

THE INTERPRETATION AND
REGIONAL STUDY OF CLAY TOBACCO PIPES: A CASE STUDY OF
THE BROSELEY DISTRICT

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"Here I lie broken in twain with no hope of repair,
for who would think of patching up a Broseley pipe."

The Tale of a Broseley Pipe,
Wellington Journal, 18th July, 1896.

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ABSTRACT

This thesis argues that the potential of clay tobacco pipes as a tool for the study of the post-medieval period can be greatly enhanced through the application of scientific and systematic methods of analysis. The introduction outlines the nature and value of pipes as a data source, and the changing attitudes towards the study of artifactual remains. It describes the recording system developed and used during the course of this study, and the research programme conducted.

Chapter 1 puts forward a number of new techniques for the study of pipes, and presents case studies demonstrating their value. These show how factors such as the evolution and nature of stem length, the number and range of moulds, the relationship between makers' marks and mould types, and the different qualities of pipes can all be studied from archaeological deposits. In particular the detailed analysis of these specific features can then be combined to arrive at a general understanding of the nature and operation of the workshops, the forms of pipe produced and their social status, and the areas over which the pipes were traded. These themes move from a strictly descriptive and analytical approach to a wider interpretive consideration of the nature and functioning of society in general, and the pipe trade in particular.

Chapter 2 applies some of these techniques to the Broseley industry, to see whether they can add to or alter our understanding in a well studied centre. Previous research is considered, then a case study is presented of Henry Bradley's kiln waste. This shows that previous research has under-estimated the output and complexity of the seventeenth century workshops. This single group provides new information about kiln and workshop technology, the scale and nature of the products and production system, the trade and marketing patterns, and the development of Broseley bowl forms. This leads on to a reconsideration of the Broseley bowl form typology, mark and makers lists, and the discovery of an early, and substantial, origin to the industry in Much Wenlock. The 'Broseley' industry is re-defined as a 'stylistic complex' of workshops, rather than a single production centre, and the nature of the production units and their distribution methods is discussed.

In the final chapters the regional impact of the large volume of exports from the Broseley area are discussed. The detailed recording of groups from neighbouring counties in the West Midlands and Severn Valley provides information about the extent and quantity of Broseley trade to these areas, and the extent of Broseley influence on the styles produced by the makers in these areas is assessed. This demonstrates the immense potential of pipes for the study of trade patterns in the post medieval period. A completely revised list of Shropshire pipemakers is given, transcripts of some of their probates, and the first comprehensive corpus of marks and bowl forms from Shropshire and surrounding counties; a total of about 1,400 illustrations.

The thesis demonstrates that specialist study can greatly increase the range and quantity of data extracted from pipe groups in general, and that even for well known and previously studied industries such as Broseley our knowledge can be greatly extended. The recovery of better archaeological groups, particularly from kiln sites, the refinement of theory and methodology, and the establishment of comprehensive computer databases have all been identified as key factors in the continued development and exploitation of this outstanding artifactual source.

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INTRODUCTION

At first glance clay pipes may seem a strange topic to study at all, let alone as a subject upon which to write a doctoral thesis. Indeed on several occasions a new acquaintance has been introduced and it is only after some minutes of conversation that it transpires they are thinking of clay *drainage* pipes, rather than clay *smoking* pipes. In an age when the manufacture of traditional white clay tobacco pipes is all but dead, this is understandable. But their surprise is compounded when they find that not only have pipes been collected and studied for two centuries or more but that today it is a rapidly growing field of research of great value to archaeologists and historians alike.

The way in which pipes have been collected and researched has, however, changed considerably over the centuries. In the earliest references the pipes themselves are of little consequence and the discussions tend to revolve around whether it was the Romans, the fairies, or both who were responsible for their introduction. A good example from *Anthologia Hibernica* for May 1793 has been reproduced by Norton (1986). This describes the finding of a pipe "sticking between the teeth of a human skull" in 1784. The pipe is promptly attributed to a tenth century Dane killed in battle and the rest of the note 'supports' this assertion by dealing with classical references to 'smoking'.

Despite the inaccuracies of the earliest articles, their very existence shows that pipes have been found and picked up as objects of interest, since at least the eighteenth century. By the middle of the nineteenth century, however, more serious research was being undertaken. In 1862

Richard Thursfield published a paper on 'Old Broseleys' which incorporated the main themes of most subsequent research. His observations were based on a collection of some 400 pipes, backed up with historical research and dealt with the origins, dating and development of pipemaking in Broseley. This type of essentially descriptive approach has been used extensively ever since, with numerous individual studies of pipes and pipemakers having been carried out in many parts of the country.

These small local studies gradually increased the overall comprehension of pipes and pipemaking until it was possible to produce a synthesis of national trends. Above all others, Adrian Oswald has been instrumental in bringing about an understanding of the industry on a national level. Several of his papers (1951, 1955, 1960a, 1970) discussed and developed the understanding of pipes on a national level and led to the publication of *Clay Pipes for the Archaeologist* (1975) which still stands as the textbook on British pipes. This includes historical summaries of tobacco and pipemaking, regional typologies, discussions of styles of mark and decoration and a national makers list.

It is only in recent years that there have been moves away from this traditional 'descriptive' method of study. Increasingly interest has been directed towards the interpretation of pipes (eg Davey 1985), rather than simply their collection and cataloguing (eg Muldoon 1979). Obviously this trend is neither clear-cut nor absolute and reflects changes in contemporary thinking as much as changes in pipe research. Until the groundwork had been done, for example, it was simply not possible to consider more detailed aspects of the industry. Likewise, a shift in the methodology and thinking in other branches of

archaeological and historical research influences the way in which pipes are studied.

One trend has been a continuing shift away from the view that regards history as a series of Kings and Queens. More than ever before there is an interest in the lives of ordinary people, the backcloth against which the rich tapestry of historical figures and events is set. Open air museums such as the Weald and Downland or Avoncroft now collect the buildings used by ordinary people and major research projects such as the raising of the Mary Rose concentrate as much on the objects of the ordinary seaman as those of the officers. Likewise, archaeological sites are now being properly excavated which would previously have been considered too ordinary or modern to warrant attention and serious study into every aspect of 'vernacular domestic culture' is being carried out.

Another trend has been the increasing importance of scientific and systematic methods of analysis. The application of statistics to historical and archaeological data is now widely applied to understand the functioning of past societies and to demonstrate changing patterns within those societies. There have likewise been developments in the fields of theoretical archaeology and in the use of computing for historical research (eg Denley & Hopkin, 1987). In many ways it has now not only become 'respectable' to study post-medieval culture, but necessary that any such study is based firmly on substantiated data rather than general impressions of the past. This point is perhaps best shown by the study of ceramics. In the past there was a tendency towards the art historical approach to pottery. Principally complete decorated pieces were studied for their aesthetic qualities, with little

regard to their plainer contemporaries or value as social or economic indicators. Today assemblages of plain sherds may be subject to a whole array of analysis in an attempt to discover everything from their inclusion types to their disposal patterns. It is no longer considered adequate to consider the object *per se*, it is the whole series of implications resulting from the existence of the pot which are of importance.

This study is influenced by or perhaps a product of, these changing attitudes to the past. Post-medieval archaeology is now an established and expanding area of research and one which brings the full complexity of detailed stratigraphic interpretation to pipe studies. The demands of archaeologists and historians now include not only the date, maker and origin of the pipe but also questions about how it can be used to interpret the site and how it can reflect changes within society. It is to these new questions in particular that this research has been directed.

One objective of this thesis has been to reassess our current state of knowledge regarding pipes, principally through an examination of the artifactual remains. In general terms the introduction and spread of pipemaking in Britain is now understood and the major regional styles and methods of marking defined. But how accurate an understanding do we have of the way in which the pipemakers operated or the way in which archaeological and historical data can be extracted from the pipes? The first part of this thesis explores some new contributions to pipe studies, asking more detailed information of the existing data and revealing new avenues for potential research. The second part takes this a step further by re-examining one of the most important

pipemaking centres in England in the light of these advances, to see how complete our understanding of it is and whether these new approaches have a contribution to make.

In this second section the traditional understanding of bowl forms and makers' marks are reassessed. Advances in the quality and quantity of artifactual data, combined with a reassessment of the documentary material allow a much broader consideration of the industry. In particular the conceptual approach is different in that it is not to define for the first time the physical attributes of the pipes produced but through an examination of them to explore the whole depth of our understanding of this important production centre. Before examining any of these aspects in detail, it is necessary to say a little more about the way in which pipe studies have developed and the way in which this research programme has been carried out.

I : Pipe Studies; Concepts, Questions and Data Sources.

The value of any individual pipe to an archaeologist lies in what it can tell us about the past. This can operate on two levels - the pipe can tell us about itself in particular or on a broader level it can reflect the society which fashioned it and the context within which it was found. Likewise, interest in pipes can be divided into several basic categories. The Museum curator or collector may simply wish to identify a given specimen. All this requires is a rapid and easily accessible means of dating the pipe and attributing it to a particular manufacturer and production place. To the archaeologist, however, much wider considerations will be relevant. He will want an accurate date structure

for the excavated contexts and to know how the style and decoration of individual pieces reflect the individuals who created the site, how far the pipes have travelled and what this tells us about trade and communications in that area. The social or economic historian will want to know how the pipemaking industry was organised and operated, how styles and motifs were disseminated and how we can interpret this information in relation to other archaeological and historical data about the economy as a whole.

These diverse and searching questions can only be asked and answered if a considerable amount of groundwork has already been done. Researchers in another field can only be expected to utilize the synthesis of pipe studies and not to carry out the detailed research themselves. A few years ago it would not have been possible for workers in other fields to draw upon pipe data. Thirsk (1978), when discussing the spread of new industries in the seventeenth century, carried out her own research on tobacco growing, but was only able to make passing reference to pipemaking itself. Walker says that he emigrated to Canada in 1962 and, "picked ... on clay tobacco-pipes as being a topic of moderate ease ... to justify his change from prehistoric to historical archaeology" (Walker 1977, pXV). Five years later this idea had been "long since shattered", and in 1977 the published version of his thesis ran to no less than 1,861 pages (Walker 1977). Any misconceptions about the simplicity of pipe studies are dispelled by the continuing growth of interest and research in the subject. Since 1975 British Archaeological Reports of Oxford have published some 4,000 pages of pipe research, which touch upon topics ranging from Indian grave goods to English trade tokens. The people generating this interest come from a wide range of backgrounds and disciplines, but collectively contribute to a single

topic of research which, if properly co-ordinated, can contribute to a number of other fields.

The quantity of data and range of research skills now needed to study pipes is such that it may indeed be regarded as a well-defined interdisciplinary study. It is one of the few post-medieval research topics which has been firmly founded on a combination of archaeological, documentary and artifactual research. In 1977 Walker (Chapter 7) railed against Industrial Archaeologists who were obsessed with objects and had failed to grasp any concept of archaeological excavation or the synthesis of objects into history. Fortunately such a diverse range of interests is focused in pipe studies and such wide and varying themes studied that a similar situation has been avoided.

Pipemakers are usually identified and researched through documentary sources, whilst their output is identified and interpreted from artifactual remains. Individuals may specialize in a particular area of research, either historical or archaeological but, in the final analysis, it is the synthesis of these two fields which makes the subject. This thesis is primarily concerned with the study of the artifactual rather than documentary sources. It is concerned with developing scientific and systematic methods for the recording, interpretation and analysis of pipes, the means by which that information can be most usefully stored and disseminated and the way in which this contributes to our understanding of the recent past. This is in no way intended to undermine the importance of other avenues which may be better explored by those with different skills. Before going on to consider the artifactual side of pipe studies in detail, we must briefly consider how archaeological remains relate to the subject as a whole.

The function of pipe studies must be not only to further its own interests but also to service the needs of other disciplines and, above all, to contribute to a better appreciation of the people who make up our past. Let us consider then the way in which pipe research is organised, the sources of data upon which it draws and the questions asked of it. We will then be in a better position to meet these diverse demands put upon it and to plan for the future of the subject.

There are three basic tiers or levels at which data is required. Each of these reflects one of the spheres of interest outlined above. Naturally there is a certain degree of overlap and interrelation between these fields of interest but they serve as a useful model upon which to consider the different end products of pipe research. By starting with an idea of the end product required, we can work back to see what data is available, and how an effective policy for future work can be formulated.

Ia : The Individual Fragment. The basic unit of information under consideration is the individual pipe or fragment thereof. This is the starting point of archaeological investigation, the basic building block to and from which information about the past must be made to flow. The primary consideration is the recording and analysis of that object, that is to say the means by which we record the provenance and physical attributes of the pipe and the methods we apply to extract information from it. In this analysis we may consider the clay source and manufacturing techniques of the pipe, the manufacturer and dating of it, the style and decoration applied to it and the status and source of it.

In order to arrive at this type of information, we will have to draw upon a wide range of ancillary data sources: geological and historical maps to find clay sources and production sites, monuments and excavated structures to find out about production techniques and a whole range of scientific analytical techniques, documentary, photographic and oral sources which can touch upon any area of pipemaking and use. This research will provide us with a detailed understanding of the individual fragment but this is only the first tier of understanding. We must next carry out a more detailed synthesis of a number of fragments and a range of such detailed information to be able to understand an archaeological site.

Ib : The Archaeological Site. The archaeological site is an interrelated group of artifacts and/or structures resulting from past human activity. On most sites this consists of a series of layers and features which overlie and intersect one another. If these layers or features contain pipe fragments then the pipe researcher is at once confronted with a much more complex range of data and ideas. The location, status, occupants and period of the site will all provide ancillary data which can be applied to the pipe groups. A civil war encampment occupied by a particular regiment, for example, will provide information about pipes from specific sources, at a certain date and as used by a certain class of society. In addition the individual contexts will provide relative sequences to determine typological and stylistic changes or groups which demonstrate the range of styles current at any one time.

One of the most important uses of pipes is in interpreting such sites. Each fragment must be identified and considered individually and then a synthesis of that information produced for each context. The contexts

can then be related to build up an overall picture of the phasing, status and market contacts of the site. The occurrence of pipes with other classes of artifact places them within their original cultural context which may in turn aid the understanding of the pipe assemblage. These classes of ancillary information can again be fed back into pipe studies as a whole to add towards our concept of the industry on a national scale.

Ic : The National Industry. The interrelation of all our data on individual pipes and groups of material, as well as the ancillary data on production, style and marketing combine to form a detailed understanding of the regional spread and development of the industry. At this level contact with individual pipes is almost lost. Instead we are now able to view the general trends concerning regional and chronological changes and assess the implications of pipemaking and associated trades on a national or even international level.

Thus a data system is built up. The flow and interaction of needs, ideas and sources of information can be expressed as a flow diagram (fig 1). This shows how the questions posed by individual fragments generate secondary research which may in itself pose new questions or ideas. Individuals may contribute to any aspect of this system by carrying out research within their particular area of expertise or interest. The synthesis of these ideas produces a more detailed understanding of the subject at all levels and allows other researchers or disciplines to extract data which is pertinent to their field. The more information that can be fed into this data system and the better the understanding we can extract from it, the more useful it becomes.

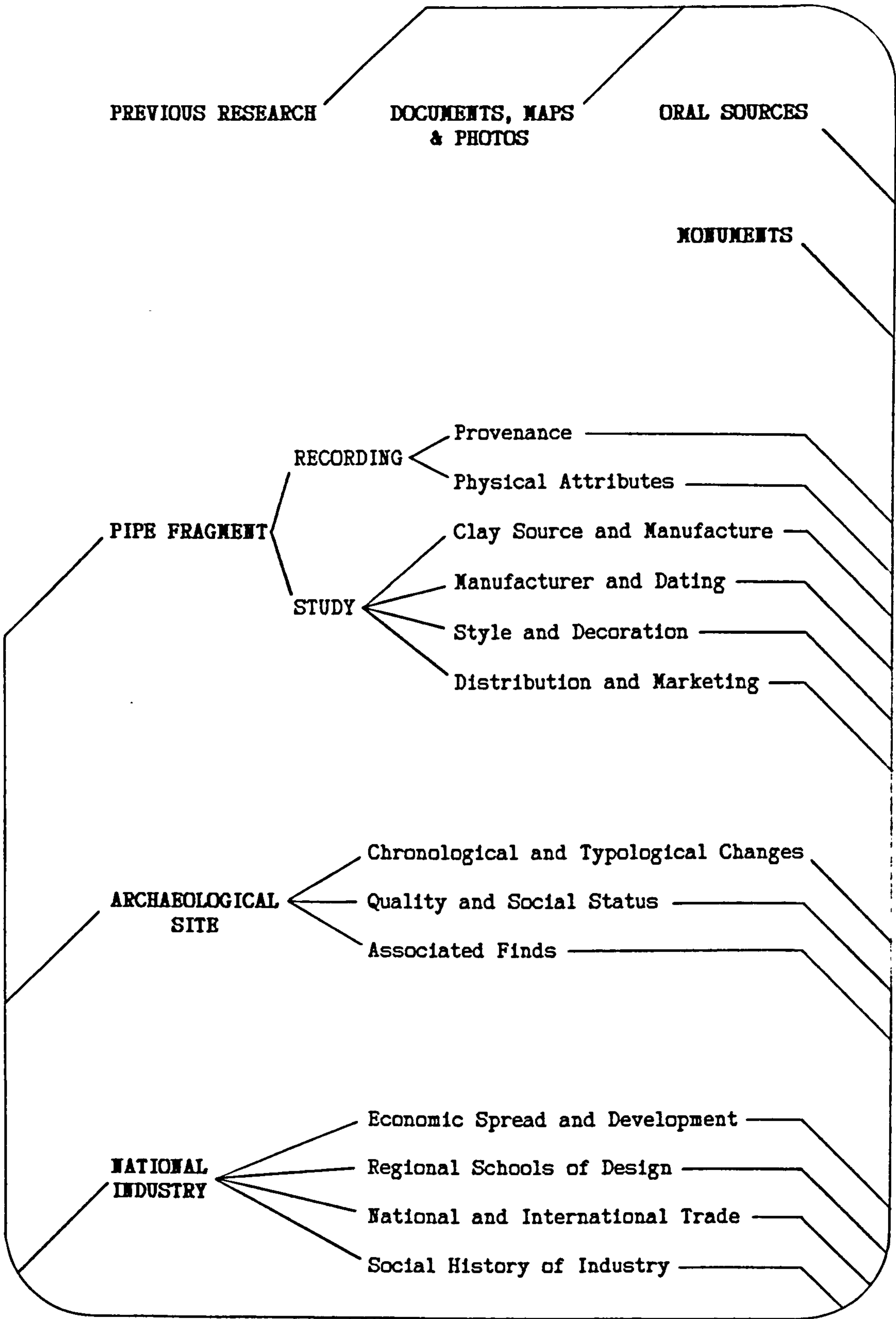


Fig 1 - Flow diagram of themes connected with pipe studies.

At the moment there is a very rapid accumulation of data in many of these different fields. One of the problems this causes is that individual researchers may find it difficult to keep abreast of current developments. This problem is compounded by the numerous local journals and proceedings in which information relevant to pipe research is being published. With the increased sophistication and availability of computing systems it is hoped that national databases may be developed to integrate and store certain classes of information which is most useful to researchers. Consolidated lists of pipemakers and their marks for example would not only assist new research but make better use of the existing data. Projects to compile data from census returns and a national bibliography of pipe articles, have been proposed by the *Society for Clay Pipe Research*. This type of national organisation of data should certainly be encouraged, if the best use is to be made of available resources.

II : The Applications and Limitations of Pipes as Data Sources.

Having argued for the usefulness of a detailed understanding of the pipe industry, it is perhaps salient to consider in rather more detail the potential uses and limitations of the subject to other disciplines. This can be considered in two parts. First, we must consider the pipes themselves and why they form such an important potential source of information and secondly, we must consider the value of this contribution in relation to other sources of archaeological data. There are three basic factors which make pipes of importance.

First, pipes were common at all levels of society for over three hundred years. The art of pipemaking originated in this country during the later sixteenth century, principally in London. At first tobacco was very expensive, thus confining the habit to those who could afford it. During the early seventeenth century, however, the price of tobacco fell dramatically and smoking rapidly spread to all classes and areas of the country. Despite a vogue for snuff during the eighteenth century, particularly among the upper classes, pipes maintained their dominance until the second half of the nineteenth century when cigarette, cigar and briar pipe smoking started to erode the market. Although limited production continues to this day, pipes ceased to form a common household item during the early years of this century.

Secondly, pipes are closely identifiable by both period and region. Initially, as pipemaking spread to the provinces, London styles of bowl form and makers' mark were copied. Both of these factors, however, soon gave way to regional styles. These were subject to the dictates of rapidly evolving fashions which, together with the extremely short life expectancy of pipes, enable accurate identification and dating.

Thirdly, pipes have a high survival rate and are extremely common on post-medieval archaeological sites. The pipe had no intrinsic or recyclable value once broken and so was readily discarded. Being of highly fired, good quality clay, it is subject to little deterioration in the ground. In addition, it was the stem which usually broke, rendering the bowl useless. But it is the bowl which usually carried the most useful information about the date, origin, maker and quality of the pipe. Since this often survives intact, it not only makes an ideal subject to study but also catches the attention of builders, gardeners and the like

who often save them. This not only makes more data readily available but also generates a popular interest in the subject.

Pipes are therefore chronologically and socially ubiquitous, closely identifiable by date, origin and manufacturer and survive well in archaeological deposits. These attributes give pipes a number of advantages over most other classes of archaeological data.

IIa : Archaeological Survival. Ceramics, principally pipes and pottery, and stonework are generally the two classes of artifact which survive best on archaeological sites. They are virtually unaffected by most types of environment, and usually require no post excavation conservation work. With the exception of gold, all metal objects suffer varying degrees of decay which usually requires conservation and special storage facilities. Glass generally survives well, although cheaper grades are subject to gradual breakdown, requiring conservation. Organic materials such as wood, leather and fabrics only survive where specific conditions apply and likewise require specialist conservation facilities for their preservation and storage. Bone only survives under certain conditions and may require conservation depending on its condition. Pipes are therefore one of the few types of artifact which survive well in almost all conditions and present virtually no special conservation or storage problems.

IIb : Identification. Pipes are easily identified by region and often individual manufacturer. They often bear makers' marks which can be related to individuals rather than general companies. With other classes of find it is rarely possible to identify a specific maker or owner. Pottery is generally the most common find on post-medieval

sites but until the nineteenth century manufacturers' marks are almost exclusively confined to the higher quality products such as porcelain or fine bone china. Even when these marks are found, they tend to represent large companies operating from a few large centres, such as Stoke and often for considerable timespans, thus making accurate dating difficult. Their products were widely marketed and are, thus, not such sensitive indicators of local trade patterns. Glass is not generally marked until the diversification in bottle types during the second half of the nineteenth century and most other classes of artifact are rarely either marked or rarely encountered at any period.

IIC : Dating. The clay pipe is particularly well suited to dating. Stylistic, regional and chronological changes all mean that the date of manufacture can be defined within narrow limits. The short life expectancy and non recyclable nature of the pipe mean that the date of manufacture is almost always close to the date of disposal. This makes pipes quite unlike most other classes of find. Usually the cheaper and more utilitarian (and therefore more common) a product the less datable it becomes. The most datable features of any object are usually artistic or stylistic embellishments which are subject to chronological change. Unfortunately, the greater the labour expended on an object the greater its worth. Therefore, an object of great value may be extremely datable, but will also have a long life expectancy. Utilitarian pottery may be discarded close to the date of manufacture but that date is difficult to determine. High quality pottery still adorning cabinets or mantelpieces may have been handed down through generations and yet could still be broken and discarded at any time. With recyclable materials such as gold or silver the problem is compounded. Not only are the objects of value for their craftsmanship but they are of value even as scrap.

They, therefore, may have a long life expectancy and even then rarely become lost or discarded in archaeological deposits. Coins likewise are always of value and their date of manufacture may be quite different from their date of loss. In addition, pipes are often recovered in large quantities providing a valuable check on the consistency of the group, and overcoming the problem of having to rely too much on an individual object which may be intrusive or residual to a layer.

IId : Interpretation. The interpretation of an archaeological site depends on the interaction of all the classes of documentary, structural, stratigraphic and artifactual data. Invariably the latter two classes provide the bulk of the available information, since by their very nature archaeological sites represent the results of innumerable individual human activities. Structures and documents may provide the basic framework within which these events took place but the understanding of the site depends on the recording and interpretation of the individual contexts. For the post-medieval period pipes are probably the most useful individual class of artifact. As already noted they carry a wide range of data about their origin, manufacturer and date and the fact that, because they had a short life expectancy, they are found in large numbers.

These factors combine to provide a wealth of information about each individual context, the relationship between contexts and the social status and trade patterns to the site. Since it is easier to move clay in bulk rather than finished pipes, the majority of pipes are only found in a small area around their place of manufacture. High quality pipes, however, were generally made at fewer centres and traded over wider areas. Examination of the pipes will, therefore, not only provide an

accurate dated sequence for the site but also allow an examination of the local market centres which supplied the common pipes and the trading links with larger or more remote centres where high quality pipes could be obtained. The ratio of common to high quality pipes will reveal the status of the site, and any changes to that status over time.

III : Data Sources.

There is a continually growing body of artifactual material which can be used by pipe researchers. The most important contribution to this trend is the greatly increased rate of post-medieval excavation which is continually producing large quantities of new pipes. These groups are particularly important since they provide not only a much wider coverage of the country than has previously existed but also the opportunity to study the total range of pipe fragments from a site and not just a selected 'collection' of them. This increase in the variety, quantity and quality of available data enables a wide range of new approaches to the study of pipes and is clearly another factor in the development of analytical and interpretive approaches. Excavated finds, however, are not the only source of artifactual material and the types of collection used in this study are outlined below.

Collections of pipes available for study fall into three main classes, being those held by museums, archaeological units and private individuals. Museum collections tend to be the most diverse and unpredictable. The quality, quantity and variety of pipes varies considerably depending both on the collecting policy of the museum and nature of material donated. Many hold collections dating back into the

nineteenth century which may come from diverse sources and with widely varying degrees of documentation. The British Museum, for example, holds some pipe fragments collected from under the floorboards of Buildwas Abbey in Shropshire as long ago as 1824, while the City Museum at St Albans has a group of Turkish pipes that must have been collected by a traveller around the turn of this century. Museum collections also tend to have good collections of local finds brought together over the years from a variety of sources. They, therefore, form an invaluable starting point in the study of any region. Access is usually easily arranged by prior appointment.

Access to the stores of archaeological units may be less easy, since they tend to be less geared up to dealing with researchers, and the pipes may be mixed in a variety of ways with masses of other archaeological material. A lot of excavated finds eventually pass into the care of the local museums service or to central stores where access may be better. Providing, however, that one has a clear research aim and is prepared to wade through a large quantity of storage boxes and bags, access can usually be achieved. The vast majority of finds will come from the region in which each excavation took place, and by its very nature will contain less marked or decorated pieces than the 'selected' material of museum collections, together with a more complete range of stem, bowl and mouthpiece fragments.

Private collections, like museum collections, vary considerably in range and quality. People may simply have collected a few pieces from their garden or have amassed a vast array of material from all over the world. Documentation, too, can vary from just the memory of the collector to detailed cataloguing and indexing systems. There is no way

of finding who holds material or how it will be arranged other than by following up personal contacts.

The usefulness of any of these forms of collection will depend on the type of research being undertaken and the range of the collection in question. Although material may be held in these different ways, it is likely to come in one of three forms: unprovenanced finds, provenanced finds and excavated groups.

IIIa : Unprovenanced finds. The first group to consider are unprovenanced examples, of which most museums have their fair share. These generally consist of old collections which the museum may have acquired without supporting data or old accessions which were either never well documented or can no longer be tied to their documentation. Such material was often collected for its completeness or quality and so may contain pieces of some importance. Sadly, the body of unprovenanced material is still contributed to by many collectors, particularly those of decorative Victorian pipes, who fail to keep any record of the provenance of their finds. This will no doubt sadden future researchers for whom the value of their collections is greatly diminished. Bewdley Museum, for example, already holds the Harold Porter collection of pipes, formed largely during the 1970s but which contains very few provenanced pieces. His collection sources clearly include South Yorkshire, Shropshire and North America and the date range spans the early seventeenth to the later twentieth centuries. The value of such collections is reduced to the merit of individual pieces which can, never_the_less, yield a certain amount of information.

Shrewsbury Museum holds the surviving section of the T H Thursfield Collection which was first published in 1907 (Oswald & James 1955, 188; see also Chapter 2.1). Although none of the pipes is provenanced they are all Broseley types, and were probably all found in that area. Many of the marks are either the only known or the best extant examples of a particular die and, as such, need to be included in any regional research or makers lists (figs 51-56). Since most pipes can be identified by regional characteristics it is relatively easy to deduce the original source and maker, of a given pipe even if it is unprovenanced. Unprovenanced material, therefore, needs to be considered to see if its origin can be inferred or if it contains type examples of pipes not recorded elsewhere.

IIIb : Provenanced Finds. A large proportion of the material available for study consists of chance finds whose provenance is known. Even if this is only a general attribution to a particular village or area of a town, the value of the find is enhanced greatly. Once again there is a tendency for people to collect only complete, marked or decorated bowls, thus causing a bias in the range of material collected. The advantage of this type of collection, however, is that it often provides a good body of data for an area. An individual site may produce much greater detail about a particular period or class of pipe but the random collection of material tends to produce a fairly representative cross section of all classes and periods. This type of material can be used to build up a type series of marks and styles for an area (eg Higgins 1985b), and through distributional patterns, to suggest the market areas or the likely workplace of undocumented makers.

In addition it is sometimes possible to build up a more detailed picture from individual groups. If a group of material from a particular findspot is all of a similar date it may be reasonable to infer that it has resulted from the disturbance of a particular archaeological deposit. It may then be possible to assess the prevalence of a particular form or style at that period or to date a type of decoration by association with marked pieces of known date. At Rainford, for example, the author has seen a small group of fragments found during the renovation of a house. Many of the fragments fitted together and all appeared to belong to the same type of pipe. There were two eighteenth century bowls and two Chester style roll-stamped stems, one of which fitted one of the bowls. Several other bits of stem fitted to make up a complete stem, although the bowl was missing. Despite this it is reasonable to assume that all the pipes form part of one group, deposited during a previous building phase and, thus, that the stem is contemporary. This gives us the only known stem length for an eighteenth century pipe from this area (14.25", 36cm; I am grateful to Ron Dagnall of Rainford for bringing this group to my attention).

IIIc : Excavated Groups. There can be no doubt that excavated groups provide the most useful potential source of data for pipe research. The relationship of pipes and other finds, both within and between contexts, enables a detailed interpretation of the dating, status and evolution of the industry. In addition, individual groups may provide data on stem lengths, mould numbers or production techniques at a specific period. The main drawbacks are in the range and date of available groups. Archaeological excavations provide extremely precise data about individual sites but this may only cover a very small chronological period or geographical area. Often, post-medieval layers are stripped

before earlier periods are examined and the occasional excavations which produce pipes may not be sufficient to understand the local industry.

In Leicester, for example, our whole outline of the important local industry is based upon stray finds and the only good group of any one period was derived from stripping of the surface layers prior to excavation of underlying Roman features (Elbow Lane excavation 1977, Higgins 1985b). Even where post-medieval excavation does take place it rarely includes groups later than the eighteenth century. So, although archaeological groups add great precision and detail in specific cases, they must be integrated with systematic research into the general pattern and development of local industries derived from stray finds.

IV : Current Research.

The extraordinary growth in the range and quality of research over the last decade is almost entirely due to the efforts of private individuals. Individual studies have been produced since the nineteenth century but it is only since the 1950s that systematic work has been undertaken over large areas of the country. The publication of a series of papers, culminating in Adrian Oswald's *Clay Pipes for the Archaeologist* in 1975, was a turning point in British pipe studies. This outlined the national development of pipemaking and brought pipe studies firmly to the attention of the archaeological community. It showed pipe research to be an important element of post-medieval archaeology and acted as a base upon which to build more detailed and comprehensive studies. At

the same time the rapid growth of bottle collecting produced a vast quantity of nineteenth-century and later material, with associated interest among collectors.

Since 1979 the BAR series *The Archaeology of the Clay Tobacco Pipe*, edited by Peter Davey, has acted as a focus for the publication of research on an international scale. This series has doubtless acted as a catalyst in the rate of research by disseminating information and stimulating further work. The *Clay Pipe Collectors Club* was founded in 1983 but after publishing eight quarterly newsletters appears to have been eclipsed by the *Society for Clay Pipe Research*. This was founded in 1984 and now has members from thirteen countries around the world. It publishes a quarterly newsletter and organises an annual conference, and occasional study tours, including one to the Netherlands. It is acting as a forum in which ideas are exchanged and policies of research formulated. Similar developments have been taking place with the formation of pipe study groups in America and the Netherlands.

A strong structure of research, discussion and publication has therefore been built up on the interest generated amongst archaeologists, researchers and collectors. Britain is currently one of the world leaders in the study of pipes, a point emphasized by Düco following the first annual meeting of the SCPR in 1985. He said (Düco 1985, p3),

"Those whom we met there reflect the impression we Dutch have of the English - they are more interested in researching the history of the clay pipe industry than their Dutch counterparts, who are mainly collectors. The London day turned out to be a meeting for scholars and serious amateurs sharing a common interest"

It is hoped that all levels of British researchers will continue this serious study into all aspects of pipemaking.

V : The Research and Recording Programme.

Having outlined something of the nature and scope of pipe research in this country, it is necessary to describe the manner in which this study has been conducted and the way in which the data has been recorded. As stated above, the general development of pipemaking in Britain is now fairly well understood, and the changes which are taking place are in the depth of analysis and interpretation of pipe groups. This study will look first at some of the developments in the ways in which data from pipe groups can be extracted and used. In this section some important groups from various parts of the country have been included to demonstrate the potential of these new techniques. The main part of the study then goes on to consider the application of these new techniques to the Broseley industry, and to carry out a wide-ranging re-appraisal of it. Throughout this study the primary data source has been the artifactual evidence and a reconsideration of the data we may derive from it. Crucial to this is the way in which the groups of pipes themselves have been recorded.

The recording of study material is one of the most important issues for any pipe researcher. Without a scientific and systematic approach to the collection of data, comparison and analysis is impossible and the academic value of any observations made is dubious. It is only through the widespread introduction of standard recording systems that national or international comparisons and developments in theory can be made. An attempt to standardise the recording and publication of pipes was made by Davey (1981) following a meeting of the Welsh Medieval Pottery Research Group. This is very similar to the system being developed at the time by the author and which, in a slightly modified form, is

described below. The main differences in Davey's system are an increased attention to stem bore measurements and a different form of layout. These differences in detail are of little importance, since the same basic categories of data collection are covered.

The system used by the author is based on an A3 format, the facing pages of an A4 book with ruled pages having been adapted for the job. The left hand page is divided into standard columns for recording information about the pipes and the right hand page is used for notes and sketches. The use of columns for recording each category of information makes tabulation or the location of individual marked or decorated pipes easy and the system can easily be adapted for recording anything from individual stray finds to complex groups of excavated material. The name and any necessary details of the location and ownership of a collection are entered across the page where recording starts. Then, where applicable, the following information is entered in individual columns. These are always arranged in the same order, so confusion does not arise over the headings. Wherever possible a positive indication in a column is made, usually as a simple numeric or symbol entry. The standard abbreviations used in several of the columns are:

/ = yes, this column applies.

0 = no, this feature is not present.

- = this column cannot be completed because the relevant information is either missing, damaged or otherwise unobtainable.

→ = some special feature applies to this column, which is described in the notes column on the right.

The categories of information, as recorded from left to right, are as follows. The headings are kept as brief as possible to allow the narrow columns necessary:-

County The name of the county or area in which the pipe was found is entered. This enables quick scanning for pipes from a region.

Site The name or address of the findspot is entered if known. This column is used to enter as accurately as possible the provenance of the find.

Ref Under this column is entered any reference code or number actually written on the pipe, which can be used to identify that individual example.

B The number of bowl fragments described on that particular line is recorded. This is used in two ways. First, for a detailed analysis of archaeological contexts or for whole bowls, where detailed information about a particular piece is required. In this case a '1' is entered in the 'bowl' column and the following columns of detailed notes filled in to provide specific information about the piece. Secondly, it can be used for general recording. Several bowl fragments without individually identifiable features or just a general count for overall tabulation of a large group may be required. In this case the total number of fragments is entered, to which just one or two of the following columns may apply. For example, they may be sorted into three groups of seventeenth, eighteenth and nineteenth century date and just the number of fragments, and the century, recorded on each of three lines.

S The number of stem fragments described on that particular line is recorded. This may just be a total for a group or context, in which case a simple number is entered. If more detailed information is to be added in the following sections the stems can be sub-divided and entered on several lines, as for the bowls above.

M The number of mouthpiece fragments described on that particular line is recorded.

T Records whether the heel or spur of the pipe is trimmed. In some cases the mould line is still visible i.e. not trimmed off but has been flattened or smoothed into the pipe. In this case an F is entered.

X Records whether there is an internal bowl cross present.

B Records the burnish on the pipe. For stems and small or abraded fragments of bowl a simple tick (/) may be used or for groups of stems just the number with burnish entered. For bowls a more detailed assessment may be used. P = Poor burnish, where the individual strokes are sloppy and hastily applied, often with wide gaps and unburnished areas at the top and bottom of the bowl. A = Average burnish, where the strokes are fairly well spaced and even around the bowl, although still with clear gaps between them. G = Good burnish, where the strokes are well applied with close even strokes neatly covering the bowl, although small gaps may still be visible between some of the strokes. F = Fine burnish, where the whole surface of the bowl is polished to a glossy sheen, with each stroke hardly being discernable from the next, and no gaps between the strokes. For additional differentiation + or - signs may be added to these letters to indicate intermediate grades.

^m/₄ Records the presence of milling round the bowl rim to the nearest quarter of a circumference. 0 = none present, 1 = one quarter milled, 2 = half milled, 3 = three quarters milled, 4 = fully milled.

Bot Records whether the rim has been bottered, ie smoothed and rounded, after the pipe had been moulded. It is useful to record whether there is any trace of internal knife trimming of the rim too, this can be done with an additional → symbol and note .

^B/₆₄ Records the stem bore in 64th's of an inch divisions.

C Records whether a plaster impression of the mark or decoration has been cast as part of a permanent reference store (described in Chapter 2.VII). Divisions marked across this column indicate the start and end of the individual plaster blocks on which these impressions are made, each of which can be allocated a unique reference number, so an exact copy of any mark can easily be relocated for drawing or comparison.

F Records the fabric of the pipe. For general purposes only the codes I for Imported or L for Local are used. Imported fabrics are regarded as the fine, hard, white fabrics which show no readily identifiable features. This type of fabric is characteristic of almost all later pipes and many of the earlier ones too, especially around London and the south-east. In these cases it appears to represent fine, white, west-country clays from Devon, Dorset and the Isle of Wight. Local fabrics are regarded as those which exhibit slightly off-white hues and contain some form of gritty or coloured inclusions. Such pipes are found in many areas in the midlands and north where local sources of clay are known to have been used. Clearly such a differentiation is very basic

and it does not necessarily follow that all west country clays were fine and all others coarser. Obviously where more than one local fabric can be defined suitable codes can be added here. Conversely, it is not worth entering anything if no differences between pipes of any date can be recognised.

Mark A sketch of any maker's mark should be made, including any border and indicating the general form and style. If a stamp or slogan is repeated more than once this should be indicated.

Pos Indicates the position of the mark; B = Bowl, H = Heel, Sp = Spur, St = Stem. If a mark occurs in two places, eg on heel *and* bowl, both should be entered with a slash between.

I/R One of these letters should be entered to indicate if the mark is Incuse or Relief. This should refer to the means by which the dominant lettering or motif on the pipe has been created.

M/S One of these letters should be entered to indicate if the mark is moulded or stamped.

Dec A sketch or brief verbal note of any decoration should be entered here. This can be elaborated upon in the notes section or through a sketch or drawing.

Date The date attributed to the pipes recorded on the line should be entered. This can either be a date or a typological bowl form taken from a recognised (and identified) series.

P If a drawing is published a reference is indicated here.

T The temporary number of any working sketch or drawing is noted here. Usually for a sketch on the facing page a number prefixed with an S is used, any other number referring to a separate sheet of drawings.

Notes Any additional notes or information is recorded on the facing page.

This has been the basic recording system applied to all of the material covered in the course of this study. Clearly the data collected through this system is quite extensive, and on occasions it has been simplified through the selection of only some of the categories where the time available or the material being studied did not justify full recording. The system, however, is ideally suited for both general research and the recording of excavated material. Each context can be recorded in as many lines as are needed which for added clarity can be separated with horizontal dividing lines and summaries easily produced by looking down the relevant columns. This makes it easy to identify specific trends between bowl finish, milling and so on within the site. Likewise between sites or groups comparison is facilitated through the provision of a standard format, from which features such as burnishing ratio or milling index (Davey 1981, 75) can be easily extracted.

The data used has been drawn from a wide range of sources and types of collection. The first chapter of this thesis deals with the range of data which can be extracted from a more detailed recording and analysis of pipe material. This demonstrates that although time consuming, methods of analysis can be developed which substantially alter

established ideas about the form and production of pipes. Because of the scarcity of suitable groups of artifacts on which to carry out this type of analysis, the examples have been drawn from various parts of the country. The objective, however, is to establish the scope and validity of these arguments and to present the themes that will be followed in the consideration of Broseley.

The study of Broseley itself started with a review of past research and a consideration of the available material. David Atkinson very kindly allowed me to borrow and copy his original notebooks, upon which his 1975 paper was based, the drawings from which are reproduced here for the first time (figs 33-50). Then, as many of the previous collections, and as much of the local material as possible, was studied to establish the exact range and nature of local production. Having defined the production of the Broseley area, it was possible to compare and contrast the material found in other areas.

This involved studying groups from as many places as possible within the distribution area of Broseley products. Since this extends from at least Cheshire to Gloucestershire and from Wales to Leicestershire, it had to be a somewhat selective programme of study. The objective was principally to explore the interaction of Broseley with local forms of bowl and mark and to assess the quantity of trade represented by the finds. It was therefore more important to look at a few groups in detail rather than a large quantity quickly, as had been done by Walker (1977). It is easy to pick out the distinctive Broseley products but this can give a false impression of the importance of them in relation to plainer local products. Over 10% of the marked pipes illustrated from St Ebbe's, Oxford (Oswald & Rutter 1984) are of Broseley origin,

giving the impression that there was substantial trade to that centre. Yet, when a large sample of Oxford pipes are examined in detail, it is apparent there are, in fact, a very small percentage of Broseley pipes and a very large percentage of unmarked local products which were not proportionally represented in the drawings.

A second problem which had not been anticipated was the discovery that the Broseley makers lists were extremely unreliable (Atkinson 1975, Oswald 1975). The parish registers did not appear to have been thoroughly or systematically searched and so many dates were attributed incorrectly. This was compounded by the fact that a substantial number of makers were found to have worked in Much Wenlock, and probably other surrounding areas and had been partly confused with Broseley makers and partly overlooked. It was, therefore, necessary to review some of the more obvious documentary sources.

For Broseley and Benthall sources such as the Parish Registers, trade directories, census returns, tithe award, probate inventories and so on have been consulted. For Much Wenlock, the substantial nature of its pipemaking industry had not been previously recognised or studied. It was, therefore, necessary to establish which makers were working at Wenlock before their details could be researched through the Parish Registers. The industry was found to have flourished primarily during the seventeenth and first half of the eighteenth centuries and so records of that date which gave occupation (for example Examinations Books, Court records and so on) had to be examined. Some of the names have subsequently been researched in the Parish Registers, but the list provided (Appendix 2) can only be regarded as a preliminary survey in need of fuller research.

For Broseley and Benthall card indexes have been made to cover all the documented pipemakers and workers. These have been built up with all the known references to the pipemaker and include details of each individual's family so that the fullest possible view of family links and the structure of pipemaking is possible. Only the 'master pipemakers' are included in Appendix 2. and another index deals with the very large number of workers recorded in the nineteenth-century census returns which it is hoped will form part of a separate study. A wide range of documentary sources relating to the nineteenth and twentieth century Broseley production were also located, and members of the Southorn family and previous employees interviewed. Thus, as far as possible, a picture of the more recent industry has been built up from documentary and oral sources.

A mark index has also been set up to deal with the very large number of makers' marks encountered during the research. Many thousands of marks have been examined during the study, and a reference collection of casts developed. Nearly 1,400 drawings of pipes or marks have been made and are presented in this thesis. Previously published drawings have been incorporated with those drawn as part of this study and stored on a card index, which now includes type drawings of well over 1,000 different marks. This enabled known Broseley stamps to be easily compared with material from surrounding areas and thus helped define the regional differences in styles of marking.

CHAPTER 1

NEW APPROACHES TO THE ANALYSIS AND INTERPRETATION OF PIPES

This chapter addresses the contribution that archaeological data can make to some of the broader aspects of pipe studies. It is now realised that a much wider range of issues must be considered if we are to understand both the physical characteristics and the effect upon society of pipes and the pipetrade. This section does not presume to offer answers to all the issues raised but rather to introduce some of the new fields now being studied and the contribution that the analysis of artifactual data can bring to them.

Firstly, something which is often overlooked when considering just the bowl form or maker's mark - the shape of the complete pipe. To the seventeenth, eighteenth or nineteenth century smoker the complete form of the pipe would have conveyed an immediately perceived range of information. The price, style and status of the pipe would all have been recognised, together with the implications about type of person who would own that style of pipe, and the places in which its use would be expected. If we are to understand and interpret the pipes we find, we must first be able to recognise with the same degree of precision the differences between the form of the pipes and then link that information to the different classes of society and situations in which they were used. We need to know which pipes were of the same form or length, whether they had straight or curved stems, and how these differences related to the standing of the pipe. Also the degree to

which regional, temporal, social or stylistic differences are likely to exist and how the recovery of pipes can explore these issues.

I : Stem Length. The stem length of tobacco pipes is one of the least well researched aspects of pipe studies. The stem length is measured on the underneath, from the end of the heel or spur where it joins the stem to the mouthpiece. In 1688 Randle Holme listed different types of pipe as (p28),

"Lark heele pipes, Flat heele pipes, Round bolls or head, Long Bolls, Long shanks, Middle shanks, Short shanks or ends, Wrought pipes in the head or shank, Smooth pipes [and] Gleased pipes".

Although some of these names refer to the style or decoration of the pipe there were clearly at least three recognised lengths (long, middle and short) by this date. In 1710 the Bristol guild of pipemakers agreed to limit the range of stem lengths produced for their mutual benefit (Jackson & Price 1974, 82-85). These were to be,

"Long pipes of Sixteen Inches in length from the Heel to the direction of the Point, Dutch pipes fourteen Inches, Jamayca Pipes of thirteen Inches Penned Heeles and Gauntletts of Eleven Inches and half and Virginia Pipes of Eight Inches and half."

Since members were given three weeks in which to shorten their moulds, the implication is that some pipes had been longer than this. Also in 1734 William Nicholas was fined for causing a mould of twenty four inches in length to be made (*ibid*, 85).

In 1799 a range of pipes at Bristol was again advertised (*ibid*, 84), with four different types of long pipe and different styles of short pipe for the West-Indian, American and Spanish markets. The fact that

specific shorter styles were made for foreign markets is supported by evidence from Chester by D & S Lyons, 1810 (Spence 1941/2, 48/9),

"The (Chester) pipes were esteemed the best in Europe and about 30 years ago [ie about 1780] were exported in great quantities to foreign countries; pipes of a peculiar sort, called hog pipes, being shorter than those in common use, were made for the Guinea trade".

Such a range of production was not confined to coastal ports. In 1724 a probate of Thomas Roden of Broseley in Shropshire (Appendix 3) listed his stock of moulds as,

"One Long pair of peak heel moulds and one long pair of broad heel moulds, Two pair of Short moulds one pair of broad heels ye other round heels, Two old pair of Short moulds and One pair of hunting Moulds".

This makes it clear that, not only were there different lengths, but that different designs were produced in different lengths too. The diversity of design increased in the nineteenth century, with a whole range of styles and lengths. In 1821 Caleb Wilson Jr. of Sunderland had seven moulds ranging from 8" to 22" in length (Oswald 1985, 9) and an advertisement by Edwin Southorn of Broseley in the *Daily Telegraph* of 11 August 1866 listed eleven designs between 12" and 28" in length, as well as shorter models.

A William Southorn & Co poster from the early years of this century (but representative of later nineteenth century designs) also illustrates pipes up to twenty eight inches in length being made at Broseley. Broseley appears to have specialised in producing long pipes, and twenty eight inches may well be longer than designs in production at most other centres at this date, although Walker (1977, 13) cites a reference of 1957 suggesting that lengths of up to 33" were produced elsewhere (presumably during the nineteenth century). Daniell (1964/5, 61) records

the sale of pipes ranging from 12" to 21" in Leicester until the first World War. At Broseley the *Shrewsbury Chronicle* of 1932 recorded production of pipes from 6-24" in length, a range which continued until the 1950s (Howard Williams 1956; a transcript of which may be found in Chapter 2). The last commercial manufacturer in this country is John Pollock & Co of Manchester. Now they only regularly produce pipes up to thirteen inches in length, although in 1986 they did produce a run of eighteen inch churchwardens. The longest mould they hold is twenty two inches in length.

The maximum recorded lengths for England generally appear shorter than those for neighbouring parts of Europe. Walker (1977, 15) notes a 1771 reference to Dutch pipes ranging from about eight to thirty two inches in length, although the general length was about nineteen inches. He also says that in Belgium, the Netherlands and northern France he saw several pipes and moulds, generally Dutch, where the stem was a metre (39½") in length. Both these figures are substantially longer than the maximum lengths recorded in contemporary English records.

It is, therefore, clear from documentary sources that, since the seventeenth century, long, medium and short styles of pipe have been in production and that there are differences in the lengths produced both within this country and in comparison with Europe. There may be regional, temporal and stylistic differences effecting the length about which we know little. The Bristol export market, for example, required short styles of pipe in 1799, while in 1734 William Nicholas found a market for pipes well above the sixteen inch maximum laid down by the Guild.

Unfortunately, the artifactual evidence with which to compare the documentary sources is extremely thin. Being so fragile and of such little value, pipes have not been handed down in the same way as fine pottery or glassware. Under exceptional circumstances complete pipes have been recovered. At Södermalmstorg in Stockholm a pipemaker's house destroyed in a fire of 1759 was excavated and some 800,000 pipes, thousands of which were still intact, were recovered from the cellar (Loewe 1984). However, this find is quite unparalleled and usually even the recovery of an individual complete pipe is noteworthy. In a survey of Surrey complete long stemmed pipes were only recorded from four places; the River Mole at Dorking (Higgins 1981a, Fig 15.4), from a rubbish pit at Epsom (*ibid*, 215, and discussed in appendix 1), from under the floorboards of a house at Brockham (Higgins 1985d 406, reproduced here as fig 5.1) and from Glyn House Pond in Ewell. This demonstrates both the rarity and unpredictability with which these finds are made. Given the scarcity of such finds it is important to develop other methods for recovering data on stem length. Three methods have been developed to try and solve this problem.

1a : Mean Stem Length. This method involves measuring the length of surviving stem within a group, and dividing it by the estimated number of pipes. Naturally this method can only be applied to groups of archaeological material where there is reason to believe both that the deposit is of a restricted range of types and that the recovery rate is good. This method was first tried on material carefully excavated from a deposit at Hemel Hempstead in Hertfordshire. All the stem fragments from part of a layer dating to c1635-60, including those still attached to bowls, were measured. The total length of stem was divided by the estimated number of pipes in the group. This was arrived at by

estimating the percentage present of rims, heels/spurs and mouthpieces, and dividing by three. All three of these features of the pipe can be counted quite easily, each whole example counting as 1, and then any fragments being placed in groups estimated to be of equivalent size. Thus each complete rim counts as 1 and then any rim fragments are arranged in groups estimated to be of equivalent value to one complete rim. Averaging ^{the} three methods of calculating the number of pipes represented helps overcome any collection bias between the different parts of the pipe, though it must be assumed that the mean produced is equivalent to the proportion of stem represented. A mean length of 297mm (11 3/4") was arrived at for the sample studied. The result, however, is merely an indication of how this technique can be applied. Its validity as a reliable figure in this case being questioned by the fairly small sample size (total equivalent to only 5.73 pipes) and the rather low mouthpiece count (4.66) to bowl only count (6.08).

This method was again tried by P J Davey (Higgins 1982, 203) on a site from Rainford in Merseyside. In this case a much larger sample was taken. This consisted of a complete layer (context 19) which had been excavated and sieved from a pipe kiln waste dump of c1630-50. The mouthpiece count of 312 compared very favourably with the estimated minimum bowl number of 303. The total length of stem recovered was 80,336mm, which gave a mean length of 257.5mm (10 1/4"). This made an interesting comparison with the other methods used (see below). The main disadvantage with this method is that it requires a large sample to be statistically valid and then it only produces a mean length. The documentary sources clearly indicate that we may expect a range of stem lengths at any one period, so a considerable amount of work is needed to calculate what is only a mean value. The main application would seem to

be in determining a value for a specific type for which other data is not available. For example, it would be useful to know the average length of the fine eighteenth century Chester pipes or the average length of a specific style of pipe such as the Broseley type 5 (Atkinson 1975, 25). It is not likely to give meaningful results of mixed style or date.

Ib : Extrapolated Stem Taper. This method depends on a number of substantially complete fragments surviving, on which there is a clearly discernable, and even, stem taper. The ten longest mouthpieces and the ten bowls with the longest surviving stems from the Rainford kiln site (above) were used for a trial. These were moved around on graph paper until their extrapolated tapers coincided, which suggested a length of 204mm (8"). This is somewhat shorter (although in the same region) as the result obtained by average length measurement. Although this method may be useful to give a general indication of the length of substantially complete early pipes, it will not be of much value for later pipes. The early pipes have both shorter stems and a more pronounced stem taper, thus enabling them to be matched with some degree of accuracy. The Rainford pipes, for example, taper from about 8 or 9mm behind the bowl to about 5 or 6mm at the tip. Later pipes, however, have much longer, finer stems, with less taper, making it almost impossible to overlap the taper accurately. An eighteenth century decorated stem fragment from Leicester, for example, (Higgins 1985b, fig 27) survives to a length of 150mm and yet shows no discernable taper over that length whatsoever.

One slight variation on this theme was tried with an excavated group from Norton Priory in Cheshire. This consisted of a mid eighteenth

century deposit containing Chester heel pipes with roll stamp decorated stems, dating stylistically to the period c1720-60. These are illustrated by Davey (1985) and the figure numbers used in this paragraph are taken from his article. One long stem section extending towards the mouthpiece, which was missing (fig 115), was found to have the same border and Chester arms as a piece extending towards the bowl (fig 117). They must, therefore, have been made by the same maker and in all probability were used on pipes from the same mould. Assuming he placed his stamps at about the same position along the stems in each case, this gives a total overlapped length of 330mm, indicating the minimum length for this type of pipe which may have been considerably longer since the mouthpiece is missing. In another case, the larger part of a pipe could be reconstructed (fig 97) giving a surviving length of 305mm. With such a long stem and long mouthpiece fragments available, it was possible to get a reasonable overlap. In this case a total length in the region of 460mm (18") was indicated. As a cautionary tale the group also contained some spur pipes (figs 106, 107). These do not appear to have had decorated stems. The longest (fig 106) survived to a length of 265mm and the taper suggested an original length in the region of 385mm (15½"). So once again different lengths for different styles is suggested and the problem raised that stems being overlapped may not even be from the same type of pipe, which will, therefore, give quite meaningless results.

II : The Re-assembly of Pipes.

There can be no doubt that by far the most satisfactory and useful way of dealing with the problem is to re-assemble complete pipes. This

immediately overcomes any doubts about the methodology or the meaning of the result and produces hard facts about the actual length of different bowl forms. The main problem is in finding suitable groups of material to work on (for a detailed example see Appendix 1). For pottery reconstruction, only a full profile is needed to produce a reconstruction drawing. For a pipe, every stem fragment must be present, otherwise it cannot be completed. This means that unless the excavators are exceedingly lucky, a special sampling policy will be necessary to collect the data. This involves the recognition of the potentially important groups in the field, and the initiation of a proper sieving policy for that particular deposit. When such a group becomes available, a particularly methodical approach to the post excavation work must be followed if worthwhile results are to be achieved. The only real difference in the methods which are most appropriate is between plain stemmed pipes and those with lettering or decoration on the stem.

Ila : Plain Stems. Pottery groups can be divided up into manageable units by fabric, rim form and decorative motif. Pipes can only be sorted by size and the relative position of each fragment within the pipe. This means a different approach is needed to that used for other forms of artifact. It relies on systematic and thorough sorting and checking of all the pieces with sufficient room to lay them all out at once. The basic principle is that the stem gradually tapers from the bowl to the mouthpiece and that this can be used to orientate the fragment, and define its position along the stem length. The group to be examined should initially be sorted into four groups; mouthpieces, stems, stems just opening into bowls and bowl/heel fragments. The easiest joins to find are bowl to bowl and these should be examined first. After any bowl fragments have been reassembled the bowls should

be laid out in order according to the surviving stem length, irrespective of its type or colour. Short vertical rows are the most convenient to work on with the pipes arranged as close together as possible. At one end of the progression will be bowls where the spur/heel is totally missing or only partially survives and at the other bowls with the longest length of stem surviving. An exact graduation is unnecessary provided each piece occupies its approximate position within the sequence.

The mouthpieces should then be lined up in a similar order, from the longest to the shortest, in separate columns of their own, so that the mouthpiece is facing in the opposite direction to the bowls. Although these two groups do not face each other they define the two ends of the pipes and all the remaining pieces must therefore lie between them. The numbers in the two groups will give an indication of the 'validity' of the group, that is to say, if a good sample has been recovered without the loss of smaller fragments, the numbers of bowls and mouthpieces should be roughly equal. If the individual fragments survive to a considerable length there may be direct joins between these two groups. The longest mouthpiece should be taken and tried against the longest stem. If there is an 'overlap', that is the broken end of the mouthpiece is thicker than the broken stem of the bowl, there is a chance it will fit directly onto one of the bowls. To find out the mouthpiece fragment is tested down the rows of bowl fragments until it becomes thinner than the broken bowl ends. At this point the mouthpiece must fit onto an intermediate stem fragment. Each mouthpiece is tested in turn until there is no longer an overlap between the two sets of fragments. At this point either the respective bowl or mouthpiece is

missing from the sample. or there is an intermediate piece of stem to find.

Few groups will be found with complete pipes in two pieces. but it is important to establish that no joins exist between the two groups so that attention can be focused on any piece of stem introduced between them. Since there is little point in completing a stem without a bowl, it is now only necessary to work from the bowl ends and not to check stem to stem or stem to mouthpiece joins. To work back from the bowls the thickest pieces of stem should always be tested first. Any pieces opening out into bowls, or with traces of the heel or spur, should be picked first and tested starting from the 'short' end of the bowl columns. After these come the stem pieces, starting with the thickest and making sure that the thicker end is always the one being tested against the bowl. It is important to try and select stem pieces in the correct order, that is the thickest ends first irrespective of length. If the taper is not clear it can usually be determined by rolling the stem on a horizontal surface where it will describe an arc with the thicker end on the outside. As with the previous testing, there will be a point where the piece being tested becomes thicker than the bowl-break and can be rejected without trying it against all the remaining bowls. Any such 'rejected' stem pieces should be set up in columns of their own and facing in the same direction. By continually eliminating the possible joins for each piece and keeping the material in order, it is checked in the most efficient and manageable form.

If a bowl/stem join is found the other end of the stem must be treated as a new bowl end and a number of checks made. It must be tested against all of the rejected stems, which is why they are kept in ordered

sequence since if a piece had been tried out of order it may now fit. and it must be tested against the mouthpieces. If this system of cross checking is maintained it ensures that each piece is only tested against the minimum number of relevant ends and that no two ends are checked against each other twice. In addition the system is simple and means anyone leaving a group for a while, or taking over from someone else knows at once that there are just two blocks of material; the bowls, mouthpieces and rejected stems, between which there are no relevant joins and the stems waiting to be tested in a systematic manner within that framework.

Small groups can be tested as a matter of course but where there are more than about fifty bowls it is often useful to sample the group before it is all laid out. Pieces of stem opening out into bowls, and bowls broken correspondingly short can easily be selected and tested for joins to see if the whole group is worth working on. If no, or few, joins are found at this stage the group as a whole is unlikely to produce many joins. Similar tests can be carried out between contexts to both test for mixing and to see if it is possible to complete pipes with pieces from other layers. If this seems likely, they should be pooled together before reassembly starts, since the system needs all available material at once if it is to work efficiently.

Once the pipes are glued together they require careful handling since they are extremely fragile and if the stems are longer than about 10cm they should be stored between layers of padding. Matchsticks can be inserted into the bore across the joins to reinforce them but care should be taken that the stick is loose and glued in rather than forced in which can both splinter the stem and impair a close join.

I Ib : Decorated Stems. The method for sorting decorated pipes is basically the same as for long pipes. The main difference is that every opportunity to create smaller groups should be taken. If a particular bowl form can be identified and related to a decorated or mould-marked stem it may be possible to separate all pieces of that type of pipe from the main group at an early stage in sorting. A late nineteenth century kiln group recovered from the Hill Top works in Rainford had a number of pipes where slogans on the stem could be easily identified and related to their particular bowl forms. These groups could then be isolated from the bulk of the material, thus gradually reducing the options for joins between the remaining pipes. Clearly, it is greatly advantageous to create small groups which will in turn reduce the number of possible joins. Likewise the short nineteenth century pipes often have a variety of tips. These can be sorted into types such as plain cut ends, round 'nipple' type, diamond 'nipple' type, flat stems and so on. Sometimes it is even possible to identify specific mould types from the mouthpiece end alone and if this can be identified with a particular bowl form, then this too can be used to limit the total number of pipes being compared for joins.

III : The Evolution of Stem Length.

Having looked at the documentary evidence for stem lengths and the methods by which archaeological data can be collected, we must consider the current state of knowledge. Oswald and James (1955a, 188) suggested an increase in stem length from about 3" in the late sixteenth century to 6½" about 1630-40, to 10-13" about 1660-80, and to 15-16" about 1700, a notable exception (also about 1700) being an American spurless export

type found in an Indian burial with a stem of 6 $\frac{1}{2}$ ". This may reflect the tradition of shorter export pipes noted in 1799 above. Atkinson & Oswald (1969, 209) give a table of lengths from London ranging from a length of 1 $\frac{1}{2}$ " for a late sixteenth century pipe, to 15" during the eighteenth century.

Other than the examples they listed, complete early pipes are extremely rare. From Oatlands Palace in Surrey an almost complete pipe of c1610-30 has been recovered (Higgins 1981a, Fig 34.3), with a surviving stem of 200mm (7 $\frac{1}{2}$ "). At Rainford a group of five pipes dating from c1630-50 has been reconstructed using the method outlined in section IIa above, and which are illustrated in figure 2. It is likely that all of these came from the same mould (Higgins 1982, 200) and yet the stems ranged from 174-202mm (6 $\frac{1}{2}$ "-8"). This is because, until the nineteenth century, the mouthpiece was simply formed by trimming the stem off around the moulding wire. The exact length could therefore fluctuate if the last section of stem had not moulded properly or was not consistently trimmed at the same place. Later moulds from Holland have a mark to indicate the point at which to trim the stem, thus ensuring a standard length.

Another important factor to be borne in mind is the differential shrinkage that can be caused not only by the use of different clay types, but also by differences in firing temperature. I am particularly grateful to Gordon Pollock from the John Pollock & Co pipeworks in Manchester for giving me two examples of a pipe, both made in the same mould, but one of which was accidentally overfired (fig 3). Although one (fig 3.1) was only estimated to have been fired about 25°C over the usual temperature of 975°C (fig 3.2), the results are quite different.

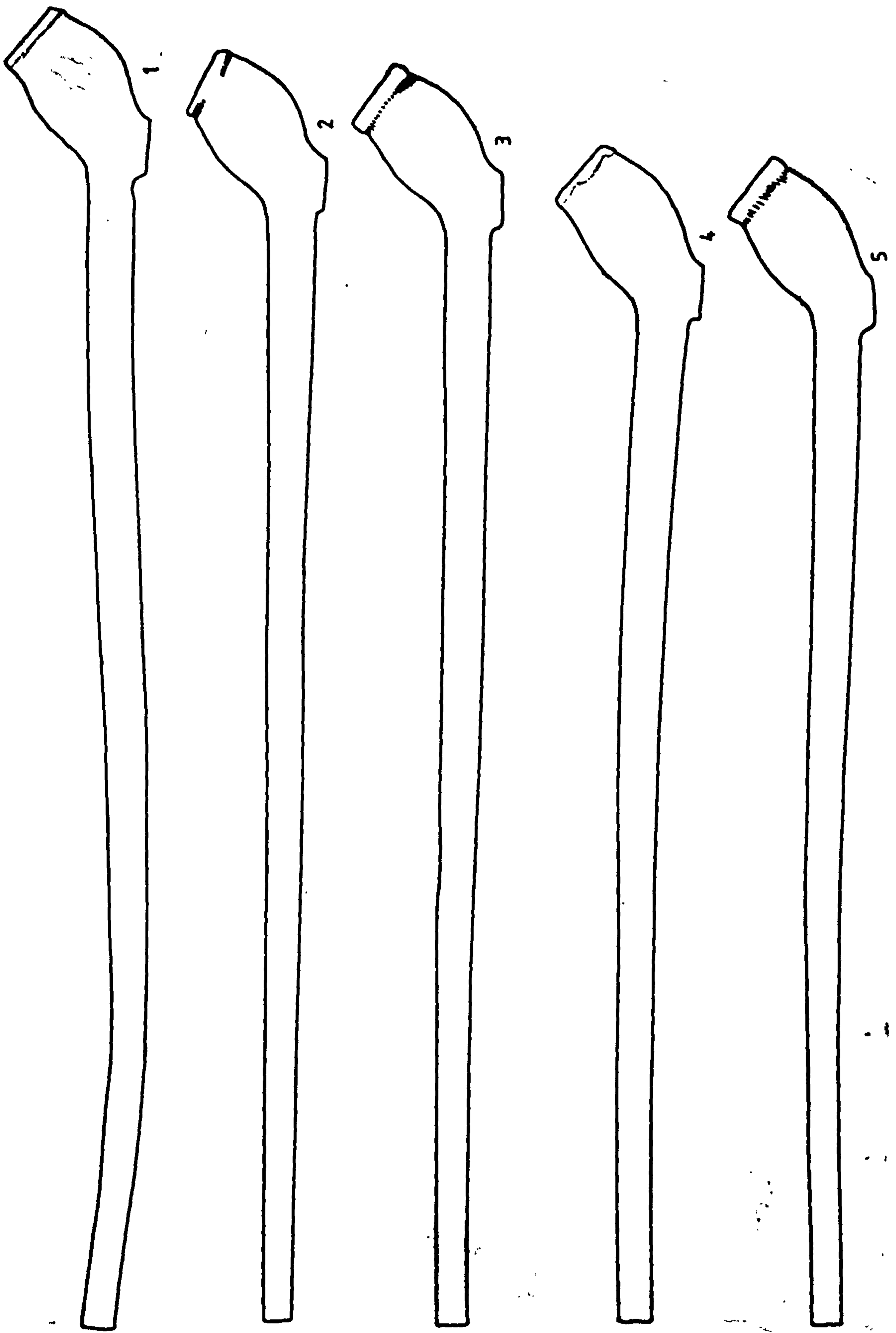


Fig 2 - Rainford Kiln Site - Complete Pipes

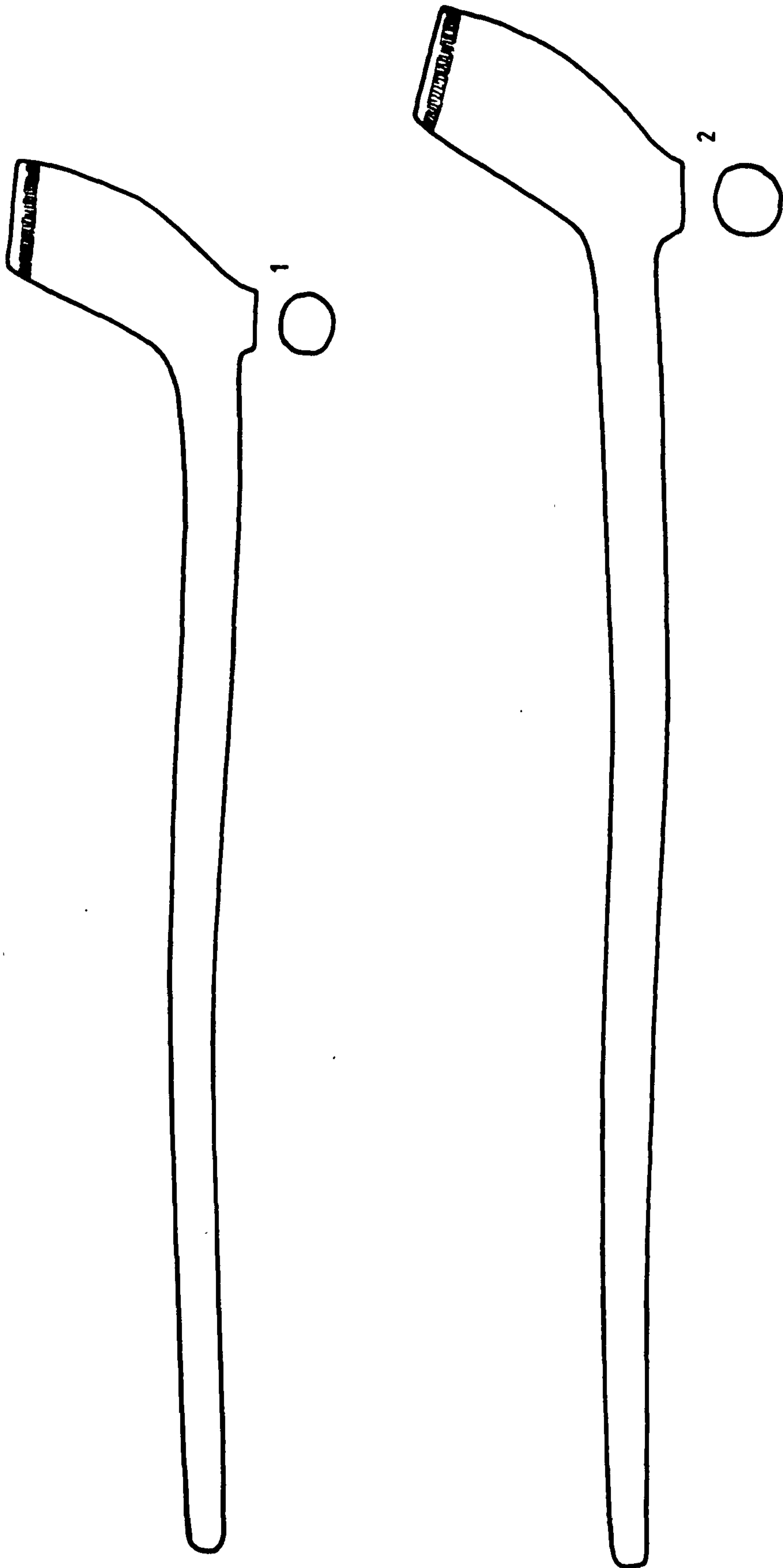


Fig 3 - Differential Shrinkage of Pipes During Firing:
Examples from Pollocks Pipeworks, Manchester.

The overfired pipe appears to have a different colour and texture to the fabric and the stem has shortened from 7 $\frac{3}{4}$ " in the normally fired pipe to 7 $\frac{1}{8}$ " in the overfired pipe; a difference of $\frac{3}{8}$ " (8%). For a longer pipe this degree of shrinkage would make a considerable difference to the finished lengths of pipes from the same mould.

So the shrinkage resulting from different fabric types or firing temperatures must be considered when measuring stem lengths. Clearly each mould had a specific length, but in the archaeological record this may only be represented by a clustering of lengths around a mean length produced from that mould. The Rainford pipe lengths are somewhat shorter than the average length calculated from the total stem length measurement above (257.5mm, 10 $\frac{3}{16}$ "). This suggests that longer pipes than those reassembled may also have been in production at this date, resulting in a higher mean value for the group as a whole. The lengths of these pipes suggest that Oswald and James' 6 $\frac{1}{2}$ " for 1630-40 may only represent the shorter types current at this period.

In 1981 E & B Jarzembowski could list only five complete restoration pipes from London, for which they gave the 'total length', although without stating whether this was for the complete pipe or the stem only. These were a London type 15 (Atkinson & Oswald 1969) spur pipe of 353mm, and four London type 18 heel pipes of 299, 305, 315, and 328mm. They also noted a pipe of c1680 in Dartford Museum with a length of at least 253mm (10"). and a London type 18 from Scunthorpe with a length of 216mm (8 $\frac{1}{2}$ "). Le Cheminant (1981, 158) also illustrates a London heel pipe of c1660 with a decorated stem and an overall length of 11.2 inches. In this case it is clear that the bowl is included. The stem only (from his drawing) measures 255mm (10"). Assuming the

Jarzembowksis included the bowl as well, an allowance of 35mm (the size of the type 15 & 18 bowls in the London type series) can be made. This would make the type 15 stem 318mm (12½"), and the type 18's stems 264-293mm (10 3/8-11½") long. These generally tie in well with Oswald and James' figures, although the Scunthorpe example is rather less.

For the late seventeenth / early eighteenth centuries there is a lot more information. From Bristol, Jackson & Price (1974, 143-4) illustrate eight complete pipes produced c1680-1720; the period leading up to or just after the mould size agreement. These have stem lengths of 275, 285, 325, 337, 347, 365, 367 and 376mm (10¾, 11¼, 12¾, 13¼, 13¾, 14¾, 14½ and 14¾"). They are, therefore, all less than the 16" maximum prescribed by the Guild. The individual pipes vary considerably in length, over a maximum range of 100mm (4"). Despite this, there is something of a gap between the two shorter pipes and the longer ones. The shortest pipe has a large flat heel and the next shortest a fairly thin spur. The remaining pipes are much more alike, with a medium sized heel. It may well be that here we are starting to see a correlation between bowl form and stem length; the sort of thing that would be expected since the Guild's order gives each length or type, a specific name.

This is certainly the case with the pit group from Epsom in Surrey. A detailed study of this outstanding group (fully discussed in Appendix 1) has enabled the reconstruction of 45 complete pipes of c1715, ranging in length from 296mm (10 9/16") to 367mm (14 7/16"). By identifying the individual moulds represented in the group it is possible to demonstrate that there is a connection between bowl form and stem length. Pipes of the same design but from different moulds and made by different makers, have similar length stems. There were clearly recognised limits

which dictated the length of stem in relation to bowl form. The overall variation in length, however, is very similar to the contemporary material from Bristol.

Other eighteenth century pipes include (Higgins 1981a, 223) a plain London type 25 from Horsham of 275mm (10¾"), a similar broken example from Egham with a length of at least 325mm (12¾") and a complete pipe made by George Thornton of Dorking with a length of 305mm (12") which was associated with another complete stem of 310mm (12¾"). From Rainford, Ron Dagnall has reassembled a complete stem of c36.5cm (14¾") associated with Chester style bowls and decorated stems of c1720-50. A pit group from St Mary's Grove, Stafford, of c1770-80 has produced a pipe with 334mm of stem surviving. It was one of the plainer types in the group and, therefore, probably shorter than the others. Its estimated length is in the order of 420mm (16½"). For the nineteenth century, long pipes have been recorded from Surrey (Higgins 1981a, 224) with lengths of 263mm (10¾") for a pipe marked RC from Dorking, 356mm (14") for a pipe marked JH from Ewell, 332mm (13¾") for a pipe marked HH, also from Ewell and from Caterham (Higgins 1985d, 406) pipes of c1810-50 marked RC 383mm (15¾") and J Jewster, London 364mm (14 5/16"). The author's collection also includes four Broseley pipes made by W Southorn & Co. One datable to c1880-1900 has a length of 23¾" and the other three which could date anywhere from c1900-60, have lengths of 15", 18¾" and 20".

In addition two nineteenth century moulds have been recorded. One, in the Newarke Houses Museum in Leicester, is marked JONES/LONDON and was used by R W Taylor of Great Yarmouth. The other, marked R JONES/LONDON, is in the Pijpenkabinet, Leiden and was purchased in London. Both of

these moulds have stem lengths of about 15" and were probably both made by Richard Jones of London who is recorded from 1844-72 (Price & Tatman 1985,2). It should be remembered, however, that, due to the shrinkage of the clay during drying and firing, the finished pipes would be a little less than 15". Pollock's current production of so called 18" churchwardens, for example, in fact have finished lengths of about 17"

All of the documentary and artifactual data listed above has been plotted on a graph (Fig 4). This shows a sharp increase in the maximum length of pipes from about 8" to 16" during the seventeenth century, although shorter pipes of about 6½"-10" remain in circulation. By 1710 there is a good correlation between the archaeological and documentary material. With the exception of the short Virginia pipes, which were presumably for export anyway, finds from both Bristol and Epsom show a wide range of styles circulating in the 10"-15" range. After 1710, however, there is more of a problem. Firstly, the archaeological material is much thinner on the ground, and non-existent for the late eighteenth to early nineteenth centuries. Secondly, the documentary references start to show much longer pipes than have been recovered archaeologically.

