<u>1.7</u>

<u>minimum values</u>	<u>4.03</u>	<u>0.4</u>	<u>-2.6</u>	<u>0.7</u>

Cluster 4.

56	R 421	TR pl.	3.7	0.9	-0.09	0.5
6.	R 447	TN pl. (s)	3.8	0.86	-0.04	1.1
24.	R 715	TN pl. (s)	4.1	0.9	-0.15	0.7
53.	R 418	TR pl.	3.8	1.02	-0.15	0.75
29.	R 720	TN pl. (s)	3.8	0.9	-0.26	0.77
10.	R 605	TN 13	3.7	1.0	-0.14	0.87
21.	R 712	TN pl. (s)	3.8	0.8	-0.03	0.75
16.	R 707	TN pl. (s)	3.65	0.99	-0.2	0.9

Cluster 4 continued.

No.	Thin-section no.	Description	Mz	σ_I	Sk _I	Kg.
17.	R 708	TN pl. (s)	3.96	0.7	-0.1	0.64
74.	R 696	TN pl. (s)	3.7	0.93	+0.06	0.7
59.	R 425	TN pl.	3.8	0.8	+0.09	0.7
12.	R 702	TN pl. (s)	4.2	0.84	-1.02	0.9
30.	R 721	TN cup (s)	3.8	0.9	-0.3	0.8
13.	R 705	TN pl. (s)	3.6	1.2	-0.22	1.4
80.	R 485	TN pl.	3.8	0.8	-0.25	0.8
5.	R 601	TN 16	3.95	0.75	-0.3	0.7
55.	R 420	TR pl.	3.7	0.74	+0.02	0.9

<u>maximum values</u>	<u>4.2</u>	<u>1.2</u>	<u>+0.09</u>	<u>1.4</u>

<u>minimum values</u>	<u>3.6</u>	<u>0.7</u>	<u>-1.02</u>	<u>0.5</u>

Cluster 5.

57.	R 422	TN pl.	4.1	0.85	-0.78	1.5
35.	R 402	TN pl. (s)	4.6	0.6	-0.8	2.0
62.	R 438	TN pl. (s)	4.4	0.7	-0.8	1.0
51.	R 415	TR pl.	4.3	0.8	-0.8	1.8
47.	R 453	TN 16	4.6	0.4	-0.6	1.3
38.	R 405	TN pl. (s)	4.65	0.35	-0.6	1.5

<u>maximum values</u>	<u>4.65</u>	<u>0.85</u>	<u>-0.6</u>	<u>2.0</u>

<u>minimum values</u>	<u>4.1</u>	<u>0.35</u>	<u>-0.8</u>	<u>1.0</u>

Cluster 6.

86.	R 497	TR pl.	3.3	1.05	+0.24	0.7
11.	R 703	TR pl. (s)	3.3	1.3	+0.1	1.2
87.	R 499	TR pl.	3.6	0.96	+0.25	0.6
70.	R 687	TN 16	3.2	1.0	+0.3	0.98
79.	R 492	TN pl.	3.6	1.0	+0.004	0.6
8.	R 607	TN pl.	3.65	1.0	-0.11	0.6
67.	R 443	TN pl. (s)	3.2	1.06	+0.3	0.7
82.	R 639	TR pl. (s)	3.3	0.87	+0.34	0.8
33.	R 724	TN pl. (s)	3.4	1.1	+0.2	0.6
49.	R 434	TN 56	3.55	0.96	+0.15	0.6
25.	R 716	TR pl. (s)	3.35	0.8	+0.5	0.9
48.	R 455	TN pl.	3.0	1.06	+0.4	0.9

<u>maximum values</u>	<u>3.65</u>	<u>1.3</u>	<u>+0.5</u>	<u>0.98</u>

<u>minimum values</u>	<u>3.0</u>	<u>0.8</u>	<u>-0.11</u>	<u>0.6</u>

3. Data used to compile figure 76.

Cluster analysis of twenty Cam. 16 platters,

No.	Site	Thin-section no.	Mz	σ_I	Sk _I	Kg.
1.	Chichester	R 434	3.5	0.96	+0.15	0.6
2.	Winchester a	R 562	3.6	0.95	+0.18	0.6
3.	Winnall a	R 627	3.5	1.3	+0.01	0.9
4.	Winnall b	R 629	3.2	0.96	+0.4	0.9
5.	Cirencester a	R 687	3.2	1.0	+0.3	0.98
6.	Winchester b	R 560	4.2	0.75	-0.5	0.9
7.	Chester	R 744	4.3	0.6	-0.5	1.06
8.	Winchester c	R 567	4.2	0.75	-0.6	0.8
9.	Ower a	R 787	4.3	0.7	-0.6	1.3
10.	Droitwich a	R 794	4.2	0.76	-0.65	0.97
11.	Clausentum a	R 451	4.3	1.08	-0.7	1.8
12.	Winchester d	R 563	3.8	0.99	-0.4	0.7
13.	Cirencester b	R 689	3.9	0.9	-0.5	0.8
14.	Canterbury	R 601	3.95	0.75	-0.3	0.7
15.	Ower b	R 779	4.1	0.7	-0.4	0.8
16.	Droitwich b	R 797	4.0	0.8	-0.4	0.8
17.	Ower c	R 782	4.1	0.65	-0.3	0.96
18.	Winchester e	R 564	4.1	1.3	-0.9	1.3
19.	Chester b	R 739	4.0	0.9	-0.7	0.7
20.	Clausentum b	R 453	4.6	0.3	-0.6	1.3

4. Coarse wares.

Data pertaining to Figures 81 and 82.

Platters from Hampshire and Sussex.