It is suggested that during the eighteenth and nineteenth centuries there was a stabilization of the length of common long stemmed pipes, as represented by the archaeological data. These remained in the 10"-15" region, while quality products for special occasions, as represented by documentary references, continued to grow. Thus, the probable length of 18" for the decorated Chester pipe stands out from the other material, as does the 24" mould recorded in Bristol. By the nineteenth century this had lead to the development of special pipes of at least 28" and, perhaps 33" or more. The greater value and, therefore, more

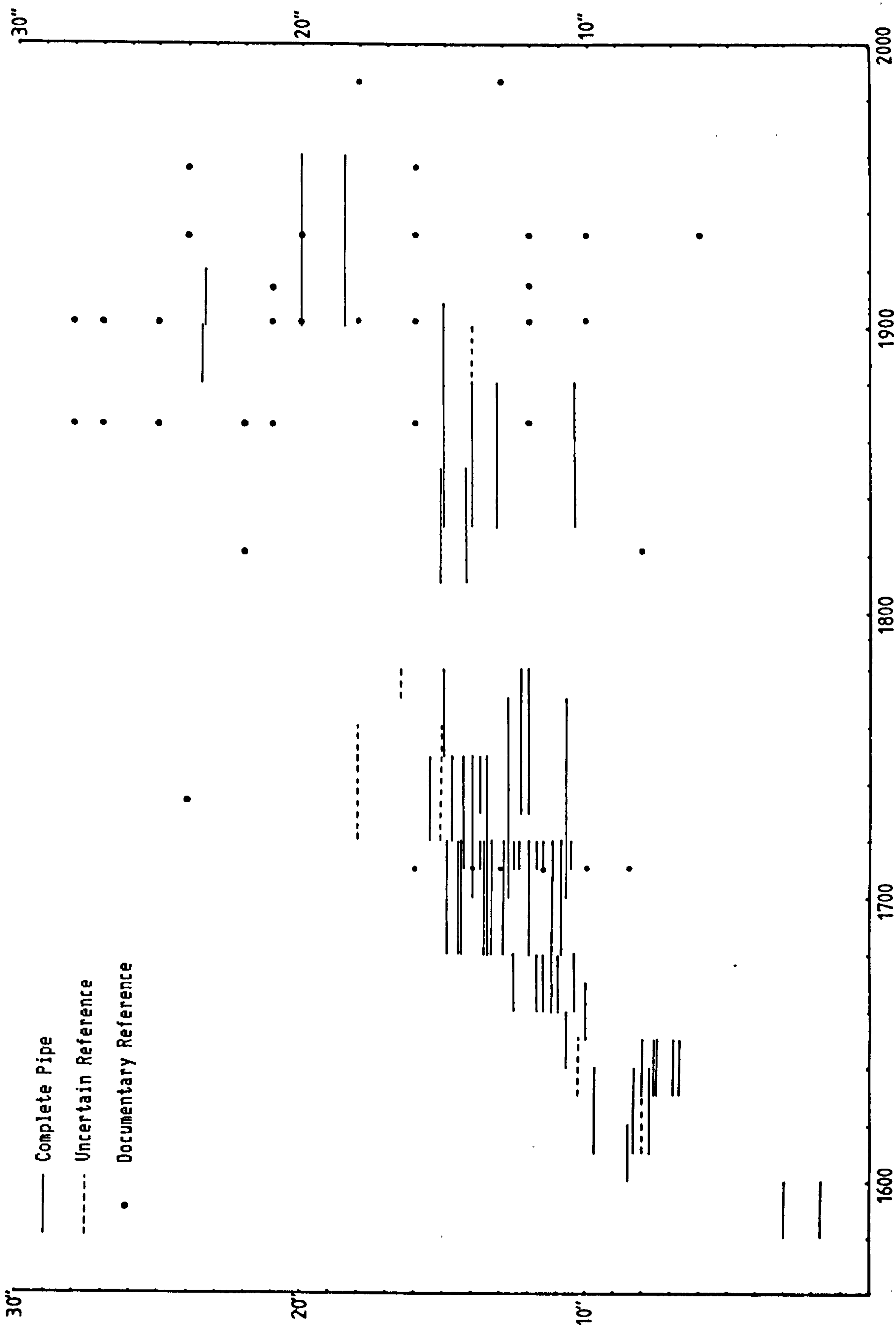


Fig 4 - The Evolution of Stem Lengths:
Sources of data listed the text.

care taken of these pipes , their greater rarity and the increased problems of reassembly all contribute to their scarcity in the archaeological record. The shorter 'cutty' pipes which became common from the mid-nineteenth century onwards have not been included in this graph.

Walker (1977, 14) rightly argues for a certain degree of class differentiation in the lengths of pipestems. He argues that short pipes had already appeared before 1700, and that they were used principally by the lower classes. His definition of 'short' however is a little unclear, and in this country, at any rate, there does not appear to be any evidence for the use of pipes of less than about 10" from the later seventeenth century until the mid-nineteenth century. Certainly, longer pipes have always been more expensive and, where evidence survives generally of better quality. It would seem reasonable to say that longer pipes of, for example, 18" upwards would generally have been used by the upper classes for private, or smoke room use and only rarely for special occasions by the lower orders. Such pipes are likely to be characterised by higher quality finish and/or the use of quality decoration. The pipes of 10"-18" would have been used by the majority of smokers for everyday use and would have been the staple production of seventeenth and eighteenth century makers.

During the nineteenth century the short cutties became increasingly popular, especially among the working classes. They had certainly appeared by the mid-nineteenth century. Very little is known about the introduction and early development of the 'cutties', which became such a feature of the later nineteenth century industry. At this time too the widest range of long stemmed pipes was produced, offering

perhaps the most diverse range of style, quality and decoration of any period. Walker (1976) discusses the origin and meaning of the term Churchwarden, suggesting (p143) that long stemmed pipes of up to 18" originated in the early eighteenth century. We have already, however, noted a mould of 24" in 1734 and it is likely that long pipes would have been available, if more expensive, throughout the eighteenth century. What seems certain is that they became increasingly popular during the early nineteenth century, with a number of writers referring to the origin and development of long stemmed pipes at this period. These appear to have been popular amongst a wide clientele. The practicalities of smoking a very long pipe, however, would have limited their use to quiet smokers rooms or evenings by the fire, and they must always have been a special and more expensive class of pipe.

IV : Stem Curvature.

While considering the evolution of stem length, nothing has been said of the stem curvature. This too exhibits changes and must be examined if we are to understand the way it reflects the style and status of a pipe. Examination of excavated material has produced no evidence of intentionally curved stems until the late eighteenth century. Walker, however, (1977, 16) notes a Dutch article which quotes a letter home from a Dutch trader working in what is now New York state. The letter is dated 14 June 1658, and in it the trader, Jeremias van Rensselaer, says that he has sold three out of four cases of pipes and that the fourth would have gone had there "been some of those curved English pipes in it too". No English pipes of this period with curved stems have yet been

found, so unless the reference is to curved bowls the exact nature of these pipes remains unknown.

All of the complete seventeenth and eighteenth century pipes mentioned above in the section on stem length have straight or only slightly warped stems. In some cases pipes of this date have been noted with a reverse curve on the stem where the top of the stem between the bowl and the mouthpiece is concave. Good examples of this have been noted from Surrey (Higgins 1981a, 224) on a pipe made by Lawrence Geale of Guildford and on a Chester pipe from Norton Priory (Davey 1985, fig 97). This may be the result of stacking the pipes in an upright position during firing, thus allowing the stem to 'sag' slightly. A slight reverse curve can be seen on a complete pipe from Brockham (fig 5.1).

Straight stems certainly continue well into the eighteenth century. A pit group excavated at St Marys Grove in Stafford (figs 90 & 91) contains a number of Broseley pipes of c1770-80, none of which have curved stems. Likewise the Chester pipes at Norton Priory, deposited c1760, all had straight stems. It is only when we reach nineteenth century pipes that curved stems definitely make an appearance and then they seem to become standard. Exactly when they appear and whether there are regional trends, is not yet known. Certainly at Broseley quite complex measures were taken to produce a good curve. A 1938 film of the Wm Southorn & Co works, held by Birmingham City Museum, depicts techniques which almost certainly reflect the late nineteenth century methods used in Broseley.

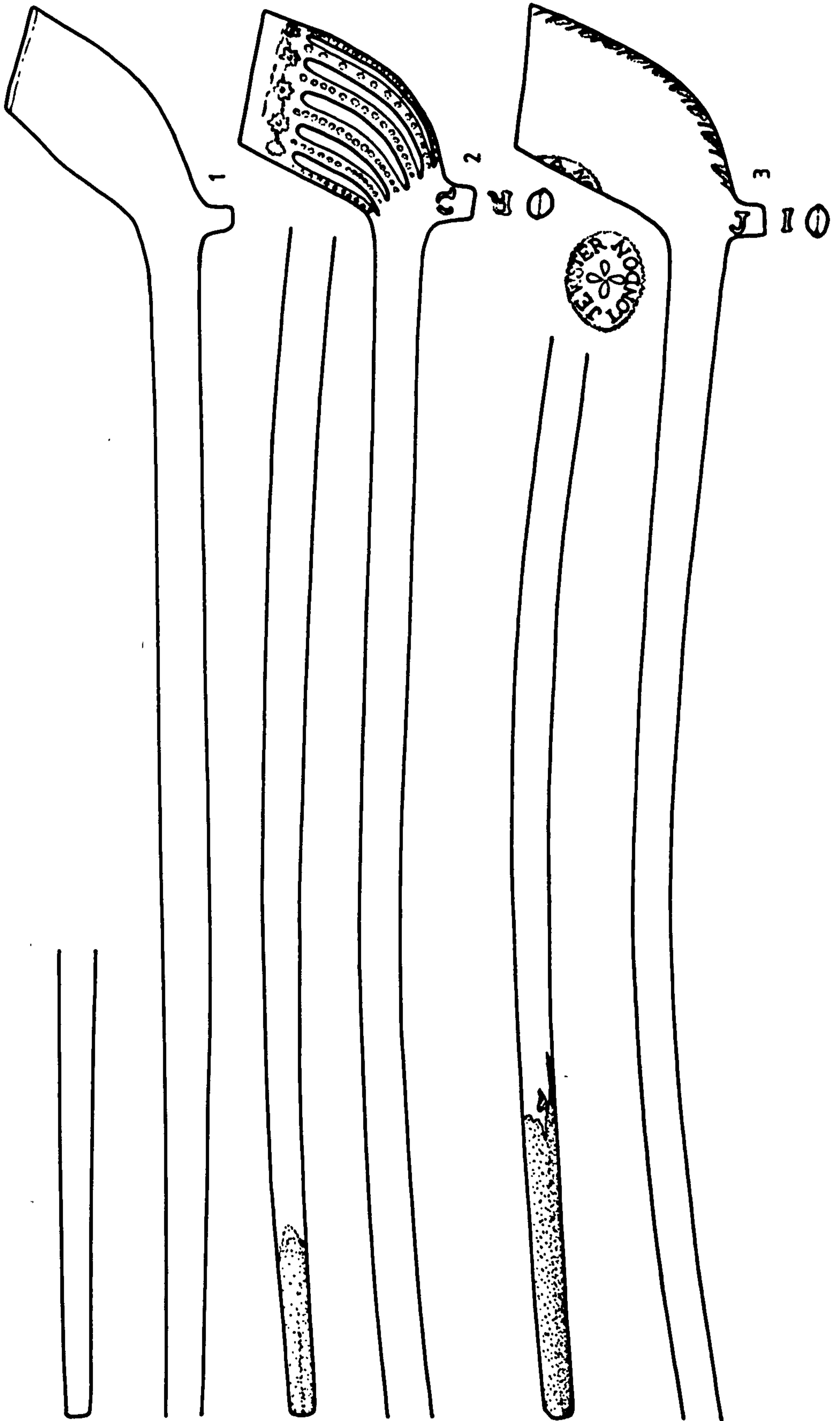


Fig 5 - Complete Pipes from Surrey; found under the floorboards of Long Cottage, Brockham (1), and from behind a fireplace at Willey Park Farm, Caterham (2 & 3).

The long pipes had special wooden formers with curved bases on which the pipes were laid after moulding and presumably trimming, since otherwise it would be impossible to re-insert the trimming wire. When they were ready for firing they were carefully packed in special humpbacked saggars, designed to take the stem curve. The pipes were packed in granules of fired clay powder to prevent warping during firing. Such carefully controlled techniques presumably ensured a fairly standard curve to the pipes. Similar wood or metal formers were, and still are, used in the production of curved 'churchwarden' pipes in Holland.

In an attempt to provide data for the study of stem curvature, a series of techniques has been developed to define the degree to which a stem is curved (Higgins 1985a). The aim has been to provide a series of measurements which can be used to compare different pipes. Since complete curved pipes are extremely rare it is not yet known which of the techniques will prove the most diagnostic. For the primary study two complete pipes were compared. They were reassembled from fragments found behind a blocked fireplace at Willey Farm at Caterham in Surrey (fig 5.2 & 3). One pipe marked RC was made by Robert Corney of Croydon. and the other marked IJ by John Jewster of Kent Street, London. Both pipes date to c1810-50.

The first and most basic measurement must be of the complete stem length itself. It is important to make sure that the pipe actually has a mouthpiece, usually a rounded or knife trimmed end and is not just broken off near it - which would make all of the other calculations invalid. The stem length is determined (fig 6.1) by measuring the underside of the stem from the bottom of the mouthpiece (A), to the back

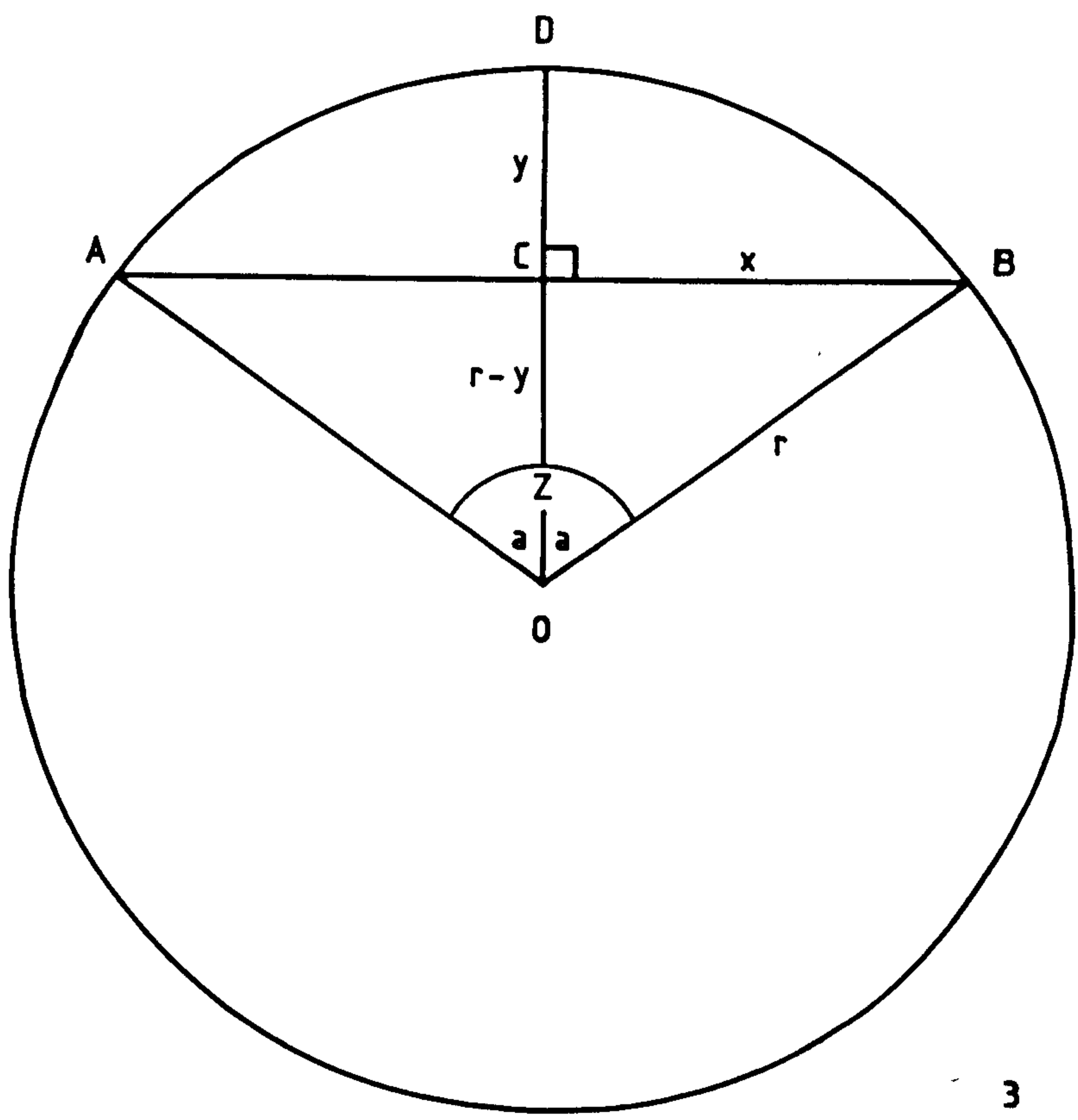
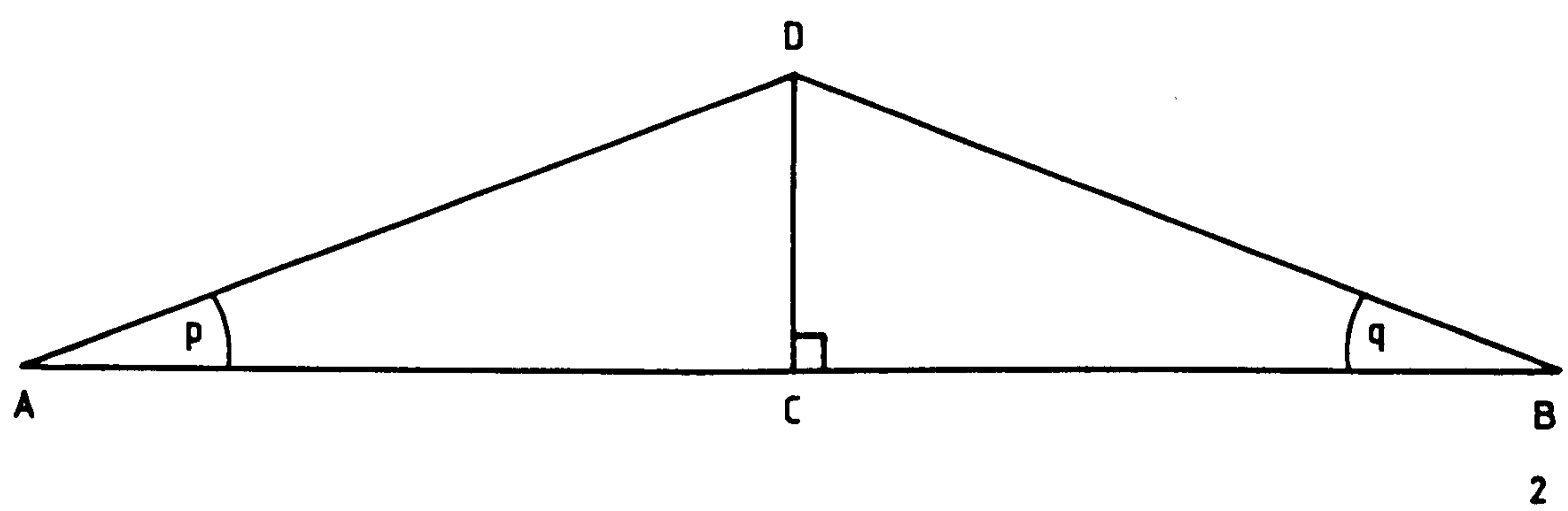
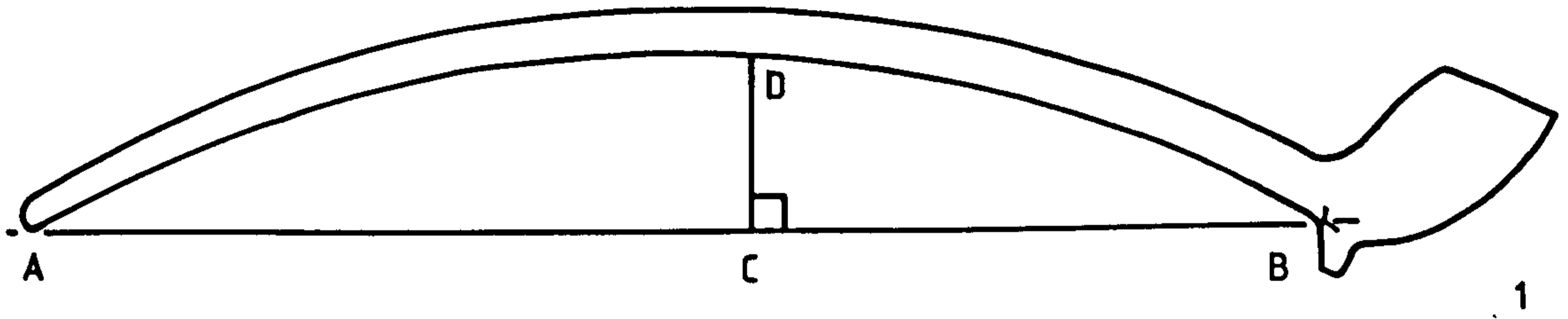


Fig 6 - Points of Measurement for Calculating the Stem Curvature of Clay Tobacco Pipes.

of the spur or heel (B). An accurate flexible tape is the best way of doing this. A drawing is easier to work on than the actual pipe, but it must be very accurately drawn. Particular attention must be paid to the stem length and curve which are difficult to reproduce in two dimensions on paper. The RC pipe has a length of 383mm and the IJ pipe a length of 364mm.

Next the maximum deviation of the stem from a theoretical straight line can be worked out. All longer stemmed pipes were made in straight moulds since the bore has to be made with a straight wire. Any subsequent curvature is therefore either the result of accidental warping or deliberate shaping - and the two should be easy to distinguish. A straight line can be drawn from under the mouthpiece (A) to the point where the projected lines of the stem and back of the spur cross (B). Using this as a base line the maximum deviation at right angles to the underside of the stem (CD) can easily be measured - in this case 21mm and 29.4mm respectively. In some cases the stem seems to have a convex curve from A to B rather than the more usual concave curve illustrated here (ie the point D falls below the line AB). The maximum deviation can still be measured to the underside of the stem but in this case it can be expressed as a negative number.

Although the maximum deviation gives a useful and easily measured value it does not necessarily give a good indication of the degree of stem curvature if the pipes have different length stems. For example, pipes of 200mm and 400mm may both have maximum deviations of 40mm but would have very different stem curves. The following calculations are all designed to give standard measurements which reflect this degree of curvature.

The first method is to average the angles formed by the ends of the base line AB and the maximum point of deviation D (fig 6.2, angles p & q). Since the stem curve will probably not be strictly regular (ie AC will not equal CB) it is necessary to average the angles p and q. Both have to be calculated since assuming CD is central (ie dividing AB by two) would alter their relative values and thus the average. Since the tangent of the angle p = CD AC, both of which are known values, and likewise tan q = CD CB we can work out both angles, which when summed and divided by two will give an average. That is:-

$$\frac{1}{2}(\tan^{-1} \frac{CD}{AC} + \tan^{-1} \frac{CD}{CB})$$

For the RC pipe AC=198mm, CB=181mm and CD=21mm. So:-

$$\begin{aligned} & \frac{1}{2}(\tan^{-1}(21+198) + \tan^{-1}(21+181)) \\ & \frac{1}{2}(\tan^{-1}0.1060606 + \tan^{-1}0.116022) \\ & \frac{1}{2}(6.0541919 + 6.6179873) \\ & = 6.3360896^\circ \text{ or } 6^\circ 20' \end{aligned}$$

The IJ pipe has values of 190, 167 and 29.5 respectively giving an average angle of 9.4216096° or 9°25'.

An alternative way of expressing this difference between the ends of the base line A and B and the point D is to average the rise for a given length of stem. If the point D is assumed to be central the value CD gives the rise from the base line over half of the stem. Dividing this by half of the stem length and average rise per mm of the stem length is given. So for the RC pipe the rise is:-

$$\begin{aligned} & 21 (\frac{1}{2} \times 383) \\ & 21 \times 191.5 \\ & = 0.1096605\text{mm} \end{aligned}$$

The result can be made more comprehensible by expressing it as an average rise over 10mm of stem by multiplying by 10. The stem of the RC pipe therefore rises by an average of 1.10mm over a 10mm length. The rise for the IJ pipe is 1.62mm.

These methods are useful in that they qualify the degree of curvature irrespective of length. They will enable us to define the type of curve that was fashionable at any period as an angle or gradient which can be plotted with other information in various ways. They do not, however, relate to the length of the pipe in any way. The relationship of length to curvature is the most difficult to define and the following calculations each contribute in this respect. They are all based on the assumption that the pipestem describes an arc of a circle (fig 6.3). In this respect it is necessary to divide AB by two so that AC=CB, here given the value x. DC given as y then becomes part of the radius of a circle (r) with its centre at O.

The first thing to calculate is the radius of the circle. Since COB forms a right angled triangle we know that r^2 must equal $(r-y)^2+x^2$ (Pythagoras).

$$\begin{aligned}
 \text{If } r^2 &= (r-y)^2 + x^2 \\
 r^2 &= r^2 + y^2 - 2ry + x^2 \\
 2ry &= y^2 + x^2 \\
 r &= \frac{y^2 + x^2}{2y}
 \end{aligned}$$

For the RC pipe $x=189.5$, $y=21$ so $r=865.5\text{mm}$.

For the IJ pipe $x=178.5$, $y=29.5$ so $r=554.8\text{mm}$.

From this we can work out the circumference ($C=2\pi r$). If π is taken as 3.142 the RC pipe has a C of 5438.8mm and the IJ pipe of 3486.3mm.

Having found that it is possible to work out the length of the arc AB, this can now be used as a check on the calculations since it should equal the first measurement taken from the pipe (the stem length).

$$\text{Arc AB} = \frac{rZ}{180} \quad \text{Where Z is the angle subtended at the centre of the circle by the base line AB (fig 6.3).}$$

We calculate Z by doubling the angle a, since triangles COB and COA are symmetrical. To find a:-

$$\sin^{-1} \frac{b}{r} \quad \text{so} \quad Z = 2 \sin^{-1} \frac{b}{r}$$

Substituting this in the above formula we can find the arc AB. So for the RC pipe:-

$$\begin{aligned} Z &= 2 \sin^{-1} \frac{189.5}{865.5} \\ Z &= 2 \sin^{-1} 0.21895 \\ \text{so } Z &= 25.295^\circ \text{ or } 25^\circ 17' \\ \text{Thus arc AB} &= \frac{rZ}{180} \\ &= \frac{3.142 \times 865.5 \times 25.295}{180} \\ &= \frac{68787.248}{180} \\ &= 382.15\text{mm,} \end{aligned}$$

which, within experimental limits, is equal to the measured value of 383mm, since errors are bound to occur in the measurements and through the assumptions made.

The IJ pipe has a value Z of 37.537° ($37^\circ 32'$) giving a calculated length of 363.5mm, which is also equal, within experimental limits, to the measured value of 364mm.

This arc can then be expressed as a percentage of the circumference, giving an indication of how long the stem (AB) is in relation to the circumference chosen for it. The equation is simply:-

$$\frac{\text{arc AB} \times 100}{C}$$

So for the RC pipe $\frac{382.15}{5438.8} \times 100 = 7.03\%$

and for the IJ pipe $\frac{363.5}{3486.3} \times 100 = 10.45\%$

From these calculations we are, therefore, able to build up a standard body of data defining various aspects of the stem curvature of each pipe:-

	RC	IJ
Stem length	383mm	364mm
Maximum deviation	21mm	29.5mm
Average angle	6°20'	9°25'
Average rise over 10mm	1.10mm	1.62mm
Radius of curvature	865.5mm	554.8mm
Circumference	5438.8mm	3486.3mm
Arc AB	382.15mm	363.5mm
% of circumference	7.03%	10.45%

These all show that, although they are of the same date, there are clear differences between these two pipes. All the values show in various ways that the IJ pipe is shorter with a more sharply curved stem than the RC pipe. When enough complete pipes have been recorded in this way it will be possible to see which measurements are the most useful in evaluating their differences. It should then be possible to build up graphs to outline the development and range of curvature throughout the country. I am most grateful to Miss F Richards for her help with the mathematics involved in these calculations.

V : Moulds - Their Introduction and Manufacture.

In general terms it has been shown that stems of different lengths and styles were produced at different periods and that through the application of new methods of recovery, re-assembly and analysis a picture of these changing styles can be built up. One point almost taken for granted in the appraisal of stem length and, indeed, many other aspects of pipe studies, is that there is a consistency and pattern in the design (in this case the length) of pipes. This is because it is implicitly understood that pipes are made in moulds and, therefore, all examples of a given type will appear the same. But this conclusion of similarity has been arrived at without any serious questioning or consideration about the nature of the moulds themselves. Who, for example, designed and made the moulds, and how did common standards of length or similarities of form come about? Was it the pipemakers, the mouldmakers or both, who influenced the development of the designs, and how did a pipemaker go about ordering or producing the moulds which were so fundamental to his trade?

In order to better understand the way in which pipemaking spread, and the way in which regional styles were introduced and disseminated, it is useful to consider the pipemould in a little more detail. Despite the advances in the study of pipes, almost no work has been done on the moulds themselves. Given their importance to the trade it seems essential that more research should be conducted in this field. This section considers some of the very limited information that is available regarding moulds. It is hoped that this will help form a clearer picture of how moulds were made and used can be developed, and act as a basis for future research. The study of moulds can be extended to

consider the archaeological evidence that can be recovered from the pipes themselves, and this may well prove to be a most useful and previously un-exploited, source of information.

The introduction of smoking resulted in a demand for pipes, a class of object hitherto unknown in Britain. The earliest reference to a man smoking in England appears to be in Bristol in 1556 (Walker 1977, 30), although Walker suggests that it was not until after the return of Hawkins from his second voyage in 1565 that any appreciable amount of tobacco was in circulation. By 1570 Matthias de l'Obel could write (*ibid*, 30),

"You see many sailors, and all those who come back from America, carry little funnels made from a palm leaf or a reed in the extreme end of which they insert the rolled and powdered leaves of this plant".

Although the habit had clearly been acquired by those with access to supply sources, it does not appear to have been until the 1580s that it was widely adopted in court circles, popularised by figures such as Drake and Raleigh. The price in the 1580s appears to have been in the order of 3s-5s an oz (*ibid*, 32) which no doubt confined its use to a small percentage of the population.

These early smokers took tobacco in a number of ways, copying the native indian methods which formed their model. But in the 1580s De L'Ecluse says (Oswald 1975, 4),

"Wirgandecow (Virginia) being discovered to the English...Captain Richard Greville found that the inhabitants did use some pipes made of clay. The English returning from whence brought the like pipes with them to drink the smoak of tobacco and since that time they have caused many such pipes to be made".

One such English pipe, copying an Indian form, has been found in Cambridge (Oswald 1975, fig 2.5). The English makers, however, soon developed their own style of pipe, and by the end of the sixteenth century the use of a mould had become the standard method for shaping them. Demand for pipes was such that by the end of the sixteenth century craftsmen were able to make a living by specialising in their production and thus became the first pipemakers (Oswald 1975, 5-6). Once established in England, the pipe became the principal method of taking tobacco for three hundred years.

Va : Mould Materials. Although the mould is the most important piece of equipment owned by the pipemaker, we know very little about the materials from which they were made, their design or manufacture. For the sixteenth century we can deduce from the artifactual remains that moulds were developed at an early stage but no contemporary descriptions of them survive. Oswald (1975, 6) quotes a series of medieval metalworking crafts which used stone moulds, but this branch of technology seems rather remote from the techniques needed to mould pipes. A much better precedent (also noted by Oswald) exists in the late medieval tradition of religious figures formed by pressing pipeclay into a mould which would have probably have been ceramic. Since potters would have been asked to fashion the first pipes, it is logical that they should develop a moulding technique based on this existing technology.

The first references which mention the material from which the moulds were made occur in the seventeenth century. In 1658 William Neale, apprentice to William Woodford of West Wellow, Hampshire, was to receive at the end of his term '10s double apparell and one mould of tin to make

pipes with' (Oswald 1975, 23). John Houghton in 1693 describes the manufacturing process, saying, 'the whole [is] put into a brass mould and another brass stopper is put into the great end to make the bole, all of which are screwed close in a wooden mould, which brings the pipe into shape' (*ibid*, 17). From the early eighteenth century, too, we have a reference to the use of brass moulds, an inventory of Christopher Boyes of York, dated 1725, recording that he had 5 brass moulds valued at £1.7.0 (Andrews 1987, 30). These references suggest that brass and possibly tin (although this does seem an unlikely metal and may be a generic term for any metal, or perhaps pewter mould) were used during the seventeenth century.

Certainly in Holland brass remained the predominant material used from the early seventeenth century (Oswald 1985, 6) until the end of traditional manufacturing techniques about four years ago (*pers. comm.* Adrianus van der Want). Brass was occasionally used later in England, being referred to in a dictionary of 1848 and a mould of John Goffard (1840+) survives in the Beverly Museum (Oswald 1985, 6). Other materials known to have been used for moulds include clay and wooden moulds in seventeenth century Poland and brass, lead and pewter moulds in a variety of areas (Walker 1977, 167). Wooden moulds have also been suggested in England (Oswald 1975, 18), although wood seems like a much more suitable material for a pattern than for a mould (see below).

Almost all of the surviving moulds in this country however are of cast iron. The vast majority of these date from the second half of the nineteenth century or later, although Oswald (1975, 18) suggests that the use of iron dates from the late eighteenth century. All we can say with certainty is that by the middle of the nineteenth century cast iron

was the predominant material used for English pipe moulds and it is unlikely that other materials were of any significance in comparison. For the makers of pipe moulds we must, therefore, look to the metalworking trades, perhaps brassworkers during the seventeenth and eighteenth centuries and then almost exclusively iron founders from at least the early nineteenth century.

Vb : Mould Makers. Very little is known about who was actually responsible for designing and producing the moulds. Several writers have looked for a connection between pipemakers and metalworkers, since specialist skills would clearly be needed in the production of a metal mould. Blacksmiths are often mentioned in this respect but all the extant moulds examined during this study are cast not wrought which is foundry not smithing work. Dagnall (1984b, 24-25) quotes an account of John Pinnington, an Eccleston blacksmith in the early years of the nineteenth century who was said to have made pipe moulds. The informant, however, was recalling her childhood days of some eighty years before and may have meant that he repaired rather than made the moulds. Certainly, when she describes work she helped with, it was fixing horseshoe nails in the moulds as locating pins and not making the mould itself. Unless more specific accounts or wrought iron moulds are found it is considered that smiths may well have been called upon to repair, adapt or perhaps make stoppers for moulds but their production would have required different skills.

For brass moulds Chalkey quoted by Walker (1977, 167-8) suggests a connection between pipemaking and brass founding families, although he is not reliable on many points and this reference has not been confirmed. Barker (1979, 5) produces a much better link at Guildford

where one of the Meddin family, who were silversmiths, pewterers and brass founders c1705-70, was son-in-law to Charles Wattleton, a Guildford pipemaker. He also quotes links between metal workers and pipemakers in Plymouth, Bristol and Newcastle. There is certainly evidence that pipemakers and metalworkers knew each other or were related, but this would apply to craftsmen of many trades. To date there is no firm evidence of a necessary link between pipemakers and metalworkers, although clearly the larger and more specialised the pipe industry, the more metalworking expertise that would be needed. Don Düco (*pers comm*) said that in Gouda there were 5 mouldmaking workshops catering for the needs of 500 pipemaking workshops.

The earliest reference which appears to refer to the making of moulds in this country is given by Oswald (1984a, 17). The reference is to Flower Hunt of Bristol who, in 1671, bequeathed to his son William,

"my vise which belongeth to the making of the tobacco pipe mould with all the Toolles that do belong to the said vise and making the tobacco pipe moulds aforesaid".

Unfortunately, this is the only extract of the will quoted and this author wonders if it is referring to the vice and tools for moulding pipes rather than actually making new moulds. The full contents of the will should show if his working tools are referred to separately. A clearer reference from Bristol occurs in the Pipemakers Guild Book (Walker 1977, 15). Here it is made clear that the Guild regularly used one mouldmaker but unfortunately neither his name or the occupation he was regarded as following are given. Other than this all of the known references refer to nineteenth century or later production. There are two main sources of information; mouldmakers' marks on surviving moulds, and documentary references to mouldmakers.

Mouldmakers' marks survive on a number of moulds. A rifleman design made for Edwin Southorn of Broseley in 1860 bears the mark of E.Cotteril of King Street, Birmingham (Hammond 1985a, 111). Hammond notes that Cotteril was also a patent lock manufacturer. Another mould marked *J.Scott / Nott^m*. is held in the City Museum, Birmingham (Ref N^o 178'38). This was made by James Scott who is recorded as a pipemaker in 1871, but as a 'Pipe Mould (iron) maker' in the 1881 census (Hammond, *in litt* 23.11.86). A marked mould with a complex background is held in the Newarke Houses Museum at Leicester. It was accessioned in 1908, when it was said to have come from the Yarmouth firm of R W Taylor.

Richard Taylor is listed at Yarmouth from 1900-1916, although the Taylors had been working there since 1830 (Oswald 1975, 189). The mould was presumably an old unused one when accessioned and surplus to Richard's needs. Stylistically it dates from the early to mid nineteenth century and was probably made for one of his family c1830-60. The mould is marked JONES LONDON, 14 and the stopper PALMER, 14. The number 14 on both parts suggest that they belong together, although why both bear different makers' names is a mystery. One possibility is that the stopper needed replacing at some stage and was made by a different manufacturer or, indeed, that it originally belonged to another mould. The London mark, however, indicates that moulds were marketed over a wide area, a fact supported by John Harris Jr in 1927. He was a contemporary of R W Taylor, and their families had worked together in the nineteenth century. In 1927 he recalled how 'moulds...of iron...[were] made 60 years ago [i.e. c1870] by Jones and Bagshaw of London' (Atkin 1986, 12-13).

Price & Tatman (1985, 2-7) trace the history of John and Richard Jones. John Jones is recorded as a tobacco pipe mould maker in Borough in

1843. From 1844-1851 the firm becomes Richard Jones & Son, continuing as just Richard Jones until 1872. Perhaps 'Jones' became 'Jones & Bagshaw' in the 1870s, although it is possible that Harris was naming two firms. The implication is certainly that the Yarmouth makers regularly obtained their moulds from London during the mid-nineteenth century, showing the widespread influence that specialist firms must have had. Another example of a mould made by Richard Jones survives in the Pijpenkabinet, Leiden. The mould is marked R JONES / LONDON, and presumably dates to c1844-72. Other London makers recorded by Price & Tatman are William Grout, recorded as a mouldmaker 1868-71 and William & George Bishop. Both were pipemakers but William is additionally recorded as a mould maker in 1861 and together they are listed as mouldmakers 1877-82.

Hammond (1985a, 44) records another pipe mould maker from London. In this case the mouldmaker, Henry Hopkins, was involved in a court case involving the copying of a registered design in 1887. He had been asked to make a mould "not like Mr Crop's", the plaintiff, but the Judge concluded that 'when you told a person not to make a thing like something else, it was tantamount to saying "Make it as near like as possible"! In this case it is clear that the mouldmaker was responsible for the entire design and manufacture of the mould once he had been commissioned. In contrast Samuel McLardy of Manchester in 1894 appears to have had his own patterns cast at a foundry (ibid, 45).

Some other mould makers are given by Oswald (1984a, 18). These are William Pratt of New St, Bristol recorded as a Tobacco Pipe and Mould Maker 1835-8 and Josephus Neale of Mansfield, recorded as a Pipe Mould maker 1882-1904. He also mentions a blacksmith, Hezekiah Petty of Poole,

who, in 1773, was owed money by a pipemaker for goods delivered and work performed. This, however, could have been repair work, such as the sharpening of the mould or to do with the vice or some other fittings and does not provide evidence that he made moulds. Likewise, Oswald mentions John Berrington of Rainford, mould smith but who was not necessarily making tobacco pipe moulds and (Oswald 1984b) Richard Ballard of St. Martins Le Grand, London who was a mould maker in 1606. This, likewise, is a dubious reference, since the moulds could have been for a number of other crafts. Thomas Roden of Broseley for example comes from a pipemaking family and in the 1841 census is confusingly given as a 'moulder'. The 1851 returns, however, make it clear that he is a *moulder in iron*, presumably working at one of the nearby foundries.

Another Rainford mouldmaker is mentioned by Dagnall (1978) who records William Richardson (1833-1900) who was recorded in 1892 as a blacksmith and tobacco-pipe mould maker. Price (1984, 18), likewise, mentions one of the metalworkers who serviced the pipe trade. He notes that in the late nineteenth / early twentieth centuries itinerant mould-repairers serviced the Manchester firms. Mr Davis was one of these who would not only repair moulds but take commissions for new ones which he would make from models carved in wood. Denis Kendall, who works at Pollock's today, may also be classed as a 'mould maker', since he has been responsible for 'making' several of the moulds in use at the works today.

From Scotland Gallagher (1986b) notes a number of mould makers who worked in Glasgow; John Gallacher, Alexander Herriot, James Herriot and Hugh Herriot. These, together with the ones listed above, are given

below as a provisional list of all the mouldmakers and associated workers so far noted in Britain.

Table 1 - Provisional list of British mould makers and associated workers. This gives outline details, their names, dates when they are recorded as mould makers (or were born or died) and any other known occupations. A question mark at the start of the entry signifies some uncertainty as to whether the person actually made pipe moulds.

<u>Name</u>	<u>Place</u>	<u>Dates</u>	<u>Other occupations</u>
Bagshaw (?Henry)	London	?1870's	? Pipemaker
?Richard Ballard	London	1606	-
?John Berrington	Rainford	d1719	Mould-smith
Wm & Geo Bishop	London	1861, 1877-82	Pipemakers
E.Cotteril	Birmingham	1860	Patent Lock Manufacturer
Davis	Manchester	early C20	Mould repairer
John Gallacher	Glasgow	1862-4	Pipemaker
Wm Grout	London	1868-71	Pipemaker, Engineer & Velocipede Maker
Alexander Herriot	Glasgow	1877-80	-
Hugh Herriot	Glasgow	1919-20	-
James Herriot	Glasgow	1875-1919	Pipemaker
Henry Hopkins	London	1887	-
?Flower Hunt	Bristol	1671	Pipemaker
Jno & Rich Jones	London	1843-72	Ironmongers
Denis Kendall	Manchester	c1950-87+	Pipemaker
Josephus Neale	Mansfield	1882-1904	-
Palmer	-	?1830-60	-
?John Pinnington	Eccleston	b1763, d1835	Blacksmith
William Pratt	Bristol	1835-38	Pipemaker
William Richardson	Rainford	1892	Blacksmith
James Scott	Nottingham	1881	Pipemaker

It is significant that almost all of these mouldmakers had other occupations, suggesting that mouldmaking alone was not really a viable occupation. The Jones family are certainly the best documented, and seem to have been primarily, if not exclusively, mouldmakers for about 25 years. After 1868, however, Jones is also listed as an ironmonger and one wonders how much that trade had supported the mouldmaking previously. Grout came from a pipemaking family and is also recorded as an engineer and velocipede maker, while the Bishops fluctuate between being listed as pipemakers and mouldmakers.

The conclusion seems to be that during the nineteenth century it was sometimes possible for a firm to specialise in mould making to the extent that they could be described as mould makers. In the majority of cases, however, it is clear that they have a secondary occupation to fall back on and merely took on commissions for moulds as a part of their work. It seems probable that many moulds would have been made or commissioned by individuals, either pipemakers or metalworkers, who had the necessary skills but carried out the work as a sideline to a staple occupation. In this respect it may be misleading to even attempt to look for mouldmakers as such, rather than other types of metalworker who could turn their hand to making pipemoulds as and when required. Mouldmaking rarely, if ever, seems to have been a sole occupation and, indeed, it would be wrong to consider that such a specialised occupation was ever widespread. One would not expect to find 'hinge makers' or 'vise makers' as discrete and widespread occupations. It would be more accurate to think of them as metalworkers who specialised in the needs of pipemakers and, more specifically, as foundries with the expertise to produce, amongst other things, pipemoulds.

Having said that, there is no doubt that the regular ordering of moulds from pipemakers all over the country would have ensured a continual evolution of styles and the accumulation of expertise in the production of moulds. The decline of pipemaking in this century has resulted in the loss of this expertise. Moulds were certainly regularly produced until c1911 since pipes made by a number of firms illustrate King George V. Wm Southorn & Co at Broseley are known to have had a mould made during the Second World War. It depicts Churchill and was made rather crudely by someone on Jiggers Bank, in Coalbrookdale (*pers comm.* from Clive Southorn; the pipe is illustrated in Duco 1977, 65).

They also had a mould for a reproduction sixteenth century pipe made during the 1950s (*pers comm* Ida Bennett who worked at the factory).

At John Pollock & Co it is Denis Kendall who in recent years has designed and serviced the moulds. He has spoken to the author of using old moulds for patterns or lead models cast in them. Apparently, he used an old mould to make the 13" churchwarden mould which is in current production. Also he mentioned carving a wooden pattern for the 'Gore' pipe; a sixteenth century copy made for the Gore Hotel in London. He used an old broken bowl brought in by someone as the basis^{for} the 'Dirty Dick' pipe, by casting it in plaster and adding a new stem section. He has shown me some of these plaster patterns which he has made for casting moulds from. They had a varnished surface, presumably to protect the plaster to an extent, were without locating pins, which were added later and had nails in the back so the foundryman could lift the patterns out of the sand box with ease.

At Gouda in Holland (presumably in the 1960s), pipemakers still made their own moulds (Walker 1977, 112). They modelled a solid version in clay, which was presumably fired and used to produce an exact plaster pattern of the mould required. Each half of this pattern was then used to make a plaster mould into which the final metal version was cast. In this way both the master pipe design and master pattern survive should more copies be needed. The use of this type of arrangement seems more likely than the use of wooden patterns which were generally used as foundry patterns. It would be expensive to create a wooden pattern but, once made, numerous castings could be taken from it. If this were the case one would expect to see numerous almost identical moulds in use by different firms.

The popular ROAB design, for example, must have been regularly supplied to different makers by mouldmaking firms and yet each pipemaker appears to have had a slightly different size, style or arrangement of the motifs. Even at Broseley where the Southorn and Smitheman firms produced an almost identical range of decorated pipes in the late nineteenth century and were presumably supplied by the same mouldmakers, there are clear differences in the individual detail of their pipes showing them to have come from different patterns. Only in rare cases are different moulds of exactly the same shape found. One instance has been found in Broseley where evidence for more than one mould of a particular pattern has been found. Examination of W. Southorn & Co waste tips has shown that they had six identical moulds in use. Presumably they wanted to quickly introduce production of a specific design and so had duplicate moulds made. This, however, could have been achieved as easily through the use of plaster patterns as wooden ones.

Vc : The Form of the Pipe Mould. With the exception of the brass mould noted above, all of the known surviving examples in England are cast iron and date from the eighteenth century or later (Oswald 1985, 6). All of those examined by the author are of the same basic form (fig 7). The two halves of the mould are cast without pins which both makes casting an easier operation and allows the two facing halves to be subsequently made perfectly smooth without the pins as an obstruction. The edges of the fitting surface are beveled away (a) to leave just a narrow border around the pipe's outline fitting tightly (b). Denis Kendall at Pollock's refers to these faces as the 'tables'. This produces the best possible fit around the edges of the mould and would allow for easy filing should the mould become worn or chipped. These edges should always fit tightly to make the clay fill up the design within the mould

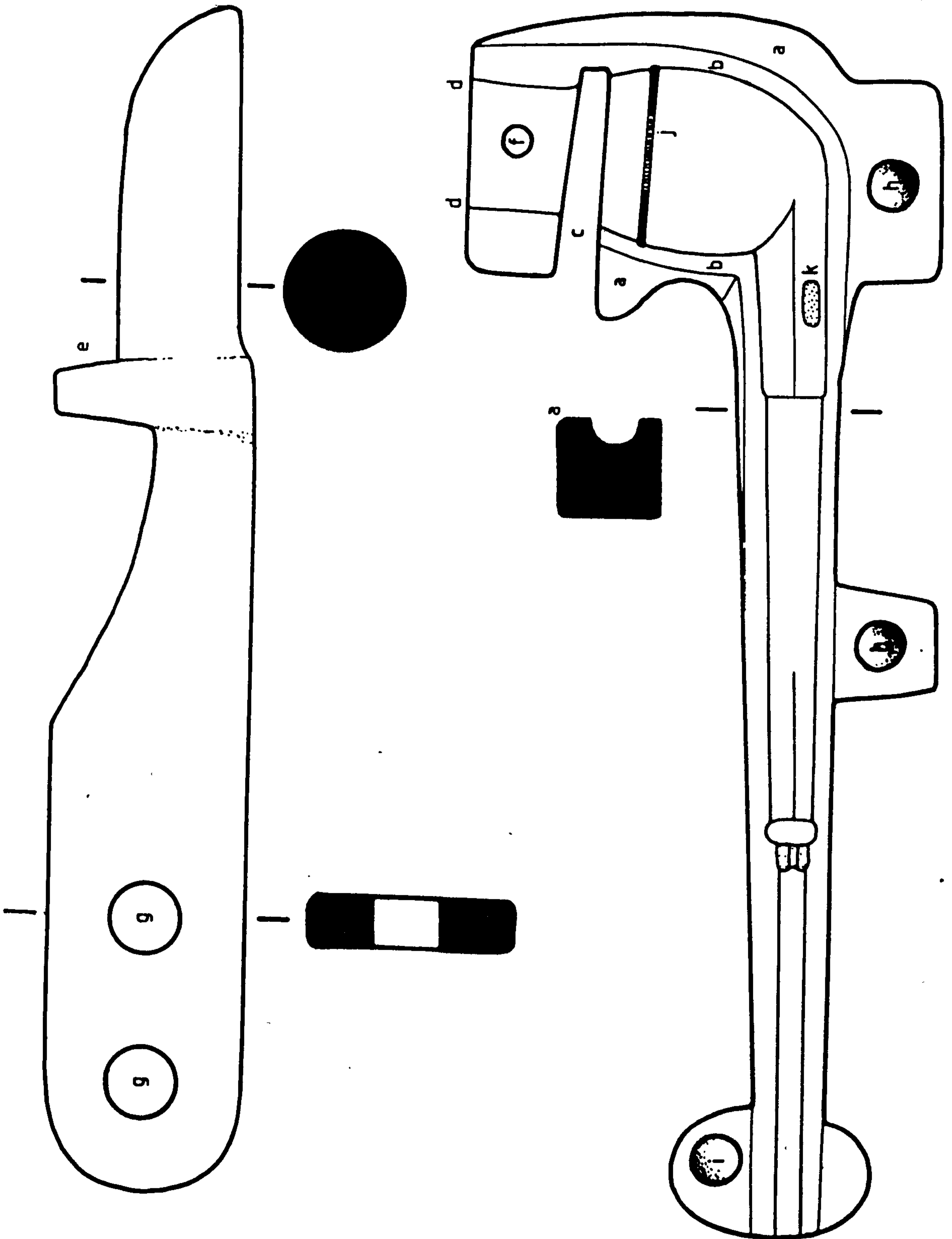


Fig 7 - Typical Form of a Nineteenth Century Cast Iron Mould and Stopper: an example from Swallow's works in Rainford (R Dagnall Coll).

and to make trimming easy. Denis Kendall said that grits in the old fashioned clay used to chip the edges of the tables of the mould if they got between them and this presumably indicates an area of wear which was common in the past.

The filing of moulds to make them fit tightly has been noted in Holland (Düco 1980, 204), creating an oval stem and bowl section. The Pijpenkabinet in Leiden has a complete set of mouldmaker's tools, which include a wide range of specially shaped files. These are made to fit each part of the stem, spur, bowl, mouthpiece and so on, and it was apparently common to frequently refile the moulds to fit flush and to deepen the design through the use of these files. Although the brass moulds used there may be expected to wear more quickly than iron, there can be little doubt that similar tools would have been used on iron ones too.

At the top of the mould is the slot through which the bowl top is trimmed while the pipe is still in the mould (c) and above this is the guide for the stopper (d). This ensures the stopper enters the bowl in the correct position, and is also used as a stop for it. A nib projecting from the stopper arrests it at the correct depth into the particular mould (e). By stopping it on this guide section the clay extruded during moulding is not pushed back onto the top of the moulded pipe, and wear to the top of the mould is prevented. There are usually small pin holes in the guide section which were used to secure thin sheet metal or leather packing (f). This was fitted as necessary to ensure that the stopper was entering the mould centrally, thus forming an even bowl thickness all round. There are usually one or two holes in

the stopper (g), to take a pin by means of which the stopper hung from the arm of the press in which the mould was held.

After the mould had been cleaned up from casting, the locating pins were added (h). Tapering holes would have been drilled for the pin to fit into and presumably the pin made to fit tightly into a hole drilled in the opposite half. The ends of the pins are usually clearly visible, showing them to be a separate addition. Denis Kendall said he used to burr the end a little with a punch to make it grip. There are invariably three, arranged with two in blocks below the stem and one above it in an oval swelling at the end of the mould. Two pins engage into one half of the mould and one in the other (i). This arrangement is usually the same for both short stemmed pipes and churchwardens, although it may be slightly modified for fancy shaped late nineteenth century pipes which require a different mould outline. In addition, there is sometimes a small second pin at the mouthpiece end. Possibly this was added when the large pins became a little worn and no longer engaged the mould accurately.

Sometimes brass or copper fittings are found on the mould. The pipe illustrated has a thin serrated strip of copper inlaid round the top of the bowl to form the moulded milling on the pipe (j), although other moulds have the milling cast as part of the iron pattern. Also there is a small patch of copper on the left half of the mould (k). This is either an alteration to blank out a previous number or mould mark or a patch to take such a mark. Pipemakers had steel punches made up with lettering with which to mark inlaid strips of brass or copper set along the stem of the mould. Examples of these are illustrated by Gallagher (1986a, 34) marked 'W CHRISTIE' and 'LEITH'. Gordon Pollock in

Manchester told me he still has the punches somewhere for marking a sixteenth century reproduction pipe. This was made for the Gore Hotel in London and the punches read 'GORE HOTEL LONDON / 1587-1953'. The lettering, however, kept falling out and today the mould is used with the spaces blanked out.

Another feature observed on several moulds is the addition of horizontal metal plates around the top of the bowl. Three possible reasons are suggested for this. The continual use of a knife to trim the top of the bowl resulted in wear to this part of the mould. This can be observed not only on old moulds but also on many pipes, since the top of the bowl becomes slightly concave. These strips could have been added to replace this worn area of the mould. The second suggestion is related to this, in that, possibly, a harder wearing strip of metal was placed, perhaps even in new moulds, to prevent this wear taking place. The third suggestion is more tentative and consists of a postulated adaption to the style of the mould. From the late eighteenth century tall slender bowl forms were often produced. Many of these exhibit a faint relief line running just below the rim. This may represent the junction line where a plate of metal has been added to raise the height of the bowl and so bring it more 'into fashion'.

Since cast iron is very hard to work, it seems almost certain that any decoration would have been carefully modelled on the master pattern and then fine quality casting sand used to minimise any touching up necessary. It is suggested that brass was used more extensively in Holland where pipes of finer quality, and with complex decoration were produced, in order to allow for more flexibility in the working of the mould itself. This included using punches and engraving tools to work

the final design directly into the mould. The very neat and even character of the leaf decoration along the seams of many nineteenth century English pipes suggests that at some point in the process punches were used to produce repeated motifs on the master pattern. It would be very difficult to engrave such precise, regular designs by hand, although clearly files and fine working tools such as those known in Holland could have been used to finish the detail.

In some cases where quality figural pipes were produced three piece moulds were made. This allowed for more complex three dimensional designs and for portraits it avoided the necessity of having a mould line running down the centre of the face. An example of a three piece mould to allow a complex design survives in the Newarke Houses Museum, Leicester. It was used by William Flanagan in the 1880s and is marked 'SAM TORR ON / HIS DADDY OH'. The bowl (Green 1984a, 13) depicts 'Sam Torr', a music hall artiste, riding piggy back on 'Daddy Oh'. Another three piece mould is in the possession of the Southorn family at Broseley. It was made for Edwin Southorn in 1860 (Hammond 1985a, 111) and depicts a rifleman lying on the stem and a military badge on the bowl. The bowl and mouthpiece are formed in different pieces, presumably to allow for the use of different regimental badges with the rifleman stem.

Vd : Mould Manufacture. Having considered the range of possible materials used for moulds, the evidence for mould makers and the form of the moulds they produced, we are in a position to evaluate the possible means by which mould production was organised. All of the evidence in this country suggests the use of metal moulds from at least the seventeenth century. The production of these would be foundry work

which would require the production of some form of pattern from which to make the casting. Traditionally, wood is used for the majority of patterns. A positive of the shape required is produced, and this is used to create a void in a sand box, into which the metal can be cast. Unlike most other objects, the most important part of a finished pipe mould is the *negative* impression of the pipe. This makes it very difficult to appreciate the form of a pipe until an impression is taken from the mould. To carve a pattern directly would be very difficult since that would mean dealing with the 'negative' shape of a pipe, and the symmetry required of the finished object cannot easily be appreciated. It is just possible, however, that the 'wooden moulds' referred to by Oswald (1975, 18) are in fact surviving examples of patterns. The production of wooden patterns is a skilled woodworking job and, if they were used, it is unlikely that pipemakers would undertake this type of work themselves. Likewise, the metalworking skills and quality evident in the average nineteenth century mould rule out amateur production.

The other main material which needs to be considered is plaster of Paris. Dutch pipemakers still produce (1987) their own master patterns using plaster of Paris, and, as noted above, it has certainly been used in recent years in this country by Dennis Kendall of Pollock's in Manchester. The author has only seen master patterns for pipes with detachable stems in the Netherlands. These are carved directly by the pipemakers, not by intermediate patternmakers. It would be impossible to carve a long stemmed pipe of plaster, although plaster pipes cast from metal moulds exist in the Pijpenkabinet, Leiden, and they may be involved somehow with mouldmaking. Also, the Pijpenkabinet has some lead pipes, clearly cast from moulds, which may have been used for

mouldmaking. The lead, however, has flowed very poorly in the (?cold) mould and the stems have been crudely cut off, so they are not good patterns to work from.

The use of plaster for mouldmaking revolutionised the English potting industry following its introduction from France by Ralph Daniel during the mid 1740s (Hughes, undated 51). It may well, subsequently, have been adapted for pipe mould making, where it would allow the obvious advantage of working directly from a model of fired clay. Such a model could easily be produced by a pipemaker who would therefore have close control over the design of the finished product.

While these ideas remain purely conjectural, they do at least raise some of the unanswered questions about which we need to know more and outline possible fields of research which could be pursued. As a starting point for discussion we could hypothesize that there may be two main phases to mould making; a period before the mid-eighteenth century when some form of patternmaking skills would have been used, and a period after that when the use of clay models and plaster patterns could have brought about a change in the mouldmaking process.

This brings us to the question of exactly what a 'mouldmaker' is; the person who designs the pipe, the person who casts the pipe or either of these things. In metalworking there is a clear distinction between patternmaking and casting, since the two jobs involve entirely different materials and skills. Likewise pipe making and metal casting are very different fields, one requiring little capital, simple tools and little space and the other requiring considerable investment in materials and equipment, not to mention the different materials involved. Several of

the nineteenth century mouldmakers were clearly pipemakers as well, and appear as mouldmakers for only short or intermittent periods. It is unlikely that they would have the facilities and capital to work in clay one day and metal the next. It is suggested that these people were not actually metalcasters as well, but acted as intermediaries.

The most difficult part of making a mould is designing the shape, and producing a pattern from which to make the casting. Once this was prepared, in whatever form, a foundry could easily be commissioned to produce the castings which could either be finished by them or elsewhere. If a pipemaker possessed the skills to design pipes, knew how to construct patterns and had contacts with a foundry then he would be in an ideal position to attract business. Conversely, it would be difficult for the average foundry to maintain the expertise needed to set about designing pipe patterns without the help of a pipemaker. It is, therefore, suggested that small pipemakers who did not have the expertise or contacts (such as McLardy did) to commission their own moulds could do it through a 'mouldmaker' who did have the necessary skills but was probably not responsible for the actual casting himself.

A second point to remember is that moulds became worn and needed general maintenance. The types of work that may have been needed seem to be: replacing or resetting worn pins; drilling and fixing packing to the guide section of the mould; adding, marking or replacing slogans, lettering or milling in the mould; repairing broken moulds; shortening or adapting moulds; refiling the tables; and deepening moulds where filing has made the stem and bowl oval. All these tasks could have been carried out in a small workshop by someone who might be described as a 'mouldmaker', or who took on commissions for the manufacture and repair

of moulds. Conversely much of the general maintenance could have been carried out at the pipeworks, as it is at Pollock's today.

In the largest centres, however, there would still be room for one or two firms who could specialize in the actual production of the moulds themselves. John and Richard Jones, for example, were listed for many years as mouldmakers and then as ironmongers. In this case, there is a good argument that they were primarily metalworkers who specialised in supplying the pipe trade. This would enable them to employ their own patternmakers who could design pipes on request. A similar situation would also apply to larger firms such as Crop in London who specialised in making high quality decorative pipes. Here, it would be essential to employ the best patternmakers and founders since their business relied on competing with the quality French clays rather than the less ornate English ones. This could either be achieved by employing skilled patternmakers 'in house', or by commissioning individual works through a specialist mould producer.

In conclusion the production of moulds has probably always been foundry work. Individual foundrymen or pipemakers may have developed special expertise to bridge the technological gap between their trades but only in isolated cases during the nineteenth century do fully integrated businesses specialising in mouldmaking appear. Otherwise it is suggested that pipemakers may have had four options for obtaining moulds:

- 1 They could individually commission a foundry to make a mould, with or without the help of a model or pattern made by the pipemaker.

2 They could approach a middleman who may have described himself as a mouldmaker. This person could have been a pipemaker with the necessary skills and contacts to design and commission, or repair, a mould for the third party.

3 They could order direct from a firm specialising in the production of moulds. This firm could either operate from standard pattern books, or through individual commissions.

4 They could have employed specialist staff 'in house' to deal with the production and maintenance of moulds. This could only apply to large pipemaking firms who must have been directly involved in the design and production of moulds to ensure the quality and style of their products.

Future work in this area needs to be directed towards recovering more evidence for the way in which patterns were produced, and the way in which work was commissioned. We need to know more about the skills and resources available to people describing themselves as 'mouldmakers' and we should be wary of expecting a clearly defined profession in such a specialised and limited field. It is probable that wherever possible pipemakers carried out general maintenance themselves, only calling on a foundry or specialist intermediary when new moulds or special designs or work were required.

VI : The Interpretation of Evidence Relating to Pipe Moulds.

In the previous section the sparse information relating to the actual form and production of the mould was considered. This section goes on to consider how evidence for the individual moulds used by each pipemaker may be collected from the pipes themselves and how this information may be used as the basis for studies of production techniques and products.

Via : The Identification of Individual Moulds from Pipe Bowls. The available information about moulds may not be comprehensive or conclusive but it offers a framework within which to examine the archaeological data. This framework indicates that some form of metal mould was used for the mass production of each specific shape of pipe. The mould may have been subject to wear, repair and alteration and may also have changed hands. In the past it has been considered sufficient to identify pipes by general typological type, combining all pipes of similar form into a single category. But in order to understand the way in which individual makers or workshops operated we need more specific data. This includes information on the number of moulds used and their life expectancy, the range of forms in production at any one time and the way in which other attributes, such as stem length or maker's mark, can be related to the products of an individual maker.

One of the most important techniques developed as part of this study has been the identification of individual mould types. To produce a pipe, fine quality clay is compressed into a mould, thus forming the shape of the finished article. Each time this is done an exact

impression of the inside of the mould is made. Where the mould contains a decorative pattern pipes taken from it can be readily identified by comparing details of the design. Even when the mould is plain, it often contains small flaws from its manufacture or use which will be reproduced on each pipe made in the mould. These can range from short sharp nicks to uneven areas of the mould's surface. Generally, however, the marks on the bowl appear as relief defects where clay has entered unwanted indentations in the mould itself. If these can be recognised and identified a considerable range of new data about the pipes is made available.

The technique of identifying individual moulds is extremely simple. To be successful, however, it relies on the experience and precise observation of the researcher. It is very hard to illustrate, although the general principles can be described. Two bowls thought to be the same must be compared under a strong light source. A 100 watt desk lamp is ideal, since it must be possible to cast strong shadows from a light source striking the pipes' surfaces at a low angle. The bowls must be rotated together and the interface between light and shade searched for any marks which appear on both of the bowls. The light must be made to strike the pipe from a number of directions since a slight ridge which will throw a strong shadow in one direction may be quite invisible in another. The principle is the same as that used for observing low earthworks from the air when they are thrown into sharp relief by a low winter sun.

If the bowls are decorated, it will be easy to find features within the design that match so exactly as to demonstrate that the pipes must have been taken from the same mould. If the bowls are plain, they must first

be sorted into groups of pipes which *appear* to be similar. At this stage it is the overall form which must be assessed and not individual differences which could have been caused in handling or firing. The two pipes made by Gordon Pollock in Manchester (fig 3) illustrate the difference in size and shape which can be caused by firing conditions alone. The overfiring has resulted in a totally different fabric appearance and such a change in size that it is hard to believe that they came from the same mould.

Likewise, the profile of two thin-walled pipes from the same mould from Leicester, has been changed because one of them has been slightly squashed when soft (fig 87.1 & 2). The stem angle too can be altered and the spur partly formed or knocked. Also, stamped marks or milling can be applied independently of mould type and should be ignored at this stage. All of these factors can considerably alter the dimensions and appearance of bowls from the same mould and demonstrate an inherent weakness completely overlooked in some studies based entirely on detailed measurements of dimension and angle (eg Alvey, Laxton and Paechter 1979).

Once a group of similar bowls has been assembled, two good examples should be chosen for comparison. It is important to remember that negative evidence is not always conclusive. If one has a clear flaw in the mould, while another does not there could be a number of reasons for this. If a mould has temporarily collected a piece of clay in a nick it may not always leave an impression on the pipe. Also, the condition of the clay and/or mould can inhibit accurate moulding. It may be too wet or dry and so not mould properly or the mould may be underfilled and insufficient pressure created for a good impression to be taken. In

addition, the mould is kept oiled to prevent the clay adhering to it and this oil can also mask small defects in the mould. Underfiring or overfiring can leave a powdery or bloated surface, thus obscuring mould marks. Even if a good impression was made, subsequent handling, trimming and burnishing can all obliterate these little defects.

These problems in fact sound worse than they are. They simply have to be borne in mind. The most useful areas to compare are around the sides of the heel/spur and on the bowl sides where they have not been trimmed. Sometimes marks occur around the bowl rim too. The object is to find two or more identical marks on the bowl surface which have not been caused by handling and which can, therefore, be shown to be diagnostic of that particular mould. Once identified, it is often possible to check other bowls by simply holding them at the correct angle to the light source to reveal the flaw. Clearly, the more bowls the same there are for comparison, the easier the identification will be. Care should be taken not to attribute bowls to a specific type unless they can be shown to be the same - a general similarity or similar profile is not good enough. There will inevitably be some pipes which cannot be satisfactorily matched because their surface is burnished, has become powdery or is otherwise obscured.

Once a group of bowls has been divided into mould types they can be studied in a whole new range of ways. The best way to illustrate these applications is to present a series of case studies where mould types have been examined. Each of these shows how the analysis of suitable groups can contribute new data to a particular aspect of pipe studies.

Vib : The Range of Stem Length From One Mould. At Rainford in north-east Merseyside an early pipe kiln group was examined (Higgins 1982). Five complete pipes were reassembled from the kiln material, all of which had different length stems and dated to c1630-50. When the mould types were identified it was found that at least four and probably all five of these pipes were in fact from the same mould. It was identified by a clear slightly crescent shaped flaw, about 1.5mm long, which occurs on the right hand side of the bowl (as smoked), in the top right quarter of its profile. The mark was clearly visible on four of the pipes, and the fifth was probably of this type, but had been smoothed in the crucial area during the finishing process. The four definite examples ranged in length from 174-194mm and the fifth was 202mm long, giving a maximum variation of nearly 30mm.

This range in production length would not have been recognised had it not been possible to demonstrate that the pipes had been taken from the same mould. It has since become apparent that many pipes with cut tips fluctuate slightly in length. This is because the stem tapers to a fine tip and the mouthpiece is simply formed by cutting round the moulding wire with a knife. The use of a large moulding wire and comparatively coarse clay for these early pipes must have resulted in the stem not always being fully moulded for its full length (and it is the point most liable to cracking too). It was therefore simply trimmed off at the longest complete point.

This fluctuation can still be observed today by long stemmed pipes produced by Benedict Goes at the Pijpenkabinet in Leiden, Holland. Walker (1977, 94) makes it clear that some pipes were always intended to be cut shorter than the full length of the mould. He notes that

Dutch and French moulds used to have a mark to indicate the correct point at which to trim the stem, the short piece beyond being discarded. This presumably ensured a uniform product which was not deemed necessary in seventeenth century Rainford. The standardization of length through the use of this trimming mark may be a sign of sophistication in technique which may have developed over time. This is a suggestion which could be tested by comparing mould groups such as this.

Vic : The Relationship Between Mould Type and Stem Length. The excavation of a pit group from Epsom in Surrey produced the remains of some 228 pipes, of which 42 complete examples could be reconstructed. This group proved to be of outstanding importance with regard to a number of the issues discussed in this thesis, so a full description and analysis of the group is included Appendix 1 and just brief summaries of the information are given in the relevant sections. Appendix 1 should be examined as a case study in the analysis of a large pit group. It demonstrates how the detailed recording of a particular group can have far reaching implications for the study of pipes in general.

The pipes recovered from the Epsom pit could be divided into at least 73 individual mould types, representing the products of at least nine different makers. Analysis of the group clearly demonstrates that specific bowl forms are associated with specific lengths of stem. This holds true of groups of pipes which not only come from different moulds of the same form, but which were made by different makers. This shows that it was not an individual mould type or maker, responsible for the similarity of form, but that it was a generally recognised rule that pipes of a specific style or form had stems of a specific length.

In short the two elements were an integral part of a generally perceived and recognised type of pipe. The pipes are all of average quality for the area and period (c1715), and probably came from a pub. For the first time this material enables us to study a contemporary group of complete pipes of known status, and, from this, start to recognise historical rather than archaeological distinctions between the forms. It is surely an important step to be able to perceive the study material through the eyes of a contemporary before attempting to place it in its broader historical perspective.

Vid : The Relationship Between Mould Type and Stamp Type. Once the number of moulds in a group has been established it is possible to explore the consistency with which a maker stamped each type, and to look for evidence of makers sharing or swapping moulds. At the Rainford site mentioned above (Higgins 1982), 587 out of 621 complete bowls recovered could be identified by mould type, showing that four moulds were in use (moulds A-D; fig 8). In addition, three stamp types were being used to mark the pipes, two reading 'HB' (stamp types 1 & 2), and one reading 'IB' (stamp type 3). Clearly, then, the products of at least two makers are represented. The group examined contained exactly 100 marks, ninety-four type 1 stamps, one type 2 stamp and five type 3 stamps. From the marks alone it seems that 95% of the pipes were made by the HB maker and only 5% by the IB maker. When the mould types were considered, however, it was found that by far the most common type was 1, with 398 examples (68% of the identified bowls) but that just one of these was marked (IB). This, in turn, would suggest that the IB maker made most of the pipes, but marked only a small percentage of his products.

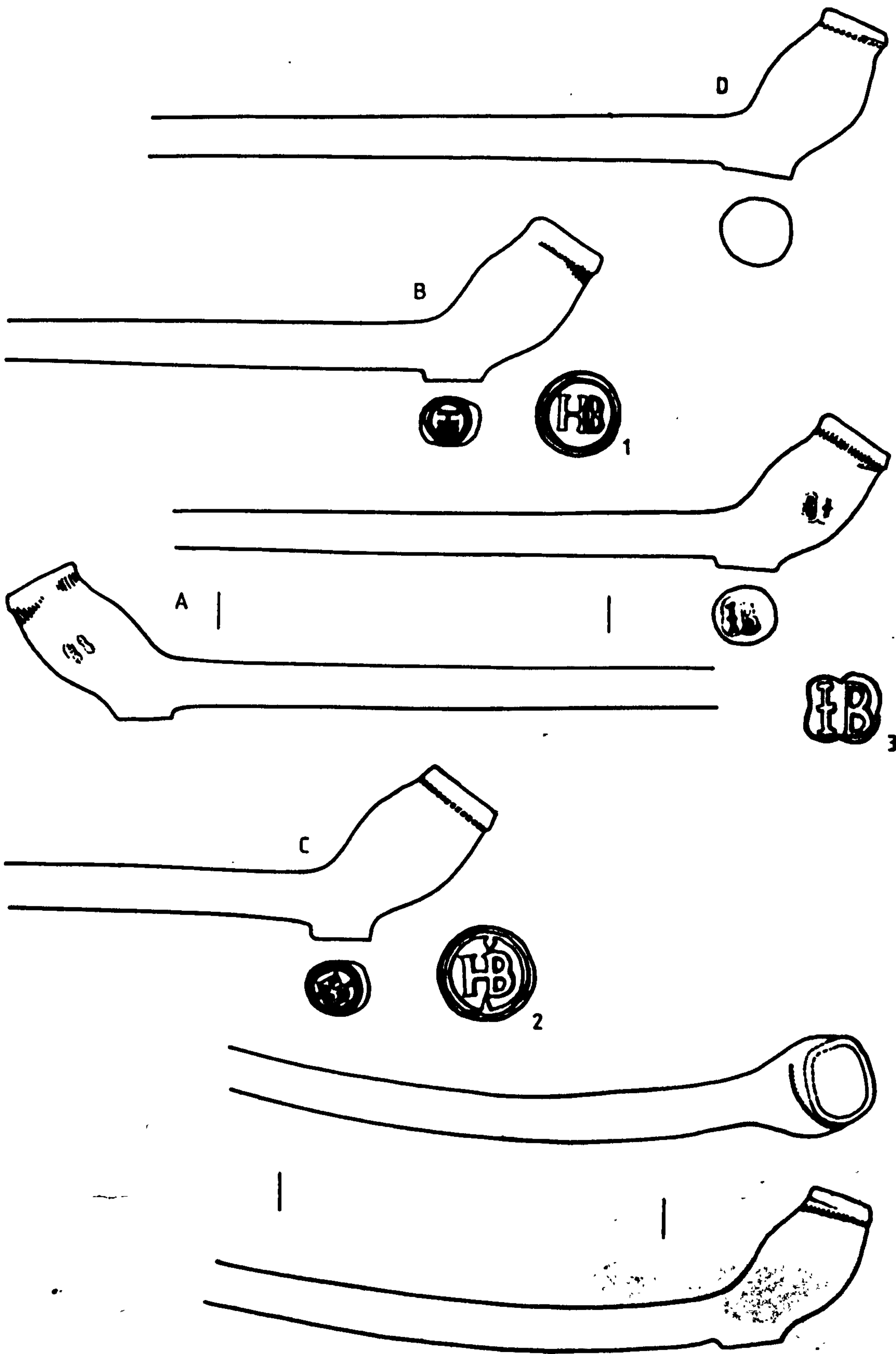


Fig 8 - Rainford Kiln Site - Marks and Bowl Forms: Mould types A-D; Stamp types 1 & 2 (HB) and 3 (IB); Waste pipe showing distorted stem.

The problem was compounded when the most common HB mark (type 1) was considered. All of these occur on the type B mould (94 examples marked HB out of a total of 144 examples). This seems to represent a maker using just one mould of which he marked about two thirds. But four examples from the type B mould have the IB mark on them showing that the two makers were both using the same mould. In addition, since the IB maker appears to have stamped very few of his products it could be argued that the HB maker marked all of his, and that all the remaining 50 type B bowls were made by the IB maker who didn't mark them.

There is also the third stamp type to consider (Stamp 2, Mould C). Although only one example of this mark and bowl form occurred in the group, others were found in the topsoil above. It is also marked HB but is of a rather different character. It has a more developed bowl form and a totally different type of fabric. Also 89% of the type 1 stamps were stamped at about 45° to the right of the usual axis, while all of the type 2 stamps were 10°-20° to the left of it. These features all suggest that form C is either of a different date or made by a different maker. Finally, there is bowl form D, of which there were 44 examples, none of them marked. Clearly the identification of these four mould types has undermined any idea of being able to simply assess the output from a kiln site by mark alone.

This example shows that there is not a simple relationship between mould and stamp type and that the frequency with which a particular bowl form is marked can fluctuate considerably. In this case the most likely interpretation seems to be that IB and HB were related and working together in the same workshop. This would explain the use of different marks on the same mould and the deposition of their kiln

waste together. It seems unlikely that either of them were consistently marking all their products at this date, between them marking on average about one in six of their pipes. It is even possible to suggest that IB may have been the father of HB. The style of IB's mark and bowl forms tends to be slightly earlier than those associated with HB, particularly the mould C, stamp 2 type. A summary of the mould and stamp types by context is given in Table 2.

Table 2 - Rainford Kiln Site : Mould and Stamp Types by Context.

Mould Type	A	A	B	B	B	C	D	Total
Stamp Type		3		1	3	2		
Context 18	170	0	32	52	4	0	24	282
Context 19	195	1	9	24	0	0	13	242
Context 20	32	0	5	18	0	1	7	63
Total	397	1	46	94	4	1	44	587

Another example of the relationship between mould type and stamp type has been explored at Buckley in North Wales (Higgins 1983b). Excavation of a pottery site at Brookhill produced 42 marked pipes which could be attributed to the Buckley pipemaker Thomas Heys, c1695-1720. In all six different stamp types (A-F) and twenty three different mould types were identified (figs 102-103). No unmarked examples from his moulds were found, although unmarked pipes were present in the sample. This demonstrated that, unlike the earlier Rainford makers, Heys probably consistently marked all of his pipes. In addition, the stamp types appeared to be associated with specific bowl types. In only two cases were two different stamps recorded on the same mould type. Unfortunately, whether this is truly representative of his total production is open to some doubt since the sample contained a limited number of mould duplicates.

The analysis of marks, however, suggested a possible chronological development in their form. If this is so, it suggests that the mould types may be of different periods and thus would be expected to show a similar development. In fact this is not the case and twenty-two of the twenty three moulds are almost identical copies of a Broseley type 5 (Atkinson 1975, 25). Since an individual maker is most unlikely to have had more than two or three workbenches the implication is that the moulds had shorter lives than the stamps, and so were more frequently replaced. The fact that they were replaced with moulds of an identical shape shows that the desired style has not changed. In this case the analysis of data about the mould and stamp types sheds light not only on his personal marking idiosyncracies but also on the broader aspects of the life of pipemoulds and their design.

VIe : The Number of Moulds Used by One Maker. Oswald says (1985, 9) that the maximum recorded number of moulds known to have been held by a maker in the second half of the seventeenth century is eight and in the eighteenth century ten. These references relate, however, to the more prosperous makers: and probate inventories suggest that the average maker held only a few moulds, usually between about three and seven but sometimes just one. We have sufficient references to suggest that these relatively low figures are representative of the average maker and that large mould stocks are a product of the factory production and the ornate bowl forms introduced in the nineteenth century (see below). The limited range of bowl forms in the seventeenth and eighteenth centuries and the listing of a limited range of types (see section on stem length), all support the idea that earlier makers only held a few moulds at any one time. The documentary evidence, therefore, suggests that small numbers of moulds would have been needed to supply these makers.

The archaeological evidence, however, disagrees with this interpretation. Oswald himself (1985, 9-10) using differences in bowl form lists seventeenth century makers known to have used at least nineteen moulds, and eighteenth century ones who used at least fourteen. The Thomas Heys group mentioned above (Higgins, 1983b) produced a total of twenty three bowl types from only forty two available examples. If more pipes were available for study this number would doubtless grow. A large late seventeenth century kiln group of Henry Bradley of Benthall has also been recovered (see Chapter 2), and analysis shows that he used at least 50 different moulds and probably well in excess of 100. A similar situation applies in Hertfordshire, from material excavated at Hemel Hempstead. These excavations (Higgins, 1985c) produced a total of about 120 complete bowls, almost all of seventeenth century date. These did not represent the products of one maker, as with the above kiln sites but the general products circulating in the town during the period c1630-1700. In all 76 different moulds appeared to be represented in the group. Once again, there were few mould duplicates because of the 'small' nature of the group which suggests that this number would be much larger if more pipes were available for study.

For the eighteenth century the only suitable pipe group which has been found for this type of study is the Epsom pit group of about 1715 (Appendix 2). From this a total of some 23-30 moulds were identified as being used by Laurence Geale of Guildford and this group probably only represented a fairly short period of his working life. He was, however, a well established maker and almost certainly employed a number of journeymen. For the nineteenth century, work has been carried out to identify the range of production from factories in Broseley and

Rainford but their complex output is not really comparable with this type of workshop production and is considered separately below.

The conclusion for the seventeenth and early eighteenth centuries appears to be that makers only used a small number of moulds at any one time but that these moulds were frequently replaced. This accounts for the small number of moulds listed at any one point in time and the large number of moulds represented on kiln sites. The obvious implication must be that the moulds had a comparatively short life expectancy and were then discarded. The life expectancy of moulds is considered in more detail below.

Vlf : Kiln Groups - Analysis of Production Range. One of the most important fields of study must be that of kiln groups. These provide data about the range of styles, decoration and marking used by an individual either at one date or over a period. The '1630-50' Rainford kiln group, for example, represented the waste from a discrete period of production, consisting of just four mould types (fig 8). It is representative of one period of production and not necessarily the whole chronological range produced at that workshop. The isolated stamp 2, mould C bowl from the kiln tip was much more common in the covering topsoil and represents the introduction of a bowl type which was probably more typical of later production. In this case the use of four moulds at one period of production supports documentary references to makers holding between about three and seven moulds during the seventeenth century.

Once identified, it can be seen that production types A, B and D were based on London styles of c1610-40 (Atkinson & Oswald, 1969, 178, types

4 & 5) but that type C is slightly different. The bowl has developed a more uniform barrel shape and the heel has become slightly longer and much better defined. It is showing the early development of local features which developed into one of the characteristic mid seventeenth century Rainford bowl forms. In this way the mould identification reveals the state of the industry at one moment in time. It shows that pipemaking has become established in Rainford, probably in a small family workshop. They are using just four moulds, three of which demonstrate the London roots of the industry. The fourth however shows the earliest traces of regional development as the industry becomes independent of its origins.

A later group from Rainford, however, shows a complete contrast. Kiln waste has been recovered from Swallows works at Hill Top containing two dated designs of 1897 (Dagnall & Higgins, forthcoming). This well dated group represents the typical small factory production range of the period. In all, 42 different moulds were represented in the tip, ranging from plain Irish types, to commemorative Jubilee pipes. The mouthpieces revealed something of the range of production. A total of 547 were recovered, 411 diamond shaped, 125 round and 11 cut. All of the round and diamond mouthpieces can be related to cutty types and just 10 of the cut ends to longer 'churchwarden' types. Thus they were producing over 50 short pipes for each long one.

The bowl forms too can be examined. Of those that could be fully identified 25 had heels or spurs and 15 did not. In all, 13 of the bowl types had complex decoration, 11 had simple decoration (just moulded milling, leaf seams or simple bowl slogan) and 16 were plain. These were roughly equally split between the two types of bowl, with the

exception of simply decorated forms, of which ten were on spur types while only one was spurless. This type of detailed breakdown, based on identifying individual moulds, is of crucial importance to the detailed understanding of the pipe industry. As more such groups are collected and studied it will become possible to examine regional and chronological trends in production and design.

This type of comparative work has been started at Broseley where kiln tips of similar date have been examined. Preliminary results indicate that at Broseley there was a much smaller range of decorated bowls and a wider range of plain ones. In addition, the ratio of long to short pipes is markedly different, with Broseley firms producing a wide variety of long designs. Since several kiln tips and groups of stray finds are available for Broseley, work has started on compiling a mould type series for the nineteenth century industry. A number of kiln tips and surviving examples have been pooled to build up a picture of the total number of types used and to study the changing production between different periods. This requires the building up of a reference collection of many hundreds of mould types which can be used to identify pieces from other groups and finally should be able to produce a standard type series for the Broseley industry. This is the ultimate analysis of a pipe whereby the individual mould from which it was created is identified and assigned a unique reference number. Details of the mould's life can then be traced, covering its date of manufacture, any changes to the mould, or changes of ownership and its last known use. This will form a life history which will define the dates between which all pipes from that mould must have been made.

These later firms held a much larger range of moulds than seems likely for the seventeenth or even eighteenth centuries, where information remains scarce. The largest companies simply appear to have continually added to their stock, so that by 1955 Whites of Glasgow held some 2,000 moulds (Oswald 1985, 10). This, however, is a quite abnormal number and the figures, also given by Oswald, for Christies (168), and Hollands (286) seem to be much more representative of the large firms. At any one time, however, far fewer moulds appear to have been in use. Pollock's currently have some 300 moulds (*The Guardian*, 18 Oct 1986, 21) and yet only produce about 50 regularly (pers. comm. Gordon Pollock). The kiln waste of Swallows in Rainford in 1897 showed that 42 designs were in production, while for Sants of Bath in about 1867-9 the number was 32 (Lewcun 1984, 11-14). In Bristol, R F Ring & Co used at least 140 moulds during the period c1850-75, although the largest individual kiln dump contained only 47 different designs (Price, Jackson, Jackson, Harper and Kent, 1984; 281-2 pit group 8). Other kiln groups for smaller makers suggest a more limited range. William Edmunds of Newark, for example, was producing only about 8 designs in 1850 (Hammond 1985b, 98).

Vig : Life Expectancy of Moulds. Oswald (1985, 5) suggests an average life of 30 years, exceptionally extending to 50 years. This estimate is based on examination of a number of factors but unfortunately he leaves the statement open ended, with no proviso on date or the nature of the mould. He starts by citing the use of Dutch moulds for up to 140 years. His example, however, is an exceptionally high quality mould and is not really representative of the average working moulds of a pipemaker. In his discussion he considers five factors; the mould material, the number of moulds held by a maker and thus the amount of use they would

receive, evidence for alteration of the mould, evidence for change of ownership of the mould and evidence for the continued presence of outmoded shapes in archaeological deposits.

The possible materials used for moulds in this country have already been considered in Section V. The documentary evidence gives us only brass from the seventeenth to nineteenth centuries, possibly tin or pewter in the seventeenth century and iron in the eighteenth and nineteenth centuries. The hardest of these materials is iron, and, indeed, many nineteenth century examples survive. But we must consider the circumstances under which they have survived. Pollock's in Manchester now holds about 300 moulds (The Guardian, 13 Oct 1986, 21), but they only have about 50 in regular production and about seven part time workers, so the individual moulds receive very little use. Also (as noted above) the modern powdered clays used do not contain any grits, so the tables of the mould do not become as chipped and worn as was the case previously. Despite all this repairs, and replacements are needed to keep the moulds functioning.

This phenomenon of a firm holding a large stock of moulds appears to be a product of the nineteenth century. As the size of firms grew so did the range of products, with new designs regularly being brought out to maintain an edge in the market. This must have meant that instead of using a mould until it wore out, it would be superceded by new patterns. It is clear that, with the capital available to a business, it would have been possible to keep these in stock and pay for fresh moulds without having to consider the scrap value of the metal. Old moulds could then be brought back into production or modified as required. At John Pollock & Co for example, old moulds were reworked

with an 'engraved' surface during the 1940s to create new designs. The large collection of moulds from Swallows works in Rainford (Dagnall Collection) shows that many of the moulds have been shortened or, on occasion, the top of the bowl cut down to alter the design.

Also, with so many moulds being purchased by a large firm there is the obvious question of resale of redundant models. Again, examination of moulds and kiln waste from Swallows shows that some of the moulds bear mould numbers. Usually these would be expected to form a sequence relating to a pattern book. But the Swallows examples are just odd numbers, for example 3 and 241, one in relief the other incuse. These suggest that odd moulds from other manufacturers had been obtained. Also, it is known that William Southorn & Co still have one of Edwin Southorn's moulds of 1860 (Hammond 1985a, 111), which they purchased, the two firms being quite independent. Likewise, Gordon Pollock in Manchester has purchased moulds from several other firms over the years.

Clearly there is ample evidence for the survival, alteration and resale of nineteenth century moulds. However, in addition, there are a number of other factors that must be borne in mind. Firstly, the moulds are of a durable material and are unlikely to have been used as intensively as in previous centuries when only a few types of pipe were current at any one time. This means they could have been used for a few years and then kept in store for many years before being brought back into use, adapted or sold. Secondly, there has been very little stylistic development in pipe shapes over the last century. This means that old moulds do not become obsolete because the fashion has changed, and they are, therefore, always of potential value. Thirdly, there has been a

steady decline in the pipemaking industry over the last century, so that less moulds have been made and more have become redundant, than at any time before.

These factors combine to suggest that we are looking at a rather different market than has previously prevailed. Nineteenth century firms built up a wide range of stock that was still in good working order, not having been used to its full capacity. During the last century the decline in new mould design and production has been offset by the gradual availability of this old stock, which in turn has contributed to the cycle of stylistic stagnation. This gradual decline has resulted in a surplus of old moulds which would not have survived if the industry had been flourishing with continued stylistic development. We must, therefore, be careful not to equate the surviving remains from a largely extinct industry with the situation that would have prevailed in its heyday.

A number of nineteenth century groups have been examined which through mould identification shed some light on the situation at that date. At Broseley the two firms of Wm Southorn & Co and Rowland Smitheman & Co were competing from about 1881-1920, and a number of kiln tips have been examined. The range of pipes produced by the two firms was so similar that Atkinson (1975, 13) suggested that they used the same moulds. This in fact is not the case and careful mould identification has not yet found any mould used by both firms. Instead it has emerged that each held an almost identical range of moulds which superficially appear to be the same. This suggests that during the late nineteenth century there was still fierce competition between the firms, with new

designs being introduced and copied, but no moulds changing hands between them.

A comparison of different kiln dumps has also indicated a considerable difference over a short period of time. One tip may contain an almost completely different range of products to another which is only a few years different in date. A William Southorn & Co trade poster of about 1902 shows 89 patterns in production at that date. Yet a kiln tip dated by Jubilee pipes of 1887 or 97 carried a substantially different range of designs. And this tip included no less than six identical moulds for one particular pattern. It seems clear that this pattern was required urgently, more so than one mould even being used full time could supply. And yet the design was very short lived and before long there must have been six redundant moulds. This very rapid turnover of designs and fierce competition is even evident amongst the smaller makers. The court cases quoted by Hammond (1985a, 42-4) show that large firms were taking smaller manufacturers to court for copying their designs. In addition the Pollock's catalogue which probably dates from the early years of this century lists mould numbers up to 232. If these had been built up since 1879 when the firm was founded this suggests the purchase, on average, of about 10 moulds each year, all of which cannot have been kept in simultaneous production.

At Rainford, Ron Dagnall is cataloguing the surviving moulds from Swallows works. A kiln tip for this firm datable to 1897 has been sampled, showing that there were at least 42 designs in production at that date. These were almost entirely different from a second group of kiln waste collected in about 1980 by Mrs Fishwick from the same dumping area. The large number of surviving moulds, however, includes

relatively few of the designs from either group. It appears that, here too, there was a relatively rapid turnover of moulds during the nineteenth century, and that, of these, only a percentage survived as the stock maintained by the firm.

The conclusion from the archaeological evidence appears to be that there was quite a rapid turnover of moulds in the nineteenth century. Moulds were quickly produced and copied to keep up with changing fashions which may only have lasted for a short time. The numerous designs produced for the Jubilees of 1887 and 97 are good examples of moulds with a limited life expectancy. Pollock's of Manchester now reproduce a Victoria Jubilee pipe from a mould which has probably hardly been used since the nineteenth century. Moulds were clearly on occasion sold but the disappearance of so many designs from later groups or in surviving collections suggests that many were scrapped altogether. While it is, therefore, possible for moulds to survive a century or more to the present day, these are exceptional. The majority probably had a much shorter working life, being used regularly for perhaps a few years or a decade only and then either being scrapped or put into stock.

The *actual* life of a nineteenth century iron mould is, therefore, probably dependent on two factors; the popularity of the design and the value of the mould. If a design is popular it may have been that the mould physically wore out. Staple plain cutties which would have been in continual production may have become worn and been discarded, being relatively cheap and easy to replace. Alternatively, designs which had passed out of popularity may have been scrapped whether or not the mould was dilapidated. So staple designs and those most subject to fashion would probably have had the shortest lives. On the other hand a

more valuable mould may have had a longer life. It must always have been more expensive to commission a decorated mould and it is also probable that such a mould would not have been used as intensively as the plain types which would have made up the bulk of production. They would therefore wear less quickly and have been more worthwhile to repair or keep in stock. Such moulds are, therefore, more likely to have had longer lives.

For the seventeenth and eighteenth centuries, however, a different pattern emerges. Firstly, we cannot be sure that the moulds were made of cast iron and, therefore, they may have been less durable. Secondly, production tended to be in small individual or family workshops rather than in large factory units. The cost of moulds may, therefore, have limited the stock which could be held. Thirdly, there was much less diversity in the design of pipes, with only a few different basic shapes and not the great diversity of decorated types found during the nineteenth century. Only a few moulds would have been necessary to meet the market requirements. This would also have meant they were more intensively used and thus subject to a greater degree of wear than nineteenth century moulds. The archaeological evidence is also rather different for earlier periods.

The Buckley pipes from Brookhill (figs 102-105) have been attributed to Thomas Heys I (1676-1720). Assuming a working life of twenty five years, with an average number of five almost identical moulds at any one time, this suggests a life of no more than five years for each mould and an average replacement rate of one mould per year. Such a rapid turnover of moulds is indicated at Hemel too where a small sample of finds produced 76 different mould types. If each maker held just

five moulds with a long life expectancy this would suggest that a minimum of fifteen makers regularly supplied the town c1630-1700, a most unlikely number. Once again, the answer seems to be that the moulds had a very short life expectancy.

This evidence suggests that during the seventeenth century pipemakers would have held a small number of moulds but that these moulds had a life expectancy of only a few years, after which they were scrapped and replaced with new moulds. Even allowing for the more intensive use they may have received this seems a very short period and suggests perhaps the use of softer, less durable metals. Returning to Oswald's estimate of mould use he also considered evidence for adaption of the mould or change of ownership. Apprenticeship indentures often mention a sum of money or a set of tools on completion of the term, thus indicating that moulds would have changed hands. Oswald also notes a number of examples where changed lettering appears on moulds, likewise indicating a change of ownership (Oswald 1985, 11). Most of these are, however, for the nineteenth century when we have noted a longer potential mould life. Some moulds may only have come back into production following the death of a maker or closure of a firm. Also, the life he gives is the maximum rather than the minimum and sometimes appears to be inaccurately calculated (for example a mould used by J Winter, 1832-34, and Henry Bartlett, 1841-51, is given a life of 30 years). If the *minimum* life is calculated it is possible to achieve an answer of 0 for several of the examples, ie that the mould *could* have been made, changed hands and abandoned *within* a year. So while it is undisputed that moulds did change hands, this does not necessarily mean that they were particularly old and there is no evidence that it is acceptable to add the *earliest*

date for one maker to the *latest* date for the second to arrive at the life of the mould.

The final question of archaeological survival is less easy to deal with. The interpretation of an archaeological group must be dependent on a number of factors. Firstly, there is the care and skill with which it has been excavated. Shoddy excavation can result in the contamination of excavated material or the failure to recognise contexts which may have divided or intruded into larger groups of material. Secondly, there is the question of how the original deposit was formed; whether it contained residual material when deposited and whether it has since been subject to contamination. Thirdly, there is the problem that even if an outmoded shape is recognised, it does not necessarily imply the use of an old mould as opposed to a more recent mould in an older style. It will only be when pipes which can be identified by mould are available from a number of dated deposits that the actual mould life, rather than the design life, can be assessed.

Talking of archaeological groups Oswald (1985, 13) says that on balance most shapes fall within a bracket of some thirty years. This cannot be taken to represent individual mould lives, but rather the vogue of a particular style. It is difficult to elaborate on this point since few of the groups which have been examined during this study seem to contain material which is reliably of just one period. From Stafford there is a pit group excavated at Mount Street (now in Stoke City Museum) datable to c1690-1705 (figs 88-89). The pipes are predominantly Broseley forms and, although initially appearing quite diverse in form, they could, in fact all, have been circulating in the late 1680s or 1690s. The earliest form is a type 2 bowl (fig 88.10), marked

TI. Presumably, this is the same TI who made the type 3 pipes (figs 89.1-2), and suggests a later use of this form than given by Atkinson (1975), although not necessarily the use of an old mould. Otherwise, the forms are predominantly type 5, with a few type 3 and 4. It seems perfectly reasonable to expect a range of overlapping types such as this within a group, as suggested by documentary sources (above). It does not, therefore, provide support for a long life for any of these moulds individually.

In this respect it is very similar to the Epsom pit group. Here there was a wide range of styles but all would be expected to be current during the period c1705-15. The older styles (London type 19's and 22's; Atkinson & Oswald, 1969) are not out of place within this date range but are clearly in the minority as new forms take over. This rapid change to new forms so early in the century supports the view that old styles did not last long and that old moulds were rapidly being replaced with new designs, although no change can have been complete and total overnight. There must always have been a demand for older styles, which may have been made in new moulds for a period after the introduction of another design. This impression that good groups often contain material of quite a limited stylistic range is supported by another group from Stafford. This was excavated at St Mary's Grove, and is datable to c1770-80 (figs 90-91). In this case there are a few residual pieces marked by their abraded nature and smaller size. The main group, however, is stylistically very similar and there is no doubt that the single 'IOS/BIN/NER' bowl is clearly residual. In this case, it is neither an old mould or an old style still in production and should act as a warning for other groups where there may be much less difference between a contemporary group and residual material.

The evidence from excavated groups thought to represent one period of deposition therefore suggests a small range of forms circulating at any one time. It is clear that, although these various styles may be in simultaneous production, it does not mean they are necessarily old moulds. New replacements would have been made so long as the pattern was in demand. The overall stylistic range of any one group is often 30 or 40 years in maximum but this covers the earliest date for the earliest form to the latest date for the latest form. The actual deposition date can often be narrowed considerably and lends little support to mould life being anything other than a few years.

In conclusion, this author would argue for a limited rather than extended life expectancy for the earlier moulds, measured in months or years rather than decades, although perhaps with differences depending on the date and value of the mould. For the seventeenth and eighteenth centuries, pipemakers appear to have worked with a small range of moulds which were in regular production and had a life expectancy of only a few years. This may also support the suggestion that relatively soft metals were used at this date. In the nineteenth century a much wider range of hard iron moulds was used. These can be divided into staple production patterns and fancy decorative types and, although hard evidence is difficult to find, types in regular production do not generally appear to have lasted more than a decade or two. More elaborate designs probably had less intensive use and were kept longer as 'stock', and sometimes indefinitely by large firms. Some of these have documented lives of up to a century, although their use is intermittent, and their survival the exception rather than the rule.

VII : Evidence for Social Status.

Finally, having established that a range of pipe forms were produced at different periods and that we can recognise different types and different moulds, can we also recognise different qualities of pipe and through them explore the social status of a site? In general terms a 'status' pipe is one which, despite being more expensive than the average product, is still able to find a market. This will usually be among the upper classes of society whose position is reflected by the regular use of prestige goods. The pipe should, therefore, exhibit features which justify its additional cost and signify its status. These features may include the use of a finer fabric, a longer stem, a different bowl form, better quality workmanship and finishing and the use of elaborate decorative motifs. Let us first consider the documentary evidence for the existence and form of 'status' pipes and then the archaeological evidence for their use.

Amongst the different types of pipe mentioned by Randle Holme in 1688 are, "Long shanks, Middle shanks, Short shanks or ends, Wrought pipes in the head or shank, Smooth pipes [and] Gleased pipes". Although he passes no comment as to the cost or status of these types we may infer that long pipes, being more difficult and time consuming to make, would have been more expensive than the other two lengths. Also wrought, presumably decorated, pipes and gleased, presumably burnished, pipes fall within our categories of more prestigious pipes. So there seems to be evidence that by at least 1688 the production range of pipes included not only different forms but also different qualities.

In the eighteenth century we have noted how William Nicholas was fined for producing a longer mould than allowed by the Bristol Guild (Jackson and Price 1974, 85); the long mould was presumably for making more expensive 'status' pipes. A pipemaker's advert of 1799 also survives for Bristol (*ibid*, 84). This lists the price per gross for a whole range of pipes. Long pipes were 5/-, 3/6d and 3/- per gross burnished, or 6d per gross less unburnished. This clearly represents three different types (probably by length) of pipe, which could be made more prestigious by having them burnished. In comparison 'common long pipes' were only 1/8d per gross, considerably cheaper and hardly more expensive than the eight types of short pipe made for the export markets which ranged from 1/- to 1/4d per gross. This shows us that the best long pipes were three times more expensive than the ordinary long pipes and that there was a range of seven levels at which people could buy their pipes. If these could all be recognised archaeologically it would allow quite a fine assessment of the status of an individual household.

Other evidence for the cost of pipes has been collected by Walker (1977). He notes (p419) a cost of 3d per gross at Barnstaple in 1599 but this seems very little and may reflect someone trying out a new trade and uncertain about the price. In 1619 the London Guild laid down that the best quality pipes were to be "twoe at the least for a penny", and were only to cost more for pipes of "extraordinary greatness or unusuall curiosity of workmanship" (*ibid* 418). This gives a maximum recommended price of 6/- per gross for best pipes, although presumably ordinary pipes would have been considerably cheaper. Other prices listed by Walker (1977, 415-8) include 1/6 per gross in 1622 and 1/- per gross in 1633 near Plymouth, 2/10d per gross in Exeter in 1640, 1/10d per gross in Bristol in 1661, 2/- per gross in London in 1671, 1/-

per gross in Lincolnshire in 1671 and 1676 and 1/6 to 1/10 per gross in London in 1695. These all seem to be in a similar range and suggest that common pipes could be obtained for between one and two shillings a gross throughout the seventeenth century. This is substantially lower than the recommended price of the best London pipes, and indicates that ordinary pipes would have been available very cheaply.

In contrast, Walker also notes some outstanding exceptions. In 1641/2 the Marquis of Hereford paid between 18/- and 18/3d per gross for Gauntlett pipes, and 7/- for London pipes (*ibid* 417). The London pipes must have been the 'best quality' as noted in 1619 but the Gauntlett pipes from Amesbury must have been quite outstanding to command a price nearly three times as high. A similar figure of 18/6 per gross was paid in 1651 for Gauntlett pipes by the Duke of Bedford at his London house, the order stating "you know the shape I like". This suggests that the shape was deemed an important factor in the recognition of these expensive pipes.

The account books of Charles Warton of Beverly Parks, Yorkshire for 1709-14 demonstrates a similar point (*ibid*, 412-3). He paid from 1/6 to 4s per gross for Dutch pipes, and 2/9 per gross for Nottingham pipes, which with carriage came to 3/7½d, eliciting the marginal comment, "very dear, very dear". Both these sorts of pipe had a reputation for fine quality and finish, although the cheapest Dutch pipes cost the same as common English ones. On one occasion he paid the equivalent of 6s a gross for an unspecified type of pipe and it is clear that, once again, additional money was being paid to obtain pipes of a certain quality or status.

During the nineteenth century a much wider range of lengths and styles was produced and, here too, a range of prices can be found. Walker (1977, 401) gives the price of Broseley pipes during the 1850s to 70s. He suggests that the longest churchwardens would have been 6/- to 7/- per gross, long pipes 4/6d to 6/- per gross and short pipes 2/- to 3/- per gross. In contrast (*ibid* 398) moulded figural pipes in the 1880s were selling at the equivalent of 72/- per gross. These presumably were the best quality French types, but indicate the range of price that could be paid for a clay. The indications are that there has always been a choice in the style, quality and price of a pipe and that these differences reflect the social aspirations of the owner.

Archaeologically it is possible to detect these differences, although there are a number of regional trends in pipe production which make standard rules difficult to apply. In Broseley, for example, it was usual to burnish pipes until well into the nineteenth century and occasionally into this century, while in the the south east they are rarely burnished at any period. Conversely fine eighteenth century roll stamped stems were produced in Chester, Leicester, Nottingham, Derby and other midlands centres but never at Broseley. In assessing the social implications of a pipe group it is, therefore, necessary to be fully aware of the types current in that area, against which any differing characteristics may be set.

The Gauntlett pipes which were worth so much in the mid seventeenth century would seem an ideal subject with which to explore social status. Unfortunately their very success appears to present a problem since they were not only widely marketed but widely copied. The genuine examples which commanded such a high price are of extremely high quality. They

are early west-country bowl forms and are beautifully finished. It is tempting to suggest that they may also have had longer stems than the average pipe which would account for more of their extraordinary expense. It appears that sales relied on producing a high quality pipe which was purchased by the aristocracy. The introduction of a new bowl form and the polished surface, which was not standard in London, appear to be the key features which identified the status of these pipes and attracted sales from as far away as London. In consequence, a whole series of rather poorer pipes but of the right general form and marking, were copied by other makers (Higgins 1981a, 197-8). Genuine Gauntlett pipes certainly mark affluent households, while copies may indicate households with social aspirations. An indication of the status of Gauntlett pipes is given by the fact that excavations at the palace sites of Oatlands and Nonsuch in Surrey have both produced examples (*ibid*, 197-8).

Another maker who may be identified with the production of quality pipes is Edward Neave, also from Surrey. He was working in Guildford by 1677 when he took an apprentice and died in 1718. During this period he produced some very fine, thin walled pipes which were beautifully burnished. These are of a quite different quality and finish from the common pipes circulating in Surrey at this period, and show a different distributional pattern to other Guildford makers (Higgins 1981a, 201). In particular his products found their way to London and at the Oatlands Palace site a notable concentration was found, although later in date than the palace. Here it appears to indicate the presence of a high status household in the vicinity regularly using his high quality products.

From these examples it is clear that some makers specialised in making higher quality products than was normal for their area. As a result their products show different marketing patterns and their presence in an assemblage may be taken as an indicator of the status of that particular site. In the same way some centres specialised in producing pipes of a special quality which enabled a wider market for the entire centre to be developed. Chester, for example, produced particularly fine pipes with roll stamp decorated stems during the eighteenth century. Because many of the contemporary makers produced these fine pipes they are not found in isolated groups like the Neave pipes, but occur regularly over a wide surrounding area. Here, the significant factor is not the presence of a few quality pieces in a group but the frequency with which they were used in comparison with other households and the relationship to the distance they have travelled from their source.

At Tong Castle in Shropshire, for example, (Wharton 1980) Chester pipes were found in the excavated deposits. Despite the proximity of the flourishing Broseley industry it was still considered desirable to import these pipes from some distance and, judging from the documentary references above, at considerably more expense. The reason clearly appears to be that the decorated Chester pipes were a recognised status symbol to be used alongside the often equally fine and exported (but not decorated) Broseley pipes. This provision of a choice or range of products is also characteristic of a higher status household. Here, the Chester pipes are not numerically dominant but are important in that they were brought at all to an area where they were not in general use.

Nearer Chester at Norton Priory a mid-eighteenth century deposit contained almost entirely Chester bowls, many with decorated stems

(Davey, 1985, 161). Here the higher percentage and wider range of Chester types merely reflects the closer proximity of the site to the origin of the pipes and not a necessary difference in the status of the site with Tong. In this case it is the relationship between the Priory pipes and those in use in the surrounding areas which is significant. Davey has been able to compare the pipes from the large house with those from the adjacent village (*ibid*, 166). There was a notable difference in the form and fabric of the pipes. Those from the village site were of very poor fabrics and often simply made in moulds lacking in symmetry and style. The Priory pipes, however, were of much better fabrics and well made in better quality moulds. The difference in this case could be best expressed by looking at the incidence of burnishing. Of the seventeenth century fragments from the village only 0.6% were burnished, as opposed to 10.8% from the Priory. Likewise, in the eighteenth century only two roll stamped fragments were recovered from the village, while a wide range of the best quality was found at the Priory.

It can therefore be demonstrated that there is a link between the types of pipe found and the social status of a site. We can identify from documentary and archaeological material that more expensive, quality pipes were made and used and that these reflect the life style of more prestigious households. Individual manufacturers must always have been able to specialize in making fine products for a limited clientele but sometimes whole industries expanded on the basis of their quality. The individual features that signify a status pipe vary by region and period but they are characterized by fine quality, design and workmanship over and above that which is in general production. It is not just the presence of specific marked, decorated or imported pieces

which signify a high status household, but the average quality of the pipes used in comparison with surrounding groups. It is only through the detailed analysis of regional trends that such patterns will be revealed.

VIII : Summary. In this chapter we have looked in detail at some new ways of considering the pipe. Instead of concentrating on established themes such as manufacturing techniques or the changing bowl form the idea has been to lay foundations in other areas. It has been shown that, while we may know a great deal about the typological development of the various bowl styles, we in fact have a very patchy understanding of the form, design, development or manufacture of the moulds which produced those styles. It is surely crucial that we have a clearer comprehension of the ease with which pipemakers obtained and changed their moulds if we are to understand and explain the regional spread and development of local styles. Likewise, the life expectancy of the mould has important implications not only in relation to the running of a workshop and the development of styles, but also to the accuracy with which we may date and interpret those changes in form. We have also examined the overall form of the pipe and found that different stem lengths, curves, styles and finishes of pipe were produced, about which our understanding is in its infancy.

In order to explore these defects in our understanding of the form and development of the pipe in its social rather than archaeological sense a number of techniques for collecting the missing data have been outlined. These have shown that complete forms can be reconstructed and individual moulds recognised. Through these a whole range of questions about the life of moulds, the nature of workshops and the supply of

pipes can be asked. In particular the detailed analysis of groups can provide a wide range of new information about the manufacture and use of pipes within society, as well as providing a valuable dating and social status indicator for the archaeologist. Through these techniques it is hoped to arrive at a closer understanding of the concepts, methods and values of the people who made and used the pipes, rather than that of the archaeologists who usually examine them.

CHAPTER 2

THE BROSELEY PIPE INDUSTRY

This chapter examines the current state of knowledge regarding the Broseley pipe industry. This research programme has taken a fresh look at the artifactual material relating to the industry and re-appraises our understanding of the documentary material relating to the Broseley pipemakers. The object has been to more closely define the products and nature of the Broseley industry so that it can be compared and contrasted with pipe production in the surrounding areas and in the areas to which it traded.

I : Previous Research.

Broseley is remarkable not only for the scale and nature of its pipe industry but also for the length of time that its products have been collected and studied. Many of the early directories and descriptions of the area contain passing references to contemporary pipe production but this is no different from the many other industries so recorded. What is unusual is that by the middle of the nineteenth century efforts were being made to collect, research and publish descriptions relating to the origins and development of pipemaking. This predates the earliest such research in many other major centres by decades and in the country as a whole by a century or more. It is relevant, therefore, to briefly examine the principal publications concerned with the pipe industry in Broseley and the contribution each made to the current state of knowledge.

1862 Richard Thursfield published his paper 'Old Broseleys' in *The Reliquary* (Vol 3, 79 et seq). This discusses the use of local and imported clays, the origins and dating of the industry and changing manufacturing techniques. His observations are based on a local collection of some 400 pipes some of which are illustrated, and includes a list of the makers' marks and initials found on them. He includes dates for some of the makers which he has researched from the Broseley Parish Registers. There is also a section on the introduction of tobacco and he mentions pipe production at Shirlett and Much Wenlock. This extremely competent piece of work is years ahead of its time and indicates that by 1862 a considerable amount of artifactual and documentary data on the Broseley industry had already been accumulated.

1877 Llewellynn Jewitt includes a section on Broseley pipes in *The Ceramic Art of Great Britain* (174-77). About half of this is a summary of Thursfield's information (not credited). The other half deals with nineteenth century developments, mentioning the Rodens and Southorns, particularly Edwin, for whom some extremely useful dates and figures are given.

1878 *The Salopian and West-Midland Monthly Illustrated Journal* (Edited by John Randall) for August reprints Thursfield's 1862 article with just a brief introductory paragraph. The main effect of this would have been to re-circulate the information and to a wider audience.

1879 John Randall in *Broseley and its Surroundings* again reprints the 1862 article with an almost identical introduction to the 1878 reprint.

- 1896 The *Wellington Journal* of July 18th carried a piece entitled 'The Tale of a Broseley Pipe'. This rather odd piece is written as the reminiscences of a broken pipe. It was, however, clearly written by someone very familiar with the pipemaking process and includes a useful description of contemporary production, including the only reference to confirm that agate was used in Broseley for burnishing the pipes.
- 1899 The *Manchester Evening Chronicle* published an article on 'Broseley Clays' (June 21). This starts and ends with rather rambling sections on smoking but has a good central section on Broseley pipes. This starts with a brief history based on Thursfield (1862) and goes on to describe contemporary production clearly written by someone familiar with Broseley. It gives an indication of production figures, some names and lengths of pipe produced and the first good description of the manufacturing process.
- 1907 T H Thursfield published his 'Early Salopian Pipes' in the *Transactions of the Shropshire Archaeological and Natural History Society*. This constitutes the next major contribution to research of the Broseley industry as opposed to contemporary description since R Thursfield's paper of 1862. He gives an introductory section which demonstrates his familiarity with a wide range of sources and goes on to revise aspects of the 1862 paper. He lists collections which he has studied (in addition to his own collection of some 600 examples) and produces a new makers list based on the Broseley and Benthall registers. Above all he includes 364 drawings of pipe stamps which has remained the only large illustrated corpus of Broseley pipe marks to the present day.

1908 The *Victoria County History* (Edited by W Page) for Shropshire includes *Broseley Tobacco-Pipes* (pages 440-442), by John Randall. This relies largely on Thursfield's 1862 paper and includes a slightly shortened version of it (again with the illustration). It also refers to Charles Hartshorne's *Salopia Antiqua* (1841) and includes some new information on the contemporary products of the Southorn and Smitheman Companies.'

1932 The *Shrewsbury Chronicle* published an article entitled the 'Romance of Shropshire Industry' (August 12). For its background to the industry this article draws on the 1862 rather than the 1907 paper, although it is intermixed with some other information and anecdotes. It then gives quite a good description of the Southorn family, which adds particularly useful information for the late nineteenth and early twentieth centuries and a description of the types in production, together with a description of the manufacturing process. It includes two photographs of the interior of the works.

?1930s In *Both Sides of the Severn* W. Byford-Jones includes a rather anecdotal account of churchwarden pipes (133-137), which does, however, include a visit to the King Street works. This conveys little factual information, although it does suggest something of the atmosphere at this date.

1950 Mary Wight wrote an article 'Broseley Probably Made Clay Pipes Before Raleigh Introduced Tobacco' which was published in *The Shropshire Magazine*. It is, by this time, hard to define the exact source of the background information, although much of it

ultimately derives from the 1862 paper, with some sections taken from the 1932 article. There are some extraordinary shaped pipes illustrated which are in fact copies of some of the 1862 engravings. In the article they are incorrectly attributed to the Shrewsbury Museum Collections, whereas in fact R Thursfield's collection, of which they are illustrations, are in the British Museum. The main benefit of the article is in its somewhat brief contemporary description of Southorn's production and the inclusion of three good interior photographs of the works.

1955 Oswald and James published 'Tobacco Pipes of Broseley Shropshire' in the March and April issues of the *Archaeological Newsletter*. The first part of the paper (March) reviews some of the previous publications on Broseley and discusses the use of local clays, transport and coal as a source of fuel, all of which contributed to the founding of the Broseley industry. The major contribution made is in the setting out of a dated bowl typology for the seventeenth and early eighteenth centuries. Although a general relationship between form and date had been previously noted (1932 above), this system was the first to define the forms characteristic of the Broseley industry and thus to allow dating independently of mark. This type series forms the foundation of all subsequent publication of Broseley forms. The second part of the paper (April) gives detailed lists of the known makers and the marks attributed to them. This breaks away from all the previous lists in which only the first recorded reference to each name was taken, resulting in quite meaningless dates. Instead the most likely dates are given with alternatives where, as so often, there is more than one

person of a given name. It also relates known marks to these makers.

1964 The *Borough of Wenlock Official Guide* carried a short piece on Broseley pipes. It contains a mixture of information, most of it general, although it does quote a production figure of 1868 the source of which has not been traced. There is also a little on Southorn's production, and two photographs taken inside the works. The information must have been collected in the 1950s, since production ended in 1960 and the photographs include one of Harry Southorn who died in 1957.

1975 David Atkinson published *Tobacco Pipes of Broseley Shropshire*. This excellent little book (92 pages, privately published) consolidated the current information on Broseley. A short local history is followed by sections on the background to pipemaking, the distribution of Broseley pipes, the clay types, an enlarged and revised version of the 1955 typology, a study of the development of marking and a revised list of makers and their marks. The detailed breakdown of marks has in particular aided the identification of Broseley products.

1976 Iain Walker published 'Churchwarden Clay Tobacco-Pipes and the Southorn Pipemaking Family of Broseley, Shropshire' in *Post Medieval Archaeology*, Vol 10, 142-149. This is an extended version of part of his doctoral thesis (published in 1977, below). This deals in detail with contemporary nineteenth century references to the Southorn family, particularly with regard to the production of 'Churchwarden' pipes which he concludes are particularly associated

with the family. There is also a lengthy and rather confusing account of the Southorn family descent.

1977 Iain Walker published his thesis *Clay Tobacco Pipes, with Particular Reference to the Bristol Industry*. This includes scattered references to production methods at Broseley, which appear to be largely derived from William (Clive) Southorn in 1968. There are also various references scattered through his lengthy section on production methods used in Britain and elsewhere in other sections. It includes an appendix on Churchwardens and the Southorn family (expanded for publication in 1976 - above).

These articles can be divided into two basic types, those which present new and original data from research (1862, 1907, 1955, 1975, 1976) and those which draw upon this research as a background to contemporary descriptions of the industry (1877, 1896, 1899, 1908, 1932, 1930s, 1950, 1964). The number and antiquity of these articles shows that the importance of Broseley as a pipe production centre has long been realised. Research has progressed from a basic collecting and recording of stamps, through to a reasonably detailed understanding of the development and dating of bowl forms and marks. Many of the misconceptions of the earlier writers have been eliminated from the literature following the more recent studies of Oswald & James (1955), and Atkinson (1975), although, sadly, this year has seen the re-appearance in print of references to a sixteenth century pipemaking industry in Broseley (Clark 1987, 173). This quite unfounded and unreferenced assertion is presumably based on the erroneous statements made by some of the nineteenth century authors.

In general terms, however, the origin, development and nature of the Broseley industry is now fairly well understood. Many of the advances made in this understanding have been contributed to through the interest of local people who have collected marked pipes and provided information for researchers. As a result of this, three major collections were formed which have been used as the basis for various studies. These are:-

The R Thursfield Collection. When Richard published his paper in 1862 he stated that his collection consisted of,

"about four hundred differently shaped pipe bowls, which have mostly been picked up in the immediate neighbourhood of Broseley. Of these, more than two hundred have marks upon the spur".

By 1899 the *Manchester Evening Chronicle* records that they are at South Kensington, a fact confirmed by T H Thursfield in 1907. He states that,

"Mr R Thursfield published in 1862 a list of the marks upon the pipes in his collection, which numbered 223, of which 212 have marks upon them.....Mr R Thursfield's collection was eventually merged in the large and important collection by Mr Bragge, FSA.....this collection was acquired for the British Museum, and is now there."

The very exact, yet reduced overall, number given in 1907 may indicate that some of the unmarked examples had been removed from the collection by the time it found its way to London. T H Thursfield appears to have studied the Bragge Collection in detail and presumably included marks there amongst those illustrated in his paper. The Thursfield and Bragge collections in the British Museum were also studied by Oswald and James (1955, 188). and have been examined by this author, when the number of pipes likely to have come from the Broseley area numbered just over 300.

The T H Thursfield Collection. In 1907 Thursfield had a collection of his own. He states in that article,

"My brother, the late Dr W N Thursfield, of Shrewsbury, had a large collection of pipes of Salopian manufacture, and...with these I now have more than 600 specimens".

This collection was also studied by Oswald and James who record that (1955, 188),

"The typology adopted here is [partly] based on a study of.....the Thursfield Collection in the Shrewsbury Museum and part of the same collection in the Coalbrookdale Archivist Society."

Unfortunately this important collection has suffered considerably since that article was written. When the author visited Rowleys House Museum, Shrewsbury, in 1985 only 69 unprovenanced bowls and no supporting documentation could be found (figs 51-56). These almost certainly represent part of Thursfield's pipes, since the collection was a structured group rather than a random sample. Every bowl was stamped, and there were only two duplicates. The Coalbrookdale Archive Society pipes appear to have suffered a sadder fate. The collection was subsequently put in the care of the Ironbridge Gorge Museum Trust, where, like almost all of the other pipes deposited with them, they cannot now be found. They were last reported being stored in the Old Chapel Warehouse in Coalbrookdale but, during a clearance in 1983, only one unlabelled bowl was found (fig 60.12) which may or may not have formed part of this collection. It is a sad reflection that having survived for so many years, this important collection has only been lost since being passed to a museum set up to preserve the heritage of the area.

The Robinson Collection. T B and H M Robinson retired from London to Benthall in 1930. In their garden (Eldhame), principally and from adjacent gardens to a lesser extent, they collected a large number of pipes (Robinson manuscript, below). These were consulted by Oswald and James for their 1955 paper and by Atkinson for his 1975 book. In his acknowledgements Atkinson says that following their death part of the collection was lost, although how that came about is not known. The remaining portion has apparently been purchased by the Southorn family, who still own the now disused pipeworks in King Street. It has not been possible to arrange access to the collection.

Two sources of information about the collection are, however, available. Adrian Oswald has in his collection the Robinson Plates. These were drawings of their collection made by Helen Robinson. The drawings depict both bowl form and mark and are sketched in pencil, then filled in with watercolour, the details being added in ink. The plates are numbered 1-33 and the drawings numbered 1-195 (although Plate 21, containing drawings 130-140 is missing). These drawings exactly copy an identical set in the Robinson Manuscript. This is now held in the Much Wenlock Museum (MW 3/80). This is a little booklet entitled 'Clay Tobacco Pipes - A Short Historical Survey of the Clay Pipe Industry of Benthall and Broseley, Shropshire', entirely hand written and painted by Mrs Robinson. It contains an introduction explaining the collection, a short bibliography, a list of five pipes presented to the Municipal Museums of Hull, some additional dates from Broseley parish registers and a list of names not recorded by Thursfield (1907). There is then a frontispiece depicting an interior view of Southorn's pipeworks, followed by 32 plates (189 drawings) and their descriptions, with an index. The final plate is unfinished, suggesting perhaps that Oswald's plates (of

which there are the remains of 33) were produced first, and then copies made to put in the booklet. Although the drawings are not good enough to identify individual stamp types, they do at least provide a record of makers whose products have been found in Benthall and will enable identification of the pipes when they become available for study. In addition some the twentieth century Southorn products are illustrated, as well as one of the milling tools and a number of ?clay tokens used to number and label saggers which survived in their works.

The other local researcher who has compiled data on Broseley pipes is Miles Taylor who still lives at Coalport. He collected many specimens for David Atkinson and wrote the introductory history of Broseley for his book (Atkinson 1975). In addition he still has a small collection of pipes (figs 64.1-12). and he has produced two manuscript papers relating to pipemaking. The first, 'Broseley Clay Pipes 17th to 19th Century' (9 pages), contains a brief description of the development of the industry, followed by numerous illustrations of marks which he had collected. The second, 'A Study of the Origin of the Local Name "Pitchyard" Given to the "New Inn" Benthall, Shropshire' (11 pages), discusses the site of the New Inn. This was a pottery kiln site later used by Noah Roden and then Edwin Southorn, Hopkins & Co and finally William Southorn as a pipeworks. It later reverted again to a pottery production site and this paper covers all aspects of its past. Both papers are undated but were probably compiled in the later 1960s or 70s.

The final manuscript research which must be mentioned is a paper entitled *Southorn's Broseley Clays* by W Howard Williams (3 pages, a transcript of which will be found in Section III below). This was

written on 18 June 1956, the same day on which he had visited the King Street pipeworks. It gives one of the best extant accounts of the production process used at the works and is especially important since Harry Southorn died the following year and with his death came the effective end of pipemaking in Broseley. It is a very well written description, giving considerable detail about the final days of the business. The paper is now deposited at the Local Studies Library in Shrewsbury.

From this summary of previous research it is clear that there are considerable quantities of artifactual material and published papers relating to Broseley. The content of this material is, however, biased towards certain classes of information or period. The 'academic' studies of Broseley, for example, have been biased towards the seventeenth and eighteenth centuries. The frequent occurrence of marked pipes and the variety of their design, has attracted the attention of researchers and collectors alike for many years. The result has been the compilation of detailed lists of makers' marks, and an understanding of the evolution of bowl forms which makes this period of the industry one of the best studied in the country.

In contrast the later periods have been virtually ignored and are little known or understood. Oswald and James, for example, (1955) finished their type series with a form ending about 1730 and although Atkinson (1975) extended this series, he still shows considerable confusion about the dating and relationship of the two main nineteenth-century families; the Southorns and Smithemans. The 'non-academic' studies are likewise biased. They often relate inaccurate, second-hand accounts of the history of the Broseley industry combined with most useful first-hand

accounts of contemporary production. These accounts have never been brought together to give a synthesis of the more recent phases of the industry. In addition to these accounts there are also numerous adverts, box labels, pattern sheets, and so on, from which to draw information about the more recent periods.

The result is that the early industry has been well researched from artifactual remains, but not documents and the later industry is well documented but has few artifactual remains. This study has addressed some of these problems. Although not initially intended as a documentary study, a considerable amount of work in this area was found to be necessary. The makers' list had to be completely reconsidered (Appendix 2), and this now forms a much sounder base to go with the artifactual material which has already been studied. In addition, a large quantity of nineteenth century and later pipes have been collected to redress the artifactual balance. This material includes complete pipes produced during this century, stray finds collected in Broseley and several kiln groups for both the Southorn and Smitheman Companies. Unfortunately the time and space required to analyse this material in full has precluded its presentation in this thesis, although it is intended to prepare a separate paper on the production of this period. The general conclusions from the preliminary sorting are, however, included in the current discussions.

Finally an attempt has been made to draw together an appraisal of the more recent documentary history. Certainly, much more documentary work could be done to fill in the social and economic background of the earlier makers but that is another study. In the following sections the evidence for the nineteenth-century and later production is considered

as a compliment to the earlier studies which tended to ignore this period (for the most up to date discussions of the earlier periods see Oswald & James 1955, and Atkinson 1975). Firstly, the evolution of the actual products will be considered and, then, the methods which were used to produce them.

II : The Nineteenth and Twentieth Century Broseley Products.

From the early nineteenth century onwards there is a considerable amount of documentary material which sheds light on the types of pipe produced at Broseley. Most of this material relates to the three largest companies to operate in Broseley; W.Southorn & Co, E.Southorn and R.Smitheman & Co. The details of the individuals involved in running these firms will be found in Appendix 2 but a summary of the company histories is given below.

Ila : W.Southorn & Co. The earliest of the works is that of W.Southorn & Co. It was founded by William Southorn (c1792-1853), who had probably moved from Cardington to Broseley by 1819, although later letterheads indicate that the foundation date of the firm was 1823. By 1838 the location of his large 'House, Pipe Manufactory and Garden' (rented from George & John Pritchard) is shown from the Broseley Tithe Map to be just off Legg's Hill in Broseley Wood. This remained the principal works of the firm until this century when production moved to King Street. The firm may also have run Edwin's works later in the nineteenth century (see below). Edwin was William's eldest son but there seems to have been a split in the family, since the business

passed to William's younger son, also called William (c1827-1894) and Edwin had to set up an independent works (below).

The business appears to have been in financial difficulties during the 1860s and 1870s, probably as a result of vigorous competition from Edwin. By 1879, however, William had come into money, his brother had died and, by 1881, he appears to have taken over Edwin's works. The business passed to William's son William Edwin Southorn (1850-1910) and, following his death, was run by his widow, Nellie Worthen Southorn and their eldest daughter, Ethel Mary Southorn. During this period they moved the business to the old Smitheman works in King Street (below). Both died in 1930 and William's youngest son, Henry Starr Southorn (c1887-1957), took over the running of the works. His sons were not apparently much interested in the family trade and, after a few years of declining production, the business appears to have finally closed in 1960.

The early products of this firm are marked with a variety of relief marks along the stem reading 'W.SOUTHORN/BROSELEY' which, after about 1840-50, were superseded by incuse marks along the stem reading 'W SOUTHORN & C^o / BROSELEY' followed by a worker's number, or 'W.SOUTHORN & C^o / BROSLY (number) SALOP' (fig 49). After about 1880 and until 1960 some of their products were also marked incuse along the stem 'E.SOUTHORN / BROSELEY', followed by a worker's number.

I**b** : E.Southorn. Edwin Southorn was the eldest son of the William Southorn who founded W.Southorn & Co. He appears to have fallen out with his father, since he received very little in his will and he set up another pipeworks in competition with his brother William who had

inherited the family business. This works was adjacent to the *New Inn*, a short distance from the Legg's Hill works but in Benthall Parish. This works appears to have been started by Noah Roden (II) who came from a well known pipemaking family with a works in Broseley. He became landlord of the *New Inn* in about 1835 and later appears to have moved some of the pipe business into the adjacent buildings. No kiln is mentioned in the Tithe Survey of 1844, but by 1848 trade directories give Noah as a pipemaker in Broseley and Benthall. He died about 1855 and his widow appears to have briefly run the works until about 1858 when Edwin Southorn took them over.

Edwin was one of the most important members of the Southorn family. It seems to have been Edwin who was responsible for the Southorn's exhibit in the 1851 exhibition and at the *New Inn* site he brought about a number of revolutionary changes. He took out registrations and patents for his designs and improvements, made water pipes and transfer printed pipes and was using steam power as part of the manufacturing process. He produced some of the finest English pipes of the period, making this site of considerable significance. During this period the factory was known as the 'Broseley Pipe Works', being referred to as such in Edwin's adverts of 1863-79.

In 1861 the works employed twenty-eight people, and in 1871 forty. Edwin died in 1876 and the works was run briefly by Hopkins & Co who, in 1879, advertised it as the 'Raleigh Pipe Works'. They went bankrupt in 1881 and by 1882 the business appears to have passed back in to the hands of William Southorn & Co who, in that year, copied one of Edwin's adverts and used the name 'Broseley Pipe Works'. They also took over

Edwin's registered trade mark which they continued to use until the closure of their King Street works in 1960.

It is not known exactly when production on the Bridge Road site ended. Entries in Kelly's Directories of 1891 and 1895 give 'Wm Southorn & Co, Broseley pipe works and Raleigh tobacco pipe works, Benthall'. This shows that the Southorns took the title Broseley Pipe Works for their Legg's Hill site and retained the title Raleigh Pipe Works for the Benthall site. In the 1909 Directory the Benthall entry is dropped, suggesting that production there ended between 1895 and 1909. The site, however, is still marked as a pipe works on the 1927 OS map, although by that date all of Southorn's production is thought to have moved to the King Street works in Broseley. In summary, a rough outline of the site's history is as follows:-

c1844-8; Noah Roden establishes the works, probably as a new site.

Late 1840s-c1858; the site is run by the Roden family.

c1858-c1876; operated by Edwin Southorn as the 'Broseley Pipe Works'.

c1879; taken over by Hopkins & Co, site renamed 'Raleigh Pipe Works'.

c1882-1895+ operated by Wm Southorn & Co as the 'Raleigh Pipe Works'.

Edwin marked his pipes with an incuse mark along the stem reading 'E SOUTHORN / BROSELEY' followed by a number. This was later used by Hopkins & Co and then W.Southorn & Co (see above) and was therefore in use from c1858-1960. There was also an incuse stem mark reading 'E.SOUTHORN'S / PATENT' (fig 47.31). In addition, circular incuse marks are known, in one case with the same lettering around a number and in the other with 'EDWIN SOUTHORN / BROSELEY' around a crown. These marks

are not known on later pipes and so on current evidence may be dated to c1858-76.

IIC : R.Smitheman & Co. Roland Smitheman I (c1836/7-1903) was a mason and builder who, in 1881, established the 'Crown' pipeworks in King Street, Broseley. At this date Edwin Southorn had recently died, leaving just W.Southorn & Co as the principal pipemakers in Broseley. Roland may therefore have set up his works in an attempt to capture some of the newly available market. On his death he left the works to his wife and son Roland II (born c1883) who presumably took over the running of the business. The firm is last listed in a trade directory of 1917 and had disappeared by 1922. The buildings were subsequently taken over by W Southorn & Co. who continued production there until 1960. The buildings, kiln and tools all still survive and it is currently proposed to turn the site into a pipe museum. The products made by Southorns and Smithemans were almost identical in form and range, as were the marks. Products from the Crown works were marked incuse along the stem 'R.SMITHEMAN & CO / BROSELEY' followed by a number (fig 48.14).

IId : The Evolution of Production Types. Information relating to these three principal firms and to the Rodens who worked up to c1858 at Broseley and the New Inn site, can be gleaned from a number of sources. R Thursfield, writing in 1862, refers back to the start of the century,

"About eighty years ago [ie about 1780], the pipe-makers began to stamp their names and residences on the stems of the pipes instead of the spurs, the stems being, in many instances, eighteen inches or more in length. They likewise made a small corded mark, at such a length from the bowl that when held between the fingers at that spot, the pipe was [in] balance. A pipe-maker, named Noah Roden, brought the long pipes to great perfection....he died about 1829."

The date for the transition to stem marks is too late but this account suggests that long pipes, some with stem twists, would have been the normal product at the turn of the century and that Noah Roden made particularly fine examples of these. This point seems reliable, and is supported by the fact that it was only written some 30 years after the reported death of Noah Roden (I); who in fact can be shown to have died in 1827 (Appendix 2). One such example of a pipe with a stem twist made by Noah Roden I or II, was in the Museum at Sèvres in 1844 when it was illustrated by Brongniart (1844, fig 79a). He says that these pipes were being sold for between 63 cents and 1 franc 26 cents a dozen and that the last 4 or 5cm of the stem had a green lead glaze coating. He also notes that the fabric of the Roden pipe was different from that of a pipe made in London by Webb and that English pipes in general have lightly curved stems. It is useful to have this record of trade to France from Broseley by the 1840s, and it would be interesting to know if the museum still holds these pipes. Jewitt in his *Ceramic Art of Great Britain* (1877, 177) supports the supposition that the Rodens were makers of fine pipes, stating that,

"About the middle of last century, and since, the Rodens were famous makers of pipes at Broseley, and to them is due the introduction of "churchwardens" and "London straws."

Similar assertions are found in the *Shrewsbury Chronicle* (1932);

"Roden supplied churchwardens of 24 to 28 inches in length to the London clubs and coffee houses, and was generally responsible for making them "the fashion" among smokers."

Although this source is much later, it does add specific stem lengths and the author may have had access to other material which has not been possible to locate during the course of this study.

During the 1820s and 30s William Southorn I rose rapidly to prominence as the main manufacturer. By 1835 he is advertising as 'manufacturer of the most superior quality of pipes' (Pigot's Dir) but we do not have any more specific details until 1849, when William Southorn & Co were described as 'of the noted regalia or cigar pipe and of the superior quality of fancy Broseley and Dutch pipes' (Slater Dir, entry repeated in 1850). This shows that specific designs of fancy pipe were in production by the late 1840s.

In 1851 William Southorn & Co exhibited at the Great Exhibition. The *Official Catalogue*, (1851, 129), simply records that they exhibited, "Tobacco-pipes, the superiority of which consists in the preparation of the clay, giving the article a more porous quality." The advertisement section however gives a more detailed indication of their products,

"Wm SOUTHORN and CO., Tobacco-Pipe Manufacturers, Broseley, Shropshire, Sole Manufacturers of the original and celebrated "BROSELEY" GLAZED TOBACCO-PIPES and every description of FANCY PIPES peculiar to "BROSELEY." Orders executed with punctuality and despatch."

This suggests that the fancy pipes were in some way distinctive to Broseley and that the glazed pipes were a particularly important element of their production. The term 'glazing' appears to refer to the burnished surface of the Broseley pipes which had been a notable element of their production since the seventeenth century. The term is frequently encountered in relation to Broseley pipes and should not be confused with the application of a glaze to form a glassy surface, as used in other branches of ceramics or occasionally to finish the mouthpiece. The *Shropshire Gazetteer*, for example, (Anon 1824, 824) notes that, "There is in Broseley a manufacture of glazed tobacco pipes". This matter-of-fact comment suggests the trade was well established and it

is unlikely to refer to William Southorn's works which had only been established in the previous year. Burnished pipes are well known from finds and were clearly characteristic of the Southorn products throughout the nineteenth century. For example, Bagshaw in his 1851 *History, Gazetteer and Directory of Shropshire* (556) says,

"Broseley is the only place in England where the celebrated glazed tobacco pipes are manufactured, and it is supposed this was the first place where the manufacture of this article commenced . . . Messrs William Southorn and Co have an extensive establishment for the manufacture of the glazed pipes."

Such claims for the origin and sole manufacture of burnished pipes are a little unreasonable but it does at least underline the generally held association between burnished pipes and Broseley products at the time. The use of burnish however was only suited to plain, undecorated bowl forms and the nineteenth century was a period in which ornate and elaborate decoration on pipes was popular. The use of burnishing may well have been one of the factors which inhibited the widespread adoption of moulded decorative motifs at Broseley and kiln waste shows that a small percentage of pipes were being burnished throughout the nineteenth and twentieth centuries.

Returning to the 1851 Exhibition entries, another of the important features noted about the Broseley pipes was the porous nature of clay, since it allowed the juices formed during smoking to be absorbed. This is why the (non absorbant) European porcelain pipes had a detachable reservoir as an integral part of their design. Unless a ceramic glaze was applied to the external surface of the bowl only, this too would render the bowl non-absorbant, necessitating some modification in the design. No such glazed pipe bowls are known from Broseley, although the 1860 patent of Edwin Southorn (below) does mention the use of a coating

of 'soluble glass'. This is presumably 'waterglass' (silicate of soda) which sets rapidly and makes a non toxic fire and waterproof coating. Its exact function is not made clear, but it may simply have been to enhance the surface of the finished pipe. There is no evidence that the pipes were refired or that it contributed in any way to a glazed, as opposed to burnished, surface.

Trends towards technical and decorative innovations were being widely pursued in the pipe trade during the nineteenth century, and this is reflected in the national list of patents and registered designs (Hammond 1985a). The objective was to improve not only the decoration of the product, but also its form and fabric, since improving the porosity or internal arrangement of the product enhanced its smoking qualities. Both of these themes are found reflected at Broseley. In 1860 Edwin Southorn registered a design, and took out a patent for the improvement of his pipes. The registration is dated January 16, 1860, (Diamond Registration No 125650, Hammond 1985, 49) and is for a spurless pipe depicting a rifleman laying on the stem, with a badge on the bowl. It would probably have been known as a 'Volunteer Rifle Pipe', or some such similar name. The actual mould still survives with the Southorn family (Hammond, *in litt* 6.1.85). It is a three piece mould, presumably to allow the use of different badges for different regiments on the bowl. It was made by E Cotteril of King Street, Birmingham, who is also noted by Hammond as a Patent lock manufacturer.

The patent was for "An improvement in, or addition to , tobacco pipes, and improvements in manufacture and ornamentation of tobacco pipes." (Patent No 1081, April 28, 1860, Hammond 1985a 135), and is described thus:

"The stem of a porous clay pipe is surrounded by a chamber containing water, for cooling and removing the volatile matter. The portion of the stem surrounded by the tube may be pierced with small holes to aid the dissolution of the condensed volatile matter. The exterior surfaces of the pipe may be coated after the pipes are burnt with a solution of soluble glass consisting of silicate of potash or soda. Pipes may be ornamented by transferring to them designs or devices printed in tissue or transfer designs, the patterns are printed with black oxide of cobalt and nitrate of soda mixed together with oil. Ferric oxide is used to produce brown designs, magnesium oxide, and chromium oxide for green."

This pipe is described in adverts as 'The Broseley Patent Narghilé' and a good description of it occurs in an advert printed by Edwin in the *Daily Telegraph* on 11 August, 1866.

"The most famous of all, however, is the "Patent Broseley Narghilé," the principle of which is the "ultimathule," of perfection, as presenting qualities never heretofore so satisfactorily combined. The invention is the more valuable as applicable to all descriptions of pipes, from the cheapest to the most costly. The pipe which is formed of Broseley prepared clay, noted for its fineness and remarkably porous qualities, is enclosed for a portion of its length in a glass tube which is filled with water; and the action of the water is to draw away the coloring matter and narcotic poison from the smoke before reaching the smoker's mouth. The proof of this is in the gradual colouring of the water; which may be readily discharged and the tube refilled. A further effect is coolness of the extremity, and a quality most grateful to all "lovers of the weed," and which is a proved defect in the greater number of Meerschaums. In fact, by this invention smoking is rendered at once more healthy and more pleasurable. The glass tubes are supplied from the Broseley Pipe Works in every variety of style, and we have never seen so much fine art taste combined with utility, as in these, some of them vieing with the ancient Venetian glass in the combination of opaque and clear, &c. It is to be understood that by the "Narghilé" is meant the attachment, or tube containing water, which is removable at the pleasure of the holder; a title that serves to recall the luxurious and costly water pipes of Turkey, to which, in all their best qualities, this Patent completely answers. Of this Mr EDWIN Southorn is not only the sole manufacturer, but the SOLE Patentee. The "Patent" Broseley Pipe is manufactured specially for the Narghilé, and is the *only clay pipe* for which it is adapted. It is evident that a clay, either more or less porous than are these Tobacco pipes, would be equally unsuitable, and what is very remarkable, and shows the perfection to which the manufacture has been carried, these pipes are uniform in porousness, in part due to their being manufactured of the very finest and purest clay. As to the Narghilé, which serves for the vaporisation and absorption of a deadly narcotic poison, through the water it contains, and which exercises virtually an attractive power over the injurious constituent of the

smoke, so that the glass cylinder of which it consists may be readily emptied and refilled; the water is not only colored, but virtually foetid after use, thus showing the service it performs in bearing away the nicotine matter from the mouth. The Broseley Glazed Tobacco Pipes to which the Narghilé is applied, are of the same quality as those made by Mr EDWIN Southorn, which obtained "Honourable Mention" at the Great Exhibition of 1851."

Clearly Edwin was keeping up with the current trends to Register and Patent innovations, largely no doubt as a result of the split with his brother (Appendix 2). In addition, he was innovating and bringing new technology to the Broseley industry. The Narghilé pipe is a particularly good example of this. It combines a new concept in pipe design with a new decorative method. The stem of the pipe, which may have been perforated, was surrounded by a glass tube containing water. Special sheet metal cases were made to contain these pipes and examples, painted with Edwin's name, and that of the pipe, survive with the family. The decorative method itself is not revolutionary, the method described simply being that of transfer printing as used on pottery. Access to the techniques used, as well as skilled labour, was no doubt available from the flourishing local potting industries. Its use here, however, underlines Edwin's dynamic and innovative personality which despite (or because of) its unsettling effect had such a profound influence on the Broseley industry.

The patent appears to have been a success, being advertised regularly by Edwin between 1862 and 1877 (Randall, 1862, Mercer & Crocker's Shropshire Directory, 1877). In 1862 he makes a point of the transfer printing in an advert published in *The Severn Valley Railway* by Randall which states, "Crests and any other Designs can now be Printed in Colours upon these Pipes by the Patent Process". Each advert repeats similar descriptions and it is clear that a wide range of decoration,

produced to order, was applied to these pipes. It was quite an expensive product being priced in 1877 at 5/- and 7/6d with a case and 2/6d and 3/6d without (Mercer & Crocker's Shropshire Directory, 1877), the price range perhaps representing the difference between glazed and un-glazed types and/or decorated and un-decorated types. Hopkins & Co, who took over the works after Edwin's death, continued to advertise the design in 1879 (Randall's *Tom Moody Almanack & Directory*), cutting the prices to 3/- and 5/-, 1/6d and 2/6d respectively and then it suddenly appears on a Wm Southorn & Co advert of 1882 back at the original price (Crocker's Shrewsbury Directory). It seems likely that by this date Wm Southorn & Co had bought out Hopkins and taken over Edwin's designs and registered mark, rapidly exploiting both. The 1882 advert unashamedly copies word for word Edwin's advert of 1877, except that the name has been changed which means that William makes a false claim to have a registered trade mark. However, the fact is that the patent originally submitted by Edwin in 1860 was still being successfully produced at least 22 years later. It is unfortunate that no example has yet been recovered.

The *Daily Telegraph* advert of 1866 also gives details of other types of pipe then being produced by Edwin. These are 'Large bowl tips' 21 inches long, 'long plain tipt' 12 inches long, 'Long Broseley straws, or Alderman tipt' 27 inches long, 'Long tips, or Churchwardens' 25 inches long, 'London straws tipt' 16 inches long, 'Lord Crewe's pipes' 27 inches long, 'Long Dutch straws' 28 inches long, 'Ovariam straws' 27 inches long, 'Pear straws' 21 inches long, 'Apricot straws' 22 inches long, 'Pegtop straws' 21 inches long and then 'Short Broseley straws', 'Short tips', 'S. Dutch straws', 'Dhudeens', 'Billiard, Cutty and Yachting pipes' and 'Broseley Meerschaums' for which no lengths are given. The advert

also refers to 'various other kinds'. Most of the pipes listed are long stemmed types, which still seem to be a particular characteristic of the Broseley industry. It is interesting to note that there appears to be no reference to his rifleman pattern of 1860, perhaps indicating that it rapidly went out of production. Hammond (*in litt*, 5.11.86), notes that judging from the designs submitted the rifle theme seems to have enjoyed only a very brief period of popularity around 1859-61. The advert also gives an indication of the finish of the pipes and indicates that glazed (burnished) decoration was certainly available on a wide range of his products,

"Mr EDWIN Southorn "tips" his pipes, cigar tubes, and holders with green, blue, pink, or any other colored enamel, which have a delicious feel to the lips, and are far preferable in every way to any other kind of tipping which has ever been adopted. Another great advantage of Mr Southorn's manufacture is the marking of pipes by means of transfer printing, same as in pottery, with the Crests or Arms of his patrons, or with their Names, Mottoes, Monograms, Trade Marks, or Initials; with the signs and names of Hotels and Inns; and with other devices in colours. This is a great improvement in Tobacco Pipes, and one which many Noblemen and Gentlemen, Hotel-keepers, and others, gladly avail themselves of."

A similar range of pipes appears to have been available in 1877 when Edwin advertised, "BROSELEY Meerschaums, Dhudeens, Billiard, Cutty, and Yatching Pipes in great variety (Plain and Stamped)", (Mercer & Crocker's Dir). An identical range was advertised by Hopkins & Co in 1879. and Wm Southorn & Co in 1882 but since they in turn took over Edwin's works this is hardly surprising. The 'stamping' referred to in these adverts seems more likely to rubber stamping of addresses, rather than the transfer printing and glazing of designs. A pipe which can be attributed to Wm Southorn & Co, "Captain Webb's Pipe, made at this establishment only" was advertised in 1875. Otherwise and rather

frustratingly, later William Southorn & Co adverts simply state 'Lists sent with pattern sheet, on application'.

Other publications do shed some light on the later Southorn products. One recurring theme appears to be 'The Celebrated Broseley Churchwarden'. An article in *The Tobacco Trade Review* for 1 April, 1887 (p55) records, "The most celebrated maker of these pipes [churchwardens] was, and still is, I believe, Southorn, of Broseley, Shropshire." Several (undated) boxes for such pipes labelled 'William Southorn & Co's Celebrated Churchwarden Pipes' survive and it seems that long pipes continued to play an important part in production at Broseley. Thursfield (1907, 164), for example, says that, "The term "a Broseley" conveys the same impression to smokers throughout the country, and "A Churchwarden" from Broseley is equally well understood to refer to an extra long clay pipe from Broseley". The *Victoria County History* for Shropshire (Page 1908, 442) says that,

"Notwithstanding the modern innovation of meerschaum and wood pipes of various kinds, we are assured by Mr Southorn that the old clay pipe holds its own and that there never was a greater demand for it than at the present time. Of the many varieties, the following are better known :-'Large bowls,' 21 in long; 'long plain,' 22 in long; 'long Broseley straws' or 'Aldermen,' 27 in long; 'long straws' or 'churchwardens,' 25 in long, pronounced by Dr Richardson at the Bath meeting of the British Association to be the best of pipes; 'London straws,' 'Raleigh straws,' 'cutty,' 'Broseley meerschaums,' &c."

which once again emphasises the importance of long pipes in the production range. A similar impression is given by the *Manchester Evening Chronicle* in 1899, which says,

"The largest are the Lord Crew and the Alderman, though the origin of these names no one in Broseley professes to account for. Both these pipes are 27 inches long, the farmer's pipe or small churchwarden is 22 inches long, the "Long Broseley Churchwarden" is 25 inches long, and the minor sizes range from 18 inches to the humble cutty of some four inches."

So it seems that Southorns continued the tradition of making quality long stemmed pipes in Broseley and specialised in these during the later nineteenth century. By this time the firm of R Smitheman & Co had also started production in Broseley. The *Victoria County History* simply records that they, "make pipes of all lengths.....[which] comprises 'cutties,' 'straws,' 'smoke-room pipes,' and 'churchwardens.'" An advert of 1895 for the firm (Kelly's Dir) says Smitheman was, "prepared to supply all kinds of Best Broseley Alderman and Churchwarden Pipes, Smoke Room ditto, Straws, and assorted Cutties in bulk, gross or dozen cases. Customers' name and address printed on bowls to order" suggesting that he was making much the same range as Southorns. Smithemans also laid claim to producing the 'Celebrated Broseley Tobacco Pipes', as a box label proclaims. The label also indicates that they received a Highly Commended medal in the 1884 Wolverhampton & Staffordshire Fine Arts Exhibition.

Smithemans had closed by 1920 leaving only Southorns to produce pipes in Broseley. The twentieth century products of that firm largely reflect the products developed during the later nineteenth century, although some new designs continue to appear. One particularly good source is a pattern poster published by William Southorn & Co. which depicts a Coronation pipe (a copy of the poster, which was printed by Freer & Hirst of Stockport & Manchester, is on display in the Cumberland Arms in Broseley and there is another in the I C Walker Collection in Canada, a copy of which the author has). Unfortunately, as the *Shrewsbury Chronicle* records (1932), "At the coronation of King Edward and Queen Alexandra, and King George and Queen Mary, specially designed coronation pipes were manufactured" thus making the identification of the pipe

depicted a little uncertain. Both of the designs produced have very similar portraits on, but one is a thick 'Irish style' pipe with a spur, and the other a spurless type with a flat stem. The spurless pipe illustrated on the poster has been tentatively identified as the Edward VII pipe and thus the poster probably dates to the early years of this century. Even if it is George V, the poster is only a decade later.

The poster depicts a total of 89 different designs, of which 12 are 'long' pipes (with stems over 10" in length) and these 12 are individually named. Sadly, there is no known description or price list to go with it, but a few observations can be made from the drawings. The poster presumably represents the full range available at this date. Of this range just over half of the designs (although not necessarily total production) are plain short stemmed pipes. Of the remainder about three quarters are decorated in some way, the remainder being the long stemmed pipes mentioned above which only represent only about one seventh of the total range illustrated. Nos 26-29 depict decorated bowls with devices facing the smoker. Whether these represent ink designs applied with rubber stamps, or glazed transfer prints is not clear. No 62 is also of interest since it depicts a giant 'exhibition' pipe. These appear to have been designed to commemorate important exhibitions; a very similar design being registered in 1862 by Charles Crop of London to commemorate the International Exhibition of that year (Hammond 1985a, 52/54). It is interesting to note the continued production of this type some 40 years later. There is also a range of miniature pipes in production (79-83), some of which are clearly intended as cigarette or cigar holders. Also, a number of the designs are specially adapted to take goose bone or vulcanite stems.

The long stemmed pipes named in the poster are as follows; un-numbered 10 Inch Straw, No 68 Short Broseley Smoke Room 16 inches, No 69 Short Broseley Straw 18 inches, No 70 The London Straw 16 inches, No 71 Short Dutch Straw 16 inches, No 72 Straw, 12 Inches Twisted, No 73 Broseley Smoke Room 20 inches, No 74 Long Broseley "Churchwarden" 25 Inches Long Tips, No 75 Straw 12 Inches Plain, No 76 Alderman or Long Broseley Straw 27 inches, No 77 Short Churchwarden 21 inches and No 78 Long Dutch Straw 28 inches. Extant examples of some of these long stemmed pipes of late nineteenth century date show that on occasion they were produced with green lead glazed mouthpieces.

There is, in addition to this poster a portion of a second in the author's collection. It comes from Broseley but is badly damaged, only the lower portion surviving. It is, therefore, impossible to say which of the companies (Southorn or Smitheman) published it. It was printed by Littlebury & Co of Worcester and stylistically appears to be a little earlier than that described above, perhaps dating to the end of the nineteenth century. The layout appears to have been similar, with long stemmed pipes at the top (a fragment of just one survives) and cutty types below. The numbering suggests that some 27 cutty types were in production, the names of 19 of which survive on the poster. These are; N^o 1 Broseley Cutty, N^o 2 Irish Cutty, N^o 3 Meerchaum (sic) Cutty, N^o 4 Broseley Cutty, N^o 5 Horn Cutty, N^o 6 Miners Cutty, N^o 7 The Little Gem Cigar Holder, N^o 9 Cutty Straw, N^o 10 "Excelsior" Meerchaum (sic), N^o 12 Claw Pipe, N^o 13 Dutch Cutty, N^o 15 Burns Cutty, N^o 16 Branch Heel Cutty, N^o 18 Billiard Pipe, N^o 21 Alderman's Cutty, N^o 24 6 Inch Broseley Straw, N^o 25 "Old Broseley" Cutty, N^o 26 Large Irish Cutty & N^o 27 Cutty.

In 1932 the *Shrewsbury Chronicle* records the current designs in production,

"Things are greatly changed nowadays in the Broseley pipe industry, compared with its heyday in the last century, and even before the Great War. The war was responsible for changes in many manners and customs and nowadays the increase in popularity of cigars and cigarettes has caused the demand for Broseley clays to shrink considerably, but there are many districts, chiefly mining areas, where clay pipes are still favourites. Churchwardens of twenty-four inches in length are still called for, and among other types manufactured are small churchwardens or farmer pipes, 22 inches long, smoke room pipes, 20 inches long, 16-inch smoke rooms, the celebrated London straws, with their very thin stems, 12, 10 and 6 inches in length, and numerous shapes and patterns in short pipes, such as Irish clays, short and stubby miner clays, balanced pipes, and eagle claw, acorn, grape, fish, R.A.O.B. and footballer designs."