Group 1.

Thin-section no.	Site	Mz	σ_I	Sk _I	Kg
R 755	Alice Holt	2.8	1.5	+0.04	0.84
R 756	Alice Holt	3.5	1.4	-0.45	0.84
R 526	Arundel	3.3	1.4	-0.3	0.7
R 527	Arundel	3.5	1.3	-0.5	0.84
R 636	Basing	2.9	1.1	+0.08	0.6
R 754	Basing	3.0	1.2	+0.27	0.58
R 633	Bury Hill	2.9	1.3	+0.28	0.6
R 406	Chichester	3.2	1.4	-0.22	0.66
R 407	Chichester	3.2	1.35	-0.08	0.6
R 423	Chichester	3.06	1.55	+0.06	0.7
R 433	Chichester	2.4	1.4	+0.53	0.7
R 435	Chichester	2.9	1.6	-0.22	0.7
R 760	Elsted	2.75	1.6	+0.02	0.7
R 761	Elsted	2.9	1.3	+0.46	0.9
R 635	Fishbourne	2.85	1.5	-0.002	0.5
R 644	Fishbourne	2.6	1.3	+0.32	0.54
R 651	Fishbourne	2.9	1.3	+0.12	0.64
R 652	Fishbourne	2.7	1.5	+0.25	0.55
R 654	Fishbourne	3.0	1.2	+0.26	0.6
R 558	Winchester	3.35	1.5	-0.6	0.75
R 519	Pulborough	3.55	1.4	-0.02	0.7
R 521	Steyning	2.9	1.3	-0.04	0.6
R 559	Winchester	3.2	1.2	-0.3	0.6
R 631	Winchester	3.0	1.5	-0.1	0.8

Group 2.

R 634	Bury Hill	2.2	0.9	+0.4	1.3
R 456	Claudentum	2.3	0.8	+0.01	1.1

Group 3.

R 449	Chichester	4.05	1.0	-0.5	2.3
R 454	Claudentum	3.8	0.7	-0.02	0.8
R 653	Fishbourne	4.2	0.5	-0.4	0.97
R 656	Fishbourne	4.1	1.1	-0.5	1.9

Coarse wares continued.

Butt beakers from Hampshire and Sussex.

Group 1.

Thin-section no.	Site	Mz	σI	Sk _I	Kg.
R 757	Alice Holt	2.8	1.5	+0.04	0.8
R 520	Steyning	3.3	1.4	-0.4	0.56
R 571	Winchester	3.0	1.3	+0.1	1.3
R 750	Winnall Down	3.2	1.5	-0.5	0.7

Group 2.

R 416	Chichester	2.0	0.99	+0.3	1.9

Group 3.

R 528	Arundel	4.2	0.7	-0.5	0.9
R 522	Charleston Brow	4.6	0.9	+0.36	5.0
R 412	Chichester	4.5	0.6	-0.8	1.8
R 413	Chichester	3.2	0.9	+0.2	1.1
R 414	Chichester	3.4	0.97	-0.05	0.8
R 793	Chichester	3.5	0.78	+0.2	0.7
R 518	Pulborough	3.5	0.8	+0.09	0.7
R 555	Winchester	2.8	0.76	+0.02	1.35
R 569	Winchester	4.0	0.9	-0.5	0.6
R 572	Winchester	3.4	0.9	+0.04	0.9

5. White wares.

Data pertaining to Figure 84.

No.	Thin-section no.	Site	Mz	σ_I	Sk _I	Kg.
1.	R 414	Chichester	3.4	0.97	-0.05	0.78
2.	R 429	Chichester	4.1	0.74	-0.5	0.8
3.	R 467	Chichester	3.9	0.65	+0.08	0.7
4.	R 468	Canterbury	4.2	0.6	-0.4	0.75
5.	R 470	Canterbury	3.7	0.7	+0.4	0.7
6.	R 473	Canterbury	3.55	1.25	-0.15	1.3
7.	R 474	Canterbury	4.8	0.3	-0.56	3.8
8.	R 517	Silchester	3.3	1.2	+0.07	0.64
9.	R 518	Pulborough	3.5	0.8	+0.09	0.7
10.	R 530	Ashton	3.5	1.3	-0.07	1.2
11.	R 539	Ashton	3.9	0.8	-0.25	0.76
12.	R 565	Winchester	3.2	0.73	+0.3	1.45
13.	R 600	Colchester	4.0	0.9	-0.5	0.6
14.	R 621	Hartlip	3.5	0.95	+0.11	0.74
15.	R 695	Bagendon	3.9	0.87	-0.5	0.6
16.	R 701	Leicester	4.2	0.7	-0.4	0.8
17.	R 768	Colchester	3.5	0.9	+0.25	0.7
18.	R 769	Colchester	3.6	0.9	+0.26	0.6
19.	R 770	Colchester	3.65	0.9	+0.17	0.65
20.	R 774	Ower	3.7	0.6	+0.2	0.7
21.	R 747	Holborough	3.9	0.9	-0.54	0.65
22.	R 780	Ower	3.8	0.85	-0.1	1.0
23.	R 789	Ower	4.2	0.6	-0.5	0.7
24.	R 790	Ower	3.2	0.96	+0.2	1.5
25.	R 792	Chichester	3.0	0.5	+0.12	1.1
26.	R 793	Chichester	3.5	0.8	+0.2	0.7
27.	R 798	Droitwich	3.75	0.8	-0.02	0.8
28.	R 800	Basing	3.9	0.9	-0.5	0.6
29.	R 801	Basing	3.9	1.1	-0.5	0.7
30.	R 524	Beedings wood	4.1	0.8	-0.5	0.7