To this list may be added a Churchill pipe, which was commissioned during the war. Later references give little detailed information. In her 1950 article in the *Shropshire Magazine* Mary Wight simply says that, "By this time they were turning out the famous "Churchwardens," pipes which are still made up to two feet in length - more if desired.....the longest pipes have a twist given to the stem, at the exact point where it should be held.....Churchwardens are packed for market in boxes of a dozen; the ordinary "cutties" in much larger quantities. Sometimes special designs are stamped to order on clay pipes; old-fashioned clubs and societies like to continue with their old patterns." The general impression of this is that a basic range was in production, but that old patterns would be supplied to order. The *Borough of Wenlock Official Guide* of 1964 (but referring to the 1950s) says that "'Churchwardens" used to be made 24 inches and sometimes up to 36 inches long, but today the standard length is 16 inches." The claim of 36" seems rather extravagant for Broseley and is not documented elsewhere, although the 1950s standard of 16" is probably reliable. Examples of pipes thought to have been produced during this late period

of manufacture have a bright turquoise or vivid green colouring to the mouthpiece.

The last good description known to have been made of production at the works was written by W Howard Williams in 1956, when Harry Southorn was running the works. He was the last member of the Southorn family to regularly produce pipes at the King Street works, and indeed he may be regarded as the last true practitioner of the trade in Broseley. The handwritten manuscript entitled *Southorn's Broseley Clays* is, therefore, an especially important record of the last days of pipe production in this historic centre. His manuscript, recording a personal visit, is now stored at the Local Studies Library in Shrewsbury. In it he says,

"Clara [Bagley] is reputed to be the only living person capable of making the 'Churchwarden' pipe - 24 inches long."

He goes on to say that Ida (now Bennett) was making 16 inch "cutties" on the date of his visit and says that that the "Royal Hussar" mould was one of those brought from Edwin's works when it was taken over by Wm Southorn & Co. In addition he describes some of the other designs in production,

"Two pipes are made for the R.A.O.B. (Bufs), both of which bear the letters R.A.O.B above the buffalo horns. The ordinary pipe is used for initiations when the stem of the pipe is broken into three, to the cry "He's broke! He's broke! He's broke!" The cuttie is used for elevations.

'Shorties' were made for the Freemasons and these bear the signs of the society.

The longest pipes made were 'Aldermen' which were 27 inches long. Churchwardens were 24 inches long. There is no one at Broseley now (1956) capable of making either of these pipes successfully. A very small pipe is made for a rather exclusive restaurant in London. The pipes are distributed to men who frequent the Elizabethan room. They are replicas of those smoked in Elizabethan times. [Ida Bennett recalls the mould for this pipe being made in the 1950s]

The demand for Broseley 'straws' as they are sometimes called has been dealt a double blow by taxation - purchase tax on the pipe is high, and so is that on tobacco. The manufacture of clay pipes can hardly expect to recover and must be regarded as a dying industry."

In this last statement he was quite correct, for Harry Southorn died the following year and by 1960 all regular production at Broseley had ended. We are fortunate, however, in having this good account of the works in its final days.

The documentary evidence gives a good indication of the changing products of the Broseley industry from c1800-1960. Early nineteenth century production was of fine long stemmed pipes, some of which were decorated with a stem twist and burnished. Noah Roden is particularly associated with the production of these quality pipes and the development of large scale marketing, with documented exports to London and France. He may have produced pipes up to 28" in length, including 'Churchwardens' and thin stemmed 'London Straws'. The production of long stemmed pipes and the use of the stem twist and burnishing were to form an integral part of the Broseley industry through to 1960. In the 1840s there is also a record of green lead glazed mouthpieces being in production.

By the late 1840s Wm Southorn & Co had introduced 'fancy' pipes, presumably with decorated or distinctively shaped bowls, and copies of Dutch styles and were making the traditional burnished ('glazed') pipes. Edwin Southorn developed and diversified the trade during the 1860s and his products included transfer printed bowls, colored mouthpieces, cigar holders, copies of Dutch pipes up to 28" in length and his famous Narghilé pipe which was produced from at least 1860-1882. In addition to the design and decoration of the pipe, attention was paid to

ensuring a light and absorbant fabric which was specially prepared in the works. During the second half of the nineteenth century an increasing range of designs was produced, and each pattern had its own name.

Rubber stamps carrying clients' addresses were probably in use by the 1870s and continued in use well into this century. Later nineteenth century groups and posters indicate that just over half of production range was of short stemmed pipes with plain bowls. In addition, there was a range of decorated cutties in production, as well as cigarette and cigar holders and the traditional long stemmed pipes, some of them with stem twists and lead glazed mouthpieces. Commemorative pipes were produced for at least one of the nineteenth century exhibitions, as well as for the the coronations of Edward VII and George V. By the early years of this century a range of at least 89 different designs were in production at Southorn's alone and included types with vulcanite and goose bone stems. However, twentieth century production scaled down considerably after the First World War and the closure of Smitheman's. The designs produced continued to reflect those of the late nineteenth century and included Elizabethan copies, RAOB and Masonic pipes which were in production with plain and long stemmed types up to the 1950s.

III : The Manufacturing Process at Broseley.

As with the types of pipe discussed above, very little material has been collected on the manufacturing processes used at Broseley. This is particularly sad given that it is one of the very few places in the country where people who actually worked in the industry can still give

first-hand accounts of their trade. Walker visited the area in the 1960s (Walker 1977) and includes several passing references to production techniques at Broseley in his sections on pipemaking. From his accounts it is clear that the British methods have hardly changed in three hundred years. What differs is not so much the basic process, but the specific detail and terminology used in each centre.

For the earlier periods the information available is still sparse and relies as much on archaeological remains as on documentary evidence, both areas in which further work is needed. Such evidence as there is will be discussed later in this thesis. In this section only the more recent past will be considered in an attempt to bring together the documentary and verbal record for the last stages of the Broseley industry and to outline the basic processes involved in the production of pipes. This will then act as a basis with which to compare evidence from earlier periods. I am grateful to Clive and Ivor Southorn who have discussed some of the methods used by their family, and in particular to Ida Bennett who was one of the last employees at the Southorn's works. A good contemporary description was also made by W Howard Williams in 1956 which has been reproduced in full below. While these descriptions provide good detail about production in the 1950s less complete details exist for earlier periods.

R Thursfield in 1862 considers there to have been a marked chronological difference in pipemaking at Broseley,

"Pipemaking in the early days of its introduction, was a very different matter from what it is now. Then the greater part of the manipulation was performed by the master....At the present time, the preliminary preparations of the clay are performed by men, but the most delicate part is almost entirely entrusted to the hands of women."

By this he presumably sees a difference not so much in the actual techniques employed but in the structure and organisation of the workforce. The early production was based on small, probably family run, workshops as opposed to the large factory style production of the nineteenth century. T H Thursfield supports this view, saying (1907, 163) that,

"In early days each family had their own pipe shop where they worked the clay and moulded the pipes. There were small kilns adjoining for burning them. I have met with several in Broseley and Benthall. As the trade increased the isolated pipe-shops with small kilns gradually gave way to the factory with much larger kilns."

He credits Noah Roden, who died in 1827, in particular with these changes. The *Shrewsbury Chronicle* (12 Aug 1932) describes a similar sequence of events and says of the early pipeshops,

"In the far-off days when pipe-making was a family craft, the pipe-shops, where the clay was worked and moulded, were usually built next to the houses, with small kilns for burning or firing the pipes."

Other than these changes in the structure and size of the workshops, the only main change in technique was in the introduction of steam power. Jewitt (1877, 177) records that,

"In 1868 he [Edwin Southorn] introduced steam power into the manufactory, and was thus enabled to produce about 10,500 gross, or 1,500,000 pipes, in the course of a year."

Writing so soon after the event and with apparently good knowledge of Edwin's works, this can be taken as reliable information. He considered steam power to have enabled large scale production; so presumably it was a successful innovation. An advert of Edwin's of 1879 also states that his pipes are manufactured by steam power. The introduction of this

process may not, however, have been without problems; for on 12 May 1869 a fire broke out at the works which was apparently caused by an engine flue with a damper near one of the beams of the building (Hammond 1987, 26). Although in use for at least a decade it is not clear exactly how this machinery operated and the current research by Hammond into this topic is eagerly awaited.

The first good descriptions of the more usual production process appear at the very end of the nineteenth century. The Tale of a Broseley Pipe in the *Wellington Journal* for July 18, 1896, gives an account of the process through the eyes of a pipe. It was clearly written by someone very familiar with the process and goes some way to indicating the gender and number of employees who actually took part in the process. In summary it says;

The clay comes from Devon in blocks and a workman prepares it by breaking it into bits for 'the mill' or 'mortar' (both terms are used). The prepared clay is taken to a workroom where girls roll the blanks in their hands and finally on a board in front of them. These are placed together on trays which are placed on a platform in the sun to 'toughen'. When ready, another female worker took them, 'pierced' them with a wire and moulded them in a press, the bowl being formed by a 'conical punch'. Another worker trimmed and polished them with a 'polished steel instrument' shaped to fit stem and bowl, then a girl 'stamped' the mark on the pipes and 'polished' the surface of the best quality pipes with an agate stone. The pipes were placed in 'round clay boxes' (saggers), some 400 of which were placed in the kiln for firing. Then the 'tips' were dipped in glaze and the pipes put through a 'perforated board' for a second firing, before being sent to the warehouse for packing.

This gives a good description of the whole process, and adds some very interesting detail about specific parts, such as the use of an agate stone or the use of a perforated board for the glaze firing. A very similar description is given in the *Manchester Evening Chronicle* for June 21, 1899;

"In the manufacture of the pipe from the clay there is a great deal of hand labour, and, many women are employed. After the clay has been milled, and cleansed, and softened and worked into a mass much like putty, a woman takes a handful of it, and deftly rolls it on a board in front of her till with the palm of the hand she has fashioned a rough pipe. The dexterity shown in this process is very remarkable. When the clay is rolled vigorously, that it may be firm knit, the pipes pass to the moulders, women, who pierce the long narrow stems with a needle. So skillful are they that they seldom force the needle out of the clay. After the pipe has been pressed in a mould a punch is used to hollow the bowl. A knife trims away the rough edges and in a few moments the pipe has taken perfect shape from the heap of clay, and is ready to be burnt....When the burning is complete, some of them must be tipped with a glaze for many clay pipe smokers do not care to set their lips on the bare clay. Then nothing remains but the packing, and the distribution and the whole world lays Broseley under tribute for its clays."

It is interesting to note the similarities in these two descriptions. Both refer to a 'punch' being used to hollow the bowl. and to the glazing of the tips. Both also make it clear that the work is primarily carried out by women, including the moulding. At Pollocks in Manchester women were only introduced during the labour shortages of the Second World War but now, as in nineteenth century Broseley, they perform the majority of the tasks. A later description of Broseley production was published in 1932 (12 August) by the *Shrewsbury Chronicle*;

"First of all the clay is thoroughly dried, and afterwards soaked to an even plastic form and passed through a "pugmill" several times. It is then rolled by hand into dummies of lengths required for the various sorts of pipes. The skill of the pipe-maker is best seen in the next process when the dummy is threaded with a steel wire to form the vent, and then pressed into a mould which gives the pipe its desired shape. An iron stopper is inserted to form the bowl. The shaped pipes are then allowed partly to dry before being finished. This consists in scraping or "finning," which removes any marks and rough edges, and impressing the trade

stamp and "Made in England" on the shank. On churchwardens an ornamental twist is deftly made on the stem, originally to mark the place where the fingers should grip the pipe to secure a good balance. [After firing]...the pipes are tipped with a mouthpiece and are then ready for sale. Churchwardens are usually packed in strawboard cases each containing one dozen pipes, but shorter pipes are packed in all quantities. The cardboard boxes for packing are also made at the works."

In this account the stopper is now a 'stopper' and not a 'punch' and although the pipes are 'tipped' it may be with a coating like varnish rather than a glaze, since there is no indication of a second firing. The fullest and most recent account was made by W Howard Williams in 1956. The original manuscript is kept at the Local Studies Library in Shrewsbury, but because of its importance a full transcript is included here.

"SOUTHORN'S BROSELEY CLAYS

18 June 1956

Today I visited the clay pipe (tobacco pipe) works belonging to Harry Southorn. Mr Southorn is licensee of the King's Head, in King St Broseley and the works are in a very dilapidated range of buildings opposite the pub.

Mr Southorn had one young lady assistant, full time, and an elderly female part time. Ida [Bennett], the younger person, was engaged in rolling out the prepared pipe clay into the various pipe shapes, prior to putting them into moulds. The elder assistant Clara [Bagley], is reputed to be the only living person capable of making the 'churchwarden' pipe - 24 inches long. Piercing the stem from mouthpiece to the bowl being a particularly difficult job.

The clay comes from Cornwall and has to be dried out, & ground before being wet again to get the right consistency. It is then put through a pugging mill - a contrivance like a household mincer on a large scale, which makes only 9 revolutions per minute. The clay is then taken in small quantities to the moulding room.

Ida works at a wooden table. From a lump of prepared clay she detaches a piece, divides it into two and proceeds to roll it into two pipe shapes with a blob on one end, which will eventually become the bowl. These she lays on a board in front of her. When she has four in the board she cuts the stems to size. Four at a time she transfers them to a larger board, which, when it holds several dozen roughly moulded pipes, is transferred to another table.

Then she reaches for the particular mould required for the type of pipe being made - in this case - 16 inch 'Cutties'. The mould is made of cast iron and in two parts. Before the clay shape is placed in the mould a long thin piece of wire is pushed up the stem - or rather one should say - the stem is drawn down the wire. The wire is of necessity stiff. Deft fingers are

necessary if the wire is to penetrate to the bowl without fouling the stem.

With the wire still in position the pipe is now placed in one half of the mould and then the other half is put on top and the two parts clamped together. The mould is placed in a vise and pressure brought to bear. By this process surplus clay is forced out of the mould. Whilst in the vice the bowl cavity is made.

Surplus clay is removed from the outside of the mould before the newly moulded pipe is removed. More surplus clay is removed after the pipe is taken from the mould. Then the pipes are laid in rows for a 24 hour dry out.

This is where Mr Southorn himself took over. A final trimming of the unbaked pipe; stem and bowl are given a final touch up with a finishing tool and the name and address of the maker 'SOUTHORN BROSELEY' is impressed carefully on the stem with a die. The pipes are then wiped with a damp sponge before being placed in a sagger.

For short pipes, round saggars are used. The pipes are laid in rows working towards the centre, and so arranged that the bowls of the second row lie upon those of the first row and those of the third row upon those of the second and so on. The round saggars are made of fire-clay and about 1½ins thick, 16ins deep and a little more in diameter.

The saggars for longer pipes are at least 3 feet long, and up to 16ins wide. The bottom of the rectangular saggars is slightly concave to give the arched sweep of the stem of the finished pipe. The pipes are laid in the box saggars in rows. Upon each row is laid a thin layer of china clay. This keeps them intact before the baking and helps to avoid distortion during baking. As baking only takes place at very infrequent intervals, the 'green' pipes have to lie many months in their saggars before the kiln is reasonably full.

A full kiln will hold 60 or 70 gross pipes [8,640 - 10,080]. When the kiln is eventually loaded the wicket or doorway has to be built up, the crevices between the bricks are sealed with a compound of ashes and water. The chains round the kiln have to be made secure so that the kiln will not expand unduly under the great heat.

Firing takes three or four days, one day for heating up, one day for baking and up to two days for cooling. The coal for the last baking cost £14.

When I saw it, the kiln was about one third full, and there were enough saggars in various buildings to three parts fill the kiln. Never-the-less, the next baking was still some months away.

Mr Southorn was then working on a new kiln - a small electric one. If this can be made to work, it would mean more frequent bakings of types of pipes mostly in demand. This would lead to the need for carrying large stoars [sic - presumably he means 'do away with the need to carry large stores'].

The large kiln, like the rest of the buildings, looks to be in poor condition. It was erected in 1891. The interior is about 10 feet in diameter and about 12 feet to the base of the (central) chimney. Mr Southorn said that the most difficult process of all was the successful firing of the kiln. One could, in a few hours, destroy almost a year's work.

Around the kiln, and about two feet from the ground, were about eleven fire-holes [this seems odd, in 1986 there only appeared to be 3 or 4], and for at least two days and nights these

fires have to be kept going. Attention that is for every two or three hours. I did not enquire as to whether any guide - either seager cones or pyrometers were used to indicate the state of the pipes being burned, but I should imagine that the method used was 'rule of thumb'.

When the saggars are removed from the kiln, the contents are cleaned and examined. The good pipes have their mouthpieces dipped in a special stain which prevented the pipe stem sticking to the smoker's lips. (Never-the-less, many old clay-pipe smokers bound the mouth piece with cotton. I know this for a fact. W.H.W). The pipes were then packed carefully in boxes and put into the stock room to await despatch.

The present works were established by Mr Southorn's great grandfather in 1823. There were two Southorn families making 'clays' until 1876. Edwin Southorn, whose works were actually in Benthall parish, was cousin [in fact brother] to the grandfather of the present Harry Southorn. The Benthall works closed soon after Edwin's death, & his cousin [brother] William, (Harry's grandfather) brought some of the moulds. The "Royal Hussar" was one of them.

Two pipes are made for the R.A.O.B. (Bufs), both of which bear the letters R.A.O.B. above the buffalo horns. The ordinary pipe is used for initiations when the stem of the pipe is broken into three, to the cry "He's broke! He's broke! He's broke! The cuttie is used for elevations.

'Shorties' were made for the Freemasons and these bear the signs of the society.

The longest pipes made were 'Aldermen' which were 27 inches long. Churchwardens were 24 inches long. There is no one at Broseley now (1956) capable of making either of these pipes successfully. A very small pipe is made for a rather exclusive restaurant in London. The pipes are distributed to men who frequent the Elizabethan room. They are replicas of those smoked in Elizabethan times.

The demand for Broseley 'straws' as they are sometimes called has been dealt a double blow by taxation - purchase tax on the pipe is high, and so is that on pipe tobacco. The manufacture of clay pipes can hardly expect to recover and must be regarded as a dying industry.

What are the prospects for Broseley? Harry Southorn is in his 60s, and his sons have no interest in the family trade. It is a saddening thought that when Mr Southorn fires his last kiln of pipes a trade which has been carried on continuously at Broseley since 1565, that is three years before Raleigh introduced tobacco - will become just another 'Past Industry'.

W.Howard Williams."

The origin of the trade in 1565 is of course quite wrong, although no doubt it may have been what Harry Southorn liked to tell his visitors. Otherwise this document provides a valuable first-hand account of the works in 1956, just a few months before the death of Harry Southorn. We are also fortunate in that Ida Bennett. who is mentioned at the

beginning of this section, is still alive and well in Ironbridge. I am most grateful to her for providing me with her own reminiscences of the pipeworks, on which the following account is based.

Mrs Bennett started at the works as a young girl of 15 in about 1951 or 1952, having been introduced to the job through a neighbour. At that time the works was run by Harry Southorn, whose family had first established a pipeworks in Broseley in about 1823. After his death in 1957 his son Clive ran the works for a few years until early in 1960 when it finally closed. Mrs Bennett, together with eight or nine other employees, all of them women, worked at the factory during the 1950s although the numbers dwindled during the decade .

The other employees were Mrs Beattie Brazier (a relation of the Southorn's.), Mrs Alice Boden (her niece), Mrs Lillian Dorricott, Mrs Clara Bagley, Mrs Vera Hall, Ann Hall, Muriel Cross, (now married) and Lillian Minton. She thinks that Clara used to work at the Legg's Hill Works before the Southorns moved to King Street where they took over the old Smitheman & Co works. They were all involved with the manufacture of the pipes, while Mr Southorn would do all the heavier jobs such as preparing the clay or firing the kiln. When Mrs Bennett came to the works she started as a trimmer. At that time people tended to have specific tasks within the manufacturing process, although during her time there this changed, with everyone doing a range of work.

The clay was brought from Devon in lorries in rough lumps. It was stored on the ground floor of the works where it was soaked and then pugged in an electric pugmill. This produced a square sausage which was made into blocks with about 18" sides. These were left to dry out a

little before they were used, since they were too soft directly out of the mill. If necessary damp sacks would be put over the clay to prevent it drying out too much. Wires were used to cut the clay.

All the manufacturing took place on the first floor of the building. A roller would take two pieces of clay from the block of the correct size for the pipe being produced and start to roll one with each hand. These would then be finished with a rolling board, which consisted of a flat board with a rounded edge which allowed the swelling for the bowl to form. This technique is still used at Pollocks for long stemmed pipes. The completed pieces were known as dummies and were stacked in dozens, lightly patted together. These would be set aside to firm up a little before they were moulded. The number made before moulding started would depend on the weather and consequently how fast they were drying.

The cast iron moulds were kept on the benches and taken as required. Generally, though, each worker stuck to one sort. The maker would feed the dummy onto a making wire. This had a wooden handle and a slightly flattened tip. Both the wire and the mould would be lightly oiled before use. The oil was kept in heavy cast iron holders with a bit of sheep's wool in and applied with a little string mop before each pipe was moulded. The dummy was laid in one half of the mould and the head bent upright. The mould was then closed and slid into the jig. If necessary, there was a piece of wood or metal packing at the back of the jig to ensure the mould was in the right position to engage with the stopper. This is an iron prong which is forced into the top of the mould causing the clay to take up the shape of the mould while forming the bowl cavity. Each mould had its own stopper which was bolted onto

the arm of the jig. In addition moulds would often have some packing around the top to ensure that the stopper entered centrally.

After the stopper had been brought down to form the bowl the mould was released from the jig and the top of the bowl trimmed through the slot at the top with a palate knife. The pipe was taken out of the mould and the making wire carefully withdrawn before the pipe was placed on a box board. This was the deepest type of board which was capable of being stacked one on top of the other without damage to the pipes. The stacking of the boards helped maintain a slow, even, drying atmosphere. Sometimes the boards would be covered with a dry cloth if the stems were drying out too fast.

When they were ready for trimming, a pointed trimming wire was inserted into the pipe to support the stem. A large wooden box was handy to scoop the trimmings into so that they could be re-cycled. An iron 'smoother' which had different sized nicks in it was used to trim the stems and a hook for doing the bowls. A small piece of sponge was used to wipe round the bowl top, a finishing technique particularly associated with Broseley. Examples from some other centres have been noted but so far only Broseley is known to have consistently used this technique on all types of pipe, and at both the main works, from at least the mid nineteenth century. Finally the stem mark was applied. This consisted of a small triangular piece of metal with one point removed, creating a narrower edge. The lettering was along this edge. The stamp had a hole through one end with a loop of string through it to prevent it getting lost.

Mrs Bennett remembers the 'workers number' at the end of the mark, but at this date there does not appear to have been any particular significance to it. She remembers using the number 9. Some of the marks being used read E.Southorn, a mark which had originally been used by Edwin from about 1858 and which appears to have been in use ever since. The finished pipes were placed side by side with the bowls at alternate ends on the trimming boards. These were shallower boards on which the pipes were placed to dry. The filled boards were placed on steel pins projecting from the walls which allowed the air to circulate freely around the pipes.

When they were dry the pipes were placed in saggars by the saggerer. This job required great care since the pipes were easily damaged. They were placed with the bowls down around the edge of circular saggars. They were built up in layers, and then the middle filled in. The saggars had a slightly domed base which helped with the packing and stacking. Long stemmed pipes were put in long rectangular saggars with curved bases. The tall bottle kiln was always loaded and fired by Mr Southorn. It was only fired once a year and used coal. There was a small electric kiln which was used for long stemmed pipes too. These were packed in a white dust to be fired (fired clay powder). The main kiln had two or three firemouths. It was loaded through a door which had to be sealed each firing which took about two days - longer if needed. Pipes could be drawn through holes in the kiln and were tapped on a brick, the resulting ring telling whether they were properly fired or not.

After firing, the pipes were finished by a tipper. This person took handfuls of pipes and dipped the mouthpieces into a turquoise mix of

shellac and meths to seal the ends. At this date neither the red coating, nor green glazed tips found on earlier Southorn pipes were in use. The finished pipes were packed in deep cardboard boxes containing two dozen. They were packed in chaff (straw). The finished pipes were taken in lorries for delivery by Singleton & Cole of Shrewsbury and Wellington. They went all over the country, with exports to America.

Mrs Bennett started at the works as a trimmer which was the simplest job. It was piece work paying 7½d per dozen. She was getting 2.15.0d per week which would suggest that she was trimming about 1056 pipes per week. Later she moved onto making which paid 1/3d per dozen (for rolling and moulding). The longest pipes which she made were 16", although Clara Bagley who used to make most of the long pipes made them up to 18" and 24".

Most of the pipes made, though, were short stemmed cutties. She remembers making footballers, RAOB, long and short flat stems, little thorn, hussars head (faces), bulldog, a miniature sixteenth-century copy and Irish style pipes, with longer bowls than usual and moulded milling. The only new mould she recalls being made was for the miniature pipe, although pipes of this type were certainly being produced at Broseley during the late nineteenth century. She thinks this design was probably used to smoke cigarettes from. The Hussars was perhaps her favourite design, although it had to be trimmed carefully to avoid damage to the little projecting beard.

Although manufacture had by then ceased, the 1964 Borough of Wenlock Official Guide carried a piece on the works. In it are two photographs taken during the 1950s. The top one shows Harry Southorn and the

bottom one Mrs Bennett and Clara Bagley. Clara is sitting at a jig with a box board to her right, while Mrs Bennett is behind her holding a trimming board. I am most grateful to Mrs Bennett for filling in some of the background to these photographs and for helping record a skill which once made Broseley famous.

Finally, one other source which must be mentioned is a silent film of Southorn's works which was made in 1938 by Mr H J Gornall, who then lived in Shrewsbury. The original is now in the Birmingham City Museum and provides a fascinating glimpse of production actually taking place. There is a copy of the film at the Shrewsbury Local Studies Library.

From these descriptions we can see that there was a continuity of technique for at least the last century of the Broseley industry. Already, by the 1860s, large factory production units with substantial kilns had emerged and women were responsible for the majority of the manufacturing. Steam power was certainly employed from 1868 but its exact application and duration remains unclear. From the late 1890s we have detailed descriptions of the manufacturing process, which show it to have been in general terms similar to that employed in other areas of the country (Walker 1977, Sect VII). However, a number of specific terms and details of technique not noted by Walker have been recorded and some evolutionary changes such as the transition from glazed to varnished tips observed.

IV : The Clay.

One final aspect regarding the manufacture of pipes in Broseley which must be mentioned is the clay from which the pipes were made. It seems indisputable that the local abundance of white firing clays and fuel (coal) initially attracted the industry to this area. But, despite this, little is known of the early clays used. and the majority of information comes from nineteenth century sources. By this date the clays were imported and their preparation was considered to be an important element in the production of quality pipes. In the *Official Catalogue of the Great Exhibition* in 1851 (129). William Southorn is described as a manufacturer of tobacco pipes,

"the superiority of which consists in the preparation of the clay, giving the article a more porous quality."

More detail about the clay is given in that year by Samuel Bagshaw in his *History, Gazetteer and Directory of Shropshire* (556-7) who says of Broseley pipes that,

"upwards of two centuries ago they were made from clay procured in this locality, now the clay got here is used for the manufacture of bricks, tiles and earthenware; and the pipeclay is procured from Devonshire and Cornwall. Messrs. William Southorn and Co. have an extensive establishment for the manufacture of the glazed pipes.....using forty tons of Devonshire pipeclay annually."

R Thursfield in 1862 says that by tradition the clay has always been obtained from Devon and Cornwall which suggests that imported clays had been used for some considerable time but goes on to say,

"The Shirlett clay, of which a few pipes were made at Shirlett and Much Wenlock, is of a coarse texture and very inferior to the Devon pipe clay. This might lead us to suppose, that the earliest manufacturers of pipes at first used the clay found in the neighbourhood, but discarded it for the purer clays which they obtained from Cornwall and Devonshire, but I feel assured the

Shirlett and Wenlock pipes are not, judging from their make and shape, of very ancient date."

In 1866 Edwin Southorn again states specifically that the clay is specially prepared in Broseley (*Daily Telegraph* Aug 11),

"The pipe [the Narghilé]....is formed of Broseley prepared clay, noted for its fineness and remarkably porous qualities."

The *Manchester Evening Chronicle* of June 21 1899, however, states that,

"There is no difference in the material of all these varieties [of Broseley pipe]; each one is made from the fine white clay brought up in balls from Newton Abbot, in the county of Devon."

Randall in 1908 (441) underlines the importance of the river in the establishment and functioning of the early industry,

"One advantage the Broseley makers would find is the facility with which they could obtain coal and fire-clay ; another would be that which the river afforded of obtaining clay from Dorset and Devon, and of transmitting the manufactured article to distant parts."

This is very similar to statements made by T H Thursfield in his 1907 article, in which he again mentions the early use of local clays,

"There is at Shirlett a white clay similar to that used in early days at Broseley....the colour and texture of this local clay is easily distinguishable from the Devon or Cornwall clay from which Broseley Pipes have for some years been made."

W Howard Williams notes in his visit to Southorn's works in 1956 that the clay was obtained from Cornwall and this may well be the same clay that is still stockpiled in rough lumps at the works today (1987). It is stored under an open sided shelter at the south end of the works, next to the pugmill. Ida Bennett, an employee in the 1950s, remembers the clay coming in lorries, although she gave the source as Devon.

These documentary references suggest a basic outline for the source and use of clays which can be tested against more recent research and analysis of both documentary and artifactual evidence. The implication is that the industry was founded on the use of local pipe clays, specifically Shirlett clay; and fire clays for kiln structures or saggars and, that, at some point, the river traffic became important in bringing west country clays which were then universally adopted. By the mid nineteenth century specific mixing or preparation of clay at Broseley appears to have been taking place, although from the end of the nineteenth century references simply refer to the use of clays from Devon or Cornwall.

There is no doubt that the early pipemakers at Broseley used local clays. Almost all of the seventeenth century pipes have a rather coarse rugged fracture resulting from the presence of gritty inclusions in the fabric and when compared with later pipes they appear slightly 'dirty', often having a greyish or yellow/brown tint. This is in marked contrast to the later 'imported' west country clays which exhibit virtually no visible inclusions and fire to an almost pure white colour. The white firing clays at Broseley derive from the coal measure deposits on which it stands and there can be little doubt that it was the easy availability of these clays, together with cheap fuel (coal), that drew the first pipemakers to this area.

Atkinson in 1975 discusses the use of local clays (19-22) in which he mentions two specific seams - the 'top seam' known as *Brick and Pipeclay* and a seam occurring beneath the Ganey Coal (not named) which he says was the purest and whitest. The presence of such clays has been known for a long time. The nearby Roman City at Wroxeter has

produced large quantities of white wares thought to have been made locally and the monks at Buildwas and Much Wenlock probably exploited local sources for the white inlay on their floor tiles. The Severn Gorge cuts through the coal measures between the parishes of Broseley and Madeley, thus giving easy access to a wide range of clay and coal seams. In addition, by the Civil War, coal mining was of sufficient importance to warrant the posting of troops to Broseley, thus indicating another means of access to the clay seams.

Evidence of direct pipeclay extraction has been found for Benthall (Shropshire Record Office 1224/2/124), when, on 24 April 1689, Thomas Legg was presented,

"for digging and spoiling of the highway by the getting of tobacco clay from several houses near to Ralph Hartshorne's in Benthall towards Wenlock, the same being a market way and a burial way."

Presumably the early pipemakers would have been familiar with a number of sources and means by which they could obtain suitable clay for pipemaking. Individual sources would have varied, and, depending on the range of impurities present, would have given the range of colouring noted above. The nature and degree of inclusions would likewise vary although grinding, sieving and mixing of the clay could all have been used to modify these characteristics. The comparatively fine nature of some of the early fabrics supports the idea that some form of preparation may have been used for better quality pipes since the seventeenth century; a suggestion which has been supported by the finding of a reference to a mill for grinding clay. This appears in the probate of Samuel Deacon of Much Wenlock (died 1673, Appendix 3), and records 'one Mill & stone to Grind tobacco pipes Clay' valued at 6/8d.

This proves beyond doubt that considerable care was taken to prepare a good fabric from at least the 1670s.

Some of the earliest makers however used very poor clays for pipemaking and the accurate identification and exploitation of good white firing clays may have developed as the importance of the local industry increased. The PF maker of c.1630-50 (fig 61.1-5) is a particularly good example of this. Excavations at the Wharfage in Ironbridge produced numerous examples of his products (Higgins 1985g, 57-62). The earliest were all of a yellow/brown fabric with coarse inclusions, while later types were of a much better prepared yellowish fabric. This suggests that the rapid growth of pipemaking around the middle of the seventeenth century was linked with the development of better fabrics. These generally improve during the remainder of the century and, although there were always those who chose to make cheap products of low quality, by the third quarter of the century some exceedingly well finished pipes were being made of well prepared local clays.

The next major change was the adoption of imported west country clays. This was a feature that puzzled many later writers who could see no obvious reason for a specialized industry that existed so far from the source of its raw material. The reason seems quite simply to be that, having become an established pipe producing centre with wide trade contacts, specialist expertise and abundant fuel (lacking in the west country), the change to imported clays was merely a refinement of the product and did not affect the overall structure or development of the industry. Two other factors which may well have helped in this change were the increasing rate of downstream trade in other products from the

coalfield and the establishment of white saltglazed stoneware production in the Gorge. The increased trade with ports such as Gloucester and, particularly, Bristol provided easy access to west country clays as a return cargo, and the rapid popularity of white saltglaze from the 1720s necessitated the use of white pipeclays which would then have come to the attention of the pipemakers.

The shift to these new clays, however, does not seem to have taken place overnight. No doubt some makers quickly exploited the potential for making better quality pipes, while others would have been reluctant to pay for a material that they could obtain locally. Atkinson (1975, 21) suggests that the introduction of imported clays took place about 1740. It appears, however, that some earlier forms are of an imported fabric, perhaps dating to c1725-30. An earlier date is supported by the fact that there was a considerable movement of potters from Stoke and its surrounding pottery villages to the Gorge area from at least 1723 (Much Wenlock Examinations Books (Q1/3/2 1740-53, 1774-77; Hawes 1974). It was these potters who doubtless brought the new technology needed to make white saltglazed stoneware and established shipment of west-country pipeclay to the Gorge for its manufacture.

Little is known about how the clay was obtained, stored or sold by the pipemakers. One reference which sheds some light on this was noted by Dr B Trinder, who kindly brought it to my attention. The probate of Richard Benthall, of Benthall Hall (dated 26 Sept 1720), includes 'Pipe makers clay at £2.06.10½'. This clay is listed with other industrial commodities obtainable locally such as coal, iron ore, limestone and bricks. This suggests Richard Benthall was actively involved in exploiting the raw materials available on his estate, which would have

included pipeclay. Pipemakers may, therefore, have been able to either purchase clay from the estate or others engaged in mining, or have dug it from common ground themselves.

Despite the introduction of west country clays to the area during the second quarter of the eighteenth century, some pipemakers continued to use local clays for a considerable time. The excellent pit group recently excavated at St Mary's Grove in Stafford (figs 90-91) contains pipes of both imported and local fabrics and dates to c1770-80. This suggests that there may be an overlap in the use of the two fabrics of up to 50 or 60 years, thus supporting R Thursfield's view (1862 above) that some of the pipes with a local fabric 'are not of very ancient date'.

The introduction of imported clays appears to have taken place at different times in various parts of the country. In London, where no suitable clays occur locally, a monopoly for the importation of pipeclay was granted as early as 1618 (Atkinson & Oswald 1969, 172), while Dr Plot writing in the 1670s and 80s notes the use of local clays from various places in Oxfordshire and Staffordshire (Oswald 1975, 12). Chester was importing clay from at least 1670 (Rutter & Davey 1980, 47), but it seems that it was not until the eighteenth century that imported clays became the general rule throughout the country.

Some studies have been carried out in an attempt to identify the characteristics of local clays. For Broseley two techniques have been used. In 1982 Davidson & Davey published 'Thin Section Analysis of Clays Used in Five British Clay Pipe Production Centres', which included Broseley. Although only six samples from Broseley were examined, they

were probably all of locally obtained fabrics. The Broseley samples turned out to be both internally consistent and largely different from the other areas sampled. The main distinguishing features were (*ibid* 317),

"The medium to high proportion of brown clay to quartz, and the high proportion of aggregates.....Inclusion type not higher than medium."

The second method was X-ray fluorescence (Higgins 1985g, 61/2). This testing was kindly carried out for me by A P Simpson when he was a post-graduate student at Bradford. Three samples were submitted to see if any difference could be found between the yellow/brown PF pipes of c1630-50 mentioned above (similar to fig 61.2), a pipe stamped IS of c1690-1710 made of a local fabric (similar to fig 62.9), and a pipe stamped John Bradley of c1790-1830 made of an imported fabric (similar to fig 63.14). The relative intensities of Titanium, Iron and Zirconium were measured. The results showed that Iron appears to be the most useful indicator. The early PF fabric had over twice the amount of the other two samples, and the later local fabric considerably more than the imported. The intensity counts were:-

PF	Ti=1,142	Fe=13,009	Zr=3,871
IS	Ti= 998	Fe= 6,911	Zr=4,023
JB	Ti=1,176	Fe= 4,791	Zr=4,466

This suggests that fuller research may be able to define the range of characteristics diagnostic of Broseley clays, and thus to offer a means of identification independent of mark or style. The main problem would be in the compilation of an extensive regional data base of local clay types, which would be necessary before the system could be used as a working tool for the identification of pipes.

The later fabrics all appear to be much closer in colour and texture. The documentary sources refer to both Devon and Cornwall clays but exactly how many supply sources would have been used and, indeed, whether any distinction between them can be made is not known. Certainly, the nineteenth century Broseley fabrics were very well prepared and fired, the hard, 'ringing', white fabric contrasting markedly with the rather dull, powdery fabric being used by Swallow's of Rainford (Kiln tip of c1897). Supporting evidence for distinctive preparation of the Broseley fabric comes from Surrey, where a pit group of c1880 produced some W Southorn pipes (Higgins 1985d, 417). These had a hard creamy fabric which could readily be distinguished from the Surrey pipes, despite the fact that by that date both sets of makers should have been using west country clays. Clearly, regional variation in relation to the Broseley fabrics has to be considered until at least the end of the nineteenth century.

In this consideration of the clay types used in Broseley we have seen a similar pattern to the previous research examined above - namely that the majority of information dates from nineteenth century or later sources. So, although there is a considerable body of data available, it is biased towards the later production at Broseley and systematic scientific investigation is needed to look in more detail at problems such as the clay sources, composition and preparation. In the same way the pipes themselves have only been studied through collections of stray finds, and, useful as these may be, they do not necessarily provide representative samples of the industry at any one time. Despite the long interest in Broseley pipes and the setting up twenty years ago of a museum devoted to the local industries, it is a sobering thought that

no excavations to study the Broseley pipe industry or its products had ever been carried out.

This changed in 1984 when the author discovered kiln waste belonging to Henry Bradley which had been disturbed by building work. The finds from the subsequent excavation provide the first, and still only, opportunity to examine a properly collected stratified sample of early pipes from the area. A detailed report of the material is, therefore, presented here, applying some of the techniques outlined in Chapter 1. After the detailed assessment of this material we can see how well our existing perception of the industry from existing sources and stray finds stands up to the detailed archaeological assessment of a single kiln group.

V : Kiln Waste from Henry Bradley's Kiln Site at Benthall.

The Henry Bradley kiln site at Benthall was discovered in 1984 when the author observed a large quantity of pipes and kiln waste which had been disturbed during building work at 11 Lodge Lane, Benthall. The pipes recovered dated principally from the latter part of the seventeenth century and suggested the presence of a kiln in the immediate vicinity. Permission from the owner was obtained to carry out a trial excavation in order to establish the nature of the deposits and to search for evidence of the kiln or associated buildings. The excavation was carried out between March and June 1984 using an MSC funded excavation team, directed by the author.

The site lies beside the main Broseley / Wenlock road (SJ 663019), and, until 1983, had been occupied by a small brick and stone built cottage. The cottage is marked on the 1844 tithe survey, when it was occupied by Francis Harries Esq. The use of the site as a small domestic plot is clearly of some antiquity, and it was possible that the building demolished in 1983 had been the house and workshop of Henry Bradley himself. A 3m square trench was, therefore, positioned to overlap one end of the demolished building to ascertain its date and relationship to the kiln waste.

The excavation in fact revealed that the cottage was probably of eighteenth century origin and its foundations overlay the deposits of seventeenth century kiln waste. This waste was concentrated in a steep sided feature cutting the natural clays. This feature ran out of the trench, so it was not possible to determine whether it was a pit, ditch or some other sort of feature. The fill in it contained large amounts of ash and coal waste, suggesting that this was the fuel used for the kiln. and large quantities of muffle, showing this to have been the method of firing.

The muffle has still not been properly studied, but various features of it were evident from the excavated material. The walls of the muffle were reinforced with pipestems and there were rim fragments present. These suggest that the structure had a slightly domed top which had been truncated in a horizontal plane. This would have given easy access through a circular opening in the top for loading. The muffle was supported with thick cylindrical rods of clay which connected with the outside walls of the kiln.

This type of construction appears to be typical of seventeenth century kilns so far examined, although it would be interesting to know more about the size of the muffle and the methods employed in the stacking and sealing of it. The suggested 'open top' for access would appear to be a far more logical and practical method than the rather odd horizontal access suggested by King (1982, 226). This would not only seem to make loading and unloading very difficult but would also be likely to inhibit the free flow of gases around the muffle thus causing uneven firing conditions. A more likely form is illustrated by Peacey (1982.8). Clearly, much more work needs to be done on the evolution of kiln types - both regional and chronological.

Returning to the site; although no actual structures or working areas were uncovered, it is clear that there was a kiln in close proximity. The trench only explored a small area in one corner of the site, and waste thrown up from builders' trenches all along the northern side of the site indicated an extensive spread of deposits. Unfortunately, it was not possible to carry out any further excavations, but there can be little doubt that this plot was the site of a kiln in the latter part of the seventeenth century.

One final point is that in the tithe survey the present plot was divided into two. The southern portion was held by T Harries, the Lord of the Manor and was described as a 'cover' growing osiers. Since willows like wet ground it is possible that they were growing in a wet hollow which had previously been used to extract clay, coal or both. Certainly, there is still a small pond in the field immediately south of the site which may have been the result of some form of extraction. Locally obtained clays appear to have been used by all of the Broseley makers

during the seventeenth century, being characterised by variations in colour, and the presence of gritty inclusions. In 1689, Thomas Legg was presented for 'digging and spoiling of the highway by getting Tobacco clay from several houses near Ralph Hartshorne's in Benthall towards Wenlock, the same being a market way and burial way' (Shropshire Record Office 1224/2/124). This is in the same area as the kiln site and, since it was clearly possible to obtain clay by 'digging in the highway', it is to be expected that extraction took place on or very near the site.

This is the only pre-nineteenth century site in Shropshire where a properly excavated sample of pipekiln waste has been collected. It is a sad reflection that our entire picture of the important Broseley industry is otherwise built up entirely of stray finds or domestic groups excavated in other areas. The analysis of this material, therefore, provides us with the only detailed picture of seventeenth or eighteenth century production in the area. The analysis was designed to examine the range and number of mould types in use and the range and relationship of the stamp types to the mould types. In particular, work concentrated on the HB pipes, since this group clearly represented the largest body of data to work on.

Although there was some stratigraphy within the kiln tip, there did not appear to be any significant difference in the forms or marks between each layer. Therefore, the pipes were examined regardless of context. Likewise, the pipes from the builders' trenches which the author had collected prior to the excavation were included since they clearly belonged to the same workshop and general period of production. The forms present in both groups include Broseley type 2, 3 and 5 pipes, although the type 5 pipes were all early in form, suggesting a terminal

date for the site early in their currency. There were only three type 4 pipes from the excavation and only two from the unstratified surface finds, and none of these were marked HB. On the current stylistic dating this places the kiln group firmly in the period c1660-90.

This ties in well with the documented references to the name Henry Bradley in the Benthall Parish Registers (Appendix 2), where the name appears between 1672 and 1700. From the Parish Registers it is not clear if more than one person is represented, but the burial of a Henry Bradley in 1700 ties in well with the terminal date for the pipes. Surprisingly, forms which would usually be placed at either end of this scale were found together in the kiln tips. This makes it impossible to be more precise about the dating and raises questions about the nature of the tips. Were all these types in production at the same time, or were the tips formed by site clearance at the end of a thirty year production period? This point will be returned to below.

All of the potentially identifiable fragments were selected for this study. All heels were included, regardless of whether they had a mark or not. Only bowl fragments and those pieces of heel where the mark was so badly damaged that it could not be identified were rejected. From the excavation a total of 401 bowls were considered (270 marked HB, 108 with other marks, and 23 without marks) and from the author's collection 114 (84 marked HB, 22 with other marks, and 8 without marks), making a total of 515 bowls examined. The large number of other makers' marks present is surprising. In all some 37% of the bowls recovered belonged to other makers. This group, however, covers some twenty or thirty individual makers so that numerically by far the largest group of marks belongs to the HB maker which is why the kiln

waste is attributed to him. Initially, all the bowls with HB marks were selected and sorted as far as possible into mould types.

Va : The Mould Types. In many ways this was the least satisfactory part of the study. It had been hoped that the majority of the bowls could be sorted into individual mould types. This, in fact, was not the case. Some of the moulds had clear flaws which enabled the positive identification of individual types but there were many where this could not be done. Frustratingly, many with clearly visible flaws could not be matched and, despite the size of the sample, it is clear that many mould types were represented by just a single example. This makes it most unlikely that they reflect the full range of moulds used in this workshop, merely a part of them. Having said that, the actual styles produced are well represented and it is merely the full number of moulds of each type which cannot be determined.

The bowls were broken down into basic forms and then sub-divided as far as possible by individual mould types. Those that could not be matched as specific mould types were grouped together on stylistic similarities; so that each group identified represents at least one mould type. In all, the material was broken down into *fifty* individual groups. This represents the *minimum* number of moulds used by the HB maker. If just those groups which could be positively identified through mould flaws are considered, there were 34 different moulds, represented by 109 pipes. This gives an average of only 3.2 examples per mould type. If this rate remains constant for the entire group of 354 bowls this would represent 110 individual mould types.

This is not considered to be an unreasonable estimate. Admittedly, there may be some bowls amongst the undifferentiated material which actually came from the 34 identified types which would tend to undermine this average; but, conversely, there are probably a higher percentage of individual specimens amongst the 245 bowls which were not identified as individual mould types, the evidence from an isolated example having been considered insufficient evidence for its existence. This leaves us with a theoretical total of 110 mould types for this maker, from a sample which is clearly inadequate to represent his entire range. While this falls short of giving us a definitive figure to work with, it at least, radically alters the magnitude of our guesses concerning the scale and nature of production achieved by some seventeenth century makers.

We may speculate that over a working period of some thirty years a total of 200 moulds, or more, may not be unreasonable. Although this figure sounds excessive it only represents the remodelling or recasting of a mould once every two months. And in a large workshop, such as this clearly was, with maybe 10 moulds in constant use, this would give a working life of a year and a half for each mould. The most important result of the examination of this group of pipes is not in providing any finite number of moulds used or precise life expectancy, but in providing a conceptual framework of the way in which pipeshops operated. The evidence from the HB mould types argues for a regular turnover or maintenance of moulds, requiring the services of a 'mouldmaker' several times a year. This, in turn, would ensure the regular updating of styles. There is no support here for the old view of a maker on his deathbed passing on a few sets of moulds which he has cherished since his apprenticeship.

Vb : The Bowl Forms. Turning to the bowl styles represented by these mould types presents another problem. While there is no doubt that the Broseley type series first put forward by Oswald and James (1955) and extended by Atkinson (1975) is of great value, it is a very great simplification of the situation. The HB maker produced a whole range of styles which, by differing slightly, almost bridge the gaps between the standard type series. So, while any one individual specimen may be attributed one type number or another, there are in reality a great number of equally important intermediate forms. There are also quite a number of forms which diverge so markedly from the standard series as to deserve new numbers of their own. The whole Broseley type series has been reconsidered in Section VI below but it is clear, from this one excavated sample, that several revisions may be necessary as more material comes to light, before we can appreciate the full range of Broseley products.

As stated above, the HB bowls were divided into basic types based on the established type series and then sorted into a total of fifty individual sub-groups. Some of these could be recognised as mould types, others merely as general form types. Each of these are described below. In this section 'mould groups' are those which can be demonstrated to have been made in the same mould, while 'general groups' are those which exhibit stylistic similarity only. They are divided into their basic Broseley type numbers. All of the illustrations show the bowl form only, the marks are not included. In the descriptions the abbreviations RHS and LHS are used to describe the right hand side and left hand side of the bowl as seen by the smoker.

Broseley Type 2 bowls - Groups 1-15 and 39.

Groups 1-6 are all of a form not previously recognised at Broseley. While the bowl is basically type 2 in form, the heel has a tail extending back under the stem which is diagnostic of the type 5 pipes. Traditionally, the type 2 pipes are dated before 1680 and the type 5 pipes after 1680. This means that, either the type 5 pipe is directly descended from this form, or that our opinion of the dating needs revision. Since the early type 5 pipes are in fact merely type 3 bowls with a tailed heel the latter is considered to be the more likely. It is suggested that during the 1670s Broseley makers started adding a tailed heel to their type 2 and 3 pipes. This, combined with a general change in bowl form during the 1680s, resulting in the classic Broseley type 5 form. By the 1690s the type 2 and 3 forms were outdated leaving the type 5 to develop as the dominant Broseley heel form.

1 - mould group with 1 example (fig 9.1). Good globular bowl form, with a fine glossy burnish to the bowl.

2 - mould group with 1 example, not illustrated. Fragment only, but with a much wider heel away from the smoker than the other examples illustrated.

3 - mould group with 1 example (fig 9.2). Rather a short compact bowl form with clear mould flaws on the RHS heel.

4 - mould group with 2 examples (fig 9.3). Clear flaws on both sides of the tail where there is an angled facet between the stem and the sides of the tail. Both these bowls are of a rather soft dull grey chalky

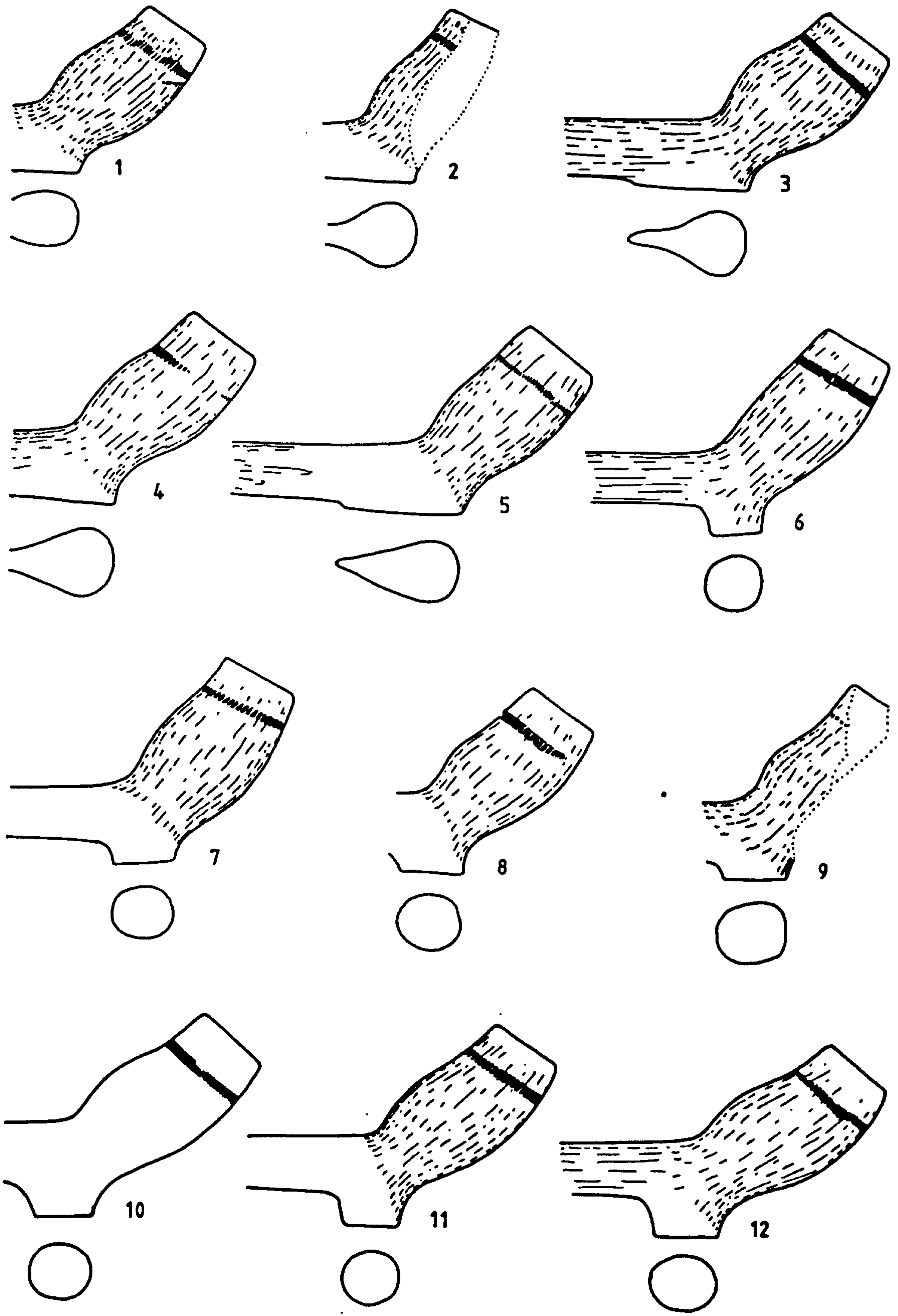


Fig 9 - Henry Bradley Bowl Forms : Groups 1-13.

fabric, with small glittering inclusions. This is different from the other bowls of this type.

5 - mould group with 1 example (fig 9.4). Tall slender form with more evenly tapering heel than the previous forms. Mould flaws on heel.

6 - mould group with 4 examples (fig 9.5). Clear striations visible on the LHS stem.

Groups 7-10 are small pipes, basically of type 2 form. Numbers 7 & 8 are rather straight sided and upright, superficially resembling the type 1 pipes. Number 7, however, has the deep well defined heel typical of the type 2 pipes and neither really has the compact barrel shape to be associated with a London derived product. Numbers 9 & 10 are distinctly more curved in form but their rather short, compact shape differs slightly from the classic type 2 form. Number 10 in particular has a pronounced hump facing the smoker and rather a large heel for a type 2 pipe. This is a good example of a bowl which is something of a hybrid with features of both the type 2 and 3 pipes.

7 - mould group with at least 2 examples (fig 9.6). This distinctively shaped pipe has mould flaws on the LHS of the heel, of which there are two examples. These are also another two bowls of the same form, but badly overfired, which probably come from the same mould.

8 - mould group with 6 examples (fig 9.7). Poorly defined group, although all have an uneven lump facing the smoker on the RHS of the heel and/or a lump above the heel on the LHS.

9 - mould group with 3 examples (fig 9.8). No positive fractures located, but all share the same small compact form.

10 - mould group with 1 example (fig 9.9). Marked hump facing the smoker.

Groups 11-15 are all variations of the classic type 2 form as shown in the type series. It is characterised by a long slender bowl form with a small compact heel. The heel is always, however, reasonably deep in relation to its diameter, unlike the London inspired type 1 pipes which have a shorter heel. Types 11 and 12 are particularly slender with small heels, while 13-15 tend to have a more forward leaning curved bowl and larger heel. Many of these forms start to exhibit a slightly flared heel which becomes pronounced in the type 3 pipes. There is, in fact, very little difference in overall form between some of these examples and the first group of type 3 pipes. The distinction has been drawn, however, in that the pipes from type 16 onwards have a much thicker body and an even larger heel.

11 - mould group with 3 examples (fig 9.10). Identified by uneven surface and hollow 'groove' on the RHS heel.

12 - general group with 11 examples (fig 9.11). This group consists of all the remaining slender bodied bowls with small heels. There are certainly several different moulds within this group.

13 - mould group with 3 examples (fig 9.12). Marks on both sides of stem and nicks on heel facing smoker. Composite drawing from two examples.

14 - mould group with 2 examples (fig 10.1). Identified by marks on LHS stem. Composite drawing from two examples.

15 - general group with 24 examples (fig 10.2). Forward leaning bowls, generally with a well curved body. There are certainly several different moulds within this group.

Group 39. This general group contains all the type 2 heels which have the bowls missing. They could not be matched with the mould groups above but must all represent bowls of the general forms shown in groups 7-15. There are 53 examples in this group.

Broseley Type 3 bowls - Groups 16-41.

The Broseley type 3 bowls are characterised by a fairly thick and generally rather straight sided bowl, with a large round heel which flares out from the base of the bowl. The problem of sorting out bowls using the existing typology is clearly shown here by the fact that types 16-22 are transitional forms. They have the general proportions of a type 2 pipe but with a much heavier build and a larger rather flared heel. Type 22, in particular, sits unhappily in either category. Some of these forms are clearly type 2/3 hybrids, suggesting a steady evolution of form rather than the sudden introduction or development of new types.

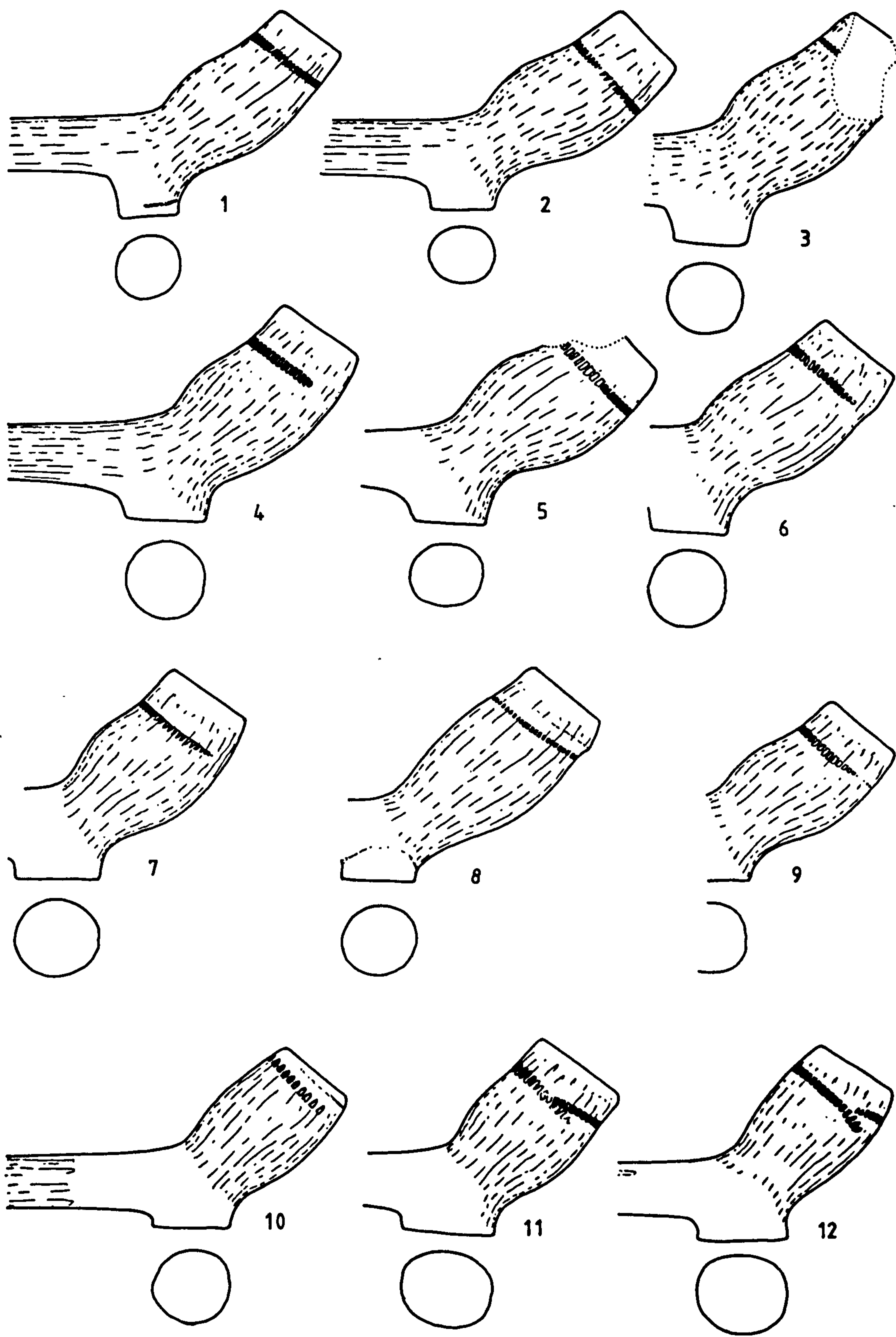


Fig 10 - Henry Bradley Bowl Forms : Groups 14-26.

Groups 16-22 are closely related to the type 2 pipes. They retain the curved bowl form, often with a rather humped back, but have a heavier build, and larger, generally rather more flared, heel. They may simply reflect the general later seventeenth century trend of producing larger bowl forms, in this case as a development of the type 2 form.

16 - mould group with 2 examples (fig 10.3). Clear mould flaws away from smoker on LHS heel, with others on RHS. Composite drawing of two bowls.

17 - mould group with 2 examples (fig 10.4). Clear flaws on LHS heel.

18 - general group with 2 examples (fig 10.5). Different moulds, but both with slightly larger heels, and heavier fuller body.

19 - mould group with 4 examples (fig 10.6). Ridge near the bowl rim and lumps away from the smoker on the RHS heel.

20 - general group with 3 examples. Not illustrated, three bowls of similar style to 19, with large round heels.

21 - mould group with 1 example (fig 10.7). Very curved bowl form, with marked constriction at its base.

22 - mould group with 1 example (fig 10.8). Unusual slender bowl form, reminiscent of a type 2 but much larger, and with a larger flared heel.

Groups 23-28 are all small varieties of the type 3 form. This is much more the shape usually associated with the type 3 pipes, although the

rather hump-backed type 23 is reminiscent of the previous group. It is notable that most of the Broseley shapes are produced in two distinct sizes - a large and a small form. It seems likely that this reflects the stem length of the pipes too, with long and short varieties of each bowl form being produced.

23 - mould group with 1 example (fig 10.9). Distinctive hump-backed shape with large flared heel.

24 - mould group with 4 examples (fig 10.10). Striations on both sides of bowl and heel. Bowl is quite like the London type 1 form, but with a much larger flared heel.

25 - mould group with 2 examples (fig 10.11). Marks run round heel, and there is a sharp angle change where the stem meets the bowl on the RHS.

26 - mould group with at least 3 examples (fig 10.12). Marks round heel, especially on the RHS. Two badly overfired pipes are probably of the same form.

27 - mould group with 1 example (fig 11.1). Similar to 26 but more slender bowl form. Clear lumps on LHS heel.

28 - general group with 35 examples. Large group of bowls which could not be identified by mould type. Basically they fall within the range of forms 25-27 but there must be many individual mould types represented. None illustrated.

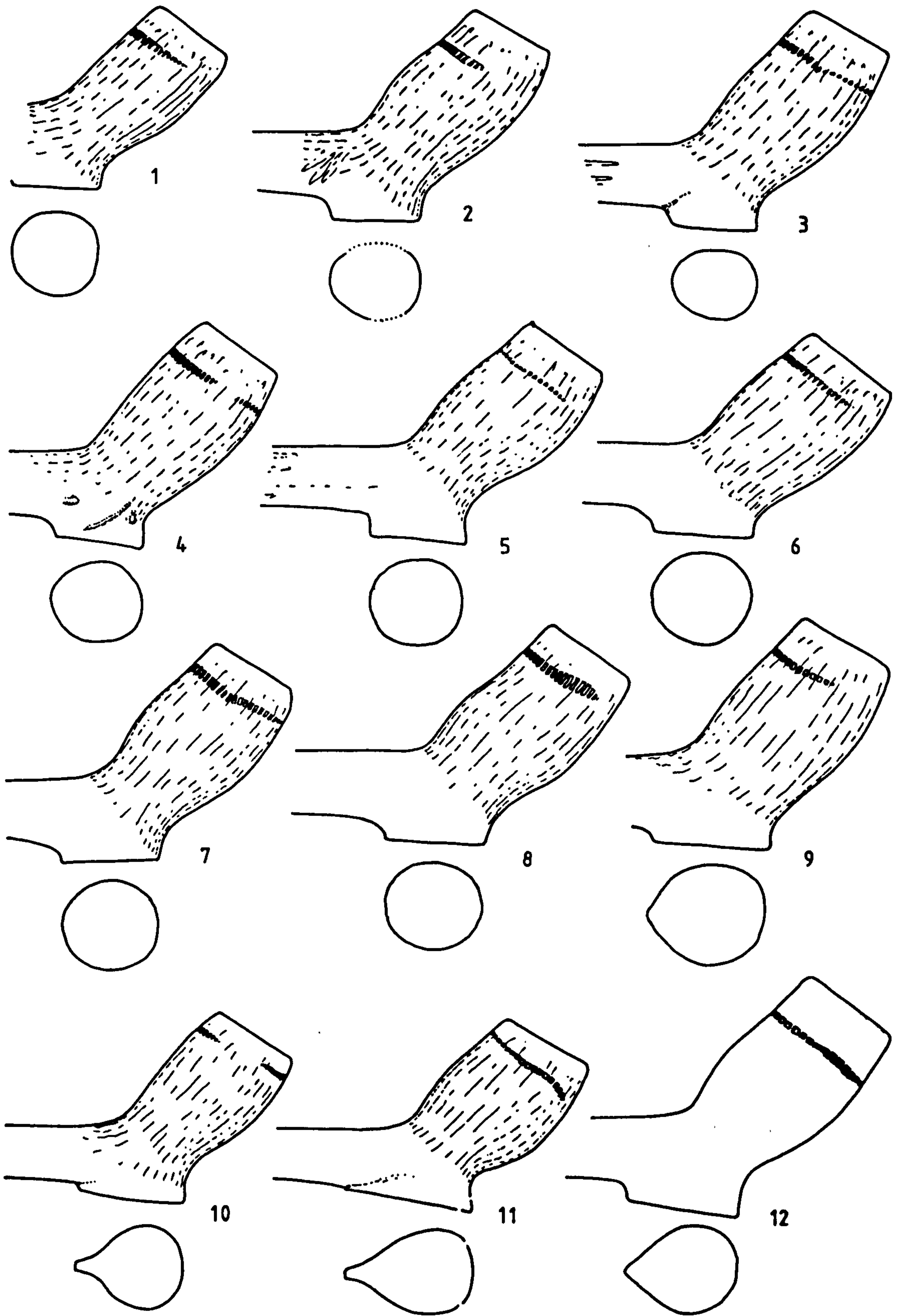


Fig 11 - Henry Bradley Bowl Forms : Groups 27-45.

Groups 29-38 represent the range of styles present amongst the more typical large type 3 pipes. These have a fairly heavy bowl, with rather plain straight sides and a large flared heel.

29 - general group with 3 examples (fig 11.2). Three different bowls, but all differ from group 28 in having a larger bowl form, with quite a good barrel shape. Also, in relation to the bowl, size the heel is somewhat smaller.

30 - mould group with 3 examples (fig 11.3). Marks on RHS heel, with a ridge right at its base. As with 29, the heel seems to slope back into the stem.

31 - mould group with 16 examples (fig 11.4). Very clear mould marks on RHS heel (illustrated), making this type easy to identify.

32 - general group with 3 examples (fig 11.5). Different bowls with similar rather slim curved bowl form and large round heel.

33 - mould group with 8 examples (fig 11.6). Clear ridges on LHS heel towards the stem.

34 - mould group with 16 examples (fig 17.3). Striations on RHS stem, shallow hollows on RHS heel. LHS is smoother and more undulating but the stem meets the bowl with a sharp 'V' shape on this side.

35 - general group with 4 examples (fig 11.7). Four similar bowls characterised by slender well-curved bowls, well separated from the heel area.

36 - mould group with 1 example (fig 11.8). Clear flaws both sides of heel.

37 - mould group with 1 example (fig 11.9). Very large chunky bowl.

38 - general group with 7 examples. Various large heeled types, with bowls ranging through types 35-37. Not illustrated.

Group 40 is a general group (not illustrated) of 58 heels of various forms, with damaged or missing bowls, but all falling within type 3, as covered in groups 16-38.

Group 41 (not illustrated) are damaged bowls of either type 3 or 5. There are 10 examples of these where, due to damage to the heel and / or bowl, their form cannot be determined with any certainty.

Broseley Type 5 bowls - Groups 42-50.

The Broseley type 5 is one of the most distinctive forms associated with this centre. It is characterised by a large flared heel with a tail extending back under the stem. In its more advanced forms it usually has a thin well-flared mouth to the bowl. These examples, however, are all much heavier and tend to be rather barrel shaped with simple tails to the heels. Some, such as 45 and 46, in particular, are simply type 3 pipes where the heel has been slightly extended under the stem. Once again these represent an evolutionary bridge between the more extreme forms used in the standard type series. Stylistically they should be no later than the 1680s.

Groups 42-44. These three groups are all small versions of the type 5 pipe. As noted before, this probably represents a shorter length of pipe from the larger bowled varieties.

42 - mould group with 3 examples (fig 11.10). Identified by clear striations on both sides of the heel.

43 - general group with 9 examples (fig 11.11). One typical example illustrated. This group contains a wide range of forms, but all of small size. The main variation is in the size and shape of the heel rather than the bowl profile. Many moulds represented.

44 - mould group with 2 examples (not illustrated). Two damaged examples of the same general form as 42/43 but identified by a line on the heel, LHS away from the smoker.

Groups 45-49. Larger type 5 forms, many of them being very simple in form, and closely allied to the type 3 pipes.

45 - mould group with 2 examples (fig 11.12). Marks on both sides of heel. Very simple, early form of tailed heel.

46 - mould group with 2 examples (fig 12.1). Again, a very simple oval heel, identified by marks on the RHS heel, away from the smoker.

47 - general group with 2 examples (fig 12.2). Two examples with similar forms but from different moulds.

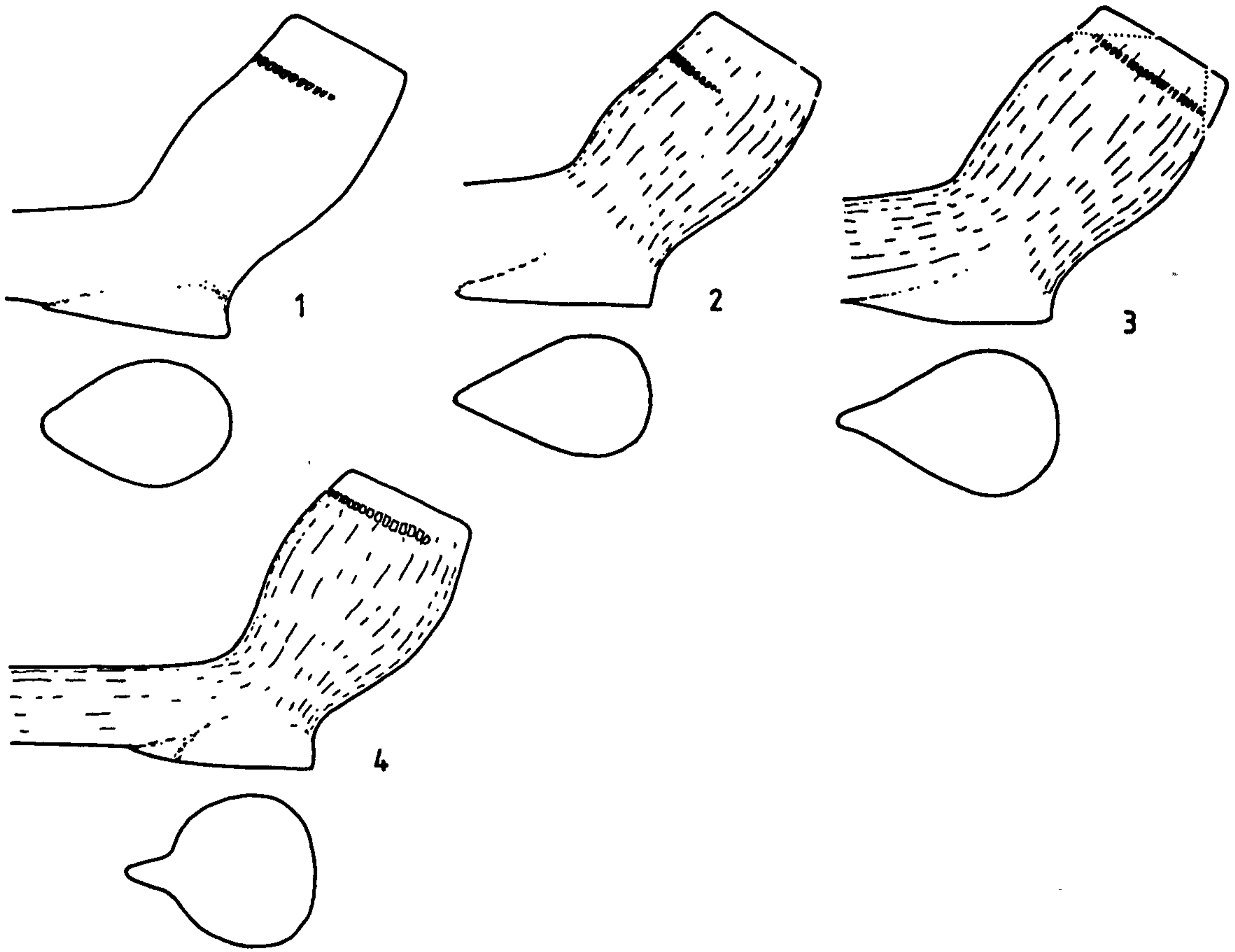


Fig 12 - Henry Bradley Bowl Forms : Groups 46-49.

48 - mould group with 1 example (fig 12.3). Single example with a large heavy bowl form.

49 - general group with 3 examples (fig 12.4). Three different examples but all with bulbous bowl, well separated from the heel area. Large round heel form, two with the small well separated heel as illustrated.

Group 50. Type 5 heels with the bowls missing or damaged and which could not be assigned to other groups. Ten examples, not illustrated.

Vc : The Stamp Types. Having defined the range of bowl forms which could be attributed to the HB maker, the bowls were re-sorted according to mark. Each bowl was allocated a unique reference number, which was pencilled onto the bowl, so that data about the mould and stamp types could be easily cross referenced. Then the marks were sorted into general groups, from which each individual die could be identified. In all, no less than 96 different name or initial dies could be differentiated. This is an extraordinarily high number, by far the largest yet recorded for any English maker. As with the mould types, many of the stamp types were represented by only one example. Additional variations belonging to this maker are known to exist in other collections, and there can be no doubt that the total number of dies he actually used was much higher. As with the mould types, we can only speculate as to the total number, although once again the implications are just as important as the actual number recovered.

Before this group was discovered Atkinson (1975, 47) had recorded about 20 varieties of HB mark (fig 34.6-25). The kiln group contains five

times that number and still does not represent his full range. There are several other makers for whom large numbers of dies are already recorded. If their kiln waste produces a similar increase in the number of marks used, then we will have to reconsider our whole concept of the way in which marks were made and used. Also, the depth and complexity of the seventeenth century industry, as revealed by this group, shows how superficial our understanding really is. It will only be when more kiln groups have been recovered that we will really be able to appreciate the organisation and operation of the industry.

Stylistically, the marks recovered can be divided into a few main types. The most basic division is between full name and initial only marks. There are two examples of full name marks which both occur in heart shaped borders. Unfortunately neither of these types occurred on the same mould type as any of the initial marks. Stylistically, however, there is a great similarity between the bowl forms and it seems reasonable to attribute the HB marks to Henry Bradley. Atkinson has recorded another type of rectangular full name mark (fig 34.25) which is stylistically later. If it was made by the same maker, then it is possible that this site represents not only just a part of his production range but also just part of his working period, the full name rectangular marks perhaps dating to c1690-1700..

The second main division of the HB marks is according to shape. The marks are basically either heart shaped, circular or square. The heart shaped marks cover the greatest range of forms. Some are a clear heart shape, while others become rounded in form or take on a shield shape. Because these forms merge imperceptibly one into the other, it is not

possible to draw firm lines between the types, although generally similar shapes have been grouped together in the illustrations.

The marks have been further sub-divided according to whether they have borders or dots as accompanying decoration. Whether these subdivisions represent genuine phases of development in the die production is debatable. Certainly, there may be a significance between those marks with borders, and those without, but it seems unlikely that a strict evolution of minute detail was ever intended or used. It is important, however, to use any recognisable differences in the analysis of the marks both to ease the sorting and identification of them and to search for any general trends which may indicate the chronological development of the various types.

With the exception of the full name marks the dies are stylistically very similar. They all have a slight crudeness about them which suggests that they were not made by a skilled engraver. The die outline is often slightly asymmetric, and the initials tend to be rather irregular and unevenly proportioned. The initials often end with rather globular terminals, suggesting that they were formed by drilling dots which were joined to form the letters. It seems probable that all were formed by the same hand, perhaps even that of Henry Bradley himself. The marks are described below in stylistic groups, with notes on any diagnostic features of the individual dies. It should be remembered that these groups do not necessarily represent either a typological or chronological development.

Details of the marks, together with twice life size drawings, are given below. The close similarities between many of these marks demonstrates

the care that has to be taken in the identification of a specific die. In the description of each mark the initials LHS or RHS are used to refer to the left or right hand side. The marks have been allocated the numbers 1-96 and are illustrated in figs 13-16.

Full name marks in heart-shaped borders. Two dies of this type are represented. One includes lower case letters, while the other is all in capitals. Both appear to have good heart-shaped borders and, like the initial marks, have a certain crudeness in their layout. The lettering, for example, is not horizontal or regulated in height by setting out lines.

1 (fig 13), 3 examples. There are slight depressions around the letters, suggesting that the die could have been formed by incision into some pliable material such as clay. Mark characterised by a faint dash after the 'd' and small nicks on the top edge of the border.

2 (fig 13), 1 example. Poor example. There appears to be some form of decoration above the letters as well as the heart below.

Heart-shaped stamps with borders with dots. There are only two dies of this type, both appearing very similar. There may be no real chronological or other difference between these and the bordered marks without dots.

3 (fig 13), 6 examples. Rather poorly defined group, based mainly on the large dot below the initials. Some show a small nick in the border above the leg of the H, and the border doesn't appear to close completely at the bottom.



Fig 13 - Henry Bradley Stamp Types 1 - 24.

4 (fig 13), 5 examples. Also a rather poorly defined group. Seems to have a small dot under the initials, and the RHS of the border appears to overlap the LHS. There also seems to be a larger base to the B, with a faint mark running to the dot. There may be more than one die represented by this group.

Heart-shaped stamps with borders but no dots. There are 11 examples of this type of mark. Most have a rounded outline, only types 8 and 9 having a depression in the top of the heart. Number 15 has a toothed decoration added to the border.

5 (fig 13), 1 example. Rather a wide border with a sharp angle change at the top RHS. B larger than H with its bottom touching the border.

6 (fig 13), 1 example. Rounded mark with thick border. Quite compact and well proportioned and neatly matched letters, with large space under. Scratches visible on the die surface, particularly one to the LHS of the bar of the H, two under the legs of the H and one under the lowest part of the B.

7 (fig 13), 4 examples. Large rather crude rounded letters, the first leg of the H joins the border at the top. The field has numerous scratches, the main one running up between the legs of the H.

8 (fig 13), 5 examples. All examples poorly impressed on the RHS. Large serifs on H and small dimple in the top of the die. There is a small nick under the B.

9 (fig 13), 2 examples. Heart-shaped mark with large letters filling all the available space. Particularly large top loop to the B.

10 (fig 13), 2 examples. Small compact mark, the top of the B appears to be missing in these examples.

11 (fig 13), 1 example. Very oval mark, poor impression but appears to have top of H joining border.

12 (fig 13), 6 examples. Rather small squashed lower loop to B. which also has an irregular top on RHS. Field scratches - three clear ones to left of H, one above it and two to RHS of B.

13 (fig 13), 3 examples. Very large globular serifs to the H, with marks at LHS top and bottom of the B.

14 (fig 13), ?2 examples. Rather dubious pair, similar to 10, although the H appears larger and the B quite thin and well defined. Both appear to have points connecting to the border.

15 (fig 13), 2 examples. Oval pointed mark with 11 serrations around the edge. Tall fairly thin letters, with serifs on the H.

Unbordered heart shaped marks without dots. Thirty-five types fall into this category. The actual shape, however, varies considerably, with some particularly rounded examples (39-43) and shield shaped examples (44-50). The size of the lettering also varies considerably, and some of the marks have motifs underneath (21-23).

16 (fig 13), 1 example. Very sharply pointed base, gently curved top.

17 (fig 13), 3 examples. Small nick on the LHS of the indent at the top and a 'blob' at the top of the B. Two small nicks at the base of the heart.

18 (fig 13), 1 example. Fairly large mark, with big bold letters. B has a pointed serif at the top.

19 (fig 13), 2 examples. Almost semi-circular impression at the top of the heart, and a distinctive B with a point at the top, and leaning diagonally to the right.

20 (fig 13), 2 examples. Large rather flat topped heart with thin scratchy letters.

21 (fig 13), 4 examples. Top serif of H goes right up to the border, the loops of the B sag down. Poorly defined motif under the letters which merges with the border.

22 (fig 13), 23 examples. The B in this type has an upward tilt and the serrated motif at the base is much more clearly defined.

23 (fig 13), 1 example. Flatter top, large clear letters with rather rounded serifs. Small angular marks below letters.

24 (fig 13), 6 examples. Large rounded heart but thin, spindly letters. The H has a particularly long bar, and little scratches extending from its top. This die appears to have been altered into die 64.



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Fig 14 - Henry Bradley Stamp Types 25 - 48.

25 (fig 14), 1 example. Large bold mark with globular ends to the H.

26 (fig 14), 1 example. Very large indent at top of heart. Poor, lightly impressed, example.

27 (fig 14), 1 example. Poor impression, appears to have thin upright to H and small lower loop to B.

28 (fig 14), 6 examples. Large mark, distinctive shape with large globular terminals to H.

29 (fig 14), 4 examples. Rather wide mark, top of H slightly forked, and there is a faint nick at the top right of the B.

30 (fig 14), 1 example. H has very large leg and bar on LHS, the leg leans to the left and has nicks on its LHS top. Slight serrations to base of B and a nick from the edge meets its top loop.

31 (fig 14), 1 example. Poor example but B appears to squash in, converging on base of H.

32 (fig 14), 1 example. Poor impression, B appears to have a pronounced dot at its top.

33 (fig 14), 5 examples. Neat initials, B larger than H. Top of B has slight striations coming from it.

34 (fig 14), 26 examples. Three small nicks above leg of H, small nicks to top and side of loop of B, and a dot in its lower half.

?34 a further four examples probably of this type.

35 (fig 14), 1 example. Large space to left of initials, low wide mark.

36 (fig 14), 1 example. Damaged mark, leg of H appears slightly S shaped with large round serifs.

37 (fig 14), 3 examples. Good bold outline to mark, in contrast with poorly executed initials. The top of the H has a claw like terminal, the base a crude lump, with a flaw to the border. B is poorly defined with irregular edges.

38 (fig 14), 7 examples. H has a globular top and a nick at the bottom. Border has serrations all round.

39 (fig 14), 2 examples. Very crude mark, with a double 'cross bar' to H.

40 (fig 14), 4 examples. Simple rather 'limp' shape to stamp, very rounded edges to die. Thickening and 'scratches' under the RHS bar of the H.

41 (fig 14), 1 example. Damaged mark, but shows scratches to LHS of H, extending from the cross bar.

42 (fig 14), 2 examples. Rounded edges to the die, numerous small nicks and scratches on the field, in particular two small very fine marks to left of bar on H.

43 (fig 14), 1 example. Good well defined edge to die, H has a sharp angled top and globular bottom.

44 (fig 14), 3 examples. Shield shape, clearly defined letters and edges. The leg of the H squashes into the LHS border and is shorter than the B, which has well separated loops.

45 (fig 14), 7 examples. H has a forked top to it, and there are lumps at the top and to the right of the top loop of the B.

46 (fig 14), 2 examples. Faint vertical scratch between the legs of the H and through the loops of the B. Also, an indentation on the lower part of the top loop.

47 (fig 14), 1 example. Long pointed tail to the mark, initials lean slightly to the right.

48 (fig 14), 3 examples. Quite large gap to the LHS of the H, forked top to leg of H. Bottoms on letters line up well.

49 (fig 15), 4 examples. Clear pointed outline, B has serifs, and there is a distinctive nick in the edge of the die just below the B.

50 (fig 15), 3 examples. Thin simple leg to H with small scratch extending from its base. The top loop of the B has a serrated edge.

Unbordered heart-shaped marks with dots. Twenty-one types fall into this category. Most of the marks are heart-shaped, although some are

more rounded or shield shaped. Most have just one or two dots placed between or around the marks.

51 (fig 15), 6 examples. Distinctive mark with lozenge and dot decoration below. The junction with the mark is slightly off centre to the left.

52 (fig 15), 1 example. Two clear scratches from the base of the B. It is a little unclear whether the mark between the upper arms of the H is intended to be a dot, or whether it is just a flaw.

53 (fig 15), 1 example. Curved top, appears to have a small dot under the initials.

54 (fig 15), 9 examples. H has a slightly-forked top, and small serif at bottom. B has larger top loop and faint vertical striations within its loops.

55 (fig 15), 73 examples. Poor impressions, probably all the same die. The H has a forked bottom and very thick cross bar contrasting with the thin B.

56 (fig 15), 1 example. Large rounded stamp with large dot beneath.

57 (fig 15), 1 example. Large mark, poorly impressed, but with clear serifs on the H.

58 (fig 15), 2 examples. Large wide mark with sloping bar to H and bold dot decoration.

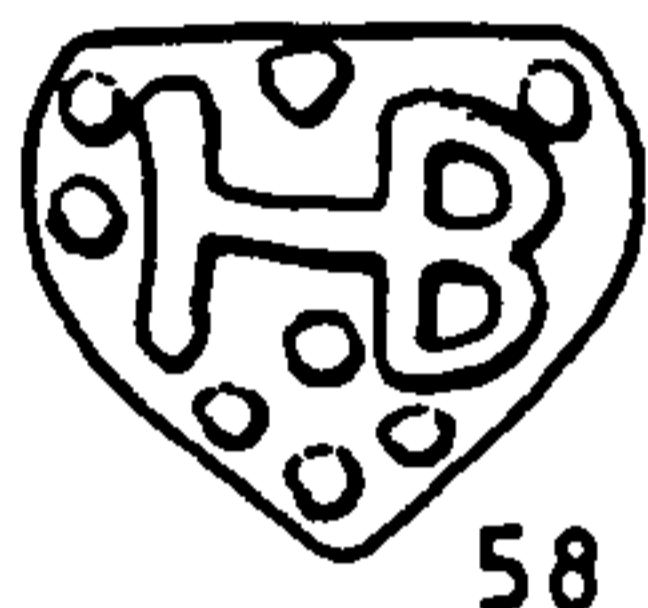
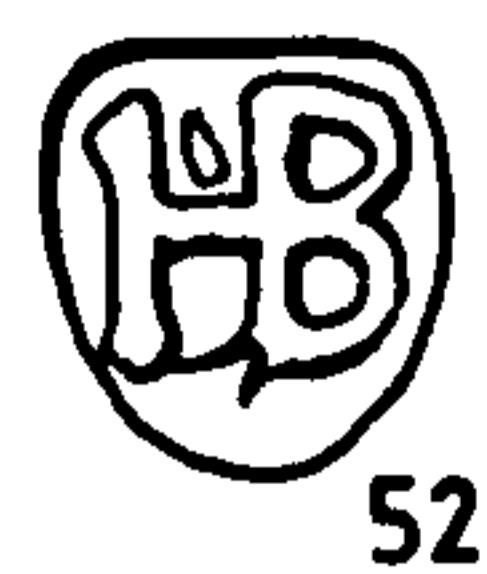


Fig 15 - Henry Bradley Stamp Types 49 - 72.

59 (fig 15), 19 examples. Rounded stamp, converging H and B, very thin tapering upright B.

?59 two examples possibly the same as 59.

60 (fig 15), 15 examples. Dimple at top of border, faint field scratches above LHS bar of H and in lower loop of B which is smaller than the upper loop.

61 (fig 15), 1 example. Damaged LHS. Unusual shape and style of dots.

62 (fig 15), 1 example. Spiked edge to B

63 (fig 15), 2 examples. Toothed edge to die.

64 (fig 15), 8 examples. Very thin spindly B with dominant top loop, squashed bottom loop. The bar of the H and junction of loops on B are slightly staggered; small lump right in the junction below bar of H and upright of B. This die appears to be die 24 after alteration. It appears that the outline of the H has been thickened, and the dots added. The distinctive shape of the B is, however, still visible, and, possibly, a small flaw at the top of the H can still be detected.

65 (fig 15), 2 examples. Sharp outline and clearly cut initials. Well separated loops to the B.

66 (fig 15), ?3 examples. Three damaged and poorly impressed and marks, probably all the same. Large 'nicks' at the top of the H, with rather small squashed bottom to the B.

67 (fig 15), 1 example. Poor example, appears to have a large, sharply defined indent to the heart.

68 (fig 15), 1 example. Poor example, the legs of the H appear to be well spaced and roughly parallel.

69 (fig 15), ?8 examples. Hard to separate this type and 70. Some appear to have features of both dies. This group is characterised by a flaw over the leg of the H, a very rounded edge to the die which makes the impression dish shaped and it has irregularities at the bottom right hand side. The dots are very small, especially that on the left hand edge.

70 (fig 15), 5 examples. Hard to distinguish from 69. One example, in particular, demonstrates clear differences. It has a crisp sharp edge to the die, a better heart shape, the dots are bold and larger and the bottoms of the letters almost touch. It does not seem possible that 69 is merely a worn version of 70.

71 (fig 15), 6 examples. Three lobed dot at the bottom, a nick in the central division of the lobes, a small lump in the top lobe of the B and the bar of the H bulges a little in the middle.

Circular marks with borders. There are two dies of this type. They are rather different in character, one having a plain border and the other serrated.

72 (fig 15), ?2 examples. One example lightly impressed and can't be confirmed as the same die.

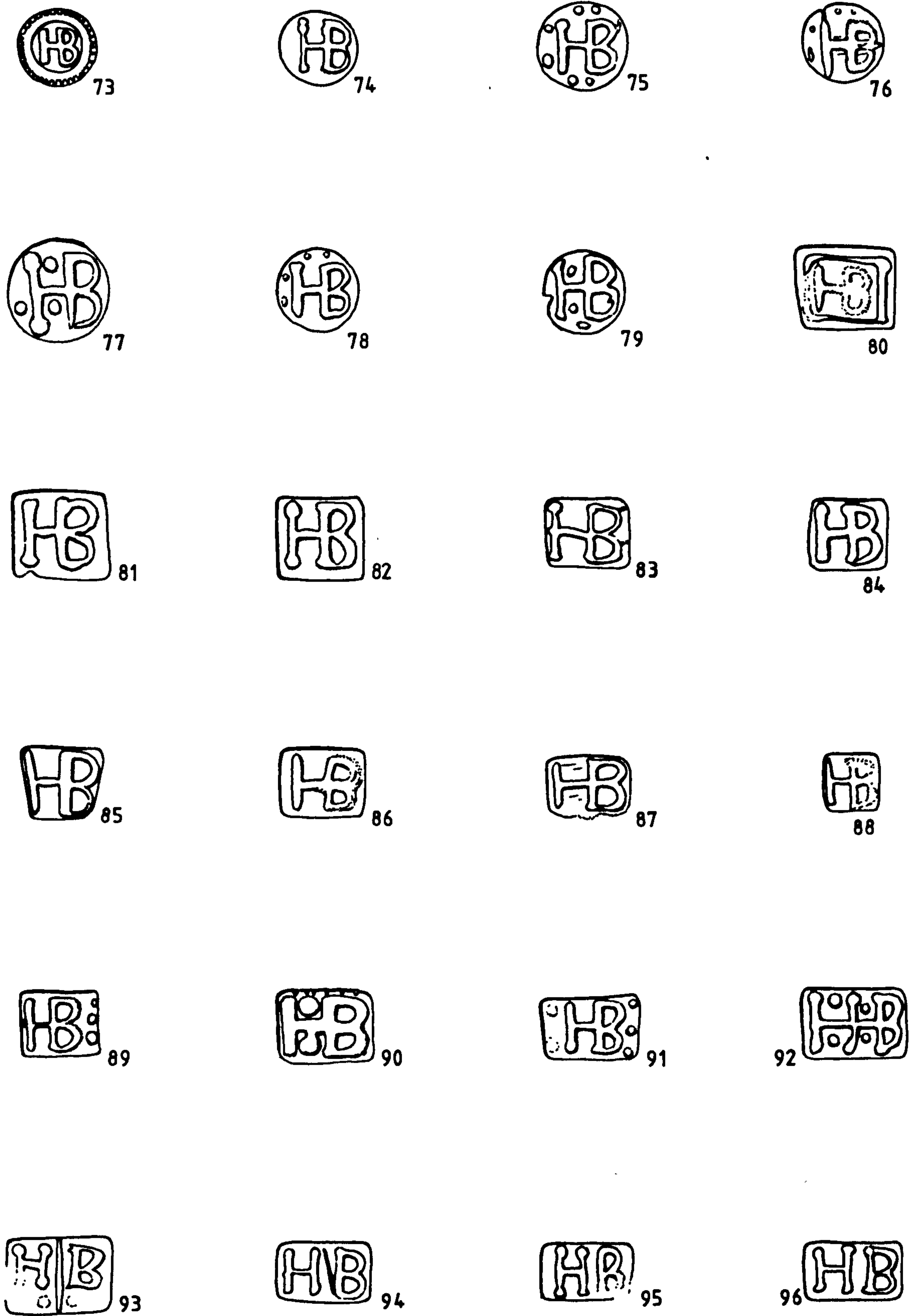


Fig 16 - Henry Bradley Stamp Types 73 - 96.

73 (fig 16), 1 example. Neat letters in serrated border.

Circular marks without borders. There are six examples of this type. Only one does not have dots as well. Since the group is so small already, this mark has not been isolated further.

74 (fig 16), 2 examples. Slightly squashed circle, lettering a little to the right of the mark. Distinctive double dot at the top of the H. Poorly formed B.

75 (fig 16), 1 example. Bar of the H angles down to the right. Lower dot on LHS is notably larger than the others.

76 (fig 16), 6 examples. Very crude mark, scratched and poorly defined letters. Poor small dots.

77 (fig 16), 2 examples. Large bold mark, large upright to H with big globular serifs. Upright of B is thinner at the bottom where it tapers to a point.

78 (fig 16), 1 example. Very faint dots above and to left of letters.

79 (fig 16), 1 example. Large letters, filling the frame.

Square mark with border. There is only one example of this type of mark.

80 (fig 16), 1 example. Poor example of a bordered square mark.

Square marks without borders or dots. There are eight dies of this type. They tend to have bold, rather poorly formed, letters.

81 (fig 16), 4 examples. Bold large mark, rather lumpy crude letters, large globular serifs to upright of H, well separated loops to the B. Large nick in the bottom edge of the die.

82 (fig 16), 5 examples. Similar mark to 81 but loops of B not so well separated and no nick in border.

83 (fig 16), 1 example. Slightly rectangular mark, two flaws extending from RHS of B.

84 (fig 16), 1 example. Smaller square mark, chunky letters, the bar of the H slopes up to the right.

85 (fig 16), 2 examples. One example poorly impressed but the upright of the H appears much thinner than that of the B. The die has a distinctive rounded lower right corner to it.

86 (fig 16), 9 examples. Very crude B, with rough outline and numerous scratches visible. The loops are rather square, especially the lower one.

87 (fig 16), 3 examples. All lightly impressed. Bottom of die appears uneven, with a step under the B, which fills the RHS of the die well.

88 (fig 16), 1 example. Small square mark, poor impression.

Unbordered square marks with dots. There are four examples of this type. They vary in appearance but tend to be rectangular in shape.

89 (fig 16), 1 example. Very sharp cut corners to the die. The dots appear to be cut into on the RHS suggesting that the die was trimmed to shape after these had been drilled.

90 (fig 16), 2 examples. Very large chunky letters and dots, almost entirely filling the frame. There are at least six notches in the top edge of the die.

91 (fig 16), 1 example. Very wide stamp

92 (fig 16), 4 examples. Distinctive pattern of joined initials and dots.

Square marks with separated initials. There are four types of mark with the initials separated. Two have a dividing bar between the letters, and one of these also has dots. Two of them are plain.

93 (fig 16), 2 examples. Divided frame, with dots below the letters.

94 (fig 16), 3 examples. Incompletely divided frame with weak diagonal dividing bar.

95 (fig 16), 2 examples. Both poor impressions but the H has rounded dot serifs which make the top and bottom of the H appear to converge slightly.

96 (fig 16), 1 example. Similar in style to 95, but larger loop on the top of the B and the legs of the H don't appear to converge.

After establishing that Henry Bradley used this range of marks, there were three key questions which arose about his production. Was he responsible for any of the symbol marks found on the site. Did he consistently mark all of his products. Is there any significant relationship between his stamp types and mould types?

The first question was relatively easy to answer. Three of the pipes marked HB had multiple-stamp decoration on the bowl. The first, mould type 28, (fig 17.1) has HB mark 34 on the heel and five impressions of a horseshoe stamp on the bowl. They are neatly arranged to form a cross motif facing the smoker. This arrangement seems to be common amongst decorated Broseley pipes, and the general layout is very similar to the decorated WH pipe which was also found on the site (fig 17.7). The outer four horseshoe impressions on the HB pipe have had a small quantity of galena added to the impressions to form a yellowish green glaze. This is the only recorded instance of glaze being used to enhance pipe stamps which is known to the author from this country. It may be of significance that a few fragments of pottery saggars were found amongst the pipe kiln waste. Slip decorated earthenwares were being produced in Benthall at this period using the local clays, and there there may well have been close contacts between the potting and pipemaking families.

The second bowl, mould type 34, (fig 17.3) has a much poorer arrangement of marks. It has HB mark 45 applied four times on the heel (inverted) around a central ring impression. Facing the smoker on the bowl is a

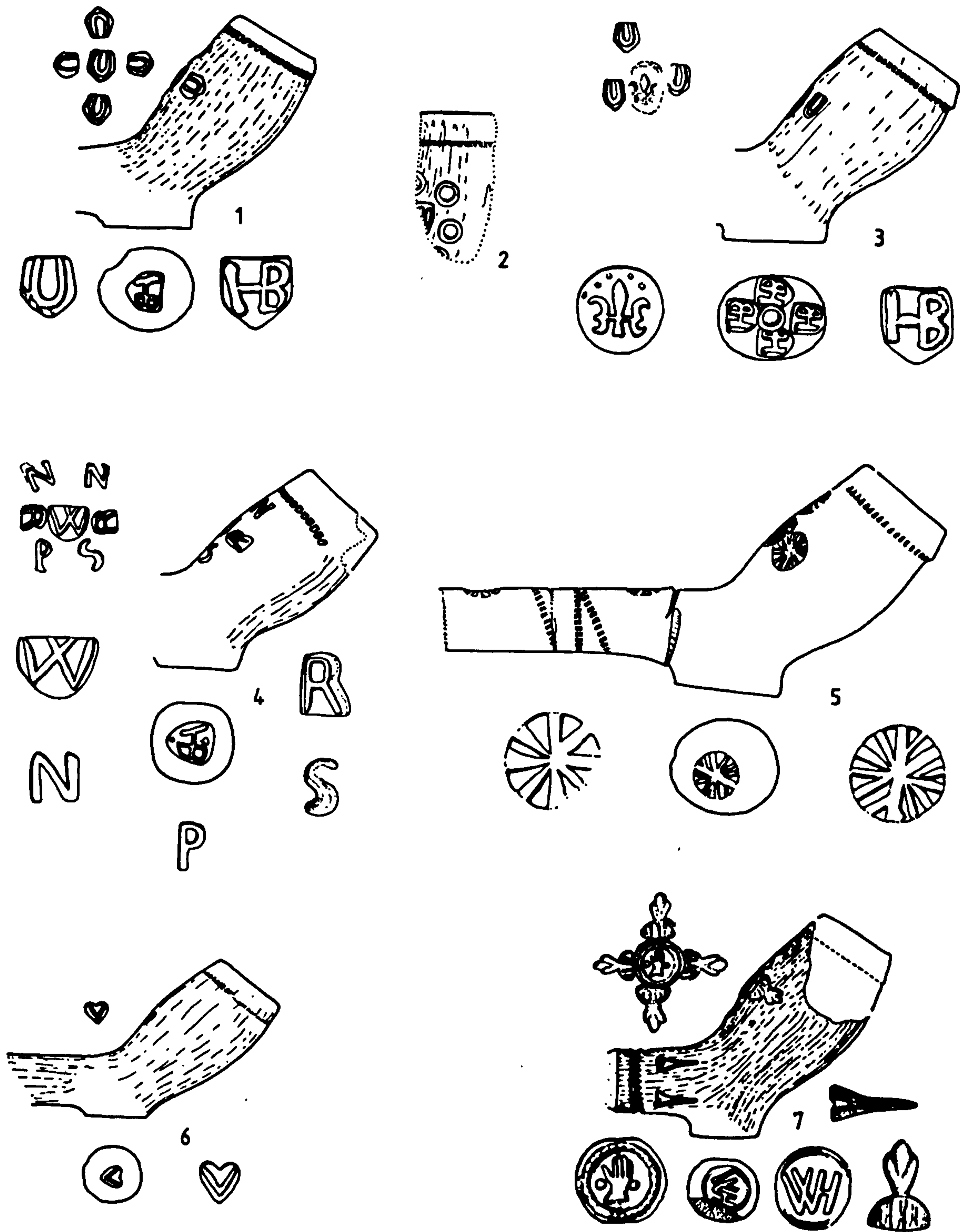


Fig 17 - Henry Bradley Kiln Site : Multi-Stamped Bowls.

faint impression of a fleur-de-lys surrounded by three poorly placed horseshoe stamps. The third, (mould type 28, (fig 17.4) is the most unusual of all. It has HB stamp 59 on the heel, and then a whole assortment of letter stamps facing the smoker. In the centre are the letters RWR. These are rather crudely-made marks, with relief letters in fields which roughly follow their outline. Above these are the letters NN and below PS. These marks (three dies) are most unusual since they are formed by incuse impressions, made by a stamp which has been cut into the shape of the required letter. A single letter H of this type has been noted by Atkinson on a type 5 pipe (1975, 40). However, seventeenth or eighteenth century incuse stamps are extremely rare at Broseley, the only other example known being an early mark (PF) of c1630-50. It is, therefore, odd that Henry Bradley should use them, especially in conjunction with the more usual relief marks.

Likewise, single letter marks are always rare at Broseley. Apart from the incuse H mentioned above, only two others are known. Some type 4 spur pipes have the single letter W in relief, presumably as a maker's mark. The other example comes from the Bradley kiln site (fig 17.6). It is an odd little bowl of very small form, with what appears to be the letter V within a heart stamped on the heel and bowl. It is possible that this is simply a decorative motif rather than a letter. No other bowls like this one have been recorded and it could possibly, also, have been made at the Bradley workshop (see below).

The significance of the letter stamps on the Bradley bowl are quite unknown. Presumably the pipe was specially made for some occasion, the initials representing those concerned. There are no other known examples of letters being used in this way at Broseley. Although rare,

Bradley clearly had at least five different individual letter stamps and, presumably, they were used for more than just this one pipe. Once again we may understand his products in general terms but more examples are needed for us to appreciate the extent and significance of these 'special' pipes.

In addition to these three marked bowls, there is a fourth bowl fragment (fig 17.2) which appears to have the same ring impression on it. In this case the stamp has been used to make a circle of marks around a central unidentified stamp facing the smoker. Presumably, this is another Bradley product. From these examples we can, therefore, see that in addition to the 96 name marks Bradley had at least 8 symbol marks which he used to produce elaborately decorated pipes. Although these pipes only represent just over 1% of the recovered sample, it is clear that he was well equipped with decorative stamps and that such pipes formed a small but important part of his production.

There is also one pipe with stamped decoration on the bowl but no name mark (fig 17.5). This has four 'wheel' impressions on the bowl facing the smoker, the same mark being repeated on the heel. The stem is decorated with bands of stem milling and, somewhat oddly, a different wheel mark. There is another heel with the same bowl mark on it, and the start of stem milling but since most of the stem and all of the bowl are missing it is not known whether this had a similar pattern of decoration. In addition, there is a complete bowl without decoration but with the same stamp on the heel; a heel only marked with the stem mark illustrated, and another bowl which may have a different, ie third, wheel mark on the heel. All five examples appear to have come from the same mould. Clearly, a maker using two or three wheel marks

occasionally decorated the bowls and stems of his pipes. Unfortunately, the mould type did not match any of those with HB marks, so the identity of this maker remains uncertain. It is possible, however, that it too comes from Bradley's workshop.

This possibility is supported by the fact that Bradley does not always appear to have name stamped his pipes. As noted above a fleur-de-lys mark was found on one of the decorated bowls. Although a poor impression, this appears to be the same mark that is found on the heels of some of the pipes. In all, there were nine examples of this mark found on the heel only. Three of these were on type 2 pipes and the remaining six on type 3 pipes. All of these type 3 pipes appear to be from Bradley's mould number 33, confirming that these pipes came from his workshop. So, it can be shown that some of Bradley's products were produced with symbol marks only which raises the possibility that the wheel marks and 'V' stamp mentioned above came from his workshop. Since some of his pipes had symbol marks only, this leads on to the second question which was whether he marked all of his products.

In all, the group contained 23 unmarked bowls. These were not exhaustively compared with all of the HB marked pipes but in at least one instance, an unmarked example from one of Bradley's moulds (31) was found. Unfortunately, because of the difficulty in attributing all pipes to individual moulds, it was not possible to determine the total number of unmarked pipes from Bradley's workshop. If all of the unmarked examples found came from his workshop, this would represent just over 8% of the total. It must be stressed, however, that this is the maximum possible and the actual figure could be anywhere from less than 1% to 8%.

Vd : The Relationship Between Stamp Type and Mould Type. The third question was the relationship between the stamp and mould types. From a synthesis of the data collected during the mould and stamp type sorting, there can be no doubt that there is a positive correlation between the two factors. In specific terms, there is often a close link between the stamp type and the mould type. In all, there were 34 different moulds that could be positively identified from the pipes. Unfortunately, many of these consisted of only one or two examples. However, nine of the groups contained four or more examples from the same mould. Of these, two groups had only one stamp type on them; three groups had two stamp types, three groups had three stamp types and one group had four. The largest groups were two, where there were sixteen examples and both of these had only three stamp types associated with them. This shows that only a limited range of marks was used with each mould type. Likewise, if the stamp types are considered they may be found to occur on more than one mould type but again the range is limited and they cluster with just a few types, rather, than being randomly distributed amongst the different moulds.

This tendency becomes more apparent if the marks are considered in general terms. In fig 18 the individual stamp types have been plotted by bowl form. On the vertical axis the stamps are simply listed in the catalogue order from 1 at the bottom to 96 at the top. Dividing lines have been put in to separate them into six basic groups. From the bottom, these are, full-name marks (1-2), heart shape marks with borders (3-15), heart-shape marks without dots or borders (16-50), heart-shape marks with dots (51-71), circular marks (72-79), and square marks (80-96). On the horizontal axis, the bowls have been plotted by basic form. These are the tailed type 2 pipes (1-6), the type 2 groups (7-15), the



Fig 18 - Henry Bradley Kiln Site : Summary of Marks by Bowl Type. The horizontal divisions represent the six basic types of stamp type described above in Section Vc. These are, from the bottom to the top, full name marks, bordered heart marks, unbordered heart marks, heart marks with dot decoration, circular marks and square or rectangular marks. Each of the 96 stamp types is represented by a 1mm horizontal strip, in which each 1mm square represents an individual mark. The marks are in the catalogue order, with 1 at the bottom and 96 at the top. These horizontal categories are divided into eight vertical sections by bowl type, columns a-h. Each of these represents a number of the bowl form groups described in Section Vb; a = tailed type 2 pipes (mould groups 1-6), b = type 2 mould groups (7-15), c = type 2 general group (39), d = type 3 mould groups (16-37), e = general type 3 groups (38 & 40), f = type 3/5 pipes (group 41), g = type 5 mould groups (42-49) and h = type 5 general group (50). In each of these vertical columns the total number of stamps of each die type occurring on pipes from that column type are shown. This shows that particular die types are associated with particular forms of bowl.

unsorted type 2 pipes (39), the type 3 pipes (16-37), the unsorted type 3 pipes (38 & 40), the type 3/5 pipes (41), the type 5 pipes (42-49) and the unsorted type 5 pipes (50).

This graph clearly shows that there are notable groupings of the marks. The full name marks, for example, only occur on the type 2 pipes, while the square marks only occur on the type 3 and 5 pipes. Likewise although there are one or two bordered heart-shape marks on type 3 and 5 pipes, the vast majority occur on type 2 pipes. Conversely, most of the heart-shape marks with dots and circular marks occur on the type 3 and 5 pipes. It is also notable that, if the circular marks are further divided, *all* the bordered examples (72-73) occur on type 2 pipes and *all* the unbordered ones on type 3 or 5 pipes. Likewise, almost all of the square HB marks with dots or separate letters (89-96) are found just on type 5 pipes. This shows that the division of the marks into groups according to quite minor details of design, does have a significance in relation to their use.

Some of the stamp groups overlap between bowl forms. This is best demonstrated by the unbordered heart marks, with or without dots. In all, there are 56 different types of mark in this category, yet only seven occur on *both* type 2 and type 3/5 pipes. Stamps 16-19, 21-23, 30, 32, 35, 53, 55, 61-63 and 65 occur only on type 2 bowls, and 20, 25-29, 31, 33, 34, 36-43, 45, 47, 49-52, 56-60, 64, and 66-69 only on type 3/5 bowls. If these were replotted according to this order, there would be a well defined division between those marks used on type 2 pipes, and those used on type 3/5 pipes. So detailed analysis of the mark and bowl forms shows that there are clearly defined divisions within and between the various groups. These can be summarised thus:-

Type 2 pipes. With just three exceptions these pipes are always marked with heart-shaped dies. The full name heart-shaped marks and the bordered circular marks are exclusively associated with this bowl form. Of the remaining heart-shaped marks the bordered type is almost entirely confined to this bowl form, while those with or without dots are of a type found on type 3/5 pipes, although the individual dies used on the different bowl forms are almost always different.

Type 3 pipes. The majority of these pipes are marked with heart-shaped stamps, either with or without dots. As noted above, the individual dies are almost always found only on this type of pipe and in only one case is a bordered mark recorded. In addition, unbordered circular and square marks without dots and with ligatured initials are occasionally found.

Type 5 pipes. Although occasionally found with all three types of heart-shaped mark or unbordered circular marks, these pipes are most frequently found with square marks, generally with dots and/or separated initials. The less well defined groupings of these marks is probably due to the poor stylistic separation of this group. As noted earlier, these bowls were separated on the criteria of an emerging tail. However, several of these bowls in fact owe more to the type 3 series than to the type 5, hence the overlap between the 3/5 marks. If, as speculated, Henry Bradley went on to produce developed type 5 pipes with full name rectangular marks, it is expected that a clearer typological development of both form and mark could be defined. It is thought that the square marks became dominant in the better type 5 forms, gradually giving way in turn to full name marks.

Ve : General Summary and Interpretation of the Finds. At the end of a detailed study of the mark and mould forms we can conclude that there are well-defined and demonstrable differences between the mould and stamp types. The remaining question is how we interpret these findings, both in relation to typological and chronological development, and in relation to the functioning of Bradley's workshop. If we regard the bowl forms 2-5 as representing a strict chronological sequence, we could argue for a development from bordered heart stamps, through unbordered and circular marks to those with square marks. Conversely, we could argue that each type of bowl had its own distinctive style of mark that was associated with that form, irrespective of when it was made.

Let us return for a moment to consider the nature and dating of the waste itself. The waste has been found to represent at least 50 mould types, and probably well over 100. Likewise, there are 96 different name marks and a further 8 decorative stamps. Many of the forms of bowl and mark are almost identical, so that, unless there were about 100 moulders at the workshop, which seems most unlikely, there could be no possible use for all this equipment at any one time. In addition, it was noted during the examination that there appeared to be two or three different types of fabric present. The majority of the pipes are of a slightly gritty, off-white fabric, typical of Broseley pipes until the middle of the eighteenth century. But, in addition, there were some which exhibited a distinctly pinkish fabric and some with a soft greyish fabric often with numerous glittering inclusions, presumably some form of mica.

Finally, it was observed that many of the pipes have, in fact, been smoked. This is most unusual in kiln tips where the pipes are usually

all fresh and clean, having simply been broken during firing or handling. Out of those HB pipes where an opinion could be formed, 93 showed signs of having been smoked and 104 did not. If, as this indicates, some 47% of the pipes had been smoked, the whole way in which the deposit was built up must be considered. The wide range of forms and presence of different batches of clay both suggest that these pipes represent production over a period of time. If this is the case, then it may be reasonable to suggest that the waste represents a combination of wasted pipes and pipes smoked by the workers ie general workshop waste, rather than a pure dump of waste pipes. All this evidence supports the theory that ^{the} deposit must represent a period rather than an instant of the workshop's production.

As stated earlier, the bowl forms fall within the period c1660-90 and it is likely that this waste represents a block of at least 10 years and possibly much more, within that period. So, although it is difficult to make any firm judgements about which forms were necessarily current at any specific time, we can, at least, view the general state of pipemaking in later seventeenth century Benthall. We must, therefore, consider the implications of this group against the background of it representing a period of production.

Let us first consider the workshop itself. The most obvious conclusion is that Henry Bradley must have been a master pipemaker employing a number of journeymen in his workshop. The very large number of mould and stamp types could not have needed by just one or two workers. While we can only speculate on the actual number, we must surely be considering something in the order of 10 or perhaps even more. We must, therefore, regard him as a successful and established maker, making

a competitive and up to-date-range of products. Our knowledge of pipeshops at this period is so patchy that we cannot even guess at the degree of job specialisation within the workshop or the role that boys or women may have played in the preparation or trimming. Likewise, we do not know how this works ranked comparison with others in the area, other than to say that the quantity and range of known finds indicate that it must have been one of the major workshops of its day.

Turning to the products; how consistent was the quality and finish of the pipes and does this vary by form and/or period? Almost without exception the pipes were burnished, and indeed the burnishing of pipes is one of the characteristics of the Broseley industry. In many cases, where sufficient stem survived, it was noticed that there was a gap between the end of the stem burnish and the bowl burnish. It would be interesting to compare other groups, and see if this is a common feature or one specific to this workshop. To assess the overall quality, however the bowl burnish was considered to try and identify the quality and consistency of the finish of Bradley's pipes.

The quality of the burnish was graded into five basic categories. These were; 0 = no burnish; P = poor burnish; A = average burnish; G = good burnish and F = fine burnish. A poor burnish was characterised by sloppy, hastily and unevenly applied strokes, with wide gaps between each stroke and often unburnished areas at the top and bottom of the bowl. An average burnish has even, fairly consistent strokes all round the bowl, but with gaps clearly visible between each stroke. A good burnish is well applied, with close even strokes neatly covering the bowl, although small gaps may still be visible between some of the strokes. A fine burnish is defined as one where the whole surface of

the bowl is polished to a glossy sheen, with each stroke being hardly discernable from the next, and no gaps between the strokes.

Although every attempt was made to be consistent in these gradings, it is often difficult to firmly place an individual bowl in one category or another. An attempt was made to allow for any subsequent breakdown or discolouration of the surface, which was not a product of its original finish. This can make attribution particularly hard with slightly underfired or weathered pipes. On balance, however, any transgressions should be outweighed by the size of the sample. All of the HB pipes, where the burnish could be assessed, are listed by bowl type below.

Table 3 - Burnish of Henry Bradley Bowl Forms; Numbers Recorded. The quality of burnish on the three principal bowl forms is shown. 0 = no burnish, P = poor, A = average, G = good, F = fine.

Bowl form	0	P	A	G	F	Tot
Type 2 (moulds 1-15)	2	0	40	19	2	63
Type 3 (moulds 16-38)	8	2	87	23	0	120
Type 5 (moulds 42-49)	5	2	12	1	0	20
Tot	15	4	139	43	2	203

From this it can be seen that, although there are certain differences in the finish between the various styles of pipe, there seems to be an overall consistency in the quality of the burnishing. Only 15 bowls (7%) had no burnish but an even smaller number (2%) had poor burnish. So, although some pipes were produced without burnish, it seems that when burnish was applied, it was required to be of at least average quality. The majority of pipes had average quality burnish (68%), some had a good burnish (21%) but only a few had fine burnish (1%). So we may conclude that Bradley's output was predominantly of average to good quality finish, with a smaller production of (cheaper) unburnished pipes. He did not produce many poor or top quality pipes, presumably aiming at the larger mid-range market range.

But in addition to this general assessment of his products we may also note differences in the standards between the different bowl forms. If the number of bowls of a particular finish is expressed as a percentage of its type we can see a different pattern.

Table 4 - Burnish of Henry Bradley Bowls; Percentage by Bowl Form. The quality of burnish on the three principal bowl forms is shown. 0 = no burnish, P = poor, A = average, G = good, F = fine. The figures are rounded to the nearest whole per cent.

Bowl form	0	P	A	G	F
Type 2 (moulds 1-15)	3%	-	63%	30%	3%
Type 3 (moulds 16-38)	7%	2%	73%	19%	-
Type 5 (moulds 42-49)	25%	10%	60%	5%	-

This shows a gradual decline in the quality of the finish between the three types. The type 2 pipes were sometimes finely finished, and nearly one third of them had a good finish, while there were no poor examples and only 3% unburnished. The type 3 pipes show a decline in the better finishes and more poorly finished or unburnished products. With the type 5 pipes a quarter are unburnished, while the number of poorly finished pipes rises to 10%. So, although the *majority* of pipes remain of average finish, there is a marked decline in the overall standard.

This decline can also be seen when the milling is considered. Milling is another indicator by which the quality of production may be assessed. As with burnishing, there are pronounced regional and chronological factors to be considered but at this period in Broseley it is still a feature of almost every pipe. The basis of this assessment is that it takes a little longer to give a pipe full milling rather than partial milling. Because of this a fully milled pipe was recognised as a superior product which could, therefore, either be more readily sold or sold at a higher price. As with burnishing, there are five basic

categories of milling which are recognised. The amount of milling round the rim, regardless of how many sections it occurs in, is added up and estimated to the nearest quarter. Thus 0 = no milling, 1 = one quarter milled; 2 = half milled; 3 = three-quarters milled; 4 = fully milled. This makes it a more easily defined measurement than the assessment of burnish quality, although a complete rim is, of course, needed. The milling recorded for the HB pipes is as follows:-

Table 5 - Milling of Henry Bradley Bowl Forms; Numbers Recorded. The amount of milling is shown for the three principal bowl forms. 0 = no milling, 1 = one quarter milled; 2 = half milled; 3 = three-quarters milled; 4 = fully milled.

Bowl form	0	1	2	3	4	Tot
Type 2 (moulds 1-15)	0	0	0	7	47	54
Type 3 (moulds 16-38)	0	0	11	45	41	97
Type 5 (moulds 42-49)	0	0	3	8	2	13
Tot	0	0	14	60	90	164

From this we can, once again, see a similar pattern of 'quality' with the type 2 pipes usually being fully milled; the type 3 pipes showing a decline in this standard, which becomes pronounced in the type 5 pipes. Once again, the pattern is clearer if the figures are expressed as a percentage of each type:-

Table 6 - Milling of Henry Bradley Bowls; Percentage by Bowl Form. The figures are rounded to the nearest whole per cent.

Bowl form	0	1	2	3	4
Type 2 (moulds 1-15)	-	-	-	13%	87%
Type 3 (moulds 16-38)	-	-	11%	46%	42%
Type 5 (moulds 42-49)	-	-	23%	62%	15%

From this we can see that the majority of type 2 pipes were fully milled. The type 3 pipes, however, are split roughly equally between three-quarters and fully milled. Amongst the type 5 pipes the majority now only have three quarters milling, with a substantial number being only half milled.

So, both indicators of quality which we apply to this group of pipes indicates a similar decline. Given that there is a general chronological evolution through these types, we may speculate that the workshop was built up on the production of well finished products. but that later in its life the standard fell. Perhaps this 'lowering of standards' was the result of trying to step up production to meet the demands of an established market. This is clearly an area where comparative groups from contemporary workshops, both new and established, are needed to see whether this is a period of general decline in quality in the Broseley industry or a trend peculiar to Bradley's workshop.

With regard to the bowl forms; the fact that a period of production is represented does not mean that there is necessarily a strict chronological development through the bowl forms. The probate of Thomas Roden (Appendix 3) makes it clear that several designs would be in production at any one time. In addition, the heart stamps with or without dots are found on both the type 2 and 3 pipes and, likewise, square and circular marks on both the type 3 and 5 pipes. Although the individual dies are not always the same, the general style of the mark is still a common link between them, suggesting that they were in production at the same time. The only real difference is between the type 2 pipes which only have a full name or bordered heart mark, and the type 5 pipes which only have certain types of square mark.

It is suggested that these may, perhaps, represent the extremes of a general evolution. Presumably both mould and stamp types had a limited life expectancy which would account for two factors. Firstly, the clustering of mark and mould types would, in part, be a product of only a limited number actually being in existence at any one time and, thus,

being capable of being combined together. Secondly, one would expect a moulder to regularly work at a press set up with a particular mould. If he were producing a run of pipes at that bench it would be expected that he would use the same die with his set of tools, rather than keep changing it. But, if both mould and die had a limited life, one might expect to be able to observe a certain chronological evolution in their use.

The most likely sequence seems to be that the earliest type 2 production may have just been produced using bordered heart-shape marks. This may have been before the introduction of the type 3 form, thus explaining the absence of the bordered mark on that bowl form. Then, after the introduction of the type 3 *both* forms were produced using heart-shaped marks either with or without dots. Gradually the type 2 went out of fashion and was replaced by the type 5. Likewise the heart-shaped marks gradually gave way to circular and square ones. And not only were different forms produced simultaneously, but also different sizes of each form. Thus we can observe typological and chronological developments which have to be seen as part of a gradual evolutionary trend. There are likely to be few, if any, cases of a particular style or form replacing all previous ones overnight. New forms may have continuously been introduced and copied from other makers, each new mould or mark slightly differing from the last until a new style is discernable. If we can identify these gradual changes we will be better able to understand the progression of the pipe industry and the inter-relationship of different workshops in creating and maintaining regional styles.

The examination of this particular group of material has demonstrated

that our current knowledge of the Broseley industry is limited in a number of ways. The kiln group has shown that, by the second half of the seventeenth century, there were already large scale manufactories producing a complex range of products. The full range of products and nature of these workshops can only be explored through the recovery of more kiln samples. It has also been possible to show that the application of more detailed methods of analysis can reveal data about a wide range of workshop practices and reflect the changing styles and methods used at Broseley. In comparison with our existing concept of the development of pipemaking in Broseley it is clear that a much wider range and depth of research is needed to understand this one centre, let alone its regional or national position, with regard to the pipe trade.

VI : The Broseley Typology.

One aspect in particular which was apparent in the study of the Henry Bradley material was the limitations of the current Broseley bowl typology. The first typology of Broseley pipes was produced by Oswald and James in 1955. This was extended and refined by Atkinson for his booklet on Broseley pipes (1975), and a slightly shortened version of it was included in Oswald's *Clay Pipes for the Archaeologist* (1975). Although these previous typologies cover the principal forms produced at Broseley, they do not adequately cover the wide range of sub-types which occur, and there are some forms which are not represented at all. A new series has, therefore, been compiled to further extend and refine these existing typologies.

The typology has been compiled from pipes examined during the course of this study. The pipes examined were found over a wide area (figs 32-105), but only those forms thought to have been actually produced in the Broseley / Much Wenlock area, (where there was also a thriving pipemaking centre, (see Section IX below) are included here. The emphasis has, therefore, been placed on material actually found in Broseley or the immediate area or on pipes which are known to have been made by Broseley makers. This excludes some forms (eg fig 73.6-7) which are clearly influenced by Broseley styles. but which are likely to have been made at other centres rather than in Broseley itself.

The object has been to produce a typology which covers the full range of forms encountered. but which remains simple enough to be used as a general recording tool. Clearly, more detailed series can be built up for individual studies, such as the material from Henry Bradley's kiln site, (figs 9-12), and so a degree of variation from the specific form must be allowed when using this typology. To avoid any confusion with existing reports the same type numbers as used by Oswald and James, and extended by Atkinson have been used. Due to the insertion of new forms this does make the number sequence rather erratic but it is the bowl forms which are important and the numbers must simply be regarded as the reference which identifies each type.

The range of basic forms has been extended from 9 to 15. Each number designates a group of bowls with similar forms or characteristics. These are then sub-divided with letters. Thus, a pipe may be identified in general terms as a 'Broseley type 5', or, more specifically, as a 'Broseley type 5d', if that is its form. The forms given by Atkinson have been used as the starting point of this reassessment. Each of his

types has been matched as nearly as possible with forms recorded as part of this study. This ensures as far as possible the standard for each type is maintained. Then, additional forms have been added as required to extend the series and, obviously, other forms or sub-types can be added as and when they are recognised.

Given the quantity of material examined during this study, the range of forms should now be fairly comprehensive. The same advances, however, have not been made with the dating of the forms. While there are large collections of marked pipes from which to build the typology, there are very few groups of properly excavated material and almost no dated groups, from which to build a sound chronological framework. Previously, dating was based largely on the identification of pipes through makers' marks. This study, however, (Section VIII below) has shown these attributions to be less than reliable, which has in turn undermined the whole basis on which the forms are dated. The dates given here are, therefore, merely suggestions based on rather flimsy attributions of makers' marks, on the very few excavated groups and on the likely dates of the forms when compared with the evolution of styles in other areas. They must not, therefore, be taken too literally and may ultimately need to be corrected by a decade or more in either direction. A thorough revision of these dates is clearly needed as good excavated groups become available. The bowl forms used in the typology are all taken from actual examples contained in the groups recorded. The makers' marks have been omitted from the typology but a table at the end of the type descriptions gives details of the individual pipes. The bowl forms can be divided into three basic types; bowls with round heels, bowls with tailed heels and bowls with spurs. The type forms selected for each of these three classes are described below.

Via : Bowls With Round Heels

Type 1 This is the earliest type of pipe found in the Broseley area and as is based on the contemporary London style. It is characterised by a fairly small round heel, and a compact barrel shape to the bowl, which, like the London models upon which it is based, is rarely burnished. It is quite common to find London styles being copied as pipemaking moved to the provinces. But the use of local clays and the rapid evolution of regional forms show that the makers were actually working in the provinces, rather than the pipes being imported. This form is found in a range of sizes which gradually diverge from London styles as they grow in size. Atkinson divided this bowl form into three (a-c). His largest type, however, (c) is larger than any examples recorded in this study and, if it occurs at all, it must be extremely rare. The illustrated example is therefore somewhat smaller and a fourth intermediate size (d) has been inserted as a reminder that there was a gradual evolution of form rather than three specific sizes. This form was probably in use from the introduction of pipemaking to the area (?1630's or earlier) until about 1680.

1a Typical London form in use prior to about 1640.

1b Typical London form of about 1640-60.

1c Larger form, rather more bulbous than London types, c1650-80

1d Largest form, now different from London types, c1660-80.

Type 10 This is a new form which has been inserted into the series. It is characterised by a rather more slender, drawn out bowl than the type 1 pipes, although it still retains something of the barrel shape. This is not a London form and probably represents the earliest evolution of a new bowl type in Broseley. In contrast with the type 1

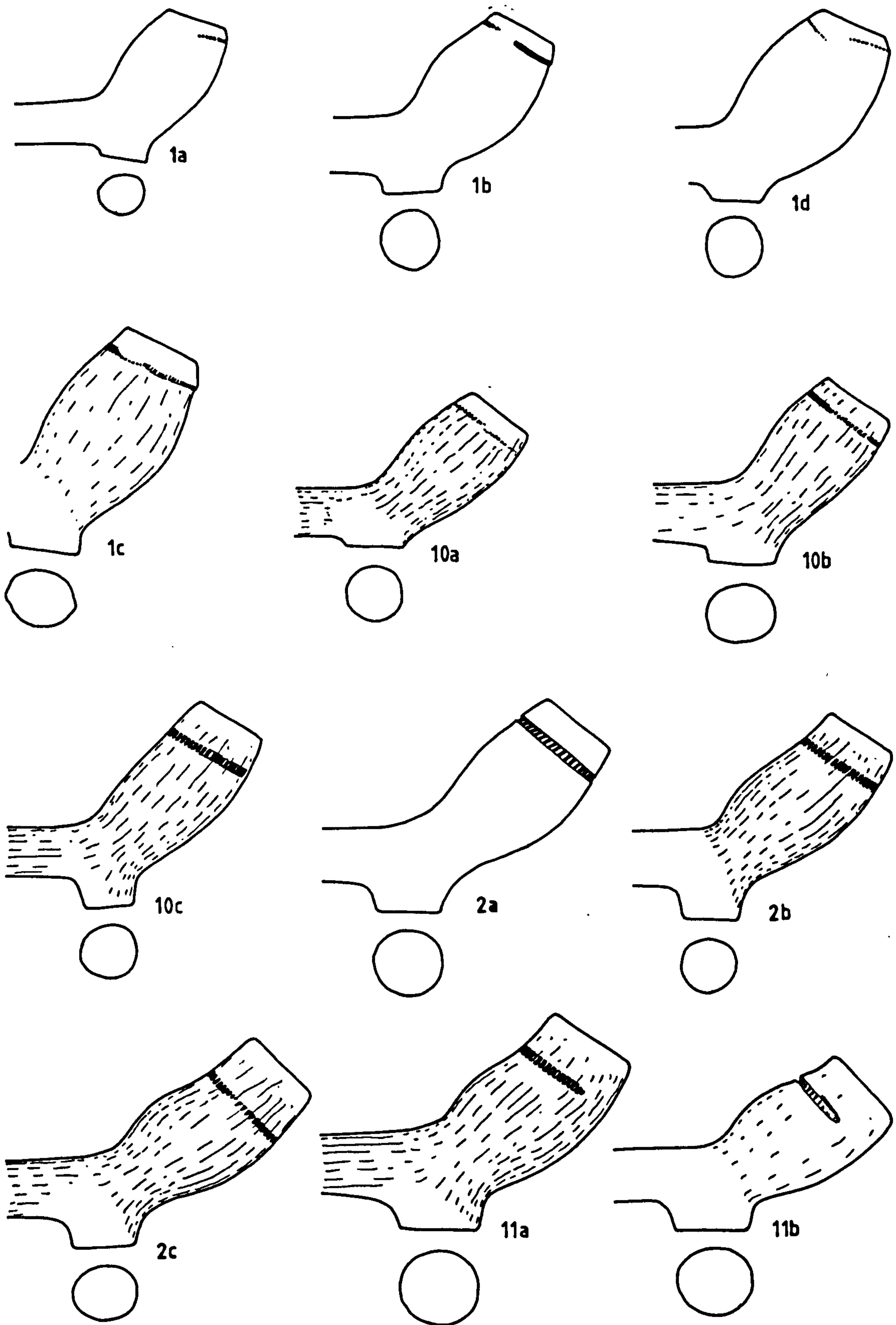


Fig 19 - Broseley Bowl Typology.

pipes, all of the illustrated examples are burnished, indicating the widespread adoption of this technique. The suggested dating for this form is c1640-70.

Type 2 This is one of the distinctive Broseley forms characteristic of the industry. It has a slender elongated bowl derived from the type 10 pipes but with a strongly curved form. There is generally a constricted top and bottom to the bowl, with a marked swelling in the centre. The bowl leans away from the smoker and has a well defined round heel, which is fairly small in comparison with the bowl size. Atkinson illustrated two forms (a & b) to which a third has been added (c) since many of the pipes have a more strongly defined swelling to the bowl than that illustrated in the first two types. This form dates to c1660-80.

Type 11 This type has been introduced to cope with the numerous bowls which fall awkwardly between forms 2 & 3. It has the same curved bowl form as the type 2 pipes, but is rather thicker and squatter. In addition, it has a markedly larger heel, although not as large as the type 3 pipes. Two sizes are illustrated, but there are numerous variants of this type. This form probably dates to around 1670-90.

Type 3 This form is characterised by a very large round heel which often flares out from the base of the bowl. The bowls come in a wide range of sizes and forms, but are generally rather squat and dumpy. Some retain the rather elegant curved form of the type 2 pipes (3a), while others become very thick and 'lifeless' (3d). This form probably dates to c1670-90.

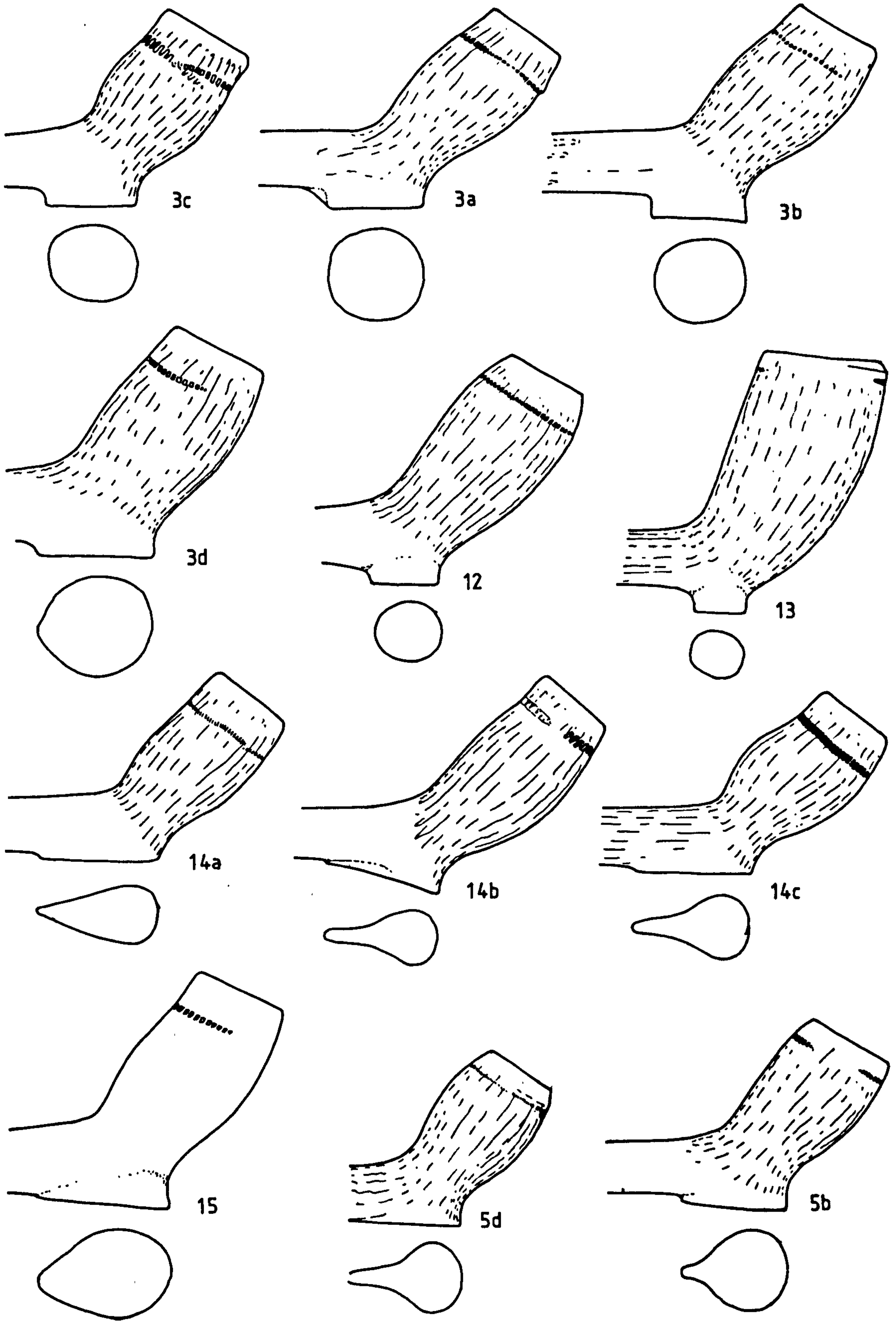


Fig 20 - Broseley Bowl Typology.

Type 12 This is a rare bowl form which appears to be a late derivation of the type 2 pipes. It has a more slender bowl and smaller heel than the type 3 pipes but a larger form than the type 2 pipes. Suggested dating c1680-1700, although a slightly fuller bodied version of this form was found in the Mount Street pit, Stafford, which was more like a type 5a bowl with a small round heel. The pit contained material of c1700-20. It may, therefore, be possible to differentiate early and late forms of this type during the period c1680-1720.

Type 13 This is another rare bowl form which must be based on an imported model, since it owes nothing to the developing Broseley styles. The large upright bowl and small heel are very similar to the London type 25 pipes (Atkinson & Oswald 1969, 180) which dominated the London and south-eastern markets for most of the eighteenth century. Similar forms were introduced at many centres during the late seventeenth and early eighteenth centuries, and similar forms have been found at Keele in Staffordshire (Barker 1985, fig16.116), and in Chester (Rutter and Davey 1980, fig 18.11). This example possibly dates to c1700-20.

VIb : Bowls With Tailed Heels.

Type 14 The earliest bowls with tailed heels are closely related to the type 10 and type 2 pipes. The bowl forms are almost identical, but the heel has been modified to run back under the stem to form a kite (14a) or 'tadpole like' (14b/c) base. Griffith Powell of Much Wenlock marked type 14b pipes which, since he died in 1673, gives us one of the few reliable dates for any of the bowl forms. The type 14 pipes were probably produced c1660-80.

Type 15 This is another form which appears to be a round heeled type adapted with a tailed heel. The bowl form in this case appears to be modelled on the type 3 pipes. Atkinson appears to include these with his type 5a forms but, given the early form of this type and the long duration of the type 5 form, it seems sensible to differentiate them. Several bowls based on the type 3 form but with oval or tailed bases have been noted and, when more examples are available, it should be possible to sub-divide them into more types. This type was probably current from c1670-90.

Type 5 This type is probably the best known, and most widely copied, style of Broseley pipe. It is one of the most distinctive styles produced at Broseley and was widely used from about 1670-1730. It is characterised by the large round heel which flares out from the base of the bowl and has a tail extending back under the stem. As it had such a long life, there are many slight variations in form but it is hoped that the six types illustrated will cover most of them. These forms do not include regional variations of this style produced in other centres. Close dating of the individual forms is currently very difficult and the suggestions below are very tentative. In general terms the thicker and heavier the construction of the bowl, the earlier in date it is likely to be.

5d c1670-90, small, almost miniature, form produced by Samuel Deacon of Much Wenlock. He died in 1673 but Alice, presumably his widow, was a pipemaker until her death in 1690. and there are later pipes marked Samuel Deacon, indicating a later maker of that name..

5b c1670-1700, medium sized bowl.

5a c1680-1730. This is the most common form, widely used by the Broseley makers for a long period of time.

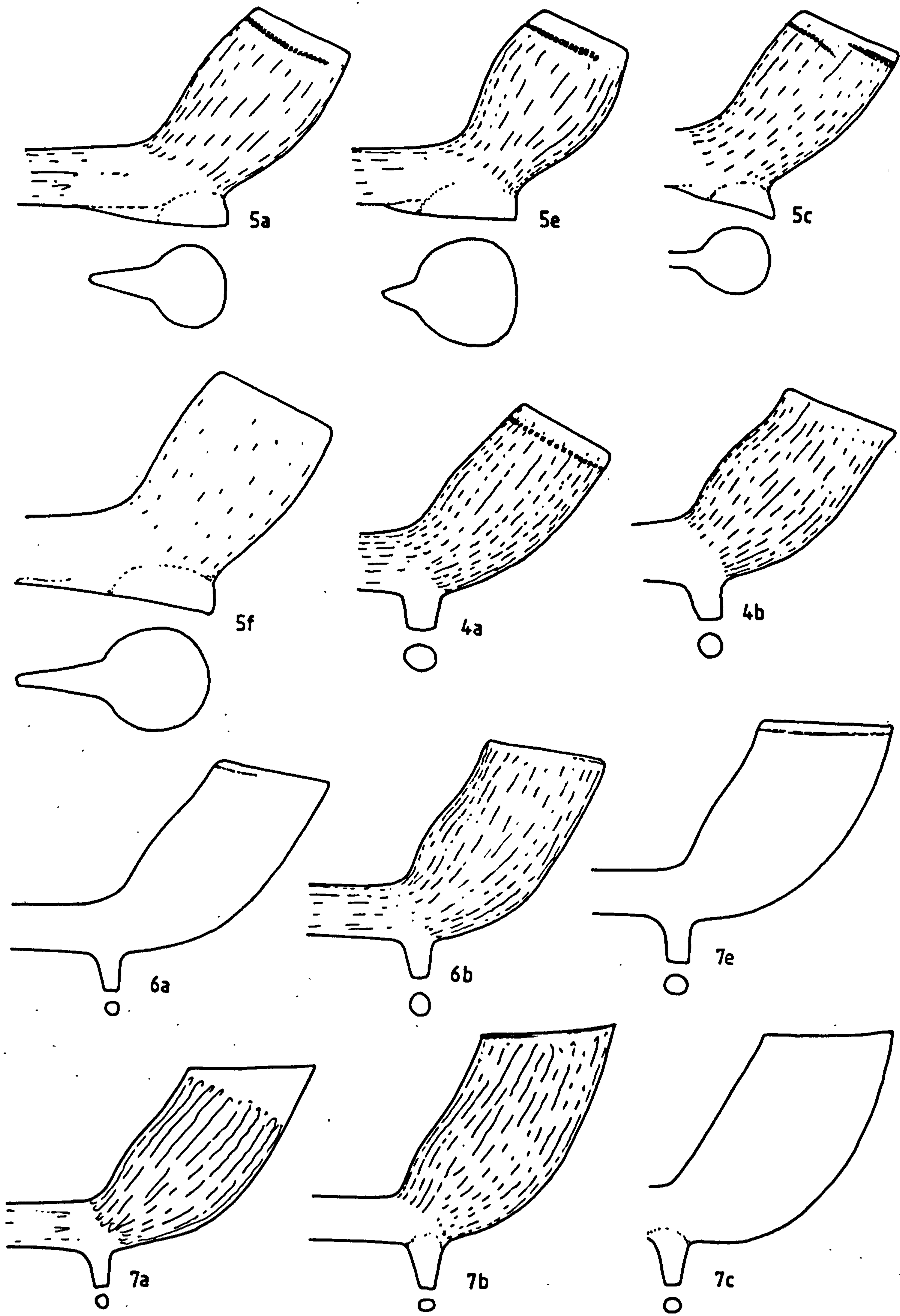


Fig 21 - Broseley Bowl Typology.

5e c1680-1710. This is a more bulbous version.

5c c1700-30. Thinner-walled, more parallel sided version produced in the early eighteenth century. This type is not very common and the illustrated example is not as tall as Atkinson's type since none of that size were seen during the course of this study.

5f c1700-40. Large baggy form, often rather crudely made. This form seems to have been made particularly by the Taylor family of Much Wenlock, who were working well into the eighteenth century.

Vic : Bowls With Spurs.

Spur pipes were not made at all in Broseley until the end of the seventeenth century. They were then introduced at a time when there seems to have been a general vogue for larger and more elegant spur pipes all over the country. Many production centres at this time introduced or developed spur forms, which often totally replaced the older heel forms during the eighteenth century. This was the case at Broseley and, although the type 5 pipes continued alongside spur forms for many years, they did not develop any further, and the entire production gradually switched to the spur types. The eighteenth century spur bowls present a number of problems for the archaeologist. Being much larger and with fine walls, they are easily crushed or damaged and so are less frequently represented in available collections of material. Also, the maker's mark was placed well down the stem, so it is rare to have both mark and bowl form as a guide to date. The bowl forms too appear to have been very long lived and, with so little data on form or maker it is difficult to build up a comprehensive or well dated sequence. This has always been the case and in Atkinson's typology there is a gap between 1770 and 1780 for which no form is

given. It is suggested that this is not due so much to the absence of forms for this period but to an underestimation of their currency.

Type 4 The type 4 pipes are the earliest spur forms produced at Broseley. The form is typical of late seventeenth century spur pipes in production in surrounding areas and could have been copied from a number of models. This early form is characterised by a rather thick bulbous body, based on the type 5 bowl, with a rim line which dips down away from the smoker. The bowl shape is rapidly developed to include a slightly flared lip (4b) which is not characteristic of the type 5 pipes. The type 4 pipes are dated to c1690-1720.

Type 6 These are finer, thin-walled versions of the type 4b pipes. The rim still drops away from the smoker slightly but not so much as in the type 4 pipes and the bowl has delicately curved lines. It is hard to separate some of these forms from type 7 pipes. Types 6a and 6b are provisionally dated to c1710-40 but the problems of dating are underlined by type 7e which has been placed here for comparison. It was excavated on the site of Bedlam furnaces (constructed 1757/8) and, therefore, probably dates to c1760-80, despite having a very similar form.

Type 7 This form covers the majority of pipes produced in Broseley from c1730-90. The very subtle changes in form make sub-division or accurate dating difficult and the eighteenth century industry is definitely an area in need of more research. The bowls are characterised by large, thin-walled bowls, often very well designed and produced. The rim in this type is either horizontal or dips back towards the smoker. The spur tends to be long and tapering and the

bowl away from the smoker tends to be formed of a single strong sweeping curve. There is no clearly defined sequence of development in these forms. Type 7d, with the top cut sharply back towards the smoker, was the dominant form in the St Mary's Grove pit group in Stafford, which was dated to c1770-80. The form, however, is quite different from type 7e (mentioned above) was probably current c1760-80. The presence of these late forms, however, show, that they bridge the 1770s gap in Atkinson's typology. Tentative datings for the forms are:-

7a c1720-40.

7b c1740-70.

7c c1740-80.

7d c1770-90.

7e c1760-90.

Type 8 At the end of the eighteenth century the bowl form does start to change again, when it becomes thinner and more upright, with rather more parallel-sided walls. The bowl often has a simple tubular or funnel-shaped appearance and the spur generally becomes smaller and rather triangular and tends to move away from the smoker under the bowl. It is also well separated from the form of the bowl in that it has little to do with the curves and lines of the bowl and stem. Many of these bowls are rather poorly designed and manufactured. Once again, there is quite a range of individual styles and there is much scope for a closer definition of these forms. There are virtually no bowl forms which can be matched with makers' marks and suggested dates are very tentative. In addition, some forms had a very long life. In the author's collection is a complete pipe of type 8b which was certainly produced this century by Southorn's and could be as late as the closure of the firm in about 1960. Several of the types may, therefore, also have been

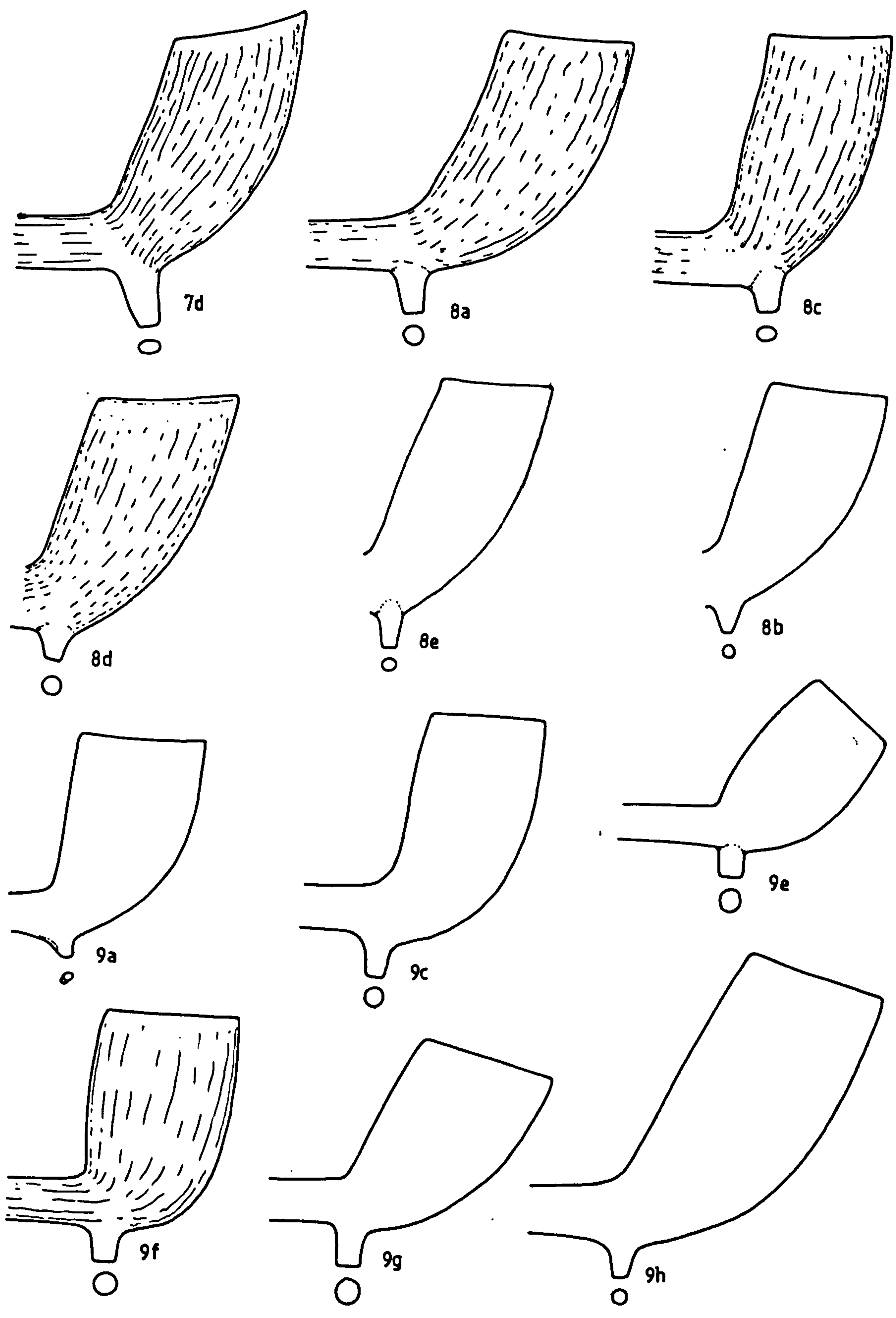


Fig 22 - Broseley Bowl Typology.

produced well after the suggested dates. and reflect the Broseley tradition of making long stemmed pipes, to which these bowls belong.

8a c1770-1800, the illustrated example is from the St Mary's, Stafford, pit group of c1770-80.

8b c1800-1960.

8c c1790-1820.

8d c1780-1800.

8e c1800-30.

Type 9 From the 1840s there was a rapid diversification in the form of pipes, as a wide range of specially shaped and decorated 'cutties' was introduced. Regional forms tend to die out as large scale production and improved transport facilities result in 'national' styles. Broseley, however, continued to specialise in the production of long stemmed spur pipes (see 8b above) and used similar forms for cutty pipes. The types illustrated are merely to indicate some of the forms produced, and it is hoped to compile a fuller catalogue of the nineteenth century forms at a later date.

9a c1840+

9c c1870-1960, used for both long and short pipes.

9e c1880+ several styles of miniature bowl were produced.

9f c1880+

9g ?1860+

9h ?1860+ this example is from a complete 'churchwarden' with a twist stem produced about 1880-1900 but the form was probably in use before that, and certainly until well into the twentieth century.

For quick reference the suggested dates of each form are given below, together with details of the type example used. Most of these can be found with any mark and associated material in the illustrated groups.

- 1a pre1640. From the Wharfage Excavations, Ironbridge, marked PF.
- 1b c1640-60. From the Wharfage Excavations, Ironbridge, marked PF.
- 1c c1650-80. Shrewsbury Mus. Coll, Unprov, marked RP.
- 1d c1660-80. Shrewsbury Mus. Coll, Unprov, marked RP.
- 2a c1660-80. Shrewsbury Mus. Coll, Unprov, marked GRFE/POVEL.
- 2b c1660-80. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 2c c1660-80. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 3a c1670-90. Scott-Davies Coll, Unprov, marked ?LB.
- 3b c1670-90. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 3c c1670-90. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 3d c1670-90. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 4a c1690-1720. Excavated at the Wharfage, Ironbridge, unmarked.
- 4b c1690-1720. Edward Coll, Preston Boatts, Shrewsbury, unmarked.
- 5a c1680-1730. From excavations in Stafford, marked DANL/OVER/TON.
- 5b c1670-1700. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 5c c1700-30. From excavations in Stafford, marked Sam Decon.
- 5d c1670-90. From the Stretton Rd, Much Wenlock, marked Sam Decon.
- 5e c1680-1710. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 5f c1700-40. Much Wenlock Mus. Coll, marked BT.
- 6a c1710-40. Found at Crewes Park, Broseley Wood, unmarked.
- 6b c1710-40. Edward Coll, from Preston Boatts, Shrewsbury, unmarked.
- 7a c1720-40. Much Wenlock Mus. Coll. Unprov. Marked RICH/ARD/LEGG.
- 7b c1740-70. Found at Crewes Park, Broseley Wood, unmarked.
- 7c c1740-80. Found at the old Severn Trow, Jackfield, unmarked.
- 7d c1770-90. From excavations in Stafford, marked EDW/DEA/CON.

- 7e c1760-90. Excavated at Bedlam Furnaces, Severn Gorge, unmarked.
- 8a c1770-1800. From excavations in Stafford, unmarked.
- 8b c1800-1960. Excavated at Bedlam Furnaces, Severn Gorge, unmarked.
- 8c c1790-1820. Andrews Coll (Shrewsbury), unmarked.
- 8d c1780-1800. Excavated at 15/15a Holly Rd, Little Dawley, unmarked.
- 8e c1800-30. Found at the old Severn Trow, Jackfield, unmarked.
- 9a c1840+. Excavated at 15/15a Holly Rd, Little Dawley, unmarked.
- 9c c1870-1960. Higgins Coll, complete pipe advertising Butlers Ales.
- 9e c1880+. Higgins Coll, made by Southorn or Smitheman Companies.
- 9f c1880+. Higgins Coll, made by Southorn or Smitheman Companies.
- 9g c1860+. Higgins Coll, made by Southorn or Smitheman Companies.
- 9h c1860+. Higgins Coll, complete pipe marked W.SOUTHORN & Co.
- 10a c1640-70. Excavated at 11 Lodge Lane, Benthall, marked V.
- 10b c1640-70. Shrewsbury Mus. Coll, Unprov, marked WH.
- 10c c1640-70. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 11a c1670-90. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 11b c1670-90. From excavations in Stafford, marked IH.
- 12 c1680-1720. Judd Collection (Shrewsbury), marked WS.
- 13 c1700-20. Excavated at 15/15a Holly Rd, Little Dawley, marked WD.
- 14a c1660-80. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 14b c1660-80. Andrews Coll. (Shrewsbury), marked RiCH/PrIS.
- 14c c1660-80. Excavated at 11 Lodge Lane, Benthall, marked HB.
- 15 c1670-90. Excavated at 11 Lodge Lane, Benthall, marked HB.

VII : The Makers' Marks.

Another important factor to emerge from the Bradley kiln material was the very large number of marks in use at the workshop. Despite considerable work on the Broseley makers' marks over the years, no previous study has been able to examine in such detail the development and use of marks within a single workshop. Clearly, many more excavated groups are needed for detailed study before conclusions about Broseley in particular can be drawn, but the general implications of this single study affect our whole approach to the future examination of both individual workshops, and regional industries.

The makers' marks are one of the most interesting and distinctive aspects of Broseley pipes. Broseley makers consistently stamped their products since the early days of the industry and it is the attraction of these marks which has no doubt been responsible for much of the interest in the Broseley industry. The nineteenth century collections were clearly formed largely by bringing together different makers' marks, and Thursfield's article of 1907 included illustrations of some 360 examples. By 1975, Atkinson was able to characterise the form and evolution of Broseley marks and this still stands as the basic reference to them. In brief he was able to demonstrate the introduction of relief circular or heart-shaped initial marks during the first half of the seventeenth century, followed by circular semi-full name marks on the Type 3 pipes and, occasionally, the rectangular or square full name marks which are particularly associated with the Type 5 pipes. During the late seventeenth century spur types (Type 4) were introduced and with them the small circular initial mark designed for the base of the spur. During the eighteenth century square marks across the stem

became usual, to be replaced by rectangular marks along the stem during the second half of the century. These changed from relief to incuse about 1840 and continued in this form until the end of the industry in about 1960.

Unfortunately, both Oswald and James (1955), and Atkinson (1975), chose to illustrate only a sample of the makers' marks, although both included written descriptions of them. This has resulted in only a limited range of illustrations being available for comparison and the production of rather general descriptions of the remaining marks. The Bradley material shows the limitations of this approach. Although there were 96 different name marks, these could be divided into just two basic groups - the full name marks, and the initial marks. It is quite impossible to adequately describe the numerous different dies without the use of illustrations.

The main problem in describing large numbers of similar marks is in producing reliable drawings. When it is realised how many similar dies were in use by some makers, it becomes apparent that the drawings must be extremely accurate, and, even then, it is often not possible to conclusively recognise or identify a mark from a drawing alone. Also, it is often difficult to find a perfect example of any one mark. Any one impression may be incomplete or damaged and it is often essential to compare several examples of a given mark to observe all its details.

These problems have been largely overcome by developing the use of plaster of Paris to record exact impressions of each mark (Higgins 1984c). This enables large numbers of marks from widely separated collections to be held together for comparison and reference. Previous

recording systems designed to deal with this problem had advocated the use of rubbings or photographs to record the mark (eg Davey 1981, 83-84). The first method, however, produces a poor result unsuitable for detailed comparison or drawing, while the second is both time consuming and comparatively expensive and, even then, rarely produces a clear image of all parts of the mark. The casting of copies is carried out in the following manner.

A sheet of clean plasticine is rolled out using a smooth object such as a glass bottle and the surface lightly dusted with talcum powder. This prevents the plasticine sticking to the pipe and ensures a good clean impression. The pipe mark is then pressed gently but firmly onto this surface and rocked gently, 'taking care not to 'double strike' the mark, to give a full and accurate impression. Two such impressions should be made in case one does not take properly or gets damaged before or after casting. Standard size plasticine blanks are stored on sheets of paper, which both enables them to be lifted in and out of a stout storage box and prevents them sticking to the working surface when making impressions. It has been found possible to make about 60-70 impressions on a 10 x 18 cm blank.

Once the blank is full it is placed on a board for casting. A cardboard wall is taped to the board to contain the plaster. Fine quality white dental plaster is used for the casts which are about 15mm thick. The board can be sharply tapped or vibrated during casting to release air bubbles from the surface of the plasticine, thus ensuring a good reproduction of all the detail. If more than one copy is required, it is easy to produce more by carefully peeling the plasticine from the plaster (once it has set) and reusing it. The finished blocks are

stored in archaeological storage boxes, between layers of cotton wool to prevent damage. Each block can be allocated a reference number and each individual impression a sub-division of it. By arranging the marks to 'read' from left to right and recording the start and end of each block in the record book (see introduction), it is easy to relocate any individual mark from a group which has been recorded.

Using this method, it is quick, cheap and easy to record the largest of collections. At Birmingham City Museum, for example, it was difficult to arrange study time with the collections and yet it proved possible to record and make copies of all the Broseley style material in just one day. A total of 232 marks were recorded. It is therefore possible to record large numbers of pipes from different collections in a short space of time. The resulting casts reproduce the exact detail of every mark and in many cases where the mark is stained or damaged the fresh plaster copy is easier to study than the original. From these casts detailed drawings can be built up and an exact copy of the source material is always available for consultation.

Using this method it has been possible to greatly increase the number of individual dies recognised and, through comparison of several examples, to produce detailed type drawings of each mark. It is also possible, for the first time to accurately compare the marks found in the surrounding areas with those known to have been used at Broseley. Well over 1,000 marks have been illustrated as part of this study but many more are held on plaster waiting for comparison and drawing. In 1975 Atkinson (47) recorded about 20 varieties of HB mark. The excavation of the Bradley kiln tip has multiplied this number five times and, even then, a complete sample is not believed to have been recovered. Accurate

recording of plaster impressions allows the detailed comparison necessary to identify the same or new dies used by this maker from other museum collections which may be miles away.

If a similar five-fold increase occurs amongst the remaining material there will be many thousands of marks to record for Broseley alone. Oswald (*in litt* 14.2.84) has been recording pipemarks nationally since 1947 and has now recorded a total of some 6,000 examples. While this in itself is a substantial number, it may be no more than the total used in Broseley alone. Clearly, the lesson of this research in general, and of the Bradley Kiln tip in particular, is that the whole magnitude and complexity of stamp recording must be reconsidered. The only way to objectively compare such large numbers of individual dies is through the compilation of a national reference collection of makers' marks. The casting of plaster impressions offers a viable means by which this could be achieved.

During the course of this study a trial mark index was compiled of Broseley style stamps. It was based on the recording system outlined in the introduction. Copies of all the illustrated marks were copied onto a card index system to enable quick searching and comparison of the available data. When used in conjunction with the reference collection of plaster casts this proved to be an extremely useful and accurate way of storing the information. The main drawbacks are the time required to compile and maintain the system and lack of flexibility in distributing the information. This is because the final product, the card index, cannot easily be copied for publication, thus limiting access to the information to a single master copy. This would limit the value of the effort expended in compiling a national index. It is suggested, however,

that a computer based system could be set up to compile the supporting data, with the expectation that, in the near future, it will be possible to record and store images (ie the drawings of each mark) on a computer system as well. The problems associated with the compilation of a national catalogue are to be examined through a proposed research programme at the University of Liverpool.

The trial study combining accurate and systematic recording with the study of a region has had two effects. Firstly, it has indicated another area where our knowledge of the Broseley industry is sadly lacking. Although a large number of marks have been previously described or illustrated, they fall far short of the total number actually in circulation. Inadequate description or illustration has tended to telescope several similar dies into a single general type. This shortfall has resulted in a simplistic idea of the whole way in which marks were made and used. Secondly, it has produced a wealth of information about the marks themselves, their use and distribution. It is beyond the scope of this thesis to attempt a fully illustrated regional catalogue at this stage (see above paragraph) but the general implications from the pilot study and index are discussed in Chapter 3.

Returning to Broseley, however, the research revealed not only a complex situation within the individual workshops but also an even wider range of makers' marks than previously recognised. This, in turn, has implications about the location and scale of the industry. It was found, for example, that there were many marks at nearby Much Wenlock which did not match those found in Broseley or Benthall and that, despite the proximity of the two centres, there are stylistic differences between the two places. Likewise, in other neighbouring centres there are quite

different marks again. In addition, many of the marks did not fit well with the makers' lists given by Atkinson, and so it was found necessary to reconsider the entire basis and scope of the Broseley makers lists.

VIII : The Makers Lists.

One of the most important and useful tools for the archaeologist or historian is a comprehensive and accurate list of makers from which to identify marked pipes and to draw conclusions about the nature and development of the industry. Broseley is in an unusual position in that the majority of information about the pipemakers comes from the pipes themselves. Because the pipemakers often used full-name marks it is relatively easy to compile a list of their names. In contrast being a 'developing' rather than established centre during the seventeenth and eighteenth centuries, there is a shortage of documentary sources such as are found in towns. There do not, for example, appear to be comprehensive sets of apprenticeship records, or easily exploited lists of inhabitants which give occupation. Nor do the parish registers give occupation and so it is very difficult to locate and identify the known pipemakers even though their names are known from the pipes.

The most comprehensive list for Broseley is that given by Atkinson (1975, 46-87). This appears to be based primarily on the names from marked pipes which are considered to be of Broseley type. These names have then been compared with the Broseley Parish Registers to provide supplementary information and dates. Unfortunately, there are a number of fundamental flaws in the way in which this list has been compiled. Firstly, the parish registers have clearly not been searched

systematically. This means that often only one of many possible options has been found for a given name. Secondly, only the Broseley Parish Registers appear to have been searched. The pipemaking area of Broseley abuts the pipemaking area of Benthall, so it is essential to consider at least the Benthall Parish Registers, where many of the pipemakers are also recorded. Thirdly, the complexity of 'Broseley' as a stylistic region, rather than an individual centre, was not fully appreciated. Broseley and Benthall fell within the Franchise of Much Wenlock, and this research has now shown that Wenlock and probably the areas lying between these parishes as well, were equally important pipemaking centres during the seventeenth and early eighteenth centuries. Well known 'Broseley' pipemakers such as Samuel Deacon are, in fact, now known to have worked at Wenlock, not Broseley. In addition Broseley style pipes were probably being produced as far away as South Wales; and so great care has to be taken in attributing a named Broseley style pipe to the Broseley region at all.

These defects meant that the documentary side of Atkinson's list was found to be totally unreliable. It was not intended to get involved with detailed documentary research as part of this study but, given the importance of the Broseley makers lists a basic revision was considered essential. A full account of the work completed to date has been given with the new lists in Appendix 2. It must be stressed, however, that this is not a completely researched list but a working list to which a great deal more detail should be added. Basically, the names in Atkinson's list were used as a starting point. All these names were checked against the Broseley Parish Registers and most of them have been checked against the Benthall Parish Registers as well. As noted above, the Parish Registers do not give occupations, so these details only

offer likely possibilities and alternatives, not positive proof of a pipemaker.

Where good evidence has been found that a maker worked elsewhere their name has been removed from the Broseley list. This mainly concerns Much Wenlock makers. The list still, however, contains makers who may have worked elsewhere but who have not yet been traced. In addition, a few other sources giving occupations have been searched to confirm makers and to provide additional names and other information, where available, has been added. New names have been added from previously unrecorded pipe marks, but these have not always been followed up in the PR, or other sources.

The main problem with the current makers list is its reliance on pipes, rather than documents, as the primary source of makers' names. Until about 1670 it was usual for Broseley makers to use only their initials to mark a pipe. Thus there are very few makers whose names are known before this date. This makes it very difficult to find out about the origin and circumstances of the earliest makers to work in the area. It also means that there are many makers, well known from their products, who cannot be checked through documentary sources. Conversely, there are some makers who did not mark their pipes or who used symbol marks, whose names may never be discovered. These problems are well demonstrated by two of the earliest makers in the area.

One maker, with the initials PF, was making a range of pipes and using several marks in the period c1630-50 (fig 61.1-5). The surname initial is otherwise unknown amongst Broseley makers, as is his use of an unbordered incuse mark. This maker is one who may well have helped

establish the industry here, bringing a London style bowl but made of local clays. He later went on to produce some of the earliest local bowl forms. Yet, despite all this information his identity, origin and working dates remain unknown. Conversely, the earliest documentary reference to a maker in the area is to George Deakin in 1640 (see Wenlock makers list), for whom no pipes are known. These problems make it very difficult to arrive at any balanced picture of the scale and nature of the industry at any one time.

One final problem about the marks is their attribution to a maker. Even when the mark is a full name, there can be considerable difficulty in identifying the correct maker. Broseley and Benthall were rapidly expanding settlements during the seventeenth century. Wanklyn (1982, 4) suggests that Broseley grew from a population of 125 ± 20 in 1570 to 1950 ± 150 in 1700. Benthall grew from under 80 to just over 500 in the same period. Much of this growth, after the middle of the seventeenth century, was due to natural increase. This led to the proliferation of the same family names, and Wanklyn (*ibid*) says that by 1660 over 25% of the adults in the plateau area of Benthall were called Hartshorne. Since there is both a tendency for pipemaking to run in the same family and for the use of the same christian names within the families, there are often many possibilities for any given name. Pipemarks with the same name often span a century or more in date, indicating that several makers of the same name must have existed. Excluding those known to have died in infancy, there were no less than 22 John Hartshornes baptised in Broseley and Benthall between 1650 and 1750. This means it is quite impossible to identify the pipemaker(s) of that name until specific references recording them as such are found.

This situation leads to many circular arguments. The marks are dated by style and then the makers searched for in the Parish Registers. But, since no occupations are given, the names in the Parish Registers do not confirm either the identity or date of the pipemaker. Also, Atkinson tends to attribute initial marks to a 'known' maker. Thus, he attributes a whole range of RP marks to Randle Peck. But they could also belong to Robert Pool, or Richard Price or some other maker who, because he did not use a full name mark *at all*, is not recorded as a pipemaker. In some cases his attributions are not even of the same date. For example the WH marks of c1670-80 are attributed to William Hughes, recorded from full name marks of c1680-1720. Since the only William Hughes recorded in the Parish Registers was baptised in 1665, Atkinson suggests there was probably an earlier William Hughes to account for the initial marks.

This type of argument is quite unjustified, especially when there is not any evidence for an earlier person of that name. It is surely much more likely that an *as yet unidentified maker* with the initials WH was working c1670-80. There were pipemaking families called Harper, Hart, Hartshorne, Hatton and Humphrey around that time, and, doubtless, there are many other possibilities which could be found in the Parish Registers. A good example of a previously unknown maker is John Andrews of Wenlock, recorded in 1714. Until he was found, the only IA maker known in Shropshire was John Arthur of Ludlow, who died in 1734. So, although it is tempting to attribute marks to a recorded maker the possibility of other, as yet unrecorded, makers must be borne in mind, especially where the lists are so weak and supporting distributional data used to support an attribution.

As a result of these problems no attempt has been made in this revised list to correlate the makers' marks with the documentary sources. Instead, the details in the makers list include as many options as possible, against which the likely date of any mark can be evaluated. If a person is *documented* as a pipemaker in the list, it obviously greatly enhances the likelihood that he or she made any pipes marked with that name. So, in conclusion, a number of points about the makers' marks and lists can be made:-

1 The illustrated makers' marks only represent a fraction of those actually used. Systematic study has continued to reveal new names or initials, and detailed comparison of the marks suggests that previously many similar dies have been 'telescoped' into general types.

2 The existing makers lists are based largely on the makers' names found on pipes. There are probably many other makers who used only symbol or initial marks or no mark and so are not included in the lists.

3 Because of the types of document so far examined very few marks can be positively identified with historical figures. This means great care must be taken in using the documents to date the pipes or changes in styles.

Far from consolidating and clarifying the marks and makers lists, this study has shown that the basic framework has to be completely dismantled and rebuilt. The Broseley pipe industry presents complex problems of recording and interpretation, which are still in need of further work. The 'established' list of marks and names proposed by

Atkinson has been shown to need fundamental reassessment, and, although we may understand the general development of marks and styles, we are still a long way from being able to present a detailed account. The whole problem is compounded by finding that the pipemaking was not just confined to Broseley but extends into adjacent areas and particularly the town of Much Wenlock.

IX : Much Wenlock.

As mentioned above, one of the most important findings of this reassessment of the Broseley industry is that Much Wenlock was just as important in the early development of pipemaking as Broseley. Thursfield writing in 1907 quoted an 'old itinerary' which recorded that "the trading commodities of the Town of Wenlock were chiefly lime and tobacco pipes." Since then the seventeenth and eighteenth century probates for both areas have been examined, which record roughly equal numbers of pipemakers in each place (11 or 12). Clearly, probates do not record *all* pipemakers but they indicate a parity in the size of the industries in the two areas. And yet Atkinson's list in 1975 gave only one Wenlock maker.

When the Wenlock pipes were studied, it rapidly became apparent that there was a quite different range to those found at Broseley and Benthall which are only about three miles away. The differences included both bowl form and mark. At Much Wenlock, for example, there seem to be more marks which include a hand or gauntlet device between the initials. And, there is a baggy variant of the type 5 pipe (5f) which appears to have been made almost exclusively at Wenlock. There

were also many 'new' makers' marks which had not been previously recorded at Broseley or Benthall. All these factors suggested the presence of a substantial pipemaking industry within the town itself. A limited programme of documentary search was, therefore, carried out on the town archives in an attempt to identify pipemakers working in the area.

The results have been quite surprising. Not only has a list of some 40 makers been compiled but many of the makers previously assumed to have worked at Broseley have been found to have worked in Wenlock. This is particularly worrying, given the limitations of the Broseley lists mentioned above. Many of the pipemakers recorded at Broseley are assumed to have worked there because named pipes and names in the Parish Registers have been found which tally. But, as the centres are so close, many families clearly had branches in both places, or even appear in both sets of records. It is, therefore, quite probable that the same names will be found in the Wenlock Parish Registers, which have not yet been systematically searched, thus compounding the problems of identification already encountered. It is only as documents are found which combine name, occupation and residence or as detailed studies of kiln waste are carried out, that we will be able to fully appreciate the significance of the two areas.

On the current evidence, the earliest pipemakers known to have worked in the area appear to have been based at Wenlock. This may, however, be in part a product of the Wenlock lists having been compiled primarily from documentary sources, and the Broseley ones from *artifactual* sources. The earliest maker so far documented is George Deakin who is recorded at Lawley Cross in 1640. If this is the same person who died in 1646,

when he was recorded as 'an old man', then he may have been working in the area considerably earlier than 1640. Other early references include Robert Lumas who baptised a child in 1654 and Samuel Jaxon who buried a son in 1655. By the second half of the century, there are numerous documented makers, including members of families such as the Hughes and Taylors who have long been considered to be Broseley pipemaking families. But, perhaps, the most significant finding is that members of the Deacon family worked in Wenlock.

They may well be related to the George Deakin of 1640 and clearly attained considerable importance as pipemakers in the town. Pipes marked Sam Decon are very widely distributed, having been found at Warrington in Cheshire (Davey & Pierce 1977, fig 10), Newcastle-under-Lyme (Staffs), Worcester & Gloucester (Oswald *in litt* 14.2.84) and as far south as Llanmaes and Cowbridge in South Glamorgan (Evans and Markell *in litt* 1987). The products are generally of very high quality and indicate that the Wenlock makers were capable of the large scale production and distribution of good quality products. The probates of Samuel and particularly Alice Deacon indicate considerable quantities of pipemaking tools, as well as the clay mill mentioned above and the value of their estates (Alice's was valued at £258.04.08) indicate a considerable degree of wealth.

The general impression, at the moment, appears to be that the industry continued to flourish during the early decades of the eighteenth century but that there was a marked decline by about 1750. Only one maker is recorded after that date, Samuel Taylor, recorded as late as 1769, and the industry appears to have relocated or consolidated its position in Broseley Wood and Benthall. These are two adjoining areas of settlement

on either side of a small stream which cuts down into the Severn Gorge. The area sits directly on the coal measure deposits and the natural cuttings enable easy access to deposits of clay and coal. The stream acted as an axis of early industry, providing not only raw materials and water power but also access to the important transport system of the Severn. Wenlock, in contrast, is situated about three miles to the WSW and lies just off the coal measures, and away from the river.

In addition, the position of Wenlock as the local market centre was being eroded by the rapid growth of Broseley. As noted above (Wanklyn 1982, 4), the population of Broseley was over fifteen times as large in 1700 as it had been in 1570. By 1700, it was not only a larger centre than Wenlock, but one in which the industrial, rather than agricultural or market functions, were dominant. This is not to suggest that pipemaking was a strictly industrial process. By its very nature it was almost always a small workshop activity, rather than a factory based process, and it could and was, carried out in the smallest of outbuildings. But no doubt the concentration of related industries such as mining and metal working, as well as easy access to the Severn and the development of a pool of skilled labour, all acted in the favour of a shift.

In fact, it is notable just how strongly concentrated the industry became during the later eighteenth and early nineteenth centuries. Even after the introduction of imported clays to the industry during the eighteenth century, the majority of workshops remained in Broseley Wood and Benthall, high above the river. Pottery workshops were set up on the Jackfield area of the riverbank and porcelain production, after being established at Caughley, later moved to the river at Coalport. And, yet, very few of the pipemakers moved. Some, such as Samuel Roden moved to

Coalford on the river bank and others, such as F Owen and I Russell, may have done. They marked their pipes Coalbrookdale but since R Shaw marked his pipes Ironbridge, yet appears to have worked at Benthall, this may not be significant. The move to a riverside location would have saved transporting clay up from the river and then the finished pipes back down - a steep and presumably bumpy journey which they could have done without. Likewise there are no recorded pipemakers working at Madeley, the settlement facing Broseley across the Gorge. Initially, this was probably because the clay and coal deposits are much deeper on this side of the river and were not exploited until the later eighteenth century. After that date, however, coal would have been as available there for firing the pipes and the clay would have been imported, wherever the pipes were made.

This polarisation of the industry certainly seems to be a product of the later periods. During the seventeenth and eighteenth centuries the pipe workshops seem to have been much more widespread. We have already noted that the earliest maker at Wenlock was, in fact, recorded at Lawley Cross, to the north of the town. In addition, Thursfield (1907, 163) suggests that production may have taken place at or near Marsh Farm at Shirlett and a probate of 1727 records that pipemaker John Kidson lived at Wyke. Both of these places lie between Benthall and Wenlock. In addition, William Evans is recorded at Wellington, about 7 miles to the north in 1693/4 (probate). At Rainford in South Lancashire (Davey *et al*, 1982, Fig 2.1) production was found to have taken place at many small workshops, often attached to isolated farm buildings, over a wide area of the town. It seems quite likely that although Broseley / Benthall and Wenlock were always focal centres for the industry there

may have been many other workshops in the surrounding parishes, especially during the seventeenth and early eighteenth centuries.

This may explain why there are so many Broseley style makers who have not yet been located in documentary sources. There is no Robert Pool, for example, in the Broseley PR, yet marks of this maker are well known. The Shropshire Hearth Tax of 1672, however, lists four - one each in Up Rossell and Ashley in the liberties of Shrewsbury, one in South Garmeston in Bradford Hundred, and one in Condober Hundred. It seems likely that if one of these is not actually the maker, they, at least, indicate the areas in which likely family connections will be found. The presence of so many pipemakers in Wenlock and the surrounding areas brings into question the whole meaning and usage of the term 'Broseley' to describe a style of pipe.

X : A Definition of 'Broseley' as a Stylistic Complex.

As we have seen, Broseley was not necessarily the earliest place in which pipemakers settled in this area of Shropshire, nor was it the main place in which early developments appear to have taken place. A large number of makers were operating in Much Wenlock and the surrounding parishes, producing the styles of pipe and mark which have become inextricably associated with Broseley. While there is no doubt that the nineteenth century industry was almost entirely confined to a small area of Broseley and Benthall, this was not true of the earlier periods. In addition, the nineteenth century pipes were characterised more by their length and quality, rather than their bowl styles or marks. And, it is the development of these very distinctive local bowl forms and types of

mark which form the main characteristics associated with the earlier 'Broseley' pipes. It was this tradition of extensive quality pipe manufacture in the area which formed the foundation of Broseley's nineteenth century fame. and, it is this fame, which lead the nineteenth century and later researchers to refer to 'Broseley' pipes.

It would, therefore, be reasonable to argue that the pipes produced in this area should be known as Wenlock / Broseley, or indeed just Wenlock style pipes, since this is where the origins and much of the development of the local industry appear to lie and Wenlock was the administrative centre for the area. However, given the long standing use of the term 'Broseley' to describe pipes from this part of Shropshire, it seems unlikely that a change in favour of historical accuracy will overcome the prejudice of popular usage. What is clear, though, is that we must modify our impression of a 'Broseley' pipe to include the products of an area of Shropshire, centred on an axis running between Wenlock and Broseley / Benthall. It was the in this area that a distinctive combination of form, finish and mark was developed and evolved, to produce the characteristic products we now know as 'Broseley' pipes.

But, this widening of the parameters of a 'Broseley' pipe produces problems in itself. If we are to include the surrounding areas, then does the Wellington maker William Evans count as a Broseley maker, and what of the industry that clearly developed at Cleobury Mortimer in the south of the county? The answer seems to be that, although recognising makers in the *immediate* area as belonging to the 'Broseley School', those further away must be assessed independently. Any maker who looked to Wenlock or Broseley as his local market centre may be considered to have been immersed in the prevailing influences which determined the

current form of a 'Broseley Style' pipe. The makers in Cleobury Mortimer in the south of the county may well be found to have made almost identical products, but their clay sources, mould makers and stylistic influences may well all have varied slightly. So we must compare them with 'Broseley', rather than consider them as part of that centre. In short, it is the makers who interacted in the immediate area of Wenlock and Broseley who created the style, and it is against the yardstick of their products that the pipes of makers in other areas must be measured.

XI : The Organisation and Nature of Pipe Production in the Broseley Area.

This chapter has so far considered the previous work that has been carried out on Broseley, the manufacturing techniques from both documentary and archaeological viewpoint, and the way in which our concept of 'Broseley pipemakers' must be extended to include numerous individual workshops operating in the parishes between Much Wenlock and Broseley. Before going on to look at the extensive stylistic and trade influence wielded by these makers, the nature and development of the individuals and their workshops will be examined. In order to more fully understand the archaeological evidence for the movement of pipes, it is essential to consider the economy and conditions in which pipemaking developed, and, indeed, something of the nature of the pipemakers themselves. Many regional factors, such as the availability of good clay deposits, fuel, transport systems or simply the distribution and availability of markets, will effect the way in which pipes were manufactured and traded in particular areas. But, all areas are affected by general underlying trends which reflect the overall

spread and growth of the economy in general and pipemaking in particular. These trends are important to understand in our final assessment of the development and marketing of the Broseley industry.

XIa : The Position of Pipemakers Within the Economy. The introduction of tobacco coincided with fundamental changes in the English economy. During the sixteenth century there had been a steady growth of interest in developing new industries, a process well documented by Thirsk in her *Economic Policy and Projects* (1978). This was partly as a response to the rapidly expanding population, and partly as a reaction to the increasingly large volume and fluctuating prices of foreign imports. These new industries often established themselves in rural areas as part-time activities undertaken by women and children or at slack seasons of the year. Their effect was to bring a cash surplus to the lower classes of society which had previously existed on a largely self sufficient basis, with a restricted range of material goods. This enabled them to purchase a wider range of consumables, thus stimulating the demand for increased production. Probate inventories from the mid-sixteenth century onwards demonstrate a steady increase in the range and complexity of household goods.

Thirsk (1978, 48) has identified fourteen projects which established new trades or developed existing techniques in a more economical manner during the period 1540-80. These projects involved iron, woad, oil, fustians, worsteds, new draperies, canvas, metal goods, alum, copperas, dyeing, stocking knitting, thread and flower growing. The range of activities which could be carried out on a domestic basis continued to increase into the seventeenth century. Many of the projects required little capital expenditure or complex machinery but were labour

intensive. This meant temporary or seasonal employees quickly learnt the manual skills involved and were able to set up independent production based on an investment of their spare time rather than any major capital outlay.

Tobacco growing was one such new industry that was quickly taken up. The crop was labour intensive but could easily be undertaken in small scale garden plots, with virtually no capital outlay, for which it produced a good return. In England, attempts to cultivate tobacco had started by 1571 and it was successfully being grown and used for smoking by the later sixteenth century (Walker 1977, 32). But, it was not until the second decade of the seventeenth century that its growing appears to have become widespread. In 1615, *An Advise How to Plant Tobacco in England...* was published and by 1619 land formerly used to grow food for the poor around London and in Middlesex was being let at exorbitant rents to grow tobacco (Walker 1977, 37). Tobacco growing was introduced at Winchcombe in Gloucestershire in 1619 and despite repeated attempts by the government to surpress its growing, from that year onwards, it was being grown in 22 counties of England, Wales and the Channel Islands by 1670 (Thirsk 1978, 87).

Pipemaking was another new industry that could easily be undertaken on a small domestic scale. The trade developed in London during the later sixteenth century but quickly spread to the provinces during the early seventeenth century. A monopoly on pipe production in London appears to have existed by 1601 and charters for the pipemakers were granted in 1619, 1634 and 1663. The evidence for the London industry is fully discussed by Walker (1977, Chapter 3) but some important points must be mentioned. The London Company was sponsored by four courtiers who

by 1620 had sunk £3,000 into the venture. This considerable sum indicates the scale and potential they saw in the industry by this date. Already, however, (1620) the monopoly was being broken by makers in London, Middlesex and Surrey, who were fortifying their houses to resist attempts to stop their work (Walker 1977, 247-8).

In 1642, officials searched for unlicensed makers in Southampton (*ibid*, 253) but again in 1664 there were complaints that, "cooks, bakers, ale-house keepers and others made pipes" (*ibid* 251). This shows that it was not only rich courtiers who saw potential in pipemaking and that many ordinary traders were able to take up pipemaking as a sideline. Despite a theoretical control over all pipemaking in England and Wales, the Guild does not appear to have been able to enforce its powers to control trade in the rest of the country in the same way as other monopolists (Thirsk 1978, 59). We may, therefore, suppose that, once the trade had moved from London, it could develop quite independently, and without being subject to London restrictions. Independent pipemakers' guilds were established in York, Bristol and Gateshead during the seventeenth century (Oswald 1975, 9) but otherwise pipemakers joined other guilds or operated quite independently or as family trades.

The reason that pipemaking was so difficult to control may well be due to the ease with which it could be undertaken. As noted above the seventeenth century was a period in which many people turned to new trades, often as a secondary employment to supplement income. Society was receptive to these innovations which brought increased wealth and often strongly resisted government attempts to control new trades. The tobacco growers, for example, joined to defend their crop from troops sent to destroy it on several occasions during the seventeenth century

(Walker 1977, 39-40). These changes in society eroded the traditional role of the towns as virtually the sole producers of manufactured goods. New industries emerged, and established themselves in rural areas. These had traditionally been food producing areas whose function was to service the craftsmen operating from the towns. The breakdown of this traditional organisation must have contributed to the ease with which pipemakers appear to have set up and spread.

The equipment needed to set up as a pipemaker was fairly simple. The most basic requirements were a clay supply, moulds and a kiln for firing the pipes. Suggestions that other professions, such as bakers, could have fired the pipes for pipemakers seem most unlikely. A bread oven is of quite the wrong design to take pipes and it is most unlikely that anything like the temperature required to fire pipeclay could be achieved. Pipekilns, however, were small and simple to construct. One of the late seventeenth century kilns from Arcadia Buildings, Southwark, had an internal diameter of only about 43cm for the muffle and the entire kiln was only about 1m across (from illustrations in Peacey 1982). One of the kilns at Southwark appears to have been built into the back wall of a light brick outbuilding, with its stokehole on the outside. The entire complex of two kilns, stoke pit, two clay pits and a coal pit occupied an area of only about 3.5 x 4m. Similar small kilns operating in backyard areas have been found at Aldgate (Thompson 1981) and at Brentford (Laws and Oswald 1981). The stokepit and kiln areas occupied approximately 2m x 1m and 3.4 x 1.9m respectively. In urban areas it is therefore clear that pipemaking could be carried on as a backyard industry, provided there was a small workshop area, to which or behind which a small kiln could be constructed. Pipemaking was never

a very prestigious occupation, invariably being confined to the outskirts or poorer quarters of the towns.

Although tending to be more spread out, rural workshops operated in a similar way. A survey of Much Wenlock in 1769 describes Samuel Taylor's house as, "a poor stone dwelling with a pipe makers work shop with straw cover" (Wynnstay Coll). Photographs of the late nineteenth / early twentieth century Rainford workshops depict a very similar scene (Davey *et al*, 1982), the buildings typically being single storey workshops or outshots, with the kiln partly incorporated into one side. The majority of pipes would have been made in small individual or family workshops such as these, and it is only during the late eighteenth and nineteenth centuries that larger factory type production emerges.

Evidence for establishment of pipemaking as a by-employment comes particularly from the rural areas in which industries were being newly established. The coalfield areas around Rainford in South Lancashire, and Broseley in Shropshire were both to become major pipe producing centres due to their natural resources of clay and coal. Although limited amounts of these materials would probably have been worked prior to the introduction of pipemaking (and indeed may have attracted the industry to these areas), the nature of the economy was still largely rural. The earliest evidence for pipemaking in both areas probably dates to the 1630s (Davey *et al*, 1982; Higgins 1985g, 61). The previously unstudied pipemakers' probate inventories from Shropshire (Appendix 3) reveal interesting data about the organisation of pipemaking during the seventeenth and early eighteenth centuries.

Much Wenlock was the administrative centre and market town for Broseley and Benthall. The rapid expansion of the Severn Gorge area during the Industrial Revolution meant that later development largely bypassed Wenlock and today its basic form is almost identical to that of the seventeenth and eighteenth centuries. It is still possible to turn off the main street and find the rich smells of straw and cattle, and the sound of chickens in a farmyard. The probate inventories reflect this pattern with almost every recorded pipemaker having cereals and livestock amongst his possessions. The most striking example is William Savage, who, despite being described as a pipemaker, had tools valued at only one pound, less than one per cent of his total assets.

For the majority of these pipemakers (Table 7), their pipemaking tools consist of only about 2-5% of their total goods. This applies even to the Deacons, who made some of the best known seventeenth century products from the area. Alice Deacon, presumably the widow of Samuel, had £13.05.00 worth of tools in 1690. Comparison with the other probates shows that this is many times the average for other workshops, supporting the suggestion that the Deacons were large scale pipe manufacturers. And yet 'all implements of husbandry' came to £23.03.10, nearly twice that of the pipemaking tools. In addition, her livestock was valued at £65 and her grain at £79.15.00, showing that farming retained a fundamental importance, even for such well established pipe makers.

Only two of the Wenlock probates do not include evidence of farming and these belong to two of the poorest pipemakers recorded. Even though they do not appear to have smallholdings of their own, they may well have worked as labourers on other farms to supplement their pipemaking

activities. In contrast with the evidence for farming, only four of the Wenlock inventories specifically mention a pipe shop. This may be largely a product of the way the inventories were compiled, since only about half of them are arranged by room. But, it underlines the low profile of this occupation in the records of people known to have been pipemakers. In only one case does there appear to be another occupation suggested. This is Thomas Dawley, who had 'Ale and Beere in ye house' valued at £10.00.00, and who is known from other sources to have been a pipemaker and innkeeper (Appendix 2).

Table 7 - Pipemakers Inventories from the Wenlock, Broseley, Benthall and Wellington. This table gives the total value of pipmaking tools and equipment listed in each inventory, the total value of the inventory and the percentage of that value that the pipemaking equipment represents. In addition, the number of horses or mares listed is given, if the term 'shop' is used it is indicated with a Y. Likewise, if the inventory includes evidence of smallholding (cereals, livestock, barns etc) a Y is entered under the farm column. The tools of Samuel Hughes were included with numerous other items in the kitchen and are likely to have been worth considerably less than the total of £2.03.06. In addition pipes in several places totalling £1.10.00 have been included in his total.

Name	Date	Tools (£)	Tot (£)	%	Horses	Shop	Farm
WENLOCK							
Edwards	1668	10 00	9 10 09	5.2%			
Deacon	1673	4 11 08	93 01 10	4.9%	2	Y	Y
Powell	1673	1 00 00	4 18 10	20.2%	2		Y
Browne	1680	6 08	6 15 08	4.9%			
Savage	1686	1 00 00	115 05 04	0.9%	2		Y
Deacon	1690	13 05 00	285 04 08	5.1%	4	Y	Y
Dawley	1714	2 00 00	90 05 00	2.2%			Y
Roberts	1716	2 00 00	79 11 08	2.5%	1		Y
Kidson	1726	1 00 00	11 10 00	8.7%	1		Y
Wilkinson	1728	3 01 00	12 12 00	24.2%		Y	Y
Hughes	1729	<3 13 06	57 14 00	<6.4%			Y
Bryan	1731	1 03 00	18 17 06	3.9%	2	Y	Y
BROSELEY / BENTHALL							
Roden	1724	3 10 01	12 12 07	27.7%			
Hughes	1735	10 00	13 04 00	3.8%			
Taylor	1739	6 00 00	15 09 08	38.8%		Y	
Hartshorne	1743	12 06	35 08 00	1.8%			Y
Morris	1756	1 01 00	9 18 06	10.6%		Y	
WELLINGTON							
Evans	1693-4	1 00 00	12 04 00	8.2%			

From this, the overwhelming impression seems to be that pipemaking was carried on very much in conjunction another occupation, usually farming. The average value of working tools is usually one to two pounds, and often all the working tools are described collectively as one item. It is really only the Deacons who appear to have had a noticeably larger number of tools, and presumably, therefore, employed several journeymen. All the other makers appear to have split their time between pipemaking and farming, a situation very similar to that observed amongst the Rainford makers in South Lancashire. It would be interesting to know how their income was divided between these two occupations, and how the agricultural base to the economy affected the marketing of their products.

The situation, however, may not be as simple as it appears to be. A court case concerning Thomas Dawley is particularly interesting (Appendix 2), since it gives ancillary information about him. It reveals that he employed some six to eight workers which included both men and women. This seems surprising since his tools were worth only £2.00.00 and it brings into question the nature and scale of other makers' activities where only 'small' values are recorded. The firm of John Pollock & Co in Manchester today is of comparable size since it employs some seven part time workers. They still use traditional techniques and produce in the region of 25-50 gross of pipes per week (3,600 - 7,200). This gives an indication of the scale of production that may have been achieved in Dawley's workshop, and one can only guess at the scale of production at Alice Deacon's workshop, where five times the value of tools are recorded.

The Broseley and Benthall inventories, in contrast, show little evidence for ancillary occupations such as farming. Only Thomas Hartshorne could be linked with smallholding, having just two milking cows and a small rick of hay. But, this is considerably less than many of the Wenlock inventories and doesn't include any evidence for grain production. As a consequence of this, the value of the Broseley and Benthall inventories is generally lower. The Wenlock ones have a number under £19, then a scatter up to £115, followed by the exceptional one of £258. In contrast, the Broseley and Benthall ones are almost all under £15 in value, the exception being £35. The largest part of the capital in the Wenlock lists is in livestock, grain and farm equipment. This, in turn, is reflected in the percentage that the pipemaking tools make up of the total estate. The average for Wenlock is 7.4%, excluding Hughes, as opposed to 16.5% for the Gorge parishes. The sole probate for a pipemaker at Wellington appears to be of a similar type to those of the Gorge parishes.

Another difference is in the animals. Over half of the Wenlock probates have one or more horses, while none of the Broseley or Benthall ones do. It was hoped the horses might prove to be pack animals for transporting pipes (see below) but in fact the evidence is strongly in favour of them as farm animals rather than for carriage. There is no difference, however, in the general value of the tools. Only Taylor and possibly Roden have noticeably more, suggesting that pipemaking was a more important part of their livelihood. This suggests, for the other makers either that one to two pounds worth of tools was sufficient to make a living pipemaking, or that they had other jobs, not evident in the inventories. There must have been many general labouring jobs in the developing clay, coal and iron industries and it is quite possible that

they could have found a substitute for the smallholding activities of Wenlock if pipemaking was insufficient to keep them.

What is clear, however, is that there is a difference between the makers of Wenlock and the Gorge area. Pipemaking seems to have become established in both areas at much the same time. This presumably represents Wenlock as the traditional market and manufacturing centre and Broseley / Benthall as an area developing new industries based on its raw materials. Wenlock, although only about three miles from Broseley and Benthall, lies just off the coalfield and was eclipsed by the rapid industrialisation of the Gorge during the seventeenth and eighteenth centuries. Although, during the seventeenth century, there are as many, if not more pipemakers in Wenlock than the Gorge parishes, they rapidly disappear during the first half of the eighteenth century, the last maker being recorded at Wenlock in 1769.

In contrast, Broseley and Benthall continue to produce large numbers of pipes and had developed factory type production by the early nineteenth century. Having become one of the major industries in Broseley and Benthall, those two parishes specialised in pipe production. No doubt the continual development of mining techniques ensured a constant and plentiful supply of cheap raw materials, acting as an incentive for the trade to concentrate in that area. But, even after the introduction of imported clays and the exploitation of the deeper coal seams north of the river during the eighteenth century, the industry remained almost exclusively in these, two parishes. It seems that by the later eighteenth century there was a tendency towards larger scale production units and increased specialisation within the trade. This in turn

undermined the mobility of the trade, which had been the hallmark of the individual craftsman.

By the late eighteenth century wider markets were also being developed. Both Thursfield (1862) and Jewitt (1877, 177) considered that the Roden family had been responsible for making particularly fine pipes at the end of the eighteenth century. Noah Roden marks have been found as far away as Dorking in Surrey (Higgins 1985d, 412), and it is likely that he operated on a scale above that usually found in a family workshop. Like the Stockholm, Bristol and Guildford makers mentioned above we may be seeing in him an example of the large scale workshop production that was to lead to full factory production during the nineteenth century. The increasingly complex structure and increasing specialism within the industry during the nineteenth century is clearly demonstrated by the Broseley and Benthall Census returns (Table 8).

Table 8 - Pipeworkers' job descriptions as recorded in the Broseley and Benthall Census returns. Note that these do not accurately record all the 'master pipemakers', nor necessarily include all those engaged at Broseley who may have lived in other parishes. Their purpose here is to demonstrate the contemporary terms used in the Broseley pipe trade. All the terms listed here are prefixed by 'pipe', or refer to the pipe trade in the enumerators returns.

Job Description	1841	1851	1861	1871	1881	Total
Pipe Maker	27	46	78	58	31	240
Trimmer		4	7	17	12	40
Assistant		3		1		4
Moulder		1	1	2	2	6
Pipe Girl		1				1
Pipe Manufacturer		1	4	2	2	9
Labourer			1	3		4
Glazier			3			3
Layer			1			1
Burner			1	1	1	3
Clay Preparer			1			1
Packer			1	2	3	6
Clerk & Traveller			1			1
Finisher				7	2	9
Roll and Trimmer				1		1
Roll and Moulder				1		1
Saggerer					1	1
	27	56	99	95	54	

The number of job descriptions for those engaged in pipemaking rises from 1 in 1841 to 6 in 1851 and 11 in 1861. Some of the terms used are clearly general, while others are probably alternative names for the same task. But the general trend is clearly for there to be a much greater specialism, with individuals recognising very specific tasks within the production process. This is, doubtless, a product of the growth of a structured 'factory' production. In contrast to the growing numbers of workers, the number of masters steadily falls. The number of individuals who are recorded as independent makers in trade directories or for whom marks are known steadily falls in the decades 1841-81, the numbers being 9, 8, 6, 4, 1. In addition, there is a marked concentration of the trade into the hands of a few firms. Figures for the employees are not always given but those recorded for the main manufacturers are given in Table 9.

Table 9 - Numbers of Employees Recorded in the Census Returns. Note that these are not to be relied upon as a full or accurate record of employment figures (compare Table 8 above).

Name	1851	1861	1871	1881	Tot
Sarah Pinner	1				1
Noah Roden	3				3
Joseph Southorn	5	7			12
William Southorn	36	28	-	70	134+
Edwin Southorn		28	40		68
	45	63	40+	70	

Although we have no figures for the smaller manufacturers, this gives a general impression of the way the trade was concentrated into a few hands. By 1851 William Southorn already had by far the largest works. There was a family dispute so that his sons William and Edwin set up in competition with each other. and, by 1861, they both had large, but independent, works. These continued to grow, until after Edwin's death when (by 1881) almost the entire Broseley trade had come into the hands of William Southorn & Co. In 1881 R Smitheman & Co set up a pipeworks

but until the 1891 census is available it is not possible to assess how this affected the numbers of employees. The few remaining smaller manufacturers were probably still operating in much the same way as the small family workshops of earlier centuries, employing members of the family or journeymen to carry out production. Ultimately, however, they were unable to outlive with the highly structured and large scale production of the factory units.

Another change which is apparent during this period is in the composition of the labour force. During the seventeenth and eighteenth centuries pipemaking appears to have been predominantly a male occupation. The London Company of pipemakers in 1805 issued a by-law forbidding the employment of "unskilled and unfit persons, as women and young girls" (quoted in Walker 1977, 251). The need for such a by-law indirectly informs us of such practices and suggests that it was a growing trend which was considered undesirable. Doubtless women and children helped in family workshops, and widows are known to have carried on running businesses but the apprentices and pipemakers recorded are invariably men. The census returns reveal a considerable change in this pattern during the nineteenth century. In 1841 there were 19 males and 8 females recorded as pipemakers in Broseley and Benthall. The women were predominantly unmarried girls, 6 of the 8 being under 25. Of the older women, one was Mary Southorn, acting head of the household which leaves just one older married woman who was actually a worker. In 1841 30% of the recorded pipemakers were female. Over the decades to 1881 the figures rose to 71%, 75%, 85% and finally 90%. The jump in 1851 may be due to a more thorough recording of the figures, but the general trend is clear.

Philip and Dorothy Brown (1985) have studied this trend in relation to other areas. They compared the potters and pipemakers of Broseley and Bristol in the 1851 census. Broseley was characterised by highly localised labour force. Some 95% of the pipemakers were born in Shropshire, as opposed to only 80% in the pottery trade which drew on the Potteries as a skilled labour source. This supports the suggestion (above) that these two parishes had developed a highly localised pipemaking tradition. The high percentage of female labour was still characterised by unmarried women (84%) which contrasted with Bristol. There, elderly and often widowed women were identified as a prominent element in the labour force, only 40% being unmarried. This trend was found to extend beyond the pipemaking industry. In Broseley 60% of the pottery decorators were single, as opposed to just 25% in Bristol.

So, although women pipemakers played an important role in both areas there was a marked contrast in age, with Broseley trades predominantly employing young women who did not return to work after marriage. This trend, however, changed during the second half of the century. The mean age rose from 21 in 1851 to 27 in 1871 and the percentage of married or widowed women rose from 16% to 30% to 38% in the same period. So, during the nineteenth century, we see the consolidation of the industry into a few large scale factories. The labour force is recruited almost entirely amongst women, as the men who had previously operated small workshops moved to other trades. Initially, this labour force is drawn largely from unmarried women but during the century there is a trend towards older married women returning to or remaining at work.

In the Broseley industry we may, therefore, observe three general types of production unit in the pipe trade. These progress in roughly

chronological stages, but are not necessarily mutually exclusive. While it is not claimed that these will be directly comparable with other areas either in date or detail, the general trend reflects not only changes in the pipe industry but in society as a whole. It is hoped that detailed studies of the people, as opposed to the products in other areas will contribute more to this tentative outline of the types of production unit.

Stage 1. During the first half of the seventeenth century pipemaking is introduced as a new occupation. It is carried out as a relatively small scale domestic activity, requiring little capital, but utilizing manual skills to produce surplus income. In this area, the trade is attracted by the existing exploitation of the raw materials needed and is carried on in conjunction with other occupations, principally smallholding, as the underlying base to the economy. It may be regarded as a small scale domestic industry initially employing little more than the available spare time of the family. Once established, it may be run by several generations of the same family and employ members of that family and / or journeymen. It remains, however, essentially a workshop production unit, often supplemented by smallholding or some other form of employment. The majority of Wenlock makers do not really progress beyond this stage. In this area, this type of unit declined rapidly during the later eighteenth century but can be found occasionally until the end of the nineteenth century or later.

Stage 2. Sustained demand and developed skills enable some makers to earn a living by pipemaking alone. It becomes a full time activity and implies that a regular market for the pipes can be found. Such makers may be expected to have served some form of apprenticeship or to take

apprentices, and possess sufficient skills to set up alone in a new area, if necessary. The Broseley and Benthall inventories represent this type of maker, working in an expanding industrial area, and with no apparent alternative income. These units, too, may be family run, but are characterised by a larger scale (presumably full time) production, and greater reliance on the single trade. They appear during the later seventeenth century, and seem to have become particularly concentrated in the Broseley Wood / Benthall area, where a specialist pool of skilled labour developed. This may have made the trade less mobile since despite the development of new coalfields and the shipment of imported clays the industry remains based on Broseley and Benthall. A local tradition in the craft is developed, and some makers are able to expand and become employers of considerable numbers of workers. Although these units may have produced considerable numbers of pipes, there was probably only limited job specialisation, each worker being familiar with all the processes.

Stage 3. Factory style production appears during the nineteenth century at Broseley and gradually replaces the workshop system. Large scale production enables more capital investment in plant and buildings, and a much wider range of products is possible. Increasing specialisation in the production process appears, and the workforce becomes predominantly female. To support this very large scale production, widespread marketing in this country and abroad is needed. By the end of the century the traditional small workshop has completely disappeared from Broseley. This type of production emerged in a number of large centres but is only found where large scale production can be sustained.

From these phases of development it is clear that, for the majority of the time at Broseley, pipes were produced in some form of small workshop system. Pipemaking was always a fairly low status occupation which combined with the comparatively small size of the workshops, and low value of the product, means that little information about the trading activities survives. Having formed an impression of the type of production units we are dealing with, however, we may go on to consider the likely means by which the trade in Broseley pipes functioned.

XIb : The Movement of Goods. One of the obvious points about the Broseley industry is that the production of pipes was on a scale far in excess of that needed by the local community. Most towns were supplied by a small number of makers, who lived and worked there, providing for the needs of the local market. The principle appears to have been that clay was relatively easy to move in bulk, while pipes were not. Broseley, as we have seen, was in the unusual position of not only having suitable clays for pipemaking, but also an abundant fuel supply and easy access to a transport system suitable for the carriage of pipes (Section XIc below). Before going on to examine the stylistic and market influence of Broseley in the final Chapters the possible means by which the pipes could have been distributed will be examined.

During the post-medieval period there have been fundamental changes in the way that goods are traded, which in turn has influenced the production and movement of pipes. At the start of the seventeenth century the roads were generally not suitable for long distance wheeled traffic. They were subject to seasonal variations making winter traffic slower and more expensive. Walker (1977, 574) cites a seventeenth century reference that sea transport was twenty times cheaper than

wheeled carriage. Although much inland produce must have been carried by mule train, or driven 'on the hoof' between markets, there is no doubt that coastal and inland waterways played an important part in the development of many market centres. Places such as York, Lancaster, Shrewsbury, Worcester, Gloucester and Norwich were all major centres with important port facilities, a factor as important for the movement of the raw clay as the finished pipes.

It is surprising how complex the trade networks must have been, and how far people were prepared to travel to obtain goods. In the mid-sixteenth century the Haddon Hall accounts show purchases not only from nearby Bakewell, but also Chesterfield, Ashbourne, Derby, Chapel en le Frith, Lichfield and other places in Staffordshire (Hey 1980, 187-9). And the items purchased had in turn been brought from many places in this country and abroad. Likewise in 1657 an advice to shopkeepers setting up in Barbados suggested the best places to purchase various products. These included Birmingham / Staffordshire for metalwork, the West Country for gloves and Northampton for shoes and boots (Thirsk 1978, 120). Clearly, people were well aware of the craft specialisation which existed in these centres and presumably their products were marketed over wide areas of the country. In the same way Broseley must have been known as a pipe producing centre.

Each of these centres relied not only on the reputation of its product, but also on an effective system through which to distribute the goods. Pipes must have been distributed in many ways and when looking at the development of the industry in any one area the distribution routes may be of considerable importance. Sea trade was doubtless an important factor in the development of pipemaking in large ports such as London

and Bristol. But many places flourished on a smaller scale. Bideford and Barnstaple in north Devon, for example, were able to exploit the local clay sources and coastal trade to develop a pipemaking industry (Grant & Jemmett, 1985). and the shipping passing through many smaller ports must have stimulated the growth of small manufacturing industries like pipemaking. Likewise, the inland waterways formed an important means of transporting pipes, particularly since they are so susceptible to damage if roughly carried. The Wenlock / Broseley industry doubtless flourished as a result of the numerous boats active on the Severn. Canals, too, assisted the development of pipemaking in their vicinity, examples having been noted at Lincoln (Mann 1977, 3) and Guildford (Higgins 1981, 209).

Inland areas had to utilise other methods but the wide range of shops, markets, inns and fairs and the seemingly endless range of hawkers, hucksters, pedlars, tinkers, chapmen and carriers ensured the widespread distribution of goods. Many pipes must have been obtained from these local markets. or from itinerant salesmen operating on foot or with pack animals. The development of toll roads during the eighteenth century was probably of only marginal benefit to the pipe trade. and it is not until the introduction of railways that a major new distribution method becomes available. Virtually nothing appears to have been written on the impact of the railways in relation to the pipe trade and yet it must have had profound implications in opening up the possibility of cheap, smooth, long distance trade. It may well be significant that the introduction of railways coincides with the development of large scale factory type production units in many areas.

One of the main problems in looking at the movement of goods is the paucity of documentary sources relating to internal trade, and particularly for chronological runs of information. England was largely a free trade area and very little information on the volume of trade and its distribution survives. Pipes can make a significant contribution in this respect. They are highly individual objects which can be identified by both source and date. As more comprehensive details about both finds and makers become available they will form an important source of information about post medieval trading patterns. In a sense, pipes are like a highly detailed document recording the trading patterns of almost every town in England. This document has been divided into literally millions of fragments and scattered in the earth. The more fragments we can collect and piece together, the more clearly we will be able to see how individual market centres operated.

Distribution patterns have been looked at particularly by Walker for Bristol (1977, section VII), Walker and Wells in Eastern England (1979) and Peacey for Gloucestershire (1979). Walker found that Bristol was one of the earliest centres to develop a substantial pipemaking trade outside of London. By 1620-50 Bristol products were being marketed in Somerset, Wiltshire, Gloucestershire, Herefordshire, Worcestershire, Monmouth, Glamorgan and Devon. From about 1650-75 the rise of local industries appears to have closed areas to the south, and Bristol pipes are found generally in Gloucestershire, Herefordshire, Shropshire, Monmouthshire and Glamorgan and occasionally as far as London and Nottinghamshire. By the end of the century, however, the Herefordshire and Broseley industries had taken over the Severn basin and Bristol concentrated entirely on its specialist overseas trade. It dominated the American market until the 1770s when the trade collapsed as a result of

the American War of Independence. Some degree of local trade revived in the nineteenth century with Bristol pipes being found in Somerset, Gloucestershire and Monmouthshire.

Walker and Wells, study of the Lincolnshire style rim marks was particularly interesting since they were able to plot the distribution of the pipes around market centres (1979, 19). More than 100 pipes made in Boston between about 1780 and 1830 fell within a 17 mile radius of that centre. This coincided almost exactly with the market day links carriers and sailing packets listed in Whites Directory of 1826, which came from a 16 mile radius. Pipes suggested market areas of 16 miles for Sleaford and Market Rasen; 22 miles for Alford; 33 miles for Lincoln and 47 miles for Gainsborough. They also noted a tendency for pipes to fall within certain segments of the market radius, perhaps indicating the usual market routes or trading rounds used by the pipemakers.

In considering the Broseley pipe trade, there were probably two principal means of distribution in use during the seventeenth and eighteenth centuries; overland and by river. The river must have served the Severn Valley and South Wales and this will be considered below. The remaining areas where Broseley pipes are found in some numbers includes Mid and North Wales, South Cheshire, Staffordshire and the West Midlands and these are most likely to have been served by overland traffic. As noted above, there is no evidence in the surviving inventories for pack animals in any of the pipemakers inventories and as yet we are not really in a position to say how the trade was conducted. A number of ideas can, however, be put forward to act as the basis for further research.

From other areas we know that pipemakers often went out selling their wares in the surrounding district. In Surrey (Higgins 1981a, 209), it has even been possible to suggest (from the distribution of pipes) that particular areas were served by individual makers. This possibility needs to be explored for Broseley through a full cataloguing of the provenance of all the recorded marks, a task which it is hoped can be tackled by the proposed Leverhulme research post at the University of Liverpool. What is already apparent is that no one maker dominates the market. In all of the areas studied, a common feature is the great variety of different Broseley marks encountered.

This variety may indicate that as opposed to each maker going out to sell his wares individual tradesmen came to Broseley to buy pipes. These individual tradesmen (chapmen, hawkers and the like), may have come to Broseley to buy pipes from the workshops at the best price possible and then travelled into the surrounding counties selling them. Such a system would explain, for example, how the Henry Bradley marks discussed earlier in this Chapter came to be widely distributed between places as far apart as Warrington and South Wales. Documentary evidence of such a system has been found in an agreement dated 1672 between Edward Neave and William Pemerton, both of whom were pipemakers, regarding the managing of the pipe trade in Guildford (Barker *in litt* 23.3.87);

"And the said Edward Neve and William Pemmerton do jointly and severally bargain, Covenant and agree either with the other not to make bargain with any chapman in buying the materials for the managing of their Trade nor selling the goods therof made at any time without the consent of the each other."

The actual system employed in Broseley was doubtless flexible and may well have contained elements of both systems. In good periods chapmen

may have come to buy pipes, and in slack periods the pipemakers may have had to go out to look for trade. Many of the Broseley pipes found their way to other manufacturing centres in the West Midlands, and another avenue that needs research is in the return movement of goods. Ceramics from the potteries for example appear to have been carried down the Severn in some numbers. The carriers bringing such goods to the ports on the Severn may well have taken back pipes amongst other goods from the Shropshire coalfield on the return trip.

A little work on the movement of goods on the Severn has already been done from the Port Books, but most of it is not relevant to the pipe trade. Peacey (1982, 15) mentions shipments of pipes, but most of his discussion concerns tobacco stems. These he mistakenly regards as clay tobacco pipe stems, rather than the stems of tobacco leaves (which they were) being carried to the snuff mills at Bristol. Also, the few dates and figures he gives show the limitations of trying to extract meaningful information from this large and complex source.

In this area the work of A P Wakelin is eagerly awaited. He is currently compiling a computerised data base of the entire Gloucester Port Book series at Wolverhampton Polytechnic and is writing a thesis on the inland trade of the Severn. When this work is complete it should allow easy access to all the voyages recorded in the Port Books, which will, in turn, shed considerable light on the range, quantity and mechanics of trade in this area. Broseley and Benthall both flank the river in the Severn Gorge and had wharves where coal, iron and other goods were loaded. There was regular trade upstream as far as Welshpool and downstream to Bristol and beyond. It seems certain that the extensive southerly marketing of Broseley pipes is a direct result

of this river trade. Pipes could have been offloaded at any of the river ports and traded through the local markets into the surrounding countryside.

The evidence for waterborne trade is particularly compelling when we consider South Wales. Here we find large numbers of Broseley products dating from the late seventeenth and early eighteenth centuries, in cases making up 40% of the market (Chapter 3). These pipes are some 150 miles from their source, and can only have been effectively marketed that distance by water. I am particularly grateful to Mr Wakelin for allowing me to carry out an analysis of one of the first years to be completed on the database which demonstrates the potential for this source when it is complete.

XIc : Clay Tobacco Pipe Shipments on the Severn During 1705 This trial study examines the shipments of tobacco pipe clay and pipes passing through Gloucester during a twelve month period. The data has been extracted from the Wolverhampton Polytechnic Portbook database, which contains transcripts of the Gloucester Port Books of Christmas 1704 - Christmas 1705 (Public Record Office; 1254.10 & 1255.05). Since only goods passing through the port were recorded, there is no measure of the numbers that may have been offloaded at other upstream ports. Likewise there is no record of the origin of the cargoes which could have come from any of the upstream centres. However, given the large numbers of pipes known to have been passing through Gloucester from Broseley at this period and the domination of Broseley pipes over most of the Severn Valley, it is reasonable to assume that the majority of them originate there.

Table 10 - Total Shipments Through Gloucester During 1705. This table shows the total number of river voyages recorded at Gloucester from Christmas 1704 to Christmas 1705. Voyages are listed according to the home port of each boat, for which inward (I), outward (O) and total voyage numbers are given. The total number carrying clay tobacco pipes for each place is given (TP - these are always outward voyages), together with the total quantity of pipes carried, the % of outward voyages which carried pipes, and the average cargo size. The total number and average size for Bridgnorth (*) is based on only six of the voyages, since it excludes two cargoes for Bristol which were measured in boxes and one illegible entry (see Table 12 for details).

Home port	I	O	Tot	TP	Tot cargo	%ofO	Av. cargo
Awre		1	1				
Bideford	1	1	2				
Benthall	3	1	4				
Brockware	10	1	11	1	100 gross	100%	100 gross
Broad Oak		1	1				
Bridgnorth	10	25	35	9	630 gross*	36%	105 gross*
Broseley	3	3	6				
Bristol	3		3				
Bridgwater		1	1				
Bewdley	64	109	173	1	200 gross	0.92%	200 gross
Coggan Pill	1	4	5	4	270 gross	100%	67.5 gross
Evesham	11	10	21				
Gloucester	19	21	40				
Gattcomb		4	4				
Hereford	1		1				
Lydney		12	12				
Newnham		12	12				
Redbrook	16	1	17				
Salop	23	25	48				
Swansea		1	1				
Tewkesbury	53	46	99	1	300 gross	2.17%	300 gross
Upton	2	6	8	6	2600 gross	100%	433.3 gross
Woolaston		6	6				
Worcester	55	72	127				
XXX	2	1	3				
	277	364	641				

A total of 641 voyages (277 inward and 364 outward) are recorded during this period (Table 10). The boats came from a total of 24 'home ports', but only 22 of these voyages, involving boats from 6 home ports, carried clay tobacco pipes.

All of the pipes appear on outward voyages, showing that inland areas were producing a surplus which was regularly being traded downstream through Gloucester and Bristol to ports in South Wales and the South

West. The quantity of this trade was sufficient to prevent any upstream cargos of pipes. This is made particularly evident from work which has been done on the north Devon pipe trade (Grant and Jemmett, 1975). They showed that in the seventeenth century north Devon pipes were being shipped not only to ports in the West Country, including Bristol, Wales and Ireland but also to America and the West Indies. Although in 1705 tobacco pipe clay was being carried upstream from Barnstaple, where many of the pipemakers were based, none of these Devon pipes passed upstream through Gloucester.

With one exception, which was from Newnham, a sub port of Gloucester, all of the 1705 shipments passed out through Gloucester. and must, therefore, have been made in, or above, Gloucester. The terminology used for all of the shipments is 'pipes', with the exception of the Newnham boat where they are described as 'tobacco pipes'. This may simply be due to different officers filling in the primary record at the two places. With two exceptions, the pipes are always measured in gross. The exceptions are two cargos to Bristol, both of which are measured in boxes (Table 12). This may signify that they were already packed for trans-shipment to ocean going vessels. Bristol had a prolific pipemaking industry, based primarily on the trade to America. They, therefore, had no need to import pipes to the city. but it is known that some Broseley pipes of this period found their way overseas. Atkinson for example (1975, 48-49), notes the marks of William Brion, a Wenlock maker of c1690-1730, and Thomas Chambrey, a Broseley style maker of c1680-1700, from Port Royal, Jamaica.

This specific association between boxes of pipes and export is supported by the published material from Bristol (Jackson & Price

1974). This lists overseas shipments of pipes from 1773 to 1818, almost all of which are measured in boxes. They consider (*ibid*, 18) that the box was the standard unit of measurement, although occasionally cases and kegs are noted. In 1799 a shipment to Wexford consisted of "1 box, 10 groce" of pipes, the implication being that a box contained more than 10 gross. The total number of boxes shipped to Bristol in 1705 was 9, in two shipments, both on Bridgnorth boats. The total number of boxes shipped out of Bristol in 1773 was 2,386. Even allowing for expansion of trade during the eighteenth century, it is clear that 9 boxes would only represent a small proportion of the overall trade from Bristol in 1705. This ties in with the fact that, of the British pipes, it is predominantly Bristol products which are found in the New World at this date.

Table 11 - Total pipe shipments by destination. This table shows the final destination of boats carrying pipes, with the number of trips, the total quantity shipped, and the average cargo of pipes to each place.

Carried to:-	No trips	Tot	Average cargo
Bristol	2	9 Box	4.5 Box
Carmarthen	4	590 Gross	147.5 Gross
Cardiff	6	1470 Gross	245 Gross
Cardiff/Bridgwater	1	400 Gross	400 Gross
Cardiff/Minehead	2	800 Gross	400 Gross
Chepstow	4	440 Gross	110 Gross
Ilfracombe	1	XXX XXX	XXX XXX
Neath	1	200 Gross	200 Gross
Minehead	1	200 Gross	200 Gross

Excluding the boxes for Bristol, the total trade on the river in 1705 was 4,100 gross of pipes, plus one illegible entry. The individual quantities varied from 10 gross to 800 gross, making overall averages virtually meaningless. There does, however, seem to be a marked variation between individual places. Upton boats, for example, never carried less than 300 gross, while Coggan Pill boats only once carried more than 34 gross. There is also a marked difference in the percentage of voyages

from each 'home port' to carry pipes. All of the outward boats from Brockware, Coggan Pill and Upton carried pipes, while only 2.17% of the Tewkesbury boats, and 0.92% of the Bewdley boats did. Of equal significance is the fact that none of the Broseley, Benthall or Shrewsbury boats, a total of 29 outward voyages, carried any pipes. There is also a marked variation in the destination of the boats (Table 12). Bridgnorth boats with pipes regularly went to a wide range of places, often as far as Carmarthen, but never to Cardiff. Conversely, Coggan Pill and Upton boats almost all went to Cardiff. The quantities shipped also varied (Table 11), with a substantial majority of pipes on boats calling at Cardiff.

The problem is not in noting these idiosyncracies, but explaining how they reflect the actual mechanisms by which pipes were traded from individual workshops to market outlets. Unfortunately, we have no way of knowing the extent to which cargos were trans-shipped at upriver ports, nor exactly where they were picked up or set down on the recorded voyage of the boats. This means that, although we know how many pipes passed through Gloucester, we have no way of knowing exactly where they came from or whether they were dropped off before the boat reached its final destination. It is clear that the home port of a boat does not necessarily reflect either the start of its journey or the origin of its cargo. The Brockware and Coggan Pill boats, for example, were trading upriver at least as far as Gloucester and probably beyond, to obtain their cargos, which included pipes when they returned.

There can be no doubt that many of the pipes traded on the river originated in the workshops of the Broseley/Much Wenlock industry. Pipemaking there was on a scale far beyond the needs of the local

markets and the distinctive products are common over wide areas of Worcestershire, Herefordshire, Gloucestershire and South Wales. Why pipes were not carried on Shrewsbury, Broseley or Benthall boats remains a mystery, since these would seem to be the best placed to obtain cargos. One possibility is that local boats would trade down to places such as Bridgnorth, Bewdley or Worcester where they could exchange goods with upriver boats from places like Brockware or Coggan Pill. Bridgnorth is particularly important in this respect, since, despite substantial documentary research, no seventeenth or eighteenth century pipemakers have been found in the town. Since 39% of Bridgnorth boats carried pipes, these must have been obtained through trans-shipment, upriver trading or by direct overland contact with the pipemaking centres. This last method may be particularly true of pipes from Much Wenlock which is not much further from the river at Bridgnorth than it is from the river at Broseley and Benthall.

The most significant place for pipe shipments seems to be Upton. All of the downriver boats from there carried pipes, a total of 2,600 gross which is well over half of the entire trade recorded during 1705. The average cargo was 433.3 gross, on boats heading principally for Cardiff. Upton is not a known pipemaking centre and large quantities of Broseley pipes were certainly circulating nearby in Worcester. It, therefore, seems likely that Upton either functioned as a trans-shipment centre, perhaps marking a convenient stopping point for larger estuary craft or simply specialised in carrying pipes for the South Wales market. The main point is that, in Upton, we start to find the mechanism by which areas around Cardiff were supplied with large numbers of Broseley pipes (see Chapter 4.XI).

Table 12 - Individual Shipments of Pipes During 1705. This table shows the destinations of vessels from each of the six home ports together with the quantity of pipes which they carried and the date on which they were recorded at Gloucester. Only one boat (*) is recorded leaving Newnham rather than Gloucester and on this boat the cargo is given as 'tobacco pipes' rather than just 'pipes'.

Home port	To	Quantity	Date
Brockware	Chepstow	100 Gross Pipes	19.10.1705
Bridgnorth	Bristol	6 Box Pipes	17.01.1705
	Bristol	3 Box Pipes	25.10.1705
	Carmarthen	150 Gross Pipes	13.04.1705
	Carmarthen	100 Gross Pipes	09.06.1705
	Carmarthen	40 Gross Pipes*	22.02.1705*
	Chepstow	200 Gross Pipes	26.06.1705
	Chepstow	100 Gross Pipes	24.10.1705
	Chepstow	40 Gross Pipes	27.04.1705
	Ilfracombe	XXX XXX Pipes	23.10.1705
	Bewdley	Neath	200 Gross Pipes
Coggan Pill	Cardiff	34 Gross Pipes	27.10.1705
	Cardiff	26 Gross Pipes	09.05.1705
	Cardiff	10 Gross Pipes	05.09.1705
	Minehead	200 Gross Pipes	23.11.1705
	Carmarthen	300 Gross Pipes	09.05.1705
Upton	Cardiff	800 Gross Pipes	27.03.1705
	Cardiff	300 Gross Pipes	09.06.1705
	Cardiff	300 Gross Pipes	25.07.1705
	Cardiff/Bridgwater	400 Gross Pipes	29.01.1705
	Cardiff/Minehead	400 Gross Pipes	20.09.1705
	Cardiff/Minehead	400 Gross Pipes	17.11.1705

If the 1705 differences in cargo size, type and port of origin reflect longer term trends in the river traffic, then there is not only a structure to the range of products handled by boats from different places but also differences in the function and trading partners of those ports. The pipe shipments represent just one way of examining these differences. It is clear from recorded finds that Broseley pipes are common in and around the riverside towns and, thus, that much trade took place without ever being documented at Gloucester. Bridgnorth boats carried the second highest quantity of recorded pipes which may reflect their proximity to the Broseley markets. Some of these appear to have been specially packed for direct export from Bristol which implies long distance trade contacts operating through middlemen.

Boats from larger towns such as Bewdley, Worcester, Tewkesbury and Gloucester do not appear to have played an important role in the pipetrade and Upton may have acted as the main trans-shipment centre or carrying agent. Boats from there, together with ones coming up from the estuary appear to have principally been involved with trade to Cardiff, while Bridgnorth boats dealt with longer voyages to places such as Ilfracombe and Carmarthen. As with the overland pipes, the great diversity of recorded marks suggests that it was the boat owners who obtained pipes from the Broseley market, rather than the Broseley pipemakers who all maintained long distance trade contacts. The only exception seems to be the boxed pipes for Bristol, mentioned above.

Xld : Tobacco Pipe Clay Shipments on the Severn During 1705. There were only two shipments of tobacco pipe clay recorded in 1705 (Table 13). Both were inward shipments to Gloucester, the total being 19 tons. Assuming an average pipe of the period used about 1.5oz to make (estimated fired weight), this would be sufficient to produce about 3,150 gross. This does not, however, allow for water loss during drying or firing or any of the clay being used for other purposes. Unfortunately, we cannot tell whether the clay stayed in Gloucester, or was trans-shipped further upriver. Gloucester, Worcester and, probably places like Tewkesbury, had pipemakers at this period and it is quite possible that none of it went as far as Broseley. In fact pipemakers there do not appear to have started using imported, rather than Shropshire clays, until about the 1720s. Because the use of pipeclays is affected by other factors, such as local extraction, or its use in potting or other industries, it is unlikely that one year's shipments will ever do more than suggest general trends about its role in pipe production. Chronological changes in pipeclay shipments will doubtless be of much

greater value, since they can be set against longer term changes in the potting and pipemaking industries.

The discussion of this single year in the portbook series demonstrates the immense potential of this source. Although Broseley pipes are not specifically mentioned in the port books, their large scale shipment can be demonstrated through artifactual study and their route inferred from topographical considerations. As more years become available for study a much clearer pattern of this trade in pipes should emerge. Of equal interest will be the clay shipments during the first half of the eighteenth century; a period when Broseley makers changed to imported, rather than locally obtained, clays. And, once the pipe trade is better understood through this fusion of archaeological and documentary sources, it will be possible to fit it into the broader considerations of contemporary trade, marketing and economy in and around the Severn Valley.

Table 13 - Shipments of Tobacco Pipe Clay During 1705. This lists the two shipments of pipeclay in 1705, both listed as 'tobacco pipe clay' in the Port Books. XXX indicates illegible entry, approximate date derived from position in the Port Book sequence.

Home Port	From	To	Quantity	Date
Bideford	XXX	Gloucester	3 tons pipeclay	about Oct.
Tewkesbury	Barnstaple	Gloucester	16 tons pipeclay	18.09.1705

CHAPTER 3

THE MARKET AREA OF BROSELEY

Several previous studies have looked at the market area of Broseley, although none has set out to systematically explore the available material or to assess the full extent and degree of the trade. Atkinson (1975, 15) considered that there was a general distribution over the Midland Counties but that until the nineteenth century the majority of pipes were made for sale in or around Broseley. This seems unlikely, given the number of recorded makers and, indeed, Oswald in that year (1975, 103) published a distribution map showing a wide scatter of finds across the Midlands and northern Home Counties, as well as to London and north Somerset. Somewhat confusingly he includes the distribution of John Mats pipes, who is almost certainly a Broseley style maker, rather than an *actual* Broseley maker. This is a good example of the problems to be encountered in looking at the Broseley trade.

Walker (1977, 6 VII c) also considered the Broseley material which he encountered as a part of his Bristol study. He notes (1977, 688) that during the second half of the seventeenth and early eighteenth century Broseley and Broseley style pipes became common in his study area. He noted examples from as far south as Weston-super-Mare in Somerset, as well as in Pembrokeshire, Carmarthenshire, Glamorgan, Monmouthshire, Gloucestershire, Bristol, Herefordshire, Worcestershire, Warwickshire, Oxfordshire, Leicestershire, the West Riding of Yorkshire and possibly Dorset. In addition, pipes which he considered may have been of Broseley style, rather than Broseley products, were noted from south Somerset,

south Wiltshire, Derbyshire, Staffordshire, Cheshire, central & north Wales, London, Cambridgeshire, Essex and the North-East.

In many of these outlying regions occasional Broseley pipes may be found or pipes which people may consider (not always very accurately) to have Broseley attributes. These are, however, 'exceptions to the rule', rare examples of pipes which either individually or as small special consignments found their way to these areas. As will be demonstrated below there appears to be a rapid 'drop off' point, beyond which exports become exceptional. These clearly mark the edges of the usual market area for Broseley pipes, the areas over which chapmen and similar traders would have regularly carried Broseley products. While occasional 'long distance' examples will always be of interest and can be used to demonstrate the considerable flexibility of post-medieval trade, it is the primary market areas which will be examined below.

We have seen in the last chapter how Broseley may be defined as a series of distinctive forms of bowl and mark produced by the makers concentrated in the parishes of Much Wenlock, Broseley and Benthall. The interaction of numerous workshops concentrated into a small market area enabled quite different styles from those found in the surrounding areas to emerge and develop and the availability of raw materials and transport enabled them to export these styles and products to wide surrounding areas. This chapter examines the extent to which these Shropshire makers exported their pipes to other areas, using the archaeological evidence to explore the volume and extent of their trade.

During this study collections, of pipes from many surrounding counties have been examined. From these, detailed catalogues of the pipes have

been compiled and casts made of all the marked pieces. Drawings have also been made of a representative sample of makers' marks, most of which date from the seventeenth and eighteenth centuries (Appendix 4). These include illustrations of both local forms of mark and Broseley imports to that area and give an indication of the nature of pipes current in that particular place. This chapter is arranged as a regional discussion of Broseley exports as observed in these local collections.

The study is based on stylistic considerations and one problem this leads to is that many of the pieces, to all intents and purposes, appear to be Broseley pipes. In the past some pieces have often been attributed to Broseley because of their stylistic similarity but in fact the marks and makers may never have been recorded there. They presumably belong to makers working in other areas which have not yet been researched. So, although it may be fairly easy to identify those pipes which were probably not made in Broseley, it is much more difficult to say where they actually were made. This, in turn, leads to problems in saying what was actually being produced in each area, as opposed to what is actually found in each area. The evidence for Broseley influence on the indigenous pipes of these regions will be examined in Chapter 4.

I : HEREFORD & WORCESTER. Lying just to the south of the Shropshire border and on the main trade routes to Bristol, it is hardly surprising that large numbers of Broseley pipes are found in Worcestershire, although the situation in Herefordshire is slightly different. It lies away from the main transport system of the Severn and, in addition, had several seventeenth-century production centres of its own (Chapter 4).

Ia : Hereford. The pipes from Hereford have been studied by Peacey and Shoesmith (1985) and provide the only available data about Broseley trade to the area. Very few of the pipes which they illustrate can be linked with Broseley. There is an 'IL' mark dating from the first half of the seventeenth century (*ibid*, fig 73.20) but these marks are widely scattered around the Broseley area and do not necessarily belong to a maker from that centre. There are a few Broseley marks on type 4 and type 5 pipes which date from the period c1680-1730, and then an eighteenth-century John Bradley stem mark. But all of these marks are greatly outnumbered by locally produced examples, and it seems that, although Hereford pipes were influenced by Broseley styles, there were not necessarily large numbers of Broseley exports to the area. This is perhaps surprising, given the proximity of the county to Shropshire and suggests that there were sufficient local makers to resist the effective penetration of Broseley products.

Ib : Bewdley. As noted in the previous section, only about half of the Bewdley pipes are marked and, of these, only about a half appear to be Broseley makers. The available information relates principally to the period c1660-1710, when it is suggested that Broseley held something in the order of 25% of the Bewdley market. This figure seems to be somewhat lower than might be expected for a centre so close and with such direct trade links to Broseley. It does, however, underline the limited state of our knowledge about regional pipe production, and indicates how much work remains to be done in the areas surrounding Broseley.

There are a wide range of seventeenth-century initial marks which can be attributed to Broseley; the 'HB', 'GH', 'TC', 'WH' and 'II' marks being

particularly common. From the early eighteenth century there are a few spur marks, 'AB', 'SR' and 'W' marks all having been found (eg figs 75.11-13). Surprisingly, with the exception of a poor circular mark (fig 75.8) and a Morris Deacon mark found by Betty Park at Venus Bank, Bewdley, no later full name heel marks have yet been recorded in the area. The supply of pipes from Broseley clearly continued into the eighteenth century, although as yet there is not enough evidence to assess the degree of trade during this period. The only full-name eighteenth-century stem marks so far recorded are Robert Harper, Richard Legg, Thomas Legg and one fragmentary one which is possibly a Taylor mark. The supply of pipes doubtless continued into the nineteenth century, although the only material of that date so far recovered consists of some late Southorn products.

Ic : Worcester. Although a considerable number of Broseley products have been found at Worcester, they always appear to have been outnumbered by locally produced pieces. When the unmarked, non-Broseley pipes, and those with marks not found at Broseley are subtracted, it is estimated that during the period c1660-1700 only about 20-40% of the pipes are of Broseley origin. This is similar to the situation at Bewdley and suggests that, although large numbers of Broseley pipes must have been passing through these places, the local makers were able to hold the majority of the market.

During the seventeenth century numerous initial marks are found on the heel bowls. Marks found include the early 'IL' mark (fig 78.2) and later 'HB', 'MD', 'TI', 'TR', 'RV', 'TC' and 'RP' marks. There are a few spur marked pipes, including examples marked 'RH' (fig 77.9-10). In contrast, the later full name marks are comparatively rare. There is a type 3

?Tho Jones mark and ?Will Harper, John Jones and Rich Legg marks on type 5 pipes. One deposit from the Pump Street excavations produced no less than 14 examples of the latter mark. Eighteenth century stem marks are likewise uncommon, but Tho Gething, ?ED, R?I and Joyce Rhoden marks have all been found. For the nineteenth century there are relief Southorn and John Roden marks. The wide range of makers and dates represented shows that, although Broseley may never have dominated the pipe market in Worcester, it certainly formed a consistent and important element of it. The Broseley pipes recovered indicate that the full range of styles at all periods would have been readily available in Worcester.

II : GLOUCESTERSHIRE. As will be noted in Chapter 4, the majority of work on Gloucestershire pipes has been carried out by Allan Peacey (1979). We have seen how Gloucester in particular and smaller towns to a lesser extent, were able to establish their own pipemaking traditions, based primarily on Bristol and west-country influences, rather than those from Broseley. This is perhaps a little surprising given the substantial number of Broseley pipes which were clearly circulating in the area from the second half of the seventeenth century.

In Gloucester itself, Peacey (1979, 68) notes the presence of Bristol pipes during the first half of the seventeenth century, followed by large quantities of Broseley type 2, 4 and 5 pipes after that date. He goes on to note an apparent decline in the trade from c1720 until the mid nineteenth century, but this may be due to the introduction of the elusive stem marks after this date. Certainly, pipes of this date continued to find their way to the region as the group from Slad indicates (Peacey 1979, 70).

In the county as a whole considerable numbers of Broseley pipes occur over wide areas. Peacey (1979, 70) notes a general concentration of these towards the Severn Valley, although his distribution map (p69), and card index of marks, indicates a varied and widespread distribution of Broseley pipes across most parts of the county. It is worth noting the considerable range of Broseley marks represented in Gloucestershire (eg Peacey 1979, figs 143, 145, 146, 148-175). It is clear that no one Broseley maker dominated the trade and that most of the Broseley makers would have expected to find a regular market for their pipes in this long-distance trade. This is a point worth remembering when we come to consider the mechanisms by which the Broseley trade was organised.

Although it is clear that considerable numbers of Broseley pipes were reaching the county, it is difficult to define exactly how many. Susanne Atkin (*in litt*, 12.9.86) notes that of about 46 seventeenth and eighteenth century marks from excavations at Southgate Street in the City, about 18 (39%) were of Broseley origin. This is a large percentage to find at such a distant place, although of course this does not allow for the presumably considerable number of unmarked local products. Clearly, detailed and accurate, identifications and analysis of excavated groups from various dates are needed to explore the changing percentages of imported pipes circulating in the area.

III : OXFORDSHIRE. As will be shown in Chapter 4, the pipes of Oxfordshire are influenced by the traditions of many surrounding areas but not to any real extent by the styles of Broseley. Some Broseley pipes did, however, find their way to Oxford, where their distinctive

styles and marks contrast with the rather plainer local products. This makes their presence more apparent than real and it is important to view them in conjunction with the local pieces. In their St Ebbe's paper Oswald and Rutter (1984) list the following Broseley makers; RL (type 3a), Samuel Acton (type 7a), John Bradley (4 examples), George Bradley and Joyce Rhoden. Two of these marks are illustrated here (fig 80.1-2), together with a later E.Southorn product from St Helen's Passage (fig 80.8), a piece which was clearly part of a special Oxford order. So, although Oswald & Rutter (1984, 251) comment on the number of Broseley pipes so far from Broseley as being unusual, the total number recorded from excavations in the town is only nine. When compared with the total number of pipes recovered, the majority of which were unmarked local products, this represents a very small percentage indeed.

Likewise, the Broseley pipes range in date from the seventeenth to nineteenth centuries, and in one period there are only a few examples. So, although we may note the *occasional* presence of Broseley products at Oxford, they cannot be said to form a statistically significant proportion of the pipes in general circulation. The reason for their presence at all may be due to a number of factors. We have noted a general spread of Broseley products in the areas towards Shropshire and it may simply be that Oxford lay on the very edge of the area in which Broseley products were current. It is likely, however, that the nature and status of Oxford influenced this distribution to some extent. Oxford was not only an important regional centre, but one particularly noted for its colleges. The affluence and cosmopolitan nature of the colleges doubtless brought in products and influences from wide surrounding areas. So, the presence of Broseley pipes may have been partly as a result of the direct movement of individuals and partly as

a result of the demand for quality pipes. In this respect it may be significant that many of the recorded marks are eighteenth century stem stamps. This was a period when Broseley was making fine, long stemmed, spur pipes, which, by at least the first quarter of the nineteenth century, had achieved a reputation for quality.

IV : WARWICKSHIRE AND THE WEST MIDLANDS. This area lies immediately to the east of the Shropshire borders, and so it is hardly surprising that Broseley pipes are well represented in this region. Large numbers of Broseley pipes have been found in the Birmingham area where they clearly formed an important part of the local supply. Most of the pipes from Dudley are too early to be sure of their manufacturers or origin but some later Broseley pipes are present (eg William Wilkinson, fig 82.4). In one case a maker simply applied the unusual mark 'BROSLEY', suggesting that they felt the place name alone was sufficient identification of quality to ensure its sale (fig 82.8).

Further away, in Coventry, considerable numbers of Broseley products are also found, although here there are perhaps rather more locally produced pieces (Muldoon 1979). The earliest pieces which can definitely be attributed to Broseley appear during the second half of the seventeenth century ('IOHN/HART'; Muldoon 1979, fig 30a) but then there is a range of full-name heel and stem marks which continue into the nineteenth century or later, with the Southorn marks (Muldoon 1979, 274). It is clear that a number of Broseley makers managed to find at least a small market for their pipes in Coventry, a distance of some 45 miles from Broseley. In the north and north-east of the county too Nigel Melton (*in litt*) has recorded a number of different Broseley marks, showing

that their range permeated deep into the countryside and was not confined to larger market centres alone.

V : LEICESTERSHIRE. There appears to be no direct Broseley influence on the types of pipe produced in the county, although some copies of Broseley type 5 pipes, probably from Warwickshire, were circulating there during the late seventeenth and early eighteenth centuries. Apart from these copies, there do not seem to have been many actual Broseley pipes reaching this area. From Leicester itself, there is one pipe with a poorly impressed Legg mark (fig 85.1) which probably dates from the end of the seventeenth century. The Newarke Houses Museum collection also includes an unprovenanced Hart (Hartshorne) Broseley type 3 pipe (Higgins 1985b fig 54) which may have been found in the county. Then, there is an absence of any Broseley material until the nineteenth century, when products of the E Southorn, W Southorn and R Smitheman companies appear (fig 86.12; Green 1984a, 25). This absence may be more apparent than real since there is little eighteenth century material available for study. It, therefore, seems that small numbers of Broseley pipes may have been reaching Leicester from the later seventeenth century but that they neither formed a significant proportion of those in general circulation, nor an influence on the local styles. The number in circulation probably reached its highest proportion in the later nineteenth century as the large Broseley firms reached their peak.

VI : STAFFORDSHIRE. It appears that very large numbers of Broseley pipes found their way into Staffordshire. Even at Keele in the north-west of the county Vickers (1982, 1984) noted that about 27% of the

marked pipes were of Broseley origin. This is significant in that, not only is it some 28 miles NNE of Broseley, but it is only a few miles distant from Newcastle-under-Lyme, the main production centre in Staffordshire. Even at Uttoxeter on the eastern side of the county, large numbers of Broseley pipes have been found. About 70% of the marked pipes from the Wood Farm excavations were from Broseley. However, looking at marks alone can be misleading, since one of the characteristics of Broseley products is the high incidence of marking. But, even when the unmarked and, presumably, locally produced pipes are taken into consideration some 46% of the pipes were considered to be of Broseley origin.

The most comprehensive collection of material, however, comes from Stafford itself. A random sample of nearly 300 marks from the Stafford material was examined and of this about 65% was of Broseley origin, while 35% had other, probably Staffordshire, principally Newcastle; marks. The number of unmarked seventeenth century bowls from a sample of 150 bowls was exactly 50%. If this figure is representative for all of Stafford, then for the seventeenth century something in the order of 43% of the pipes have Broseley marks, 24% have other marks and 33% are unmarked. So, as for Uttoxeter in the east of the county, Broseley makers held just under half of the entire market during the seventeenth century.

The eighteenth century changes in marking, and the different recovery rate for later pipes, makes it hard to be sure of the quantity of trade from Broseley. Later marks are, however, well represented from the county and it seems clear that large scale trade from Broseley continued. There are 'IOHN/LEGG/1718' stem marks (fig 95.4) which are followed by a whole range of later eighteenth century stem marks. The 1770s pit

group from St Mary's Grove (figs 90 & 91) includes Broseley material and marks continue into the nineteenth century (eg Samuel Roden, fig 94.7). There are also later nineteenth century Southorn marks. A similar continuity of marks is apparent from the smaller groups of material recovered from excavations in the south of the county at Handsacre, Lichfield and Tamworth.

It, therefore, seems that Staffordshire was one of the main market areas for the Broseley makers. They were probably exporting pipes by the middle of the seventeenth century and, as a general rule, Broseley type 2, 3 & 5 pipes make up nearly a half of the pipes current over large areas of the county. Later eighteenth and nineteenth century products are also well represented and suggest that the Broseley makers maintained the significant share of the market which they captured in the seventeenth century.

VII : CHESHIRE. In Cheshire seventeenth and eighteenth century pipe production is almost entirely confined to the city itself. There is virtually no discernable Broseley influence on any of the known Cheshire pipes, with the exception of 'IH' (?Jeremiah Hatchett) who may have worked at Nantwich. This is perhaps surprising given the fact that Broseley influences can be detected in North Wales to the west, and in Newcastle to the east of the county. Also, there is quite a good scatter of Broseley material across the county in general, although, not surprisingly this tends to be concentrated in the south, near the Shropshire border.

From Nantwich excavations have recovered a number of Broseley pipes (Mc Neil Sale 1978, 1980). These include Broseley type 2 & 3 bowls of seventeenth century date, two of which were made by Henry Bradley of Benthall. There is an eighteenth century Hartshorne stem mark and a number of nineteenth or twentieth century W.Southorn & Co marks. This chronological spread of material suggests that a small but steady flow of Broseley material was finding its way to Nantwich.

At Haslington, near Crewe, in the south-east of the county, both Newcastle and Broseley imports have been found (Davey; files). There is a Broseley type 5 bowl marked 'RL', and one of the Charles Riggs pipes from Newcastle. Excavations at nearby Church Lawton, Alsager (fig 96.9-17) have also produced Broseley type 3, 4 & 5 bowls, but neither of the marks recovered ('CH' and several 'ROB/ART/POOL' marks) have been recorded from Broseley. Also, in the SE of the county, excavations at Sandbach (figs 97-99) have produced Robert Pool marks and other Broseley influenced bowls. The marked pipes, however, appear to belong to either Rainford or Newcastle makers during the seventeenth century and the pipes are of Chester style during the eighteenth century. So, although there appears to be considerable stylistic influence from Broseley in the SE of the county, there are very few actual Broseley exports.

In the north of the county at Tatton (figs 100-101) there is no discernable Broseley influence, the styles being influenced principally by Rainford and Chester types. At Warrington, however, at least two Broseley pipes have been found. Davey & Petch (1976) record a Henry Bradley mark and from St Elphin's Rectory there is a Samuel Decon bowl with a decorated stem (Davey & Pierce 1977). Both of these belong to

the second half of the seventeenth century, and indicate that by this date the Broseley makers had gained a small foothold in north Cheshire.

In Chester itself very few Broseley pipes have been found, which is hardly surprising given its importance as a manufacturing centre. There are, however, a number of Broseley type 5 bowls illustrated by Rutter & Davey (1980) with the marks Thomas Darkes (?Parkes), John Hartshorne, Morris Shaw, George Povel and John Roberts. Then, there are no recorded imports until the nineteenth century when the marks of E.Southorn, W.Southorn and R.Smitheman occur. So, despite the substantial Chester industry, a few Broseley products did find their way into the city.

The general picture for Cheshire is, therefore, one of strong regional influences coming from a number of centres. The pipes circulating from the large production centres of Chester, Newcastle and Rainford appear to have blocked effective penetration of the Broseley products, limiting their presence to a small percentage of the pipes in circulation. This contrasts with Staffordshire where substantial numbers of Broseley pipes appear to have reached all parts of the county, including areas near Newcastle itself. Small numbers, however, were able to find their way even into Chester and occasional finds from Broseley are to be expected from all parts of Cheshire.

NORTH WALES. The main production centre in North Wales appears to have been centred on Buckley in Clwyd. Although the makers there produced exact copies of Broseley type 5 pipes during the period c1690-1720, there are almost no actual Broseley pipes recorded. The only real contender appears to be the pipe marked 'W?P' (fig 103.3). This example

is rather blurred on the right hand side, but almost certainly reads WP; similar marks having been recorded, amongst other places, from Much Wenlock (fig 69.13), and in the Thursfield Collection (fig 56.7). Otherwise the pipes are either copies of Broseley types or are exports from or influenced by, the nearby Chester industry. The similar position in Chester suggests that actual Broseley products never made substantial inroads on the market directly around the Broseley area, although this may not hold true of places away from that production centre.

IX : MID-VALES. There are no seventeenth or eighteenth century makers yet recorded as having worked in the Mid-Wales region and few pipes from which to explore the likely development and influences. Those that are available, however, indicate considerable Broseley exports to the area. From Pool Road, Montgomery (Arnold 1985), there are a considerable number of pipes illustrated. Almost all the forms and marks are of Broseley type and between them they include every period from the mid seventeenth to the mid twentieth centuries. In addition to a wide range of material from the immediate Broseley / Wenlock area, there is also a nineteenth century Southorn stem mark from the Bridgnorth works, and a couple of possible nineteenth century imports from other areas. One nineteenth century spur has the relief moulded mark 'WB', a style not used in Broseley and a mark which can probably be attributed to William Boynton of Chester, 1871-1917 (Rutter & Davey 1980, 230). There is also a fluted bowl which possibly has a symbol mark moulded on the spur. This is also a type of pipe not known to have been produced in Broseley.

Apart from these more obvious examples, there are some pipes which it is hard to prove provenance. A few seventeenth century bowls are unmarked, and a few have symbol marks which are not necessarily of Broseley type. Some of these pieces one suspects may have come from other small workshops somewhere along the Welsh borders. So, although Broseley always appears to have dominated the trade to Montgomery, there may have been small numbers of pipes coming from other areas. Further afield things may be different but there appears to be little evidence as yet. A few miles from the coast at Machynlleth, two marked stems were found during the Town Hall excavations (Barfoot 1986). One of these was a later eighteenth century decorated Chester stem and the other a nineteenth century Southorn mark from Broseley.

X : SOUTH WALES. One of the most notable things about the pipes from South Wales is the large number of Broseley pieces present. Many of these must have travelled about 150 miles by boat from Shropshire before being traded along the south coast and yet they were still able to compete successfully with the local products, including those from nearby Bristol. Markell (*in litt* 27.7.87) estimates that 40% of the pipes from Cowbridge were from Broseley and 40% from Bristol, the remainder either being from the Bristol or South Wales areas or of uncertain origin. Likewise, in his report on a group of pipes from the Bear Hotel in Cowbridge, 15 out of 24 pieces (62%) were from Broseley (Markell 1983, 68), although rather smaller percentages have been noted at East Orchard Castle, Swansea, Margam and Cosmeston Castle (Markell 1981a, 34). Even so, this is a very high percentage of the market for such a distant centre to hold.

Broseley pipes are found in some numbers throughout south and south-east Wales. Jenkins (1980) has recorded a considerable number from the Monmouth district, dating from the mid seventeenth century onwards. The earliest pipes occur with Bristol products which gradually decline towards the end of the century, as they specialise in the export trade to America, leaving the local markets to the Broseley makers. We have already noted this pattern in Gloucestershire. This change, however, is not absolute, as the group of pipes from Welsh Newton Mill shows (Markell 1980). This group includes one Herefordshire / Worcestershire type heel pipe of c1660-90 marked 'HP' and then a series of Bristol bowls with cartouche marks dating to c1690-1720.

On the south coast itself, Broseley pipes have been found at Llandaff, in Cardiff (Kenyon 1981), indicating that Broseley imports are not confined to the areas away from that centre, where pipemaking may have been taking place. The largest available groups of pipes come from Cowbridge and Llanmaes (Markell & Evans *in litt*), where a very wide range of Broseley exports are recorded. Although by far the most numerous type are the distinctive type 5 pipes, there are also a few type 3 & 4 pipes. Once again, there are a very large number of individual makers represented. There are often many different forms, even of the same name stamp and no one maker appears to dominate the market. From various sites in Cowbridge the following full name Broseley marks are recorded: William Darbey, Edward Decon, Morris Decon, Richard Decon, Samuel Decon, Clark, Ralph Harper, Richard Harper, William Harper, Thomas Hartshorne, Mary Hughes, Thomas Hughes, John James, John Jones and Richard Upton. Together with the initial only marks, there are some 20 more or less contemporary Broseley makers recorded from this one place alone.

There is little evidence at the moment for later stem marks, but this may be due to a shortage of material to study as much as a shortage of actual exports. Markell, however, (*in litt* 27.7.87) notes a re-establishment of Bristol supremacy during the eighteenth century, although doubtless some Broseley material continued to find its way to the area. The burnished eighteenth-century spur bowl from East Orchard Castle, for example, (Markell 1981a, fig 6.9) appears to be of Broseley form. But, despite some later material, there certainly seems to have been a period around 1680-1730 when Broseley makers achieved an unprecedented share of the market and their products are found on almost every site of this period. For the nineteenth century there is little evidence at the moment but it is likely that the large factories which emerged in Broseley during this period would have sent out travelling salesmen to develop markets in south Wales during this period.

We are fortunate in having one record of a travelling salesman's work for Southorns carried out in November and December 1913 but which, doubtless, reflects the pattern used during the nineteenth century. It consists of two pages from an account book, originally printed in the nineteenth century for William Southorn & Co, clay tobacco pipe makers of Broseley. The leaves have been folded and stored on a spike but read as one document. It deals with the travels of an unnamed salesman for the firm and was, presumably, the official record of his sales trip. The document is now held in the Ironbridge Gorge Museum archives. It reads:

South Wales, Nov 27 1913

NAME	ADDRESS	ACCOUNTS	DISCOUNTS	AMOUNT PAID	REMARKS
Turley	Ludlow	1 1 0	1 0	1 0 0	
Jordan	Hereford	15 6	6	15 0	
Tuke		5 0	6	4 6	
Lewis	Monmouth	8 0	1 1	6 11	
Dec					
Lewis	Pontypool	16 0	1 0	15 0	
Cox	Much Marcle	1 1 0	2 0	19 0	
Townsend	Ross	1 1 0	2 0	19 0	
Herbert	Beaufort	16 0	3 0	13 0	
Davies				5 0	on ac.
Gore	Nantyglo	13 0	1 5	11 7	
Davies	Blaina	2 12 6	6 1	2 6 5	
Evans	Abertillery	1 5 0	1 0	1 4 0	
5 th					
Fisher		16 0	2 0	14 0	
Matthews	Abergavenny	1 12 0	2 4	1 9 8	
Hall		1 1 0	1 0	1 0 0	
6 th					
Morgan		6 0		6 0	
Denner	Gilwern	19 0	1 0	18 0	
Bayton	Brynmawr	1 12 0	2 7	9 5	
8 th					
Bence	Griffithstown	2 17 0	2 0	2 15 0	
Gore	Blaina	1 8 6	1 0	1 7 6	
Collings	Aberbeeg	2 2 0	8 0	1 14 0	
10 th					
Evans	Abertillery	1 12 0	4 2	1 7 10	
Andrews	Treforest			10 0	on ac.
Folland	Briton Ferry	1 17 6	3 3	1 14 3	
Stone	Neath	1 2 0		1 2 0	
Morris	Swansea	1 1 0	3 0	18 0	
18 th				27 5 1	
Cash remitted		17 12 5			
Commission		5 9 0		23 1 5	
				£ 4 3 8	In debt.

From these accounts it appears that the salesman was away for about three weeks working his way down through Shropshire and Herefordshire to the South Wales valleys and coast. This was clearly his main selling area, and he spent some time moving about finding orders for pipes. Presumably, as other firms closed down, Southorns were able to capture almost all of the remaining market in their selling areas. This one document demonstrates the immense potential for study of the pipe trade

through the Wm Southorn & Co ledgers and other documents which survive with the family.

So, for South Wales, it appears that Broseley exports were comparatively rare until the last quarter of the seventeenth century when the numbers rose rapidly to take a substantial share of the market. They maintained this position until the first quarter of the eighteenth century, when they appear once again to have lost ground to the Bristol makers. After this date there is little information available, but it seems likely that some Broseley pipes would have continued to circulate with local products and other imports, until well into this century.

XI : OVERSEAS. Finally, the overseas trade in Broseley pipes must be mentioned. During this century Broseley products were certainly sent to America but it is not known how long this trade had been in existence or what its scale was. Brongnairt (1844, 188) records the sale of pipes made by Noah Roden in France and the 1851 Exhibition may well have attracted other overseas orders. Somewhat surprisingly, Broseley pipes do not appear to have reached Ireland. Joe Norton has recorded (*in litt*) a Broseley style bowl of c1660-90 from The Deanery in Waterford. It is marked SB on the bowl facing the smoker, within an incuse stamped border which has affinities with the Broseley multi-stamped bowls. He only notes having seen one other Broseley pipe from Ireland.

Broseley style pipes of c1680-1700 have turned up in Port Royal, Jamaica (Atkinson 1975, 48-49), one of which was made by a Much Wenlock maker. Walker (1977, 688) records Broseley pipes from Massachusetts, Virginia, and North Carolina, and possible examples from Maine and Nova Scotia.

Unfortunately, he does not date or give the makers for these pipes, so it is not clear which period of production they represent. He does, however, point out that these pipes are rare in comparison with pipes from places like Bristol which specialised in overseas trade and thus that the American trade was not of any real importance to the Broseley makers.

From these brief regional surveys, it is clear that Broseley was able to provide a substantial part of the market requirement for large areas of the country, with a small number finding their way overseas. It is, as yet, very difficult, to add a precise chronological dimension to this trade for a number of reasons. The earliest Broseley pipes are often difficult to separate from local products and then, after the early seventeenth century the use of fine bowl forms and stem marks has limited the recovery rate and thus the available data. Also, it is generally bowls rather than stems which are collected, thus limiting the number of later marked pieces available. The clearest picture is of the late seventeenth and early eighteenth centuries, when easily recognisable bowl forms and marks were in use.

Naturally, the most concentrated Broseley material is found in Shropshire itself. Here, virtually no other types are found, the only exceptions noted being fine quality Chester imports of eighteenth century date. To the south the Severn provided an important corridor for the movement of goods. Throughout Worcestershire and Gloucestershire something in the order of 20-40% of the pipes in use appear to have been of Broseley origin. The earliest of these appear to be type 2 & 3 pipes and the trade here was perhaps a little earlier than that to South Wales. From the river, Broseley pipes found their way across to the Welsh borders and round the coast to South Wales, although significantly not so much

into Herefordshire where a strong local industry appears to have prevented the penetration of Broseley pipes (see Chapter 4). The trade to South Wales appears to have been most concentrated during the period c1680-1730, when some 40% of the pipes are of Broseley origin but may well have continued in a reduced form until well into this century.

To the South-East, a few Broseley pipes are found in Oxfordshire which appears to be beyond the limit of regular trade. Warwickshire and the West Midlands have substantial numbers of Broseley pipes, but once again Leicestershire seems to have been beyond the normal limits of the trade. Staffordshire, on the other hand, appears to have had close trading links with Broseley, since both Stafford and Uttoxeter appear to have received some 40-50% of their pipes from Broseley. The trade to the north was not so large, being limited by the Chester, Rainford and Newcastle-under-Lyme products. Broseley pipes are, however, found occasionally as far north as Warrington and in Chester. To the west, a very large percentage of the Montgomery pipes came from Broseley and exports from Shropshire are to be expected to have reached large areas of Mid-Wales.

CHAPTER 4

THE STYLISTIC INFLUENCE OF BROSELEY

Chapter 2 demonstrated that 'Broseley pipes' may be defined as a series of distinctive forms of bowl and mark produced by the makers concentrated in the parishes of Much Wenlock, Broseley and Benthall. The interaction of numerous workshops concentrated into a localised production centre enabled quite different styles from those found in the surrounding areas to emerge and develop. Chapter 3 examined the market area over which these pipes were traded. This Chapter goes on to consider the extent to which these exports influenced the local products made in other areas. It re-examines the areas in which Broseley exports were noted and looks at the evolution and interaction of different stylistic influences on the local makers.

I : SHROPSHIRE. Although we have looked at the 'Broseley' area of Shropshire, there are still many problems to be faced in the understanding of the products found in rest of the county. There are many makers who have not yet been traced in the records and pipes whose origin is not known. There are many such pieces in the Bragge (fig 32) and Thursfield (figs 51-56) Collections, where the problem is compounded by the lack of provenance for almost all of the pieces illustrated. Even in more recent collections, this remains one of the most frustrating problems. Pipes are often said to have been collected 'primarily' in one area or another but of course the one interesting piece invariably turns out to have been found elsewhere. There are, however from Shropshire a number of pieces of which well provenanced

pieces are found fairly frequently, but which do not appear to have been made at Broseley. These presumably indicate other workers, probably operating at other centres within the county and producing Broseley styles of pipe.

The WV maker, for example, made large and small varieties of type 5 pipe (figs 57.13, 58.1) which have not been recorded in Broseley or Benthall. These examples were found in Shrewsbury, and may indicate a maker working at that centre at the start of the eighteenth century who was producing pipes in exactly the same style as those produced at Broseley. This problem of attribution of pipes is even more acute during the earlier periods when pipemaking is not so well documented, nor so well centralised. The early pipes in the Andrews collection, for example (figs 58.9 - 14), cannot yet be attributed to particular makers or production centres and yet are likely to have been made locally. It is clear that a much more comprehensive programme of documentary research needs to be carried out on a county wide basis to establish the location and scale of pipemaking. When this information is available, we will more fully be able to assess the county as a whole, rather than just the Wenlock / Broseley area of it.

Likewise, more artifactual material is needed to fill the gaps in our knowledge of the smaller production centres. The current excavations being carried out at Madeley Court and at various sites in Shrewsbury by the Birmingham University Field Archaeology Unit should provide valuable new data about local pipes. The Shrewsbury material will be particularly important since it is a likely centre for pipemakers to have moved to, and yet one in which no previous systematic collection of material has taken place. As yet, we can say comparatively little about

any of the pipes produced elsewhere in the county, let alone the stylistic influences operating on those centres.

Ia : Shrewsbury. As the county town, it is likely that at least some pipemakers would have operated here during the seventeenth and eighteenth centuries. As yet, however, no documentary references have been traced and, other than the presence of some otherwise unrecorded marks (see WV above) there is very little information at all about the town. Later marks including the word Salop are known for Samuel Roden (fig 47.20, c1760-1800) and J Walker (fig 60.3, c1800-40) and may indicate the presence of makers here from at least the second half of the eighteenth century. Both of these marks are of typical Broseley style for their periods. The only later mark known is of E. Taylor (fig 59.3) which probably dates to c1888-1912. This, however, is a moulded incuse mark which is of a type only very rarely produced at Broseley. This type of marking was widely used in other areas of the country at this date and shows an interesting divergence from the typical Broseley mark of the period, which was an incuse *stamped* mark.

Ib : Wellington. The only Wellington maker recorded is William Evans, who died in about 1694 and it is only tentatively that marks can be attributed to him. There are three examples of WE marks illustrated, from Much Wenlock (fig 69.2), Overley Hill (fig 58.8) and Benthall (fig 37.6). Other examples occur in Staffordshire (Wood Farm, Uttoxeter) and doubtless elsewhere. The distribution seems a little odd for a Wellington maker, who would not be expected to 'export' to the pipemaking centres of Wenlock and Benthall and so it is far from certain that these marks can safely be attributed to Evans, particularly since no collections from Wellington itself have been seen. The WE

marks and bowl forms which do occur, however, are of typical Broseley style and if they do belong to Evans, indicate that he was producing pipes of Broseley type.

Ic : Bridgnorth. The only systematic documentary work on pipemaking in Bridgnorth has been carried out by Peter Hammond, to whom I am grateful for most of the material used in this section. He has searched the 1841-81 census returns, extracting all households containing pipemakers, and, in addition, has done some work on the parish registers, searching principally for members of the Southorn family. Adrian Oswald has clearly searched several of the nineteenth century trade directories (Oswald 1975, 190), although it is not known whether this represents all of the available information from that source. Additional pieces of information have been added from other areas of research and these are individually referenced (below and Appendix 2).

Bridgnorth is an old market town situated about 7 miles SSE of Broseley on the Severn, where it commands one of the few river crossings. The main settlement, known as 'High Town', is situated on a high sandstone outcrop overlooking the river, below which lies a subsidiary settlement known as 'Low Town'. This probably grew up from the trade generated by a combination of road and river traffic at the crossing point. A background to the town is conveniently given by Dr J F A Mason in the Bridgnorth Official Guide (undated, 11):-

"The town has grown slowly through the centuries, though most rapidly with the new housing development of the years since 1948. The main factors of the town's prosperity were, in earlier days, the presence of the castle, the town's situation on an important road from Bristol to Chester, a cloth industry, and (until about 1850) the river trade, of which tangible reminders still remain in the rings on the Bridge, three sets of Quay steps, and an iron barge-rail. After 1760 the town Mills were the scene of early operations by the Darby's Coalbrookdale Company; in the 1790s an

important early foundry was set up by the Hazeldine family in Low Town. Early in the 19th century came the manufacture of carpets which has ever since remained an important industry in the town, and was long the staple industry."

River traffic was responsible for much of the trade until the mid nineteenth century and was doubtless one of the key factors in the early development of industry on the Shropshire coalfield. An indication of the quantity of trade that affected Bridgnorth is given by a note in the Gentleman's Magazine for 1756 (quoted in The Salopian Monthly Illustrated Journal, March 1876):-

"Bridgnorth had 41 owners of vessels, who had 75 barges and trows, the former carrying 20 to 115 tons, and the latter 40 to 80 tons burden, and worked by from 3 to 4 men each, besides horse drivers."

The earliest references to pipemaking in the town date from the very end of the eighteenth century. Thomas Southorn is first recorded in 1799 (appendix 2) and in 1807 John Rhoden (sic), pipemaker, took Elizabeth Corns as an apprentice in housewifery (Much Wenlock Archives Q1/7/25). It is most unlikely that these were the first makers in Bridgnorth, since not only is it a market of suitable size to support the trade, but it must also have had pipeclay bound for Broseley passing through it since at least the early eighteenth century. However, in their extensive studies of the earlier documents Drs Trinder and Wanklyn do not recall any references to pipemakers (*pers comms.*). The 1807 reference is the only one known for John, although he is almost certain to be related to the prolific pipemaking family of that name in Broseley and may even be the maker of that name recorded there in a directory of 1835 (Pigot's).

The remainder of the nineteenth century industry appears to be bound up in the workshops of two families : the Phillips and the Southorns. Both

families appear in directories from the 1820s and 30s and can be traced through until the end of the century. With the possible exception of John Perry (see below) all of the other pipemakers recorded in the census returns appear to be employees of these two firms. None of these other workers appear individually in trade directories; no pipes marked by them are known; and often local residence or family ties suggest that they worked at one of the two main workshops. Details of these two main families will be considered individually.

The Southorn's Works. The Southorn's workshop in the later period was situated on the corner of Pound Street and Whitburn Street (the site is now vacant) and was founded by a branch of the important Southorn pipemaking family of Broseley. In fact, Thomas Parsons Southorn Jr, who founded the Bridgnorth works by 1799, is the earliest member of the family known to have been a pipemaker. He appears to have had close family ties with pipemakers in Broseley, and is likely to have brought direct Broseley influence and techniques to Bridgnorth.

His father was Thomas Parsons Southern Sr who was baptised on 2 August 1747 and married Lydia Legg at Much Wenlock on 4 May 1770. Lydia was daughter of Samuel and Elizabeth Legg, who may well have been members of the Legg family of pipemakers. They appear to have moved to Broseley where a son Thomas Parsons Southorn Jr was baptised on 19 May 1771. Thomas Parsons Sr must have died within a short time since his widow married a Richard Russell at Broseley on 24 June 1776. Although no firm connection can be demonstrated, it is worth noting that an 'I.RUS(SELL)' was working as a pipemaker in Coalbrookdale during the early nineteenth century (stem mark; fig 64.13). Oswald (1975, 199) notes a John Russell in Worcester in 1835, perhaps the same person

since no later documentary record has been found of the Coalbrookdale maker. In addition, it may be significant that Richard's stepson should choose the Christian names John Russell for one of his own sons (Appendix 2). From all this, it seems likely that Lydia was again associating with a pipemaking family. This means that Thomas Jr's mother and stepfather may both have been from pipemaking families, giving him ample opportunity to learn the trade. What is certain is that he was eventually to become a pipemaker with his own works in Bridgnorth.

He, Thomas Parsons Southorn Jr, married Susanna Gethen 'also probably from a pipemaking family' at Dawley Magna on 3 October 1790. The fact that he was only about 19, while she was about 35, brings into question the reason for the marriage - perhaps more of a political union between families rather than a romantic arrangement. It is possible that they lived and possibly worked, as pipemakers, in Broseley for a short time. By 1799, they had moved to Bridgnorth where they set up a pipeworks (Wight 1950, 39). Susanna died there in 1826, aged 71 and apparently childless. By 1832 Thomas had married a younger woman from Bridgnorth (Elizabeth, born c.1788), who bore him two sons, Thomas and John Russell. She was presumably already a widow with children of her own, since later census returns record a grandson Edward Bradley (below) living with them.

Surprisingly, the trade directories record Mrs E Southorn as a pipemaker in Bridgnorth from 1831 (Oswald 1975, 190), while no mention is made of Thomas. From this it would appear that following his marriage to Elizabeth she took over control of the business, using her name rather than his in the directories. This seems to be a most unusual situation.

One tentative suggestion might be that Thomas was in financial difficulty and that a condition of a marriage settlement was that his future wife should have control of the firm.

Thomas Parsons Jr died in 1845 aged 73 but his widow continued to run the business at Pound Street until her death in 1875, aged 86. It seems likely that it was during this period that the largest output from the Bridgnorth works was achieved. The census returns record that, not only were her two sons helping but that other workers were being employed. In 1861 Elizabeth's grandson, Edward Bradley, was living with them and working as a pipemaker (Census Returns). In addition, William Bradley, another clay pipe maker and his family were living next door at 23 Pound Street. He may well have been working for Elizabeth, especially since 23 Pound street is again occupied by a pipemaker in 1871 and then in 1881 by one of her sons, suggesting that at least by that date they actually owned the property (Census Returns). If this is correct then in 1861 there was at least Elizabeth and four men employed at the works.

In 1871 Elizabeth is recorded as a tobacco pipe maker employing three men and two women (Census Returns). It is not clear whether this includes her two sons who were still living with her and working as pipemakers. One of the men was probably James Richardson, 60, who was living next door. This gives a total of Elizabeth and seven others at this date, if her sons are counted separately. In addition, a servant Elizabeth Richardson, probably the daughter of pipemaker James, was living at the house and working as a pipemaker. The Southorn's also had a servant in 1851, suggesting that they enjoyed a good standard of living.

Following Elizabeth's death in 1875, the works appears to have contracted. In 1881 the brothers John and Thomas, both still single, are living at 23 and 24 Pound Street. John appears to have taken over the running of the works, being described as master employing one man and one woman, while Thomas is described as his assistant. An insight into the character of these two makers is provided by a piece on the Petty Sessions in Bridgnorth which was noted by Mrs Iris Payne in the *Borough of Wenlock Express* for Saturday 22 July, 1876:-

"Interfering with Police : John Southorn of Pound Street, tobacco pipe maker, was charged by Police Sergeant Davies for unlawfully interfering with him in the execution of his duty in Whitburn Street on 14th inst, when his brother, Thomas Southorn, was being taken to the police station for being drunk. John was fined 20/-, plus 14/- costs, or three weeks hard labour. Thomas was fined (and former convictions noted) £2, plus 7/- costs. (The Judge said language and conduct was most disgraceful and violent)".

The business appears to have closed at some point during the late 1880s.

John is listed in directories as late as 1885., thus marking the end of this branch of the Southorn family. Assuming that Thomas Parsons Junior's wives would have helped with the pipe production and that John and Thomas started helping at the age of 14 a graph can be drawn to show the approximate level of employment at the works, compared with the total number of pipemakers recorded for the town in each census (fig. 23).

This shows that for much of the time the Southorns controlled only about half of those engaged in pipemaking, the remainder presumably working for the Phillips family (below). There was a marked expansion in the trade during the 1840s and 50s, then a decline setting in from the 1870s. At its peak, in the 1860s, about 10 to 12 people in the town would have been employed at any one time. Although production figures

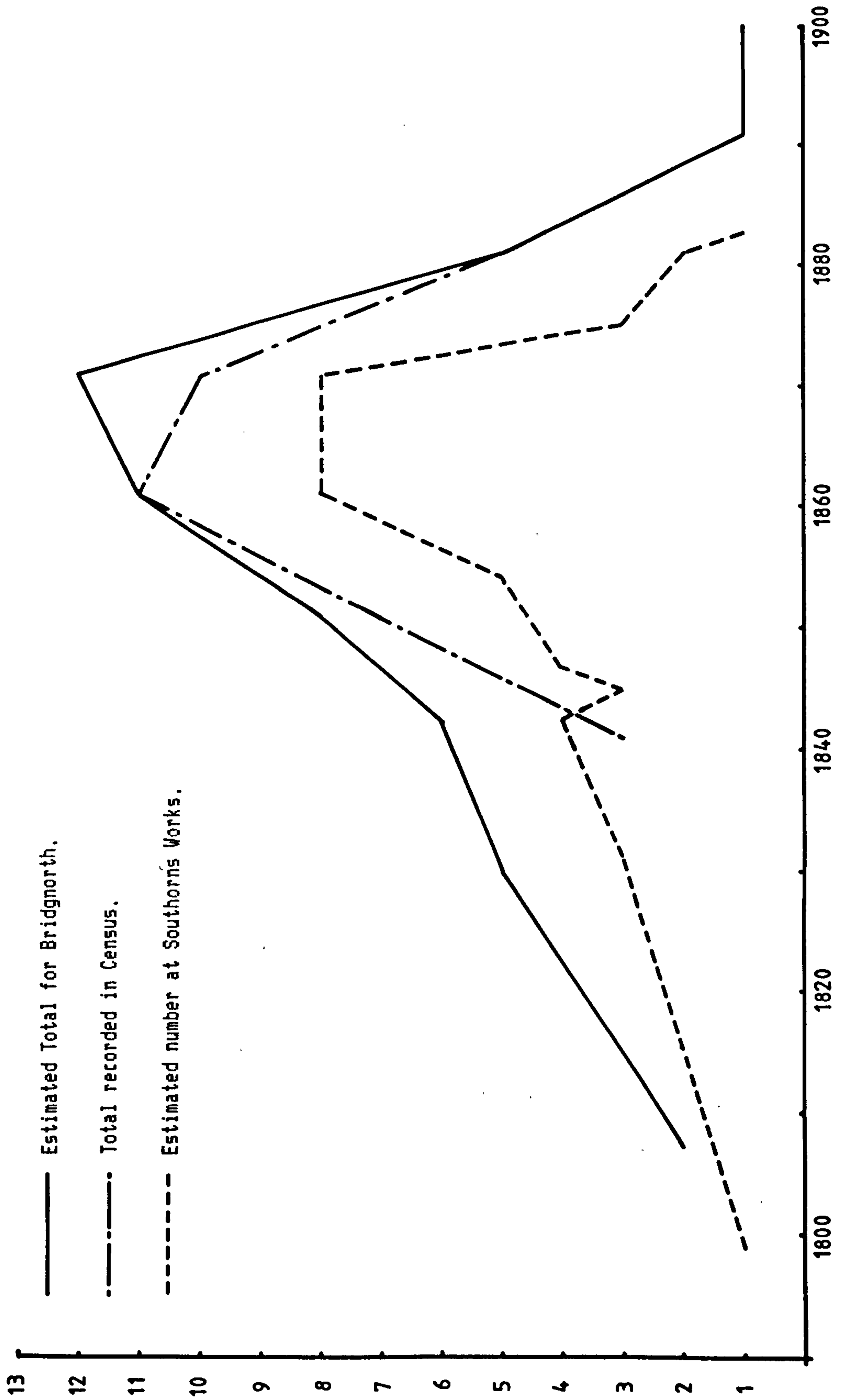


Fig 23 - Pipemakers' Employment Levels in Nineteenth Century Bridgnorth.

are notoriously difficult to estimate, it is quite possible using an estimated production of 3 gross per worker per day (Walker 1977, 399) that this would have been sufficient to produce somewhere in the region of 1,100,000 pipes annually. The rapid late nineteenth century decline has been noted in many other places (eg Hammond 1982, 23, for Nottingham, Davey 1982, 92, for Rainford, Chester and Hull), as changing trends in smoking replaced clay pipes with briar pipes and cigarettes.

The Phillips' Works. The Phillips business is first recorded in a directory of 1834 when Daniel Phillips is listed as a pipemaker. The census of 1841 reveals that he was living in Pound Street, next door but one to the Southorns. It is quite possible, therefore, that they were sharing the use of a kiln, an arrangement recorded elsewhere from both documentary and archaeological sources. Nothing is known of Daniel's background but since he would only have been about 18 in 1834 it is likely that he had a pipemaking upbringing to have been established independently so young.

By 1851 he had moved to Foundry Yard where the family stayed until at least 1881. This was on the opposite side of the river to the main town and had been the area previously occupied by Hazeldine's foundry, which closed during the 1830s (Dr B Trinder, *pers comm*). During the 1840s Daniel must have set up his own workshop and kiln there. At least two of his children, Daniel II and Jeffrey, are later recorded as pipemakers, and it is likely that the others would have helped with trimming and packing when young. His eldest son, Daniel II, is recorded as a pipemaker from at least 1861, although he is given as a tobacco pipe dealer in 1871 (Census Returns). Presumably, he was responsible by this stage for the marketing of the pipes.

Daniel II is absent in ^{the} 1881 'Census Returns', for which there are three alternative possibilities. He may have been away selling pipes, he could have left the business and moved away or he could have died. One of the latter two possibilities is suggested by the directory entries. A D Phillips is listed until 1885 and then in 1891 a Charles J Phillips. Since Daniel Sr is still alive in 1881 it is likely that all the D Phillips entries refer to him. His son, Daniel Jr, would then be expected to appear rather than Charles if he were still alive and involved in the business. Likewise, the absence of his other pipemaking son Jeffrey as master in 1891 suggests that he too had died or moved out of the business by that date.

What is clear is that by 1891 Daniel Sr had died, and Charles was running the business. It is not yet known exactly how Charles fits into the family. To have been running the business by 1891 he would need to be about 20 by that date, giving a date of birth by the early 1870s. Daniel Jr was a widower in 1871 and Jeffrey didn't have a son called Charles in the 1881 census. Either Daniel Jr must have remarried in the early 1870s and produced another son or one of Daniel Senior's other sons, who are not recorded as pipemakers, had a son who moved back into the trade during the 1880s. Charles is recorded in the directories until at least 1900 but it is not known exactly when the firm closed. Presumably though, Charles was the last maker to have worked in Bridgnorth.

Both of these firms appear to have been run as small family workshops employing other makers as necessary. They would have been responsible for their own marketing, presumably using the established routes from Broseley to distribute their products, including water until 1862, after

which rail transport was available (Morris 1985). The only other maker who possibly functioned independently in Bridgnorth during this period is John Perry. He was a Broseley maker known to have been marking his own products there during the first half of the nineteenth century. In 1851 he appears as a widower, aged 55, living in Foundry Yard. He may have moved to Bridgnorth as an independent maker or perhaps given up his own workshop and gone to work for the Phillips. Either way it is likely that he would have been using a kiln in Foundry Yard.

Products. Although there is a collection (largely unprovenanced) of pipes in the Bridgnorth Museum, there are very few which can be attributed to these well documented workshops. This is clearly another place where the recovery of good excavated groups, particularly of kiln waste, would add much to our knowledge. Possibly the earliest mark which can be attributed to a Bridgnorth maker is the I.Roden mark in the museum (fig 74.12). This may have been found with the bowl of c1800-30 (fig 74.13) and can certainly be attributed to the John Roden documented in 1807. It is a relief stamp along the stem typical of contemporary Broseley products. Several examples of Southorn stem marks have also been recorded, stamped 'SOUTHORN / B:NORTH' in relief (more than one variant; eg fig 47.29-3) or 'SOUTHORN / BRIDGNORTH' (incuse) along the stem. Surprisingly, examples of these marks have been found at Broseley, Ironbridge and Little Dawley, all within two or three miles of the Broseley workshops. This indicates an up-river movement of pipes, although whether this is the result of individual movements or actual trade is not known. No Phillips's marks are known and, although there is as yet little material for study, it is possible that they didn't mark their pipes.

The Bridgnorth marks exactly reflect the trends at Broseley where full name and place relief marks give way to full name and place incuse marks during the 1840s. We can assume from the physical proximity and family ties that the change at Bridgnorth took place at much the same time. The few examples known can in no way be regarded as definitive but it may be significant that all the Southorn marks recovered so far have no initial letter. It seems probable that the products of at least Elizabeth, John and Thomas were all simply marked 'Southorn'. Whether Thomas Parsons ever marked pipes with his initial as well remains to be seen.

Future work. While the collection of any material from Bridgnorth would be of immense value in itself, more specific objectives can be outlined. More documentary work needs to be done, particularly for the seventeenth and eighteenth centuries, in order to establish the origins and development of the industry and its relationship with Broseley. The current computerisation of the Gloucester Port Books at Wolverhampton Polytechnic should be of great help in this respect (see Chapter 2.XIc). This will allow an examination of Bridgnorth's role as a market and redistribution centre, possibly involved in the transshipment of Broseley pipes and of west country pipe clays. For the nineteenth century consolidation of the known makers' working lives and relationships through a study of the parish registers is needed, together with the identification of the exact kiln sites. Archaeologically, these need to be monitored during any building work and preferably sampled to obtain stratified deposits of kiln waste. The marks and products of the two principal firms need to be identified and arranged as a dated typological sequence.

Id : Ludlow. The only Ludlow maker recorded is John Arthur who died in 1734. IA marks which may be attributed to this maker have been noted by Atkinson (fig 33.2-3) and a similar example is held in the Much Wenlock Museum (fig 68.9). It is significant that the Wenlock example, although on a tailed 'Type 5' pipe, is not of Broseley form. The bowl has rather parallel sides, lacking the curved lines of Broseley examples. In addition, it is not burnished which almost all of the Broseley pipes are. Only the Friary Excavation pipes have been looked at during this study (figs 73-74) but these too show slight differences. There are a number of pipes marked WV (fig 73.14, fig 74.4-5) which again are not really of full Broseley form and are not burnished. Similarly, there are earlier AI/IA pipes (fig 73.9-10, 74.3, probably too early to be John Arthur) which differ slightly from Broseley forms, and later pipes (fig 73.6-7) which differ too. The recurrence of marks not found at Broseley indicates that other makers were working in or around Ludlow during the seventeenth and early eighteenth centuries. Although the style of mark and bowl form is generally influenced by Broseley, the shapes are less well refined and exhibit individual characteristics. Likewise, there is generally less evidence of burnishing. So the indications are that by the time we reach Ludlow, about 20 miles south west of the main pipemaking area, the pipes are strongly influenced by, but slightly divergent from, those produced at Broseley.

Ie : Cleobury Mortimer. Although six pipemakers are already recorded at Cleobury Mortimer between 1655 and 1718 (Appendix 2), it seems likely that this number will be greatly increased when systematic work is carried out. At present no marks or pipes can be definitely attributed to Cleobury Mortimer makers, although John Farmer marks have been found at Cowbridge and Llanmaes in Glamorgan (Markell *in litt* 23.6.87, Evans

in litt 11.5.87). John Farmer may be related to the Farmers of Cleobury Mortimer who are known pipemakers (see sect XIb below for discussion). The John Farmer marks are typical square full name marks, with or without dividing bars, and occur on type 5 pipes. Also a WS pipe in Bewdley Museum (fig 75.9) may belong to William Sheffil of Cleobury Mortimer, who died in 1699. This too is on a type 5 pipe, although, like those at Ludlow, it is unburnished. Certainly, given the position of Cleobury between Ludlow and Bewdley, one would expect broadly similar pipes in this area. If the WS pipe and John Farmer marks do reflect Cleobury types, then once again we may suggest a strong Broseley influence on the general style and form of the pipes and marks but, as at Ludlow, a divergence in detail.

Within the county of Shropshire we may therefore observe a strong Broseley influence, but by no means a total domination of the styles. The nearer centres, at Shrewsbury, possibly Wellington and at Bridgnorth, produced pipes which closely parallel the developments of Broseley. If WE represents Evans of Wellington, then in the seventeenth century there was no discernable difference from the developing Broseley types. From the later eighteenth century we can observe the full progression of stem marks as used at Broseley which, in turn, implies a similar development in bowl forms which have not yet been recovered. At Shrewsbury Samuel Roden used a square mark across the stem, and later Walker used a mark along the stem with different length lines. At Bridgnorth we have seen large lettered marks along the stem (John Roden), and then smaller marks, both relief and incuse, for the Southorn firm. The only real departure is the use of moulded marks by E. Taylor of Shrewsbury at the end of the nineteenth century.

So for the nearer centres Broseley styles appear to have dictated the nature of the pipes produced. Further away, however, the situation is less clear. At Ludlow, and possibly Cleobury Mortimer, pipes based on Broseley styles have been found. However, the form of them tends to differ slightly and they start to exhibit regional characteristics not found at Broseley, a form based loosely on the type 1 or 2 pipes being particularly common (eg fig 74.3-5 & 9). In addition the pipes are often not burnished and it is clear that, although the inspiration for the forms, marks and finish comes from Broseley, the makers did not feel restricted or constrained to abide by them. We may, therefore, suggest that full stylistic domination of pipe production only extended some 10 miles around Broseley and that, at a distance of 20 miles, other regional variations are becoming apparent.

If : Imports to Shropshire. Finally, it is pertinent to consider the import of pipes into the county, to ask why they were able to compete with local products and whether they were able to exhibit any influence on the 'Broseley' styles. By far the most important site for imported pipes is Tong Castle, which lies only some 8 miles WNW of Broseley itself. The Castle site was excavated by Alan Wharton prior to destruction by the M54 motorway which was routed to pass directly through the centre of the site. These excavations produced one or two very early pipes, dating to the opening years of the seventeenth century, which are probably of London origin (Wharton 1980, fig 1). They therefore predate the establishment of the Broseley pipe industry which both explains their presence and provides an example of the models upon which the earliest Broseley makers based their designs. Of more significance are a group of eighteenth century Chester pipes (*ibid*, fig

2.20-21) which clearly date to a period when the Broseley industry was in full production.

The presence of these pipes is almost certainly due to their high quality and decoration. The Chester pipes of this period (see above) were decorated with fine roll stamped stems which were associated with decorative marks. Their reputation for quality enabled them to be exported in small quantities to distant places in England where their price was far in excess of local products. Broseley pipes, too, were of high quality and highly esteemed, but lacked the fine Chester decoration. Both types of pipe were found at Tong, and it seems likely that, as a household of some status, a choice of quality pipes would be expected. They may well have been purchased directly from Chester by a representative of the household, rather than being normally available locally. but their very presence demonstrates that Broseley makers would have been aware of competing styles, but chose to produce a different product.

The presence of Chester pipes was not confined to Tong, since there is another example from Shrewsbury itself (fig 60.1). This is a Chester stem border (Rutter & Davey 1980, type 100, c1740-60) and shows that small numbers of high quality products found their way into the county. A similar type of product is the spiral roll stamped stem (fig 60.2), also from Shrewsbury. This is of a class which has been found at a number of sites in the midlands but whose origin is not yet known. Although the Broseley makers did not copy these elaborate decorated stems, the associated bowl forms are very similar to the eighteenth century Broseley types.

Other than these few examples of actual imports from other centres, there does not appear to be much other evidence of trade into the county. This suggests that the Broseley industry was able to hold off all but the finest imports and, therefore, that Broseley makers were subject to little influence from other regional styles. The only other notable feature of imports to, or movements within, the county is the presence of a few pieces which probably came by way of individual movements rather than organised trade. From the seventeenth century there is a Herefordshire type crowned rose mark from Ironbridge (fig 62.2; see section II below), which may well have been brought into the area by a waterman or other trader. Likewise, from the nineteenth century Southorn marks from the Bridgnorth works have been found at sites near Broseley. Examples have been recovered from excavations directed by the author on an inn site at Little Dawley which is situated only about 3 or 4 miles from Broseley but about 10 miles from Bridgnorth. Doubtless, these odd examples could have been the result of individual carriage by workers who must have frequently travelled between Bridgnorth and the Severn Gorge parishes but it is interesting to note that they occur at all. They show that, although enormous numbers of pipes were produced in Broseley and Benthall, not all of the movement was outwards.

II : HEREFORD & WORCESTER. The River Severn flows through Bewdley and Worcester in the eastern part of the county and until the middle of the nineteenth century, must have acted as one of the main trade routes for Broseley pipes through the area. The trade patterns of the Severn Valley were dominated by the river, which acted as the main arterial route for the movement of goods from as far upstream as Welshpool down to Bristol and beyond. This must be borne in mind when considering

places to the south of Shropshire. Some of these places like Worcester, Tewkesbury and Gloucester lie directly on the river and would have been exposed directly to the styles and influence of pipes carried by the river traffic. Other places, such as Hereford and Monmouth would have been connected with the main river trade, and would have been dependent on that trade for many imported commodities. In these regions we may, therefore, find Broseley material and influences which have found their way along these trade routes.

The number of makers recorded for the old county of Herefordshire (Oswald 1975; Peacey & Shoesmith 1985) is rather small, but their distribution suggests that there was widespread pipemaking activity going on. In Hereford four makers are recorded during the period 1660-1714 (Francis Jones apprenticed 1669/70, Thomas Overton c1660-90, John Purton fl 1676-1714, Thomas Purton fl 1669/70) but none later. Seventeenth century makers are also recorded at Leominster in the north of the county (William Caldewell fl 1678, John Grub married 1666, Humphry Wall died 1678) and at Pipe Aston (kiln sites), Birtley (Richard Overton fl 1664-70) and Kington (Stephen Watkins fl 1681) in the north-west. In addition, a William Harper appears to have worked at Ross-on-Wye during the eighteenth century (fig 41.9). Doubtless, this list could usefully be extended through more documentary research, but it already indicates that there was widespread pipemaking activity in the county from at least the 1660s.

The products of this interesting region have not been widely studied, although some Hereford pipes have been examined by Peacey & Shoesmith (1985; I am most grateful to Reg & Philomena Jackson for providing me with a copy of their paper). The pipes from excavations in the town

provide an indication of the styles of production to be expected in the county. The seventeenth century bowls are, as at Broseley, heel forms derived from London models (Peacey & Shoemith 1985, fig 71). Many of the forms from the mid seventeenth century onwards are strongly influenced by Broseley styles, although developing their own characteristics. They are typified by bowls based on Broseley type 2 forms but with rather small heels in comparison to the Broseley types, and with fuller, more bulbous bowls. Local variants of the Broseley type 4 & 5 bowls appear during the later seventeenth and eighteenth centuries, although subsequent developments are not clear. Bristol style bowls with cartouche marks have been found but these may simply represent imports rather than locally produced types. Certainly, later Broseley stem marks have been found and it would be expected that Broseley influence would continue into the nineteenth century.

The marks, however, are rather different. As at Broseley initial marks are found in the seventeenth century, but in addition there is a wide range of symbol marking. A good range of wheel marks are found (*ibid*, fig 73), which, although they are occasionally found at Broseley, are not a typical feature of that centre. More particularly, there is a distinctive series of crowned rose marks which appear to be particularly associated with Herefordshire (*ibid*, fig 75). These occur with or without flanking initials and appear to date to the period 1670-1710. Many of the recorded initials cannot yet be matched with known makers, indicating that the local industries were much larger than the present lists indicate. The makers of those that can be tentatively identified worked at Hereford, Leominster and Birtley, indicating it was a style common to the region and not confined to Hereford alone. One example of this type of mark has been found in Ironbridge (fig 62.2).

There are few later marks so far recorded, although Peacey & Shoemith do illustrate a few (*ibid*, fig 75). These include some Bristol style cartouche marks and the incuse letters IS on the bowl facing the smoker. There is also an incomplete Broseley style heel mark on a Broseley type 5 bowl, which is almost certainly a local copy produced in the county. Other local style bowls with Broseley style marks include 'ReCe/ED' on the equivalent of a Broseley type 3 pipe and WC on the spur of a type 4. Likewise, there is a crude IA stem mark of Broseley style with a debased fleur-de-lys above. This mark has not been found in the Broseley area and may well represent a local eighteenth century maker. From the nineteenth century there are a few moulded initial marks which are not of Broseley type and a rubber stamped advert which could have been made at Broseley.

In Herefordshire we may, therefore, detect elements of Broseley influence. The bowl forms of the later seventeenth and early eighteenth century are derived from Broseley models and some of the marks are likewise of Broseley type. But the local makers also had a strong influence on the styles produced and developed their own distinctive styles of marking. There are comparatively few recorded Broseley imports to the area, which, combined with the evidence for a strong local industry in the seventeenth century, suggests that the area was influenced by, but largely independent of, Broseley products.

In Worcestershire five pipe production centres are recorded; Alcester, Lye, Oldswinford, Stourbridge and Worcester (Oswald 1975). In Worcester itself four makers are recorded between 1691 and 1714 (to which can be added a fifth, Francis Barker, recorded in an inventory of 1676 in Hereford & Worcester Record Office), then there is a gap until the

nineteenth century when six makers are listed between 1835 and 1869 (Joseph Andrews was in fact working as late as 1885; Littlebury's Dir). All the other makers in the county are also nineteenth century. In Alcester one is recorded about 1850, at Lye two are recorded 1835-50, in Oldswinford one is recorded in 1820 and in Stourbridge five are recorded 1819-1836. So for the seventeenth / eighteenth centuries only Worcester has recorded makers, and these are confined to the years 1676-1714. It is most unlikely that these are the only pipemakers for this period and it underlines the problem encountered in carrying out a regional survey when so little is known about some areas.

The lack of information about the recorded makers is also a problem. In Hereford makers named Jones and Overton are found, while in Worcestershire makers named Roden and Russell are found. All these names are found amongst the Broseley pipemakers and it is quite possible that there are family connections. If this is the case such links would clearly form an important element in the transmission of styles. Until the necessary work is carried out, however, this assessment must be based solely on the artifactual evidence.

Ila : Bewdley. Bewdley lies on the Severn about 18 miles SSE of Broseley and was an important river port and market centre. It is only about 6 miles E of Cleobury Mortimer, where we have noted a thriving late seventeenth / early eighteenth century pipe industry and it is about 12 miles NNW of Worcester. We have already noted that the WS pipe (fig 75.9) may be a Cleobury product and, given the proximity of that centre, it would be expected to have supplied many pipes to Bewdley. No Bewdley pipemakers have been recorded which, as with Shrewsbury and Bridgnorth, is surprising given its size and status.

The majority of information about Bewdley pipes is derived from the locally collected section of the Porter Collection in Bewdley Museum (fig 75), although some other material has been collected, most notably by Mavis Barratt. All these finds indicate quite a diversity of pipes in the Bewdley area. During the period c1660-1710 just over half of the pipes appear to be maker marked. Of these, just over a half appear to be of Broseley origin. This leaves some three quarters of the pipes which cannot be attributed to Broseley; a surprisingly high number.

Of the marked pipes which are not of Broseley type, the majority bear symbol marks, often fairly simply executed (figs 75.3-4, 10). The most common motif by far is a star or wheel pattern, with or without small points between the spokes (eg figs 77.4-5). There are 21 examples of this style of marking in the Porter collection, out of a total of 63 heel marks, in a wide variety of forms. The wide range and number of marks of this type suggest that it was a regional style of marking used by a number of local makers, rather than the individual mark of one workshop. We have noted that this type of mark was common in Herefordshire but until more work is done it is impossible to say whether these pieces come from there or were produced in or around Bewdley itself. Such marks are occasionally found in the Broseley area but they are not thought to have been produced there, and thus represent a divergence in style from that centre. Likewise, the absence of any mark on nearly half the pipes is quite different from Broseley and indicates that they, too, were obtained from elsewhere.

The bowl forms also show marked differences to the Broseley products. There are, in particular, a wide range of pipes which fall between Broseley types 1 & 2 in style (eg figs 75.3-4). This form is frequently

not marked at all or occurs with the non-Broseley types of mark. The finish of these pipes is also different, burnishing being comparatively rare. This can be noted too on the later 'WS' pipe (fig 75.9) which is otherwise clearly influenced by Broseley. Unfortunately, there are not, as yet, enough later pieces to be able to consider eighteenth and nineteenth century developments.

The impression formed for the period c1660-1710, however, is that there was a considerable degree of independence on the part of the local makers from Broseley influence. The bowl form is of the same general type as that used at Broseley but does not attempt to copy or follow it closely, being more closely allied to the Herefordshire types. The style of marking and bowl finish, in contrast, are notably different and show that, during this period, the local makers developed local styles quite independently of Broseley.

IIb : Worcester. As a county town, and being situated on the Severn, Worcester is clearly a market and administrative centre of some importance. It lies just over 30 miles SSE of Broseley and had pipemakers working in the town from at least 1676. The absence of pipemakers between 1714 and 1835 is probably due to the lack of any systematic work on the records rather than any actual decline in the trade. It is also worth noting that some porcelain pipes were probably made in the city, a pipe bowl and stopper being listed amongst the forms produced at the porcelain works (Sandon 1974, 80).

Excavations in the city have produced a considerable quantity of pipes, although, as is so often the case, the material tends to be biased towards the seventeenth and early eighteenth centuries rather than later periods.

The general nature of the pipes is similar to those found at Bewdley. A large percentage of the c1660-1700 pipes are unmarked; perhaps as many as two thirds. The form of these pipes is, likewise, very similar to those found at Bewdley, with many bowl forms being unburnished, and falling between Broseley types 1 & 2 in style (figs 77.2-6). In addition, the heel tends to be more pronounced than in similar Broseley forms (eg fig 77.8). Another difference from Broseley is in the presence of a few spur forms (fig 78.6). This type were never made at Broseley and clearly indicate that other influences were acting on the style of the local pipes. Where marks occur they tend to be Broseley types, although symbol marks, particularly the wheel motif, are found on the non-Broseley bowl forms (figs 77.1-5). The general impression seems to be that, as at Bewdley, many of the pipes are of local manufacture, and that they do not closely follow the Broseley styles, although being influenced by them.

We are fortunate at Worcester in being able to attribute some of the marked pipes to a local maker. The Commandery Museum files note a probate of Francis Baker in the Hereford and Worcester Record Office. The inventory is dated Sept 30, 1676 and records him as a pipemaker. There are many pipes found locally marked FB which can, therefore, be attributed to this maker, and which, presumably, can also be dated to before 1676 (eg fig 78.4, and possibly 78.5). The marks found are either heart shaped with dots and stars or circular with a hand between the initials (fig 78.4). These are generally found on quite good copies of Broseley type 2 or 3 bowls which are sometimes burnished.

Another maker who may have worked at Worcester was the 'IB' maker. This mark is not found at Broseley and yet appears to be common in

Worcester (eg fig 77.6). In addition, the bowl form is 'Worcester Style', not Broseley, and is not burnished. One final difference that can be observed in the pipes is in the fabric. Many of those 'local' to Worcester appear to have a fine greyish fabric which contrasts with the generally coarser and more creamy coloured fabrics used at this date in Broseley. These finer fabrics may well be derived from the West Country and reflect the transport routes afforded by the Severn.

During the eighteenth century Broseley pipes continue to reach Worcester, but the local industry is hard to determine. There are quite a number of unmarked spur types which may be the products of local makers. If so, they are now of Broseley form, although without good pit groups this is hard to be sure of. From the eighteenth century there is one bowl which is notable. This is a spur pipe marked 'WN' which is generally similar to Broseley forms (fig 77.11), although this type is quite widespread during the eighteenth century. The mark, however, an incuse bowl stamp facing the smoker is not of Broseley type. Parallels for this type of mark are found in Bristol (Price & Jackson, 1974) and in the Midlands (Higgins 1985b), and, as yet, it is difficult to say what influences this piece represents. By the end of the century however, local products can again be identified with certainty and indicate that Broseley was by this date influencing a number of features of the pipes.

There are two stem marks from St John's which are of late eighteenth / early nineteenth century Broseley style. They are relief full name marks placed along the stem, a style which is characteristic of Broseley. One reads 'VERTON & CO' and the other 'HARDWICK & LANGFORD / WORCESTER'. Allan Peacey has recorded a similar mark (*pers comm*) but with just one name. It reads '_.LANGFORD.WORCESTER' in relief along the stem. Oswald

(1975) records both C Hardwick and J Langford in an 1850 directory, and it is clear that Worcester makers were copying Broseley styles of mark during the first half of the nineteenth century.

The Worcester bowl forms also copy Broseley styles at this period. Russell of Worcester, recorded as working in 1835 (Oswald 1975), produced a number of these (figs 77.12-13 & 78.10). In this case, however, the mark is not of Broseley type, being an incuse bowl stamp facing the smoker. This type may perhaps reflect a continuation of this style of mark as represented by the WN mark above. The Russell marks include a pair of compasses surrounding a number. The numbers 1-7 inclusive have been noted and, presumably, formed some type of worker tally, like the numbers later used by Southorns and Smithemans in Broseley. Other similar marks reading 'RUSSELL & WALL / WORCESTER' have been found but without the compasses. It is possible that Russell had in fact moved from the Broseley area where an I Russell, Coalbrookdale mark has been found (fig 64.13). If this is the case, he would have brought direct Broseley influence to Worcester. It is important to remember that the movement of individual craftsmen can play an important role in the transmission of styles.

From the above evidence, it seems that there may have been a changing relationship between the Broseley and Worcester pipemakers. In the c1660-1700 period there is very little similarity between the two centres. The Worcester makers were making predominantly 'Worcestershire Style' bowls, which are similar to Broseley type 1/2 pipes. This similarity, however, is probably as much to do with the general style of the period as to do with any particular links with Broseley. Broseley pipes were clearly well known in Worcester, yet differences in form,

fabric, finish and mark have all been noted. By the nineteenth century, however, specifically Broseley features may be found. The distinctive style of stem mark was being copied by Worcester makers and Broseley style bowls were being produced.

III : GLOUCESTERSHIRE. The most extensive study of Gloucestershire pipes has been carried out by Peacey (1979). His paper gives a list of 58 Gloucester pipemakers, together with a further 16 from the county. To this list may be added a reference to William Davies of Coleford, in the parish of Newland which was kindly noted for me by Peter Wakelin. He is referred to after his death in a court case of 1732/33 concerning the value of his tenement. The full case has not yet been examined (Public Record Office; Exchequer Court Depositions, E134/6 Geo 2/Mich 18). Allan Peacey has also compiled an extensive index of pipe marks found in the county but it has unfortunately not been possible to use information from it in this study. This discussion of Gloucestershire pipes is, therefore, largely a summary of the 1979 paper, taking into account some additional notes kindly provided for me by Susanne Atkin.

Gloucester lies on the Severn some 55 miles SSE of Broseley, about 32 miles NNE of Bristol and was a customs port used to regulate the flow of traffic up and down the river. It was by far the main pipe production centre in the county and so provides the interesting situation of being an independent production centre situated on a main trade route between the important pipe production centres of Bristol and Broseley.

Peacey suggests that there was probably no pipe production in Gloucester before the middle of the seventeenth century but after that it was an active centre until the end of the nineteenth century. He illustrates the progression of local bowl forms in his figs 1 & 2 (Peacey 1979). These show very little Broseley influence in their development. The heel bowls at first are based on London forms but then develop generally in line with the west-country forms, the very curved lines of Gloucester forms 3b and 7 being particularly typical. In addition, from the 1660s or 70s spur pipes were being produced, a style which was not produced until the end of the century in Broseley. The eighteenth century pipes exhibit some similarities with those produced at Broseley but these are considered to be coincidental rather than intentional. The eighteenth century was a period when thin-walled spur pipes became popular over wide areas of the country and specific regional characteristics must not be confused with general evolutionary trends of a national nature.

The development of makers' marks too is notably different. Peacey notes (1979, 53) that marked pipes are rare in Gloucester and, of the ten seventeenth century makers recorded, marks are only known for one. During the eighteenth century moulded bowl marks, either initial or full name, are found, often placed on the side of the bowl. These are typical of the contemporary Bristol products (Price & Jackson 1974), and indicate influence from that centre rather than Broseley. In addition, there are moulded spur marks which are not found at all in Broseley. The only concession to Broseley styles is in the use of rectangular stem stamps, with or without the place name and dividing bars and, even then, they do not conform exactly to Broseley models. These marks, however, are quite different from the west-country stem stamps which are usually incuse, without dividing bars and are found in a variety of shapes and

forms (eg Atkinson 1972). Likewise in the nineteenth century the maker's name is often moulded in relief on the spur or stem and a variety of mould decorated bowls are found. Both of these features are different from the types produced in Broseley.

Peacey (1979, 68) also examined the distribution of pipes in the county. He found that in Gloucester, Bristol pipes are found during the seventeenth century, after which they are almost completely replaced by local Gloucester products and imported Broseley pipes. The Gloucester makers, once established, manage to maintain much of the trade in the city and in the surrounding villages up to a distance of some 17 miles; a figure not dissimilar to that found for many county and market towns. In the county Bristol pipes are found but generally from a limited range of makers and more usually in the south of the county. In the south-eastern part of the county Wiltshire types are found. A few London, or London influenced, pipes are also found in the county, but otherwise local centres such as Wickwar and Chipping Campden developed small industries to supply the surrounding areas.

In conclusion it may be said that the Gloucestershire pipemakers appear to have developed their own stype of bowl and mark almost without influence from Broseley. The early pipes are rarely maker-marked, and spur forms not made at Broseley are produced. The bowl forms and later the moulded marks show Bristol and west-country influence and the only real Broseley element lies in the use of square full name stem marks during the eighteenth century.

IV : OXFORDSHIRE. Very little work appears to have been done on Oxfordshire pipes. The best summary of the styles and makers appears in the St Ebbe's excavation report (Oswald & Rutter, 1984), although by its very nature it is not a comprehensive study of the region's pipes. It does, however, contain an up-to-date list of Oxfordshire makers, showing that, although Oxford was the largest pipemaking centre, there were pipemakers working at no less than twelve other places in the county. The greatest range and diversity of material, however, is found in Oxford, which is hardly surprising given its position as the county town and the longstanding importance of its colleges.

The early pipes are strongly influenced by London. One of the earliest forms of pipe dating from the late sixteenth or early seventeenth centuries has been found (fig 79.1), a type which is always rare outside of London and which reflects the early introduction of smoking to Oxford. Heel bowls appear to predominate during the early decades of the seventeenth century and appear, with local variations of form, from the 1630s, indicating the presence of local makers by that date (Oswald & Rutter 1984, 252). During the second half of the seventeenth century a rather chunky spur form develops (fig 79.11-13), fig 79.12 being a form particularly common in Oxford from c1660-90. This spur type, too, appears to be based on London models.

During the eighteenth century however, finer spur forms occur (fig 80.3). These suggest influence from the delicately curved west country forms, an influence which persists until the end of the eighteenth century (fig 80.5). Heel pipes, too, are found, again drawing on London styles for their inspiration (Oswald & Rutter 1984, 252) but exhibiting local variations. Likewise, in the late eighteenth century London types are

found (fig 80.6-7), although local characteristics such as the relief bowl mark on fig 80.6 persist. Moulded bowl decoration appears from the early nineteenth century using the wide range of leaf, flute and floral motifs found so widely in the home counties. Stylistically, the bowl form, decorative motifs and forms of marking become very similar over wide areas of the country from this date.

One of the other features of considerable importance is the generally low incidence of maker-marking on Oxfordshire pipes. Imports from other areas where marking is more common stand out in contrast, making it easy to overemphasize their importance. This appears to be the case with the Chester, Broseley, Wiltshire and Hampshire imports; all areas where marking is comparatively common. Oswald & Rutter (1984, 251) suggest that local pipes lose their dominance to these centres during the eighteenth century, when, in fact, these imports occur in proportionally very small numbers, and consistently at all periods.

The early marks are either actual London products (fig 79.4), or local copies in that style (figs 79.5-6). At Banbury castle in the 1973-4 season some 56 mid-seventeenth century bowls were recovered, of which only two were marked. The majority of these plain pipes may well have been produced locally, but, as with their London models, only a small percentage were marked. The first really diagnostic local style of marking appears in the second half of the seventeenth century. By about 1660-80 unbordered incuse initial stamps appear (Oswald & Rutter 1984, 254), as does a distinctive border type (fig 79.11). This border with one edge looped and the other with loops and points was used by Robert Gadney c1670-90 and later (c1700-20) by a maker who used the incuse mark ?OC. Incised initial marks reading ?OC, MC and RP have all been

found on decorated stems of c1660-1720, suggesting that this was a particular form of decoration and marking in use in Oxford. Although incised west country marks (figs 79.8-9) were reaching Oxford in the later seventeenth century these stem marks are not of the same type. They may be derived from earlier heel marks such as the EB marks from Banbury (fig 79.10). or be related to the Midlands tradition of bowl marking with simple incised letters which was in use at this time (Higgins 1985b, 292).

During the eighteenth century imported stem stamps from Broseley (figs 80.1-2), and Chester decorated stems (Oswald & Rutter 1984, 256) appear but seem to have had little influence on the Oxford makers. Local stem decoration remained basic (fig 80.3) and the incuse stem marks, despite the appearance of full name West Country stem marks in Oxford, gave way to the London style of moulded heel marks (figs 80.4-5), and, later, to the local tradition of relief moulded bowl marking (fig 80.6). Benjamin Abbott of Ramsden did use a Broseley style stem mark at one point (Oswald & Rutter 1984, 257), but the overall influence of Broseley or West Country marking on Oxfordshire pipes remains small. Imported pipes continue to appear until the final demise of the clay in the first decades of this century (figs 80.8-9), circulating, as always, against a majority of locally produced products (fig 80.7).

The very cosmopolitan nature of Oxford is reflected in her pipes. The products and influences of Wiltshire, Hampshire, London, Broseley, the Midlands and Chester may all be found here, each reflected to an extent in the local products. Oxfordshire makers produced many interesting styles of bowl and mark by drawing on these surrounding traditions but it is the styles of the west country and particularly London which

predominate. Although, individually, some of the makers produced some distinctive pieces, the majority appear to have worked anonymously, drawing upon elements from surrounding traditions. Apart from a limited range of bowl forms and decoration they have left little that is diagnostic of Oxford alone. There is no evidence that the small proportion of Broseley imports contributed in any significant way to the development of these styles in Oxford.

V : WARWICKSHIRE & THE WEST MIDLANDS. Warwickshire and the West-Midlands forms a complex area, in which much work remains to be done. Birmingham, Coventry, Warwick and Rugby were all substantial pipemaking centres, in addition to which there were numerous smaller places where production took place. Although there have been recent studies of the Coventry pipes (Muldoon 1979), some nineteenth century Warwick pipes (Taylor & Gault 1979), and the documentary evidence for Warwickshire makers (Gault & Alvey 1979), it is clear that much more remains to be discovered both about the individual centres and the development of pipe styles in this area. There is poor coverage of the earlier documentary sources and no comprehensive synthesis of the artifactual evidence.

For this study the pipes from excavations at Dudley Castle and the substantial collection of material in the Birmingham City Museum have been consulted. In addition, I am particularly grateful to Nigel Melton of Ratcliffe Culey for sending me extensive details of his work on pipes from various sites in the north of this region and to Margaret Jones for details of pipes from Minworth, near Sutton Coldfield. Together with the numerous illustrations of pipes from Coventry (Muldoon 1979),

there is sufficient material to, at least, form a basic outline of the styles of pipe current in this area.

The best indication of the mid-seventeenth century pipes is given by the material from Dudley Castle (figs 81-82). The majority of these can be presumed to date from the Civil War occupation of 1642-7 (Boland 1985) and indicate that London style heel bowls were the predominant form, sometimes being stamped with initial marks. Almost all the makers' initials found here can be matched from other Midlands groups and indicate that already, by the 1640s, local workshops were able to meet the local requirement for pipes. Similar forms with initial or symbol marks have also been found in Coventry. Some of the later seventeenth century pipes exhibit stylistic similarities with the Broseley type 2 & 3 pipes and it seems likely that considerable Broseley influence was felt in this area.

The most obvious example of Broseley influence is shown by the local copies of the distinctive Broseley type 5 pipes. The best known are the John and Jane Mats pipes, the former being found with the dates 1689 and 1698 included in the mark. These marks are widespread in the north Warwickshire area but are not found in Broseley. A John Mats was baptised in Broseley in 1663, and, perhaps, moved to this area bringing the distinctive style of bowl and mark with him. A more obviously local copy is the crudely executed 'eMAN/ueLCO/VAWY' (Emanuel Covawy) mark which is also found on Broseley Type 5 bowls in north Warwickshire. None of these makers have yet been located in documentary sources.

These copies of Broseley type pipes were not, however, the only types being produced. By about 1670 a distinctive local bowl form appears.

The bowl is based on the early barrel shape derived from London forms but as at Broseley it becomes rather more drawn out and elegant in form. A number of makers were clearly making this form, pipes marked TA (?Tim Averne of Warwick), IB, SD (?Sam Darbey of Coventry), EP and IP (?John Pottifer of Coventry) being particularly common (eg fig 83, 6-8, 10 & 11). They are often characterised by a rather flared heel to the bowl which, together with the general form may be derived from Broseley models. This type of bowl was produced into the early part of the eighteenth century.

As at Broseley, spur forms appear in Warwickshire during the late seventeenth century. It is interesting that there appears to be a marked difference in the proportions of these two types of pipe between Warwickshire and Leicester in the north-east. In Leicester, the seventeenth century pipes appear to be predominantly spur forms, particularly during the second half of the seventeenth century when a 'Midlands spur type' emerges (Higgins 1985b, 292). The forms found in Leicester have close affinities with the Nottingham pipes, and appear to belong to a different tradition to the pipes found to the west in Broseley and in Warwickshire. So, although some Broseley pipes and influence is found in Leicestershire, it is only a minor element in a different stylistic tradition, as opposed to the much stronger influence found in Warwickshire.

The IM bowl (fig 83.3), for example, is Broseley in both form and mark, although these particular initials are not recorded there, suggesting that it is a Warwickshire copy. As at Broseley, the spur forms become more refined and elegant during the eighteenth century (fig 83, 12 & 15), although instead of a stem mark a bowl mark was sometimes used.

In these examples it is incuse, a style noted at Worcester above, and also in Leicester (Higgins 1985b), at Temple Balsall in Warwickshire (Oswald 1984c, 217), and at Hereford (Peacey & Shoesmith 1985, fig 68), but alien to Broseley. Relief marks also occur (eg Muldoon 1979, fig 19h), as do some moulded marks (eg Muldoon 1979, fig 39d); again a type of marking not found in Broseley. Stem marks also appear during this period and also contain elements from both areas. The John Bowlds stamp (fig 83.14) is a typical Broseley form of mark but the associated border is not. Likewise, the incuse roll stamp decorated stems (fig 83.13 & 16) are typical of Leicester, although fig 83.13 is associated with a Darby stem stamp, probably from Coventry (where Sam Darbey is recorded c1750; for another possible example with a different decorated border see Muldoon 1979, fig 20). Broseley and Leicester were not the only influences on stem decoration, as the Chester stem from Coventry shows (Muldoon 1979, 258).

During the early nineteenth century other influences were clearly reaching the area. From Dudley Castle there is a Langford mark from Worcester and a Russell mark, also from Worcester, has been found in north Warwickshire (Melton, *in litt*, 24.3.87). Later nineteenth century marks come from a wide area, for example, at Coventry both London and Northampton pieces have been found (Muldoon 1979, 272). As with other areas, the late nineteenth century pipes exhibit little regional variation, and are produced in a wide range of decorative forms (Taylor & Gault, 1979).

From this brief survey of pipes from Warwickshire and the West Midlands, we can observe quite a strong and persistent Broseley influence. The bowl forms are influenced in the seventeenth century by the Broseley

type 2 & 3 bowls, and then later the Broseley type 5 pipes are exactly copied. In the eighteenth century Broseley style spur forms occur and it seems likely, although there is as yet insufficient data, that this influence will continue into the early nineteenth century. Likewise, there is a similarity in the styles of marking found. Simple initial stamps are found in the seventeenth century, and later small spur marks, a particular feature of the Broseley pipes. Then, as at Broseley, full name marks appear from the late seventeenth century. At first these are on the heels of type 5 pipes and later on the stems of eighteenth century spur pipes. So, although local forms develop, and there are influences from other traditions, Broseley influence in both bowl form and mark may be recognised over a considerable period of time.

VI : LEICESTERSHIRE. The pipes from Leicester have already been examined and published by the author (Higgins 1985b) and just a summary of that work is presented here. It should be noted that the majority of pipes studied derive from Leicester City, and not from the county as a whole and that for many periods there is only a sparse quantity of material available for study. Some of the suggestions presented here may, therefore, have to be modified in the light of subsequent work.

During the seventeenth century almost all of the recorded bowls are spur types (fig 84). As noted above the 'Midlands spur type' consisting of a rather large, heavy, spur form becomes the standard type produced during the later seventeenth century. This form is rarely marked, and, when it is, the mark is an unbordered incuse initial stamp facing the smoker. This style of mark has been noted from Bristol, Hereford, Worcester and

Warwickshire above, and is also commonly found in Nottingham. Both this bowl form and method of marking are alien to Broseley and indicate that Leicester was influenced by quite different traditions of pipemaking at this period. There are also examples of incuse, unbordered heel marks (eg fig 84.17) which, again, were never produced at Broseley.

During the late seventeenth and early eighteenth centuries Broseley influence does appear in the form of some Type 5 bowls with full name marks. The majority of these, however, are not of Broseley origin, being copies made by John Mats, and probably produced in the Warwickshire region (eg figs 85.2-5). As with many other parts of the country, there is a general adoption of fine spur bowls during the eighteenth century (fig 85.9). As yet, it is difficult to know where these fine bowls were developed, if indeed there is any one place. There are certainly similarities between this example and Broseley types but, whether this is a product of the style of the period, or of any specific stylistic influence between the two areas, cannot as yet be determined.

The most notable divergence during the eighteenth century, however, is in the use of stem decoration. In common with Nottingham and other Midlands centres elaborate incuse roll stamped borders were developed at Leicester (fig 85.8-11). Broseley makers never adopted this method of decoration, and, although one of the Leicester pipes has a full name maker's mark (fig 85.9) in Broseley style, it is incuse not relief as was the case in Shropshire. By the early nineteenth century Leicester makers had adopted the use of moulded makers' marks (fig 86.1-3), another style that was never used in Broseley. They also adopted a lively school of fluted and scalloped bowl decoration (fig 87) which gave way to the more usual form of plain and decorated pipes during the

later nineteenth century (fig 86.8-14). Broseley makers only ever used restrained types of moulded decoration and never developed their own distinctive form of it. The Leicester designs are, however, once again closely matched at Nottingham (Hammond 1982) and show that Leicester pipes in general belonged to Midland's styles and traditions of pipemaking.

The final link with Broseley which must be mentioned is the pipemaker William Flannagan. He is reported to have come from Broseley to Leicester in about 1885 and worked in the city until 1919 when he was the last Leicester maker (Daniell 1964/5, 60). Assuming he had worked as a pipemaker in Broseley, he would have brought with him a knowledge of the contemporary techniques in use at that centre. He must, however, have only been young when he left Broseley, and at a date when there were less marked regional differences in pipe styles across the country. He is not known to have marked any of his products which are typical of the late nineteenth century (Green 1984a, 13). So, although he may have once worked at Broseley, he did not bring any stylistic influence with him to Leicester.

In conclusion, we may say that Leicester pipe styles were not really influenced at all by Broseley products. The seventeenth century forms were totally different, as were those of the nineteenth century. In addition, the sequence of makers' marks and styles of decoration are drawn from totally different traditions to those of Broseley. The only real Broseley influence appears to have come during the period c1680-1730 when some Broseley type 5 pipes occur in Leicester. They do not, however, appear to have been present in large numbers and are principally copies which were probably produced in Warwickshire. There

is, therefore, no firm evidence of direct Broseley influence on any pipes known to have been actually made in Leicester.

VII : STAFFORDSHIRE. By far the most important pipemaking centre in Staffordshire appears to have been at Newcastle-under-Lyme. Pipemakers worked there from at least 1637 until the early years of this century (Barker 1985) and produced many of the pipes found in the region. Although pipemakers are known to have worked at a few other centres, principally during the nineteenth century, there do not seem to be any other centres of note. Lichfield (Oswald 1974/5) appears to be the only other area where seventeenth century production has yet been recorded. In particular, it should be noted that no pipemakers have yet been recorded in Stafford itself. It is unusual to find such a large county town without any pipemakers and it would be interesting to know whether this is an accurate reflection of the town's position, or simply that the appropriate documents have not yet been searched.

VIIa : Newcastle-under-Lyme. In Newcastle-under-Lyme the seventeenth century trade seems to have been dominated by the interrelated Riggs and Baddeley families. Charles Riggs I & II are recorded from 1649-1681, Randle Baddeley I & II from 1651-1730 and Thomas Baddeley from 1667-1690 (Barker 1985). The most numerous pipes are those marked CR which Barker considers (*ibid*, 239) make up one quarter to one third of those found from this period in North Staffordshire. Barker illustrates a large number of the pipes marked CR and RB (*ibid*, figs 5-9) which are stylistically very similar. The majority are small, compact heel forms derived from London models but with affinities to the Broseley type 2 form. Whether this is a general regional development at this date, or

the result of stylistic influence from Broseley is hard to say. A clear difference which can be demonstrated with Broseley is in the production of spur pipes. These again are based on London models and are marked with relief initial stamps facing the smoker. The heel pipes are marked on the heel or bowl and frequently in both places on the same pipe.

Later developments are hard to chart on the Newcastle pipes, since there does not appear to be much material available for study. Barker (1985, fig 60) illustrates a stem mark 'NEW/CAS/TLE' of c1720-50 which is in Broseley style and then some stem stamps reading 'R MORGAN NEWCASTLE' of c1800-50. Although Broseley makers were using relief stem marks at this period, the long, single-line stamp with both name and place is more closely matched at Liverpool (eg Coney 1980, although note that some of the later marks described as 'stamped' are in fact moulded). The later nineteenth century makers used moulded marks along the stem (not a usual Broseley technique) and produced a range of decorated bowls, many of them fluted. The use of fluting, which was used in one form or another in almost every area of the country, is notably absent at Broseley.

So, amongst the Newcastle pipes, there are certain similarities with Broseley but few particularly close links. The seventeenth century pipes do have elements of Broseley type 2 bowls and initial marks which, as at Broseley, are sometimes on the bowl. But spur forms were also produced, and, at this period, when Broseley was just establishing its own styles, it is dangerous to suggest a one way flow of influence. In the eighteenth century there is an example of a Broseley type stem mark but the nineteenth century pipes show more differences than similarities in style.

For the rest of the county the situation is rather less easy to determine. As noted above, there do not appear to be any other pipemaking centres of note but the number of other marks recorded indicate many other makers. Either much more work needs to be done on the Newcastle makers or there are other early centres which have not yet been identified or fully studied; for example Lichfield. The reality may well be a mixture of these two alternatives. In looking at the material, however, this lack of identification causes serious problems. These are many pipes where neither the maker or production centre can be reliably identified. This makes any discussion of the distribution and stylistic influences over the county almost impossible. Staffordshire is a county with a wealth of material which would repay a much more detailed study; both documentary and artifactual.

For this study, by far the largest quantity of material examined comes from the recent series of excavations carried out by the Birmingham University Field Archaeology Unit in Stafford. The material is now held at the City Museum in Stoke-on-Trent and I am most grateful to David Barker for making it so freely available to me. I have also looked at material from his own excavations in the county and some other groups held at the museum. I am also grateful to Andrew Simpson, of the Staffordshire County Council Archaeological Roving Unit II, who has brought me pipes from various sites in the county to examine. In addition to the artifactual material, there are a number of papers which have been published on Staffordshire pipes.

VIIb : Keele. Two of these by Vickers (1982, 1984) deal with material from Keele. Being so close to Newcastle, this material gives a useful indication of the types of material current around Staffordshire's main

production area. In all 86 makers marks were collected from a ploughed field. Of these 50 were marked CR (Charles Riggs I & II), and 7 were marked RB (Randle Baddeley I & II), making 66% of the total. A further 3-7% of the pipes were of local, (probably Newcastle, origin, but 23 examples (27%) could be attributed to Broseley makers. Most of these were Broseley type 5 bowls. and suggest that, by the latter seventeenth century Broseley makers were making substantial inroads on the local industry. Given that over a quarter of the recorded marks were of Broseley origin, it is, perhaps, surprising that there is not more Broseley influence apparent on the local products.

VIIc : Stafford. Stafford lies about 20 miles NE of Broseley , and about 15 miles SSE of Newcastle. As noted above, there are no recorded pipemakers for Stafford. and, indeed, many of the pipes found there can be attributed to either Broseley or Newcastle. So, although it does not form a good centre to study the development of any one industry, it does give a good reflection of the surrounding industries and it forms a good subject for the study of trade patterns. The recent excavations have recovered hundreds of marked pipes from the town, only a brief survey of which can given here. It is hoped that a fuller analysis and interpretation of this important material will be prepared in the near future.

Some of the earliest pipes found in the region have been recovered from the excavations. They date from the early years of the seventeenth century (eg fig 92.1-2) and are nicely produced but not marked. They are probably imports into the area from London. From the 1630s onwards, a whole range of small heel bowls are found (eg fig 92.3-8). These are based on London types but appear to have been produced locally since

there are many recurring marks which must belong to local makers. They are usually initial marks, often with dotted borders or some other decoration around the letters. The same type of London style bowl form basically persists throughout the seventeenth century, although there are others which exhibit varying degrees of Broseley influence.

Some of the pieces (eg fig 87.15) are based on the Broseley type 2 form, while others have elements of the Broseley type 3 (eg fig 93.5). Neither of these pieces, however, are burnished, as they almost certainly would be at Broseley. In addition, many of the pieces are not marked (eg fig 93.7-10) which again they would be at Broseley. So, it is clear that there is a Broseley influence on pipes which must have been made somewhere locally. It would be interesting to know who these makers were. In the seventeenth century, several of the marks are particularly common, for example, BC (fig 92.3), IG (fig 92.4-7), CB (figs 93.1, 95.10, perhaps a member of the Baddeley family), TE (fig 93.4-6), HB (fig 92.8), HP (fig 92.9), TI (fig 88.10) and RA (fig 93.11). Clearly, much fuller research is needed on the seventeenth century Staffordshire makers. This need is underlined again at the end of the century when some copies of Broseley type 5 pipes appear. This is the most distinctive, and widely copied Broseley form and some examples which are likely to have been locally produced, have been found in Stafford. The best example is a rather crude 'RICH/SaNKe' mark, a type not recorded at Broseley and which must have been made in this area.

There is a general scarcity of eighteenth century material which may be as much due to the fragile bowls and changes in marking as to any decline in the industry. Fortunately, the Stafford excavations produced two good pit groups which help to fill in the picture for this period.

The earlier group was found during the Mount Street excavations and has been fully published (Higgins 1986b). It was probably deposited during the first decade or two of the eighteenth century, although it does contain some residual late seventeenth century material (figs 88 & 89). The whole group shows strong Broseley influence, although not all of the pieces were made there. Some of the pieces are not burnished (fig 88.1) or marked (fig 88.1-4), both of which features would be expected on Broseley products. Also, the forms are rather different, figs 88.3 & 4 in particular being different from Broseley types. Even some of the marked pieces may not be from Broseley. The TI marks (fig 88.10, 89.1-2) are not common at Broseley, nor are the TE marks (fig 88.7), although the exact source of them needs to be determined. But the general indication seems to be that, by the early eighteenth century, there were local makers who were adopting elements from the Broseley pipes and, indeed, making some interesting designs based on them, which were circulating with large numbers of actual Broseley exports.

The second group was excavated at St Mary's Grove (figs 90 & 91). The group was probably deposited during the 1770s (although the Binner mark, fig 90.1, is residual), and provides a rare opportunity to see a contemporary group of largely complete spur pipes. There were at least thirteen of the large thin-walled bowls in the pit but only four marked or decorated stems were found. Although stems were under-represented in the sample collected, it is unlikely that many more of the pipes were marked. One (fig 90.2) has a symbol mark on the stem and another (fig 90.3) has a rolled twist decoration on the stem. Two of the pipes have makers' marks; William Smith and Edward Deacon (fig 90.4, fig 91.1). All of the bowls are typical of the Broseley products of this period and almost all are burnished. There are no other good groups of Broseley

pipes known for this period, or other parallel groups from other areas. This makes it almost impossible to say whether most of the Broseley pipes at this period should be burnished or marked or, indeed, how they compare with products produced in other areas.

Other evidence for the eighteenth and nineteenth centuries is sparse, but a few fragments have been found. One of these is a decorated Chester stem showing that it was not only Broseley which found a market in Stafford during the eighteenth century. There is also a ?late eighteenth century roll stamped stem (fig 94.8) which is of a type never made at Broseley. It is an interesting and distinctive type with a spiralling pattern, the source of which has not yet been located. Other non-Broseley influences include mould decorated bowls (eg figs 94.11-12). The latter piece is particularly interesting since it has the moulded name '(NIC)HOLLS / WA(LSALL)' on the bowl. It dates to about 1810-30 and provides the most westerly use of this style of mark yet recorded (Walker & Wells 1979). Clearly, these pieces suggest that other influences were being felt in Stafford during the eighteenth and nineteenth centuries.

VIIId : Uttoxeter. The picture for the rest of the county is naturally a little sparse in comparison, since less material is available for study. In the east of the county, at Uttoxeter, there are still large numbers of Broseley pipes, products from Newcastle and pipes similar to those found in Stafford. But in addition there are some rather different marks (fig 95.7-12). These include odd symbol marks on both seventeenth century Newcastle style pipes (95.7) and Broseley type 5 pipes (95.8). In addition there is an odd pipe (95.12) which combines the Broseley type 5 bowl with a round headed EC mark. This shape mark

with its crescent border is typical of the Rainford (South Lancs) pipe marks, except that they usually have a small crest at the top. These interesting pieces suggest the presence of other as yet undocumented makers in the Uttoxeter area. The overall nature of the finds from this site suggests that in conjunction with Newcastle, and other, influences, Broseley styles were still playing an important role in the far east of the county.

VIIIe : Lichfield. To the south of the county pipekiln waste has been found in Lichfield (Oswald 1974/5) dating to the mid seventeenth century. The forms produced included some rather drawn out heel pipes with slight similarities to Broseley types and spur pipes, which, of course, were not produced at Broseley at this period. Later finds from Lichfield include roll stamp decorated stems which likewise are not of Broseley type (fig 95.16 & 19). As with other areas to the west of Broseley the most direct influence appears with the copying of Broseley type 5 bowls. One of the Emanuel Covawy bowls, possibly made in Warwickshire, has been found during excavations at the Hartshorne Inn in Lichfield. Apart from these isolated examples, there is, as yet, insufficient material to fully consider development of the Lichfield industry.

The pipes of Staffordshire therefore form something of a problem. Although there is a lot of material from the county it tends to be seventeenth century in date. At this date the bowls are principally heel forms derived from London models. Some of these forms go on to develop similarities to Broseley type 2 & 3 pipes but at a period when regional styles, all ultimately derived from London, are just emerging it is unwise to be too emphatic about the direction and magnitude of such

similarities. The best form to indicate Broseley influence is the Broseley type 5. Local copies of this form have been found all over the county but never in very great numbers, despite the presence of numerous Broseley exports. In the eighteenth century there is one Newcastle stem mark which is of Broseley form but later marks and decorated pipes do not show any great Broseley affinity. There is also a general dearth of recognisable local material to compare with the contemporary Broseley products. In general terms, however, it is perhaps surprising that, given the large amount of Broseley material from the county, there is not more Broseley influence apparent in the local pipes.

VIII : CHESHIRE. Cheshire was subject to the influences and products of four main traditions of pipemaking, making its pipes some of the most varied and interesting of any county. Chester in the west of the county was a major production centre and developed a distinctive sequence of pipe styles which were widely exported in this country and abroad. To the north lay the South Lancashire industry, centred on Rainford, which produced very different styles of pipe and mark. To the south-east lay the pipemaking centre of Newcastle-under-Lyme which has already been discussed, while to the south lies Shropshire and the Broseley industry.

There have been many articles and short notes published on Cheshire pipes, together with a number of more extensive works. The most important of these are Spence (1941/2), Webster and Barton (1957) and Rutter and Davey (1980), the latter being the most extensive and up to date survey of the Chester industry. In addition to the published material, the notes and files of Peter Davey have been consulted, as well

as excavated material from a number of sites in the county. Most of these sites were excavated by the Liverpool University Rescue Archaeology Unit now the North West Archaeological Trust, although, in addition, material excavated at Tatton by Nick Higham of the University of Manchester has been examined.

In a consideration of the pipe styles current in Cheshire it is firstly necessary to understand the development of the important industry based in Chester itself. The most recent and extensive survey of this centre was carried out by Rutter and Davey (1980) who were able to define eight main phases of development. The earliest pipes date to about 1620-40, and were either imports from London or copies of London styles. By 1640-80 the local industry had established itself and was producing heel types based on London forms, some of which exhibit similarities to the Broseley type 2 bowls. In Chester, however, spur forms were also produced and became increasingly popular towards the end of the century. Marking is comparatively rare, but early initial marks on the heel give way to bowl marks, suggesting Rainford influence.

At the end of the seventeenth century, around 1680-1700, large thin-walled bowls appear in a new variety of forms. These often had large flared heels which may owe something to the Broseley type 3 & 5 forms. Certainly, a few local makers around Chester (see North Wales below), if not actually in it, copied Broseley Type 5 bowls at this period. A good example of this is the Broseley type 5 pipe marked Jath Edwards which was found in Chester (Spence 1941/2, fig 3). This mark has not been recorded at Broseley but a Samuel Edwards (buried 1673) is a recorded pipemaker in Chester (Rutter & Davey 1980, 234). Jath may, therefore, have been a relation working there after his death. The main stream of

Chester pipes, however, moved towards a distinctive series of bowl forms with either spur or heel bases. Some of these heel bases also had moulded ridges running down them; a distinctive Chester characteristic. Changes also occur in the makers' marks, with lozenge stamps and simple stem borders appearing, neither of which are Broseley features.

In the early eighteenth century the stem borders become increasingly elaborate and are associated with fine stem stamps. The quality of these marks is probably the finest achieved in the British pipe industry. The bowl forms become longer and more elegant but continue to be produced in both heel and spur forms. A limited range of these forms continues to evolve during the eighteenth century, when there is a tendency for the heel forms to die out in favour of the spur types. Unlike the Broseley spur types, however, the Chester forms have the spur cut short, in effect making it a small heel. The stem borders become wider and more elaborate and the octagon and oval forms of stem stamp die out in favour of the Chester arms. At the end of the century the use of stamped and decorated stems, and the fine 'heel' types die out in favour of the plainer, and more squat, nineteenth century bowl forms.

In the nineteenth century mould decorated bowl forms appear not a Broseley feature, and a few moulded makers' marks. These lose their regional characteristics during the century as more general 'national' styles establish themselves. After about 1840 the industry appears to decline, with only one factory operating for the last 40 years until its closure in 1917. During this late period, imports, principally from Broseley and Glasgow, become relatively common. It is unlikely at this period that the presence of Broseley pieces would have any effect on the local styles.

From this brief summary of the Chester pipe styles, it can be seen that the forms, marks and decoration used by the Chester makers develop quite independently of Broseley influence. The only possible indication of a Broseley trait is in the use of large flared heels on the late seventeenth century pipes. This absence of clear Broseley influence would not be so remarkable were it not for the fact that makers at nearby Buckley in North Wales were producing large numbers of Broseley type 5 pipes (see Section IXa below).

In comparison with the large scale industry in Chester, there are no other centres of note recorded until the nineteenth century, when workshops are recorded at a number of other places, most notably Macclesfield where the Turpins worked (Oswald 1975, 162). It seems likely that other centres would have produced pipes during the seventeenth and eighteenth centuries, but they have not yet been researched. At Nantwich, for example, Thomas Newans has now been recorded as working in 1705 (McNeil Sale 1980, 29), although no pipes have been recorded for him. There are other marks and styles of pipe which appear to have been produced in or around the county which support the suggestion that other makers remain to be identified.

One such possible Cheshire maker is IH, who produced Broseley type 3 pipes using a circular initial mark, with a fleur-de-lys above and an axe below (eg fig 54.8). These marks have been found in a number of places, including Chester (Rutter & Davey 1980, fig 38.57), Haslington near Crewe (Davey; files) and at Wrenbury (Rutter 1982a), but no pieces are recorded as having been found in Broseley. They have, however, been reported in some numbers from Nantwich (McNeil Sale 1980, 29), where they may represent an, as yet, unrecorded maker. A possible candidate for

these initials is Jeremiah Hatchett, who is only recorded from a pipemark found at Buckley (fig 104.2).

Excavations at Nantwich (Mc Neil Sale, 1978, 1980) have produced a number of other Broseley influenced pieces whose origin cannot yet be identified. There is, for example, a Broseley type 3 bowl marked 'MARC/HAYS' in a Broseley style circular mark from the Crown car park site, and similar bowls marked GH over an axe from the Wood Street site. Other marks from Nantwich probably come from Newcastle (TF, ?Thomas Fox using a Broseley type 2 form), and Rainford (PL) indicating a variety of influences reaching the south-east of the county.

A similar situation can be observed from the material excavated at Sandbach (figs 97-99). There are seventeenth century pipes from Rainford (IB, PL) and Newcastle (CR and WC, perhaps William Cottrell), but, in addition, there are other as yet unidentified makers. There is the symbol mark (fig 97.5) and the heel mark 'ROB/ART/POOL' on a Broseley type 5 pipe (fig 98.3). This latter maker's marks have not been found in Broseley, but are frequently found in this area, for example, from nearby Church Lawton (fig 96.10-11) where seven examples were found. Also from Church Lawton is a Broseley type 3 bowl marked CH (fig 96.9). Both Church Lawton and Sandbach have produced a range of unmarked pipes which show Broseley influence. There is a range of type 2, 3 and 4 bowls which were probably copied locally. As with the Robert Pool pipes, they are not burnished, and, if they were from Broseley, they would usually also be marked.

This strong Broseley influence on bowl form and mark appears to wane during the eighteenth century in favour of Chester influence. Large,

thin-walled heel and spur pipes typical of that centre appear which may be either local copies or Chester exports. The latter seems more likely in view of the presence of finely decorated roll stamped stems (fig 99.9-14) which are unlikely to be of provincial manufacture. There are no developed Broseley style spur forms or stem marks, and it seems that Broseley influence was eclipsed in this part of the county during the eighteenth century.

The later nineteenth century pipes from the south-east of the county have moulded decoration which, again, is not typical of Broseley. Both Sandbach (figs 98.11-12, 99.2) and Middlewich (fig 96.5-8) have produced examples of this type of decoration, thus indicating a continued break from Broseley styles. One point of similarity is the use of rubber advertising stamps (ink) facing the smoker (fig 99.7), a technique commonly used on later Broseley products. It is not, however, a technique confined to or diagnostic of Broseley, merely a trait in common at this period.

Finds from further north in the county do not show this seventeenth century Broseley influence. The Tatton material (figs 100-101) has a range of heel and spur forms of Rainford or Chester type, which does not show any particular Broseley features. In the eighteenth century Chester style (and in one case Midlands style) decorated stems occur which, as in the SE, indicates the dominance of the county town during this period. Similarly, the finds from Warrington exhibit Rainford and Chester influence rather than that from Broseley, despite the presence of occasional Broseley pieces (see below).

Broseley influence in Cheshire, therefore, seems to be limited to the south-east of the county, and to the seventeenth and early eighteenth centuries in date. Chester itself developed strong styles of its own and there is only tentative evidence of Broseley influence from the type 3 and 5 forms. In the south-east, however, there seems to be a substantial amount of material which copies Broseley forms and styles of mark. Many of these pieces cannot yet be properly attributed but their absence in Broseley or Newcastle suggests local manufacture. This Broseley influence does not reach the north of the county, and, even in the south, is replaced during the eighteenth century by Chester styles. Cheshire, therefore, appears to mark the northern edge of significant stylistic influence from Broseley.

IX : WALES. A full study of the production and distribution of pipes in Wales is long overdue, since over the last decade or so a great deal of individual research has been compiled. In 1975 Oswald was able to publish a list of only seven Welsh makers, a situation which lead to the systematic recording of information about pipemakers in Wales (Evans 1981). It is now clear that there was considerable pipemaking activity in Wales, particularly in the south and during the nineteenth century when there were particularly close links with Bristol (Price, Jackson & Jackson 1980, Evans 1981). There are also, however, a growing number of earlier references to pipemaking. There appear to have been pipemakers working in Cardiff by the end of the seventeenth century (Evans 1980, 73) and, at a number of places in the north and south of the country, by the eighteenth century.

Evans (1981) and Rees (1985) record three makers in Cardiff between 1712 and 1741, one in Neath in 1705, one in Caerleon in 1732, one in Monmouth in 1792, two in Hawarden in 1716 and 1748, and five in Buckley from about 1680 onwards. So, although many pipes may have been brought into Wales by coastal shipping from large production centres such as Bristol and Chester, there can be no doubt that local production was taking place as well. All these recorded makers cluster in the north or south of the country and, being close to large English production centres (Chester and Bristol), were doubtless influenced by English models. This influence on Welsh pipes will be considered in two sections corresponding to the main production areas.

IXa : North Wales. The production of pipes in North Wales appears to have been centered on Buckley, in Clwyd. Buckley lies on coal measure deposits which include pipe, potting and fire clays. This gave rise to substantial and varied ceramic industries which included large scale potting from the medieval period onwards, and later brick and tile production (Davey, 1975b). Clay pipe production appears to have moved to the area during the seventeenth century, and the initial indications are that substantial production took place there. In this respect, Buckley is very similar to Rainford in Lancashire and Broseley where the readily available supplies of clay and coal attracted pipemakers to set up 'cottage industry' production in semi-rural, rather than urban, centres.

The majority of the pipes available for study at Buckley come from Jim Bentley's excavation of a seventeenth and eighteenth century pottery site at Brookhill in Buckley. These have already been published in detail (Higgins 1983b) but the figures and a summary of the pipes are included here because of their importance in relation to this discussion. The

majority of the pipes recovered can be attributed to Thomas Heys I (1676-1720) and can thus be dated to c1695-1720. He used six different stamps to mark his pipes (fig 102, A-F), and analysis of the bowls indicates that he had at least 23 different moulds in use (figs 102-103). Given a larger sample, this number would certainly be higher. The most interesting thing is that of these 23 moulds all but one are exact copies of Broseley type 5 pipes. The style of the marks is of Broseley type too, as is the use of burnishing on the bowls and locally obtained clay. So Heys was not just making *some* Broseley type pipes, he was making *almost exclusively* Broseley type pipes.

This copying of Broseley pipes is not confined to Heys. The site has also produced Broseley type 5 bowls marked MW (fig 103.14), IB (fig 102.1), Jeremiah Hatchett (fig 102.2), W?P (fig 102.3) and RD (fig 102.4). Of these, only the WP mark is matched in the Broseley area. The implication is that several makers in the Buckley area were making exact copies of Broseley Type 5 pipes, despite the fact that Buckley is some 48 miles from Broseley but only 10 from Chester. We have noted above (Section VIII) that Chester makers were hardly influenced at all by Broseley; so it is interesting to find such a marked contrast in the products of two adjacent centres. Perhaps this difference is connected with different marketing areas for their products; certainly, Heys pipes are very rare in Chester and so were, presumably, primarily for sale in other areas.

This Broseley influence, however, appears to be limited to a fairly brief period of time. Most of the earlier pipes (fig 104.8-15) are spur types which were not produced at Broseley and, where marked heel types do occur (fig 103.11-12), they can be attributed to other centres such as

Chester or Rainford (Higgins 1983b). Also, in the eighteenth century there are Chester type spur and heel bowls (fig 105.2, 11-14), and, later in the century, moulded spur marks (fig 104.5-7). There are also Chester style decorated stems, and nineteenth century mould decorated pieces (fig 105.17-20).

The Brookhill pieces seem to indicate that early pipes were probably imported from Chester but that, by about 1660, local production may well have been established based on these imported Chester forms. In the period c1690-1720 the local makers almost exclusively adopted the Broseley type 5 pipe as their staple production, despite the continued development of strong Chester forms only 10 miles away. In the early eighteenth century Chester influence re-established itself, with finer bowl forms and the use of imported fabrics. This Chester influence appears to have remained dominant well into the nineteenth century.

IXb : South Wales. Although a scattering of makers have now been recorded in Cardiff, Caerleon, Monmouth and Neath during the eighteenth century (Evans 1981, Rees 1985), the total numbers of early pipemakers and their products, are still far from clear. Few pipes can be attributed to the documented makers and interpretation still has to rely to a large extent on the archaeological record alone. From Talgarth in Powys there is a heel pipe with a wheel stamp on the base (Lewis 1980) which has affinities with North Herefordshire finds and ultimately has slight similarities with Broseley heel forms of c1660-80. Doubtless Broseley and Herefordshire influence would have been strong in this part of Wales but as yet it is too early to say what effect such pieces had on the local makers.

Further to the south, there is a considerable quantity of material from excavations in Monmouthshire and Glamorgan, but, again, very little of it can be related to Welsh makers. The author has not been able to examine any of this material directly but several notes and groups have been published (Jackson & Jackson 1984a, Jenkins 1980, Kenyon 1981, Markell 1980, 1981a, 1981b, 1983), in addition to which manuscript reports and drawings have kindly been made available to me. I am particularly grateful to Derek Markell and Gill Evans for sending me most useful drawings and draft reports on material which they have examined from excavations in South Glamorgan.

These reports, in particular, on pipes from Cowbridge and Llanmaes suggest that local makers may have been producing Broseley style pipes during the late seventeenth / early eighteenth century period. Broseley type 5 pipes have been found on both sites marked John Farmer. Evans (*in litt* 11.5.87) notes that these pipes "are slightly different from the Broseley 5 pipes in that they are very light, unpolished, are made of a very white clay and are very brittle". John Farmer has not yet been traced in documents but the distribution of these pieces may support the suggestion that he was a Cardiff maker. Evans (1981, 44) notes two Joseph Farmers who were pipemakers there during the first half of the eighteenth century. It would, therefore, seem likely, given the distribution of the pipes, that John was an earlier relation also working in Cardiff.

One problem with this idea is that members of a family named Farmer were also working in Cleobury Mortimer in Shropshire at this period, another area in which this style of pipe would have been made. The two recorded members of that family who were pipemakers, however, were buried

in the 1680s. It is pure speculation but, given the surname and stylistic similarities of the pipes it is quite possible, that all these people are related. The John Farmer pipes found in South Wales could have been made by a son of either Joseph or Richard from Cleobury, who moved taking the contemporary Broseley style with him, to Cardiff, where his son Joseph is later recorded as a pipemaker. This hypothesis would be a useful one to research, since if proved it would provide a good example of the potential for the stylistic interpretation of pipes, as well as an example of the spread of styles by the direct movement of craftsmen, rather than by the transmission of motifs alone.

Whichever the case proves to be, the John Farmer pipes are only recorded from South Wales and must represent the local copying of a Broseley style. Markell (*in litt* 23.6.87) also illustrates some crude Evans marks on Broseley Type 5 pipes from Cowbridge. These are not the same as any found in Shropshire and again must be local copies. Likewise, Knight (1980, 77) records Thomas Evens marks at Caerleon, a spelling not recorded at Broseley. In addition, both Cowbridge and Llanmaes have produced a number of wheel type marks and their variants, on type 5 pipes. These are rare at Broseley and must either be local copies or imports from centres other than Broseley.

From further round the coast at Carmarthen there is more evidence of local production. Excavations in the area have produced five examples of Broseley type 5 pipes marked with a Broseley style mark reading 'SVM/NeWS' (Fordy 1987). The form of the bowls, however, is clearly a local variation of the Broseley model. and all of the five marks are from different dies. Since this mark has not been recorded elsewhere, it

strongly suggests that Svm (?Samuel) News was a local maker producing Broseley style pipes at the end of the seventeenth century.

So, although firm examples are not yet forthcoming, it seems likely that, not only were there more pipemakers in South Wales than are currently recorded, but also that they copied Broseley styles of bowl and mark during the late seventeenth to early eighteenth centuries. With so little material firmly attributable to local makers, it is largely pointless to speculate as to other stylistic influences on the pipes, other than to point to the large and obviously important Bristol industry as a likely source of inspiration.

From this survey of the counties surrounding Shropshire we may observe a pattern of Broseley influence, both chronologically and geographically. Chronologically, there is a marked bias towards the later seventeenth and early eighteenth centuries. This is the period when Broseley styles had not only evolved sufficiently to become clearly recognisable but also developed their most distinctive and specifically 'Broseley' form. In particular, the full name marks clearly reveal the identity of makers. This means that copies can be readily identified and related to Broseley. The earlier pipes are less regionally distinct and less easy to recognise. This is a period where more detailed local studies and documentary research is needed to define the local industries and the way in which they evolved. Once this is done it may be easier to draw out the interwoven strands of trade and stylistic influence and so come closer to understanding how these early workshops were set up and developed their styles.

A similar situation applies to the later pipes. The eighteenth century and later pipes tend to survive less well, and are often severely underrepresented or missing from collections. Also, changes in marking mean that fewer pieces can be identified by maker, which makes regional developments hard to define. Once again, further research is needed to build up a more complete picture for this period. So, although there seems to be a particularly pronounced period of Broseley influence from c1670-1730, this is partly a result of the distinctive styles of bowl and mark in use during that period. The flanking periods should, therefore, be carefully researched and considered to enable a proper comparison with Broseley material.

Geographically, it is possible to define the general areas of Broseley influence. In the mid seventeenth century there is a general regional evolution of bowls based on London models, and several neighbouring areas exhibit similar development to that at Broseley. In areas of Worcestershire, Warwickshire and the West Midlands common stylistic elements emerge which, to a lesser extent, can be detected in Herefordshire, Staffordshire, and south Cheshire. During the 'stylistic peak' of the late seventeenth / early eighteenth centuries, direct Broseley influence can be detected in both north and south Wales and as far afield as Gloucestershire, Oxfordshire and in many areas bordering the West Midlands. Later developments are hard to define but it seems likely that Broseley styles would have continued to influence these areas until marked regional styles died out during the course of the nineteenth century.

Having defined the areas in which Broseley influenced the development of local pipe styles, we must consider the means by which this influence

could have been transmitted. One means would have been by the movement of makers from Broseley, taking the local style of production with them. Undoubtedly this happened in a number of cases, for example, a number of full name marks from outside Shropshire bear the surnames of known pipemaking families from the Broseley area. But in many cases names unknown in Broseley occur. In addition, the finishing techniques are often slightly different, for example, the use of low milling or burnishing is invariably found at Broseley but not always elsewhere. This suggests that in addition to a movement of workers taking the particular techniques with them, there is also the copying of Broseley models by local workers in other areas.

This second means of transmission would be as a result of Broseley pipes circulating in other areas and being copied by the local makers. The distribution of Broseley pipes was considered in Chapter 3, and shows that Broseley exports are found over much the same area as the Broseley influence noted above. The copying of Broseley types, however, does not seem to extend as far as actual Broseley exports. Broseley pipes have been found as far afield as London, and yet no London makers are known to have copied Broseley style pipes or marks. It seems probable that copying only took place where Broseley pipes formed a regular and recognisable part of the local market, making it worthwhile to copy them.

This regional survey has made it clear that, as more makers' marks are identified and data collected on a national basis, it will be possible to detect and interpret the movement of pipes over considerable areas and with considerable precision. Major regional centres such as Broseley were able to develop and market their own distinctive styles

far beyond the usual market boundaries of small towns. In neighbouring small towns manufacturers were often dominated by the styles produced at Broseley and the larger the quantity of exported pipes in circulation, the more closely the local makers tended to copy them (for example south Wales). Where regional styles meet, as for example in Oxford, the local makers adopted elements from several of them to create their own distinctive designs. It is only through extensive regional study that it will be possible to understand the changes and developments in style that can be observed in such places. The same influences must be explored at the regional centres. Where, for example, did the impetus come from which led the Broseley makers to change from making entirely heel pipes to entirely spur types?

The implications of the regional study of pipes, however, go much deeper. For archaeologists and historians it will provide a means for measuring the date, direction and to an extent the volume, of post medieval trade. It provides tangible remains of the movement of goods as conducted on an everyday level by ordinary people. And yet this trade permeated almost every corner and level of society. As we are able to plot with ever increasing precision the origin, date and extent of each individual movement, a pattern will emerge, revealing the everyday contacts and movements of individuals throughout the countryside. From the Gloucester Port books, for example we cannot demonstrate that the pipes recorded even came from Broseley, nor exactly where their destination was. The pipes, in contrast, tell exactly where they came from and mark exactly where they went to. They add a human dimension to the trade of the Severn Valley, instancing individual trips and connections by means of which communities in a dozen counties plugged into a trade network stretching across western England and Wales.

SUMMARY AND CONCLUSIONS

At the end of a wide-ranging survey such as this, it is necessary to review the ground which has been covered, to consider what has been achieved and to provide pointers for future research. In any specialist work, there are always as many questions raised as answered, areas which time and space have excluded, and themes which have not been followed. It is hoped, however, that these will be outweighed by the contribution which has been made, and that the points raised will stimulate fresh research into hitherto unexplored areas.

The introduction briefly looked at the growing emphasis towards a scientific and systematic approach to artifactual research. Archaeologists are now looking beyond a general understanding of the pipe industry to a detailed analysis and interpretation of finds. The whole process of data collection and recording and the degree and depth of analysis must be reviewed and extended, if we are to achieve the best possible results from this source. In addition, there has been a shift from 'descriptive' towards 'interpretive'^{ar} history, in which a much wider understanding of past lifestyles and communities is sought. 'Vernacular domestic culture' now attracts as much interest as have the lifestyles of the rich and famous in the past. In this process, pipes provide a rich potential source of information.

Pipes were common in all levels of society, can be closely identified by date and region, and survive well in archaeological deposits. It has been shown to be possible to extract information about the workshops, manufacturing techniques, trade and marketing patterns, stylistic influences and social status of pipes from a proper study of their

remains. Since British pipes were exported in very large numbers to many parts of the world this information has international application. This is particularly true of areas, for example Africa and America, where pipes were widely used as items of trade or exchange with native peoples. In these areas they may form the primary means by which 'contact period' settlements and their associated cultural assemblages, may be dated and interpreted.

Increasingly, sites from our recent past are being excavated, producing larger quantities of artifactual data than have ever been available before. This both contributes material for study and creates a demand for more advanced techniques to handle and interpret the data. The detailed analysis of pipe groups is now producing general theories in the subject which need to be refined and tested, through a structured research programme, on these new bodies of material. It has been shown to be possible to carry out detailed studies of pipe groups which reveal a wide range of previously unexploited information. As more of these detailed case studies are carried out, it will become apparent which of the techniques may be applied most consistently and successfully and can thus contribute to a wider understanding of the period, rather than just the product.

Chapter 1 considers the evidence for the form of the pipe, and the way in which the different lengths and styles recorded in documentary sources can be explored through artifactual remains. Methods were discussed for recovering evidence for the stem length, and a correlation between specific bowl forms and stem lengths demonstrated. The evidence for the evolution of stem length and curvature was put forward, and chronological and quality/status trends noted. The nature of moulds,

their manufacture and development has been discussed, as has the way in which these factors may be studied through the examination of archaeological deposits. In addition, the evidence for social status of pipes has been explored, demonstrating specific features which can be, and have been, used to indicate the relative status of a household. All of these factors are fundamental to consider if a wider and more balanced view of the industry and the potential use of pipes to the archaeologist and historian, are to be fully understood.

In Chapter 2 the Broseley industry has been reconsidered and some of the new techniques outlined in Chapter 1 applied to it. The Broseley industry has been studied for well over a hundred years, resulting in a well developed understanding of bowl forms and makers' marks. This has provided a framework against which to test the new theories and information derived from a more detailed analysis of the pipes themselves. The parameters of the enquiry are much broader than in previous studies, and consider in much more detail the nature of the pipemakers, their workshops and products. The kiln waste from Henry Bradley's kiln was used as a case study and demonstrated that excavated material can add considerable new depths to our comprehension of pipemaking in the area.

The study of this waste revealed the location of his kiln and gave a wide range of information about the variety and number of marks and moulds in use, their likely evolution and an indication of the scale of his operation. Hundreds of pipes marked 'HB' have been found and through their identification it is possible to reveal Bradley's scale of distribution; which ranges from Cheshire to South Wales. The artifactual study, therefore, provides detailed information about the location, date,

size, styles and marketing of his workshop. In contrast, the documentary record has so far only produced seven references to his name, none of which can be definitely linked with him or record him as a pipemaker.

Even in such a well studied centre as Broseley, it was found that there were considerable areas such as this to explore, and considerable modifications to be made to our existing knowledge. For example the type series of bowl forms, the nature of the production units, the range and number of makers' marks and the identification of pipemaking activity over a much wider area, were all subjects in need of modification. In particular, the existence of an early, and substantial origin to the industry in Much Wenlock was revealed. In order to deal with a complex production centre like Broseley, it was found necessary to develop a highly integrated research structure.

A thorough and systematic approach to recording the information had to be developed. This had to deal with the recording of material ranging from individual finds to complex archaeological groups. A combination of documentary and artifactual systems was needed to deal with the complex data relating to the makers and their marks, since the recording systems used in previous studies had been lacking. The previous makers list, for example, was found to be un-usable because it was incompletely researched and because there was no clue to the way the list had been compiled. This made the information it contained misleading and it had to be completely discarded, since there was no way of 'picking up' the research. Likewise, the makers' marks presented a complex artifactual recording problem involving many variables (associated bowl forms, die variation, dating, origin and so on). The development of an integrated

system of card index, plaster cast and record book has enabled this problem to be tackled and has resolved some of the problems likely to be encountered in researching large and complex pipemaking industries on either a regional or national level.

The study of Broseley showed that it is not only possible to explore new aspects of the pipe itself (the stem length, mould type or status for example) but to glean information about the pipemakers and the way they operated. The size and nature of workshops can be studied from kiln waste and integrated with documentary information to arrive at a more comprehensive understanding of both the product and the people who produced it. The development of systematic recording, the compilation of comprehensive databases and the detailed analysis of artifactual remains are all factors which have been identified as of importance for the continued development of such studies.

In a wider context, the results of this type of recording were discussed in Chapters 3 & 4. The full mark index and associated data were drawn upon to carry out an assessment of the stylistic influence and market patterns of Broseley. In the space and time available this is very much a general overview but one which outlines the market scale and influence of the Broseley industry and indicates the future potential for this type of regional study. The very large quantity of complex data collected has made it clear that a computer cataloguing system is needed to make full use of this type of study and future research must certainly look for this type of assistance. The development of a comprehensive computer-based recording system would make it possible to carry out detailed assessments of the Broseley material by maker, period or area. In conjunction with analysis of documentary sources such as

the portbooks, this would enable a more detailed examination of regional trading patterns than has ever been possible from artifacts before.

The application of new techniques to the study of a large scale manufacturing centre (Broseley) has raised a number of important issues. Firstly, there is an obvious shortage of excavated material, particularly kiln groups, without which only a very limited view of the industry can be achieved. The excavation of Henry Bradley's kiln waste alone has transformed our understanding of the late seventeenth-century industry and it is clearly a priority to obtain a representative sample of sites from all periods. Secondly, the scale of production has, if anything, been underestimated. A five-fold increase was found in the number of marks known to have been used by Bradley and new makers have been recorded in Broseley, Benthall, and particularly Wenlock. Thirdly, the scale of production, stylistic influence and export have likewise been underestimated. Atkinson (1975, 15) considered that, before the nineteenth century, Broseley pipes were primarily made for sale in the town or surrounding countryside which is clearly not the case. It is sobering to remember that Broseley may be considered to be a 'well researched' centre, so the implications for the amount of work needed to cover the rest of the country are substantial.

There are many towns where pipemakers are suspected but not yet known. Even in towns where pipemakers are known, kiln groups remain rare and there are still many potentially important centres, for example, Cleobury Mortimer, where no work at all has been done. This means that many more studies of specific centres, such as that of Tyneside pipemakers (Edwards 1986a) are needed, particularly when they combine the study of pipes with other aspects of the community (Edwards 1986b). So, although

great advances in the study of pipes have been made over recent decades, we must not be over-confident that the framework within which to carry out more detailed studies is totally complete.

On a wider scale the regional or national study of pipes is only in its infancy. A brief survey of the influences exerted by Broseley indicate that a dozen or more counties were considerably affected by the styles and exports of that centre and for later periods, and lesser influences, this area will be greatly extended. This means that to understand the country as a whole a great many detailed studies of the major production centres will be needed, together with a synthesis of pipes on a regional level. The Broseley survey has shown that it is dangerous to identify pipes by style or mark alone but that they must be studied in detail and within their local context. The Broseley type 5, for example, was copied over large areas of the Midlands, Western England and Wales. Each centre and maker who copied this type must be identified and isolated before the true Broseley trade can be considered. Likewise in Oxford the apparently high incidence of Broseley marks was not indicative of a large export trade, but rather of the low incidence of marking on locally produced pipes.

From the various examples given in this thesis, it can be seen that the study of pipes has much more potential than is currently appreciated, but that in order to realise this potential we must organise more comprehensive systems of recording and analysis and ask different questions using different techniques. In general terms, the regional typologies and styles of mark have been identified. What remains to be done is to tackle the analysis and interpretation, rather than the dating

and the identification of pipes and to assimilate that information into wider social and economic history.

In order to carry out this type of research the available information on pipes needs to be organised on a much better and larger scale. The most important classes of information needed for pipe research are lists of makers and their marks. Adrian Oswald has been a pioneer in the compilation of pipemakers' details on a national level, and his national list (Oswald 1975) which is currently being revised for a new edition (proposed publication 1988/9), remains essential for any researcher. However, like Atkinson's Broseley list, it suffers from being too brief in detail and the compilation of a much more detailed list must be considered. In Broseley the main problem was in not knowing which sources had been consulted, or in what detail. This made it impossible to extend the work without completely re-examining all the previously researched sources. Clearly this is a situation to be avoided. Wherever possible there should be a listing of sources examined, and a description of the nature and scope of the examination that has been conducted.

Also a much wider range of ancillary information about the pipemaker's family and trade or apprenticeship links with other makers, is needed to assist future researchers. Although this problem has not been examined in detail a few suggestions can be made. A computer database of all recorded British pipemakers would clearly be most desirable. This would need to be carefully designed to cater for the above mentioned classes of information, as well as other features such as known working sites, products and published references to them. It is suggested that a standard format of specific personal and family details

should be devised, to which additional notes and discussion could be added as 'free text', in general terms similar to the makers' notes in Appendix 2. The creation of a data base designed to hold essentially genealogical information would clearly have applications far beyond the needs of pipe research, since it could be used for any number of historical or educational functions.

A similar and connected, problem is in the identification and storage of makers' marks. This study has shown^{mark} the range and complexity of these may have been under-estimated in the past. But the recording technique developed using plaster copies now enables direct and accurate recording and comparison of any two marks. Using this system it will be possible to positively identify the individual dies used to create each mark and any alterations carried out to them. Details of each individual die could then be stored on a database which could be either interconnected with or referenced to, the makers index discussed above. This study has underlined the scale of pipemaking in this country. Information about thousands of makers and possibly tens of thousands of stamps, needs to be recorded nationally to harness the potential of this data source. Indexed comprehensively, however, it would at once provide a mass of new data about the post-medieval period.

The future for this type of development currently looks good. The archaeological community is receptive to this type of more detailed analysis, although it still falls short of giving proper attention to the detailed recovery and recording of pipe assemblages and, in particular, kiln groups. Publications such as *Post Medieval Archaeology* are now regularly including material relating to pipes. In addition *British Archaeological Reports* at Oxford are still publishing the series *The*

Archaeology of the Clay Tobacco Pipe, edited by Peter Davey which allows the circulation of more extensive articles about all aspects of pipe studies. These publications have the advantage of reaching both general archaeologists and specialist pipe researchers and thus help to keep a common awareness of current developments.

Of a more specialist nature there is the *Society for Clay Pipe Research* which keeps researchers in touch with each other, and stimulates new debate. This active organisation not only produces a quarterly newsletter but also holds an annual conference. It is also proposing to publish an occasional monograph series for longer articles. Care should be taken, however, that such a separate monograph series does not become an obscure specialist publication in which potentially valuable research with wider historical application is lost from more general circulation.

Finally, there is the proposed National Clay Tobacco Pipe Stamp Catalogue which is due to be compiled at the University of Liverpool. The object is to produce a comprehensive database of pipemakers' marks which can be used for identification and research purposes. This will not only be a significant advance in research technique for the study of pipes but also provide a model for the computer handling of large quantities of archaeological data which will have applications to many other classes of artifact. Once complete, the database will not only transform the identification and ease of access to data about pipemarks but also enable wide-ranging research on trade and marketing to be carried out. It will lay the foundations for the detailed study and interpretation of pipes on a national level. This is a good example of the increasing emphasis on scientific and systematic recording discussed in the introduction and should act as a catalyst encouraging wider-ranging

research into theoretical models, and ultimately into the study of society as a whole.

APPENDIX 1 - Clay Tobacco Pipes From a Pit in South Street, Epsom.

This group of material was recovered in 1981 during large scale redevelopment work in South Street, Epsom, Surrey. Some three acres of land was stripped to the underlying sands and gravels, revealing a series of pits and features cutting the natural. This section deals with the pipes from just one of these pits. The site watching was carried out under the direction of Mr S Khan, curator of Bourne Hall Museum, where the finds are now housed, and I am most grateful to him for allowing me full access to work on the pipes.

I : The Pit. The pit was about 2m x 3m in plan, and was constructed of brick and Reigate stone blocks. It survived to a depth of about .75m, which is thought to be about three-quarters of its original depth (Nelson undated, 259). The fill was waterlogged resulting in the survival of a wide range of organic finds as well as the more usual ceramic, glass and metal objects. The finds included large quantities of objects likely to have come from a public house. These include earthenware, stoneware and pewter tankards, glass bottles and drinking glasses, games (spinning tops, skittles, dice shaker and die) and a large number of pipes.

It seems almost certain that the contents of the pit represents the wholesale clearance of a tavern. A wine bottle was found with its seal intact, and some of the pipes have never been broken. A large number of letter seals and clothing fragments (woollens, lace and silk) indicate that the clearance was not confined to the bar area, and objects of value such as the pewter tankard suggest a major change of occupancy or use. The presence of a newell post may indicate the complete refurbishment or demolition of the building.

There can be little doubt that most if not all of the objects in the pit belong to this one clearance phase. As would be expected some of them were already old, and date to the later seventeenth century. The majority however date to the early eighteenth century. The most important object for dating is a gold mourning ring, doubtless discarded accidentally, but with the inscription 'WS De S^t Pau^t ob 19 June 1707'. This provides a most useful *terminus post quem* for the group.

Despite this useful start the exact date of deposition in this pit is hard to arrive at. The pipes are basically all early eighteenth-century in form, suggesting that the date of deposition was not much different from the date on the ring. Of the nine different makers represented, only three can be identified with any certainty. By far the vast majority of marked pipes were made by Lawrence Geale of Guildford, who worked from c1696 and died in 1731. Most of these pipes have stamped not moulded marks, and thus belong to his earlier rather than later career (Higgins 1981a). There are also two pipes made by Philip Street of Guildford, who was born in about 1693. He was apprenticed to Geale in 1707, and would therefore have completed his apprenticeship in 1714, although he did not take his freedom until 1721. This is important since by the 1720s Geale is thought to have been using almost entirely moulded marks. Assuming Street marked his own pipes from 1714 the possible date of deposition can be brought forward to the 1710s.

The other maker represented in William Pemerton. He is recorded in Guildford from 1672-1697 when he was buried. No son called William has yet been traced, although the family came from Eton, and records there

have not yet been searched. The presence of two pipes marked W Pemerton suggest that either they were some ten to twenty years old when buried (which seems unlikely), or that a son of that name continued to work as a pipemaker. Since so many Geale pipes are represented it seems reasonable to suppose that they were in current use at the time of deposition. The style of these pipes belongs to the earlier part of Geale's career, but the pit must post date the 1707 ring, and allow for Street to have been marking his own pipes. A date of c1714-20 is therefore suggested for the pipes, and probably towards the earlier part of that period. For convenience a nominal date of 1715 is regarded as date when all these types are likely to have been circulating. I am most grateful to David Barker of Addlestone for the use of his as yet unpublished notes on the Guildford makers in this section.

II : The Pipes. The pipes were first examined by the author in 1981, when a period of work concentrated on reassembly using the method described in Chapter 1.II. It was not possible in the time available to work through all of the material, so there may still be some complete pipes contained within the group. Over 40 pipes however were reassembled, which will be the majority of those which it is possible to complete. The pipes were reassembled with acetone soluble HMG glue and without the use of any strengthening within the bore. This has proved satisfactory even though the pipes have been frequently transported and handled during research. Any separations are relatively easy to clean and restick.

Since 1983 four periods of study have concentrated on a detailed analysis of the bowls. They have been divided into groups, and each group broken down as far as possible into individual mould types. Each bowl has had a reference number pencilled inside it for identification. Since none of the bowls are decorated any fragments not connected to a heel/spur have not been considered. The stamp types have likewise been studied, and compared with the mould types to search for patterns of marking / ownership of moulds. Stamped stems not connected to bowls have been numbered and are considered in this study.

Since the recovery rate of finds appears to have been good, the number of pipes high and the majority of the pit excavated, this group can be regarded as an accurate representation of the pipes in use. With so many joins, and so much detailed data available it has not been necessary to carry out any theoretical counts of the number of pipes represented, or the average length as represented by recovered stem. In all 228 bowl/stem junctions were recovered which gives a good approximation of the number of pipes in the group. If about one quarter of the pit had been machined away there may have been about 300 originally, although of course the pit may have been sealed not much above the level at which it was excavated.

It is notable that almost all of the pipes show clear signs of having been smoked. Two of the pipes were recovered in an unbroken state, and the 'fresh' nature of the breaks, and generally large fragments strongly suggest that they were tipped into the pit as whole objects. There are far more pipes than would be expected in a domestic household at any one time, supporting the theory that the pipes came from a public house, which would not only keep a much larger stock, but also keep smoked pipes for reburning.

III : The Mould Types. The most time consuming job has undoubtedly been the sorting of the bowls into mould types. Since none of them bore any decoration this had to be undertaken entirely on the basis of small mould imparted flaws which could be used to identify specific examples. The pipes were broken into groups on the basis of stylistic similarity. All the spur pipes for example could be separated from the heel pipes, and then the heel pipes could be split into those with moulded initials, and those without. The groups were subdivided as far as possible on the basis of bowl form, and then those of the same form searched for individual mould types (see Chapter 1.VIa).

When searching the individual groups a process of elimination was always followed. Any mould with a particularly distinctive shape or flaw was identified first, and then removed from the group. By gradually removing each mould type the less easily defined types were gradually left together. Finally a point is reached where a group of poorly moulded bowls, or ones without distinctive marks remains. These have then been classified as a general 'type' on the grounds that they are indistinguishable from one another. Often one suspects that a number of different moulds are contained in these groups, but nothing positive can be found to distinguish them.

The results of this sorting are contained in Table 18. Each broad grouping of stylistically similar bowl forms is separated by lines, between which the individual mould types and pieces are listed, each with its own reference number. Each new mould type which could be identified has been given a number, prefixed with an 'm', to designate the individual mould from which those particular pieces were taken. Where a group of bowls were found to be of an apparently identical form, but could not be proved to be from the same mould, they were given a general mould type grouping, which is indicated by the use of inverted commas around the mould type number. These general groups may therefore contain either several pipes from the same mould which does not have any clearly diagnostic features, or pipes from several moulds which with the examples available could not be separately identified. The first entry of any mould type contains a description of the diagnostic features of that particular mould, which have been found to apply to all the bowls allocated that mould number.

IV : The Mould Groups. Before going on to consider the detailed implications of features such as stem length, or the products of individual makers, the general groupings by bowl form will be considered. The pipes were divided into 15 different stylistic groups, which could then be sub-divided into individual mould types, or general mould groups, which are described below and in Table 18. There was found to be a considerable degree of similarity in the finishing and treatment of bowls within these 15 groups, even though the individual pipes within each group can be shown to have come from a number of moulds, and often made by different makers. This suggests that specific finishing techniques were associated with specific bowl forms. The London type numbers used in this section are taken from Atkinson and Oswald 1969, 178-80. Each group is described with the individual reference numbers of the pipes in that group, and the figure numbers of any illustrated examples.

1-2. London type 22 bowls (fig 24.1). This form is dated c1680-1710, which perhaps should be extended to c1715 in view of their presence in this pit. This form was never particularly common in Surrey, although

it is found thinly over wide areas, and was certainly produced by Edward Neave at Guildford (Higgins 1981a, fig 6.7). The examples from the pit retain seventeenth century features such as bottered tops and both have half milled rims. Two moulds appear to be represented.

3-42. Variant of London type 20 (figs 42.2-8). This form should likewise be extended in date to c1715. It is particularly common in Surrey, where it has a larger heel than the London type specimen, and examples made by both Pemerton and Geale of Guildford were found in the pit. All of these types have bottered tops, and two of them (26-27) have milling as well. At least eight moulds are represented in the group.

43-83. Variant of London type 25. This bowl form is particularly associated with Geale of Guildford, and of the 41 examples, only five were definitely without his mark. This bowl type has a cut rather than bottered rim, which is usually associated with the introduction of the London type 25. Most of the pipes however show horizontal wipe marks round the rim, showing that although a botter was not used some care was still taken to finish the pipe. Also one of the pipes is burnished (65). In all six mould types used by Geale could be positively identified (m11-16), a total of 22 bowls. This left another 19 bowls unattributed (m'17'). Assuming an equal distribution of types (ie 1 mould for every 3.6 bowls) m'17' would conceal another 5 mould types. This gives a range of 7 (if m'17' were all the same) to 11 (if m'17' conceals five extra types) mould types for this group.

84-99. London type 25 pipes with stamped Geale marks. This group of bowls are much closer matches of the typical eighteenth century London type. The wiping of the rim appears to be less common than in the preceding group. At least five moulds can be recognised and since m'23' includes two different stamp types a total range of 6 or 7 moulds is likely.

100-128. London type 25 pipes with moulded Geale marks. Again most of these pipes appear to have little finishing to the rim. Two of the types (m25-26) have an inverted G, and a number of the pipes have internal bowl marks (104, 109-13, 121-23), which will be discussed below. In all 7 moulds could be positively identified with 14 pipes. The remaining pipes were divided into at least two types. In all a total of 9-14 moulds is suggested.

129-147. London type 19 pipes (figs 24.9-11). This form is fairly widespread in Surrey and frequently found in late seventeenth to early eighteenth century deposits. The type 19 pipes are usually given a finishing date of 1710, which should again perhaps be extended a few years to c1715 given their presence in good numbers here. All of these pipes have bottered tops, although none are milled. The overall finish is good. Unfortunately no mould types could be positively identified. Slight variations in shape however suggest the presence of more than one mould, and the pipes have been divided into three basic types.

148. London type 23 (fig 24.12). A single example of this type was present in the pit. The form is based on contemporary west-country styles, although copies were made in London. It is not a common form in Surrey, although it does occur occasionally. It is rather poorly finished with little trimming of the spur (the base has not been cut,

and flash remains in the spur/stem junction), and the top is roughly wiped, not bottered as in the other spur types above.

149. London type 26 (fig 25.1). A single example of this style was found, with the initials WC on the spur. Although it may be regarded as an early form of T26, there is no doubt that typologically it appears later in date than the rest of the group. The type 26 pipes are dated to c1740-1800, making its presence in the group hard to explain, especially since Sean Khan specifically remembers recovering this bowl from an apparently well stratified position within the pit. There appear to be three possibilities; the form is incorrectly dated, the pub clearance took place later and discarded old material, or the bowl is intrusive. It seems hard to believe that so much contemporary material lay in a disused building for 25 years or more before being discarded, so this possibility is thought to be unlikely. Although the full bodied London spur pipes appear later in the eighteenth century, west-country types (such as 148) had been in production since the later seventeenth century. It is therefore just conceivable that this pipe is an early attempt at a full bodied spur bowl based on west-country models. Failing that it must be regarded as an intrusive piece.

150-157. London type 25 pipes with moulded marks (fig 25.2-9). Eight pipes based on the T25 design were found, all with different marks. Several of them show wipe marks around the cut rim, but none are bottered. 153 has a particularly large thin walled bowl, which would usually be placed later in the century. It was made by Philip Street, and shows that he was introducing new styles of bowl at a very early stage of his career.

158-177. Early eighteenth century forms (figs 25.10-12; 26.1-2). This group of bowls is characterised by forward leaning, rather straight sided bowls, very loosely based on London Type 22 bowls. They are however rather thinner and more upright, and heading towards the Type 25 form. They tend to have bottered or failing that wiped tops, and come in a range of styles. They have been divided into 7 basic mould types, but it is likely that at least 10 are really present.

178-194. Early Type 25 forms (figs 26.3-6). These forms are still rather forward leaning, but have a nice barrel shape to the bowl. The tops are generally parallel to the stem. Moulds 54-57 have rather large round heels, moulds 57-61 are rather smaller. The rims generally show signs of light bottering or wiping. At least 8 moulds appear to be represented in this group.

195-202. Unmarked Type 25 pipes with small heels (figs 26.7-9). These pipes are characterised by small heels of about 5-6mm in diameter. One of the bowls has an internal bowl cross (198). The pipes have cut tops, with minimal traces of wiping. Although no mould matches could be identified, the range of shapes indicates that some 6 or 7 types may be present.

203-220. Unmarked Type 25 pipes with large heels (figs 26.10-11). These are similar to the above types, but with heels generally about 8mm in diameter. Two have an internal bowl cross (203-204), and possibly come from the same mould. Several bowls show slight smoothing of the rim, but some have a good finish. 203 & 204 both appear to have had internally knife cut and bottered rims, supporting the view they were made from the same mould, and by the same hand. Likewise 206-208 all

have bottered tops, and all come from the same mould. This shows that in certain cases this outdated technique persisted on type 25 pipes. At least 6 and perhaps as many as 10 mould types appear to be represented.

221-227. Unmarked Type 25 variants (figs 26.12; 27.1). This group is basically type 25 in form, but has a much more gradual curve at the front of the bowl where it joins the heel. One of the bowls (225) has an internal bowl cross, and most of them have bottered tops; a notable difference from the other type 25 pipes. At least five mould types are represented.

228. London Type 21 bowl (fig 27.2). One example of this type was present. Once again it shows the currency of this form up to about 1715. It has a well smoothed rim.

The analysis of these bowls suggests that a very large number of moulds was employed in the production of pipes. The minimum number of moulds recognised is 73, and when the suspected allowance for individual moulds hidden in general groups is made the number rises to 96. Given that this large group represents the stock of a pub at just one time it is quite surprising that there appears to be on average not much over two pipes from each mould, a point that will be returned to below.

Despite the large number of individual moulds the pipes fall into nine main stylistic types (Table 14), of which only four types were really common. By far the most popular pipes were the early type 25 variants of which there were in all 143, about 63% of the total. These were followed by the type 20 pipes which made up c17% of the total, and the type 19 heel pipes and early eighteenth century heel forms which made up c8% and c9% respectively. The other four types between them totalled only five pipes, and were probably only occasionally found in early eighteenth century Epsom.

Table 14 - Pipes from the South Street pit, Epsom showing the pipe numbers and mould numbers by bowl form. The left hand column gives the stylistic groupings, based on the London typology (Atkinson & Oswald, 1969), then the total number of pipes of that type, the minimum number of moulds identified for that stylistic group, and finally the estimated number based on the number of other 'general mould groups' observed for that group.

<u>Bowl form</u>	<u>N^o Pipes</u>	<u>Minimum Moulds</u>	<u>Estimated Moulds</u>
Type 19	19	3	3
Type 20	40	8	8
Type 21	1	1	1
Type 22	2	2	2
Type 23	1	1	1
Type 25	102	43	59
Type 25 var	41	7	11
Early C18	20	7	10
Type 26	1	1	1
	228	73	96

The pipes themselves were generally of a very even quality. They are all competently made, and none of them has notably poor workmanship or

mould design. A number of points can be made however about the nature of the pipes as a whole.

V : Burnishing. Only one of the pipes is burnished (65). This is one of the Geale pipes from Guildford, where a series of fine burnished pipes was produced from c1670-1710. Burnishing is not common in Surrey but William Pemerton and Edward Neave of Guildford both produced some exceptionally fine examples. Their burnished pipes however are rare, and it is likely that they produced them for a small high status market. Geale was apprenticed to Neave in 1689, so he undoubtedly learnt the art of producing fine pipes. This example however is not particularly well executed. The whole bowl and stem has been very well burnished with fine close lines, but has failed to produce a good surface. It is possible that the clay was not in the correct state, or perhaps that he did not have the best quality burnishing tools.

Another alternative is that the clay was not of the right type. As early as 1771 Duhamel du Monceau (quoted in Walker 1977, 219) noted that English clay (presumably west-country) gave an extremely rough surface despite being polished. It is possible that the greater ease and effect with which European clays could be polished may have contributed to the regular burnishing of Dutch clays. Likewise well suited local clays may have influenced the development of regional schools in this country at places such as Broseley, where local clays were used until the late eighteenth century. However the Epsom example is not in an area with its own clay sources, and the use of west country clay may have contributed to the poor result. Despite being carefully executed it has achieved a poor finish. In the group however it stands out as clearly being intended as a 'quality' pipe, and it is probably one of the latest burnished pipes to have been produced in Surrey.

VI : Milling. Only four of the pipes have any traces of milling on the bowl, showing that by c1715 the technique had been largely abandoned in Surrey. Significantly it is the stylistically earlier bowls which have traces of milling. Both of the type 22 bowls (1 & 2) have the half of the bowl facing the smoker milled, as do two of the type 20 bowls (26 & 27). It may well be that it had been usual to put milling on these types of bowl, a habit which persisted despite the widespread introduction of the unmilled type 25 bowls. It does not however appear to have been consistently applied. Only two of the forty type 20 bowls had some milling. Although they were both from the same mould, another 17 from the same mould were present without milling showing that even the same maker did not always finish these pipes with milling.

VII : Bottering and Rim Finish. Likewise the use of a button to finish the rim of the pipe appears to be connected with the bowl form. The type 19 pipes (129-147), the type 20 pipes ((3-42) and the type 22 pipes (1-2) for example almost all have bottered tops. There seems little doubt that these pipes were being made and circulating alongside the type 25 pipes, and thus that the rim finish is determined more by the style of the pipe than the actual date at which it was made. This is not to say that the widespread use of the cut top did not start with the introduction of the type 25, but that techniques did not change overnight. Designs which had been introduced with a bottered top continued to be produced in that way long after the introduction of alternative methods on *other* styles of bowl. In effect the rim treatment is connected with the bowl form, and would be an expected part of that style.

Even the introduction of the cut tops did not bring an immediate change to finishing techniques. It has been suggested that the introduction of the upright type 25 form is to be linked with the introduction of a slot in the top of the mould for quick trimming of the pipe. But a pipe could just as well be trimmed in a mould without a slot if it had a flat top flush with the bowl. In addition some type 25 pipes have bottered tops. 206-8 for example come from the same mould, and all have bottered tops, showing that at least one maker chose to regularly finish the rim of this type. In addition 203-204 both have internal knife trimming of the bowl rim before it is bottered, and many of the type 25 pipes have wipe marks round the rim. It is therefore clear that makers still took considerable trouble to finish the rim of these pipes, which suggests that the primary motive may not have been to speed up production.

It is suggested that the introduction of the tall tubular type 25 bowl, with its even sided walls became associated with the smooth squared rim form, in the same way that bottered rims were associated with the earlier forms. Although these rims are basically cut many of them show clear traces of finishing, refuting the argument that this rim form was merely a cost cutting exercise. They may well have been slightly quicker to produce in the long run and may have been made in slot topped moulds, but these features are considered subsidiary to a change in style, and not the necessary reason for it.

VIII : Internal Bowl Marks. A small percentage of the bowls (12 or 13) have internal bowl marks; that is a relief mark, usually a cross, at the bottom of the bowl. All occur on type 25 pipes and with moulded rather than stamped marks. This suggests that the introduction of these marks is to be associated with this new bowl form, and starts about 1710 in Surrey. Some marks occur on plain type 25 bowls (198, 203, 204, 225), but the majority are with moulded marks. The WC pipe (150) has a lumpy base to the bowl, which may be an off centre cross, and several LG pipes have marks. One (121) has a single bar running across the axis of the pipe, while 109-13, 122-123 have proper crosses.

The most important group is undoubtedly the 108-13 group. All come from the same mould and it is interesting to note that the stopper didn't fit very well. All of the bowls have rather thin sides and are thick at the front and back. There is a sixth bowl from this mould (108), which exhibits the same variation in wall thickness, but has no internal cross. The implication must be that it is the same stopper, but that the pipe was produced before the cross was added to the end of it. If this is the case, then it was clearly Geale who added the cross rather than a mouldmaker, since the mould was already in use before the cross appeared.

The reason for these marks is not clear. They are quite widespread in Surrey (Higgins 1981a, 222-223), and have been studied in London where a wide variety of designs, including some with letters on occur (E & B Jarzembowski 1985). The London ones are noted to occur principally on type 25 bowls, and continue as late as type 28. I have noted eighteenth century examples in Oxfordshire, mainly on London style bowls, but the marks appear very rare on Broseley type pipes, and in the north-west. One Broseley style spur bowl of c1775 from a pit at St Mary's Grove, Stafford has been noted with a cross.

Today it is usual for each mould to have its own stopper, specifically designed to fit the bowl. At Pollocks moulds not in use are stored with the stopper tied to the mould so they do not become separated. But this may not always have been the case. An interesting probate of Thomas Roden of Broseley dated 1724 lists seven individual moulds, and "ffour stoppers for the moulds", clearly suggesting that not all of the moulds had their own stopper. In a workshop with separate moulds and stoppers it may have been convenient to identify the individual stoppers to tell which moulds they could be used with.

IX : Stem and Mouthpiece Types. The stem lengths will be considered below, but a final general point about the group as a whole is that all of the pipes have basically straight stems. Most of them exhibit a slight warping, no doubt occuring naturally during drying and firing, but there is no indication of any intentional curve. Where any curve is discernible it is generally the reverse to that used later, ie the top of the stem is concave rather than convex. A marked example (31) has a maximum stem deviation of -10mm (see Chapter 1.IV). It is possible that this is the result of stacking straight pipes upright in the kiln for firing, during which the stem has sagged downwards slightly. All of the stems terminate in a straight square cut mouthpiece. This is formed by trimming off the end of the stem with a knife; the circular marks often visible suggesting that this was done with a wire still in the stem.

X : The Geale Pipes. By far the most interesting observations about the nature of the pipe workshops c1715 are revealed by examining Geale's products in detail. In all 90 of the pipes in the pit (nearly 40% of the total) were made by Geale. The implication is clearly that Geale provided the main supply source for the tavern. Since so many of his pipes are available for study, and can be related to the other contemporary products circulating in Epsom, this group offers an unparalleled opportunity to study the mechanics of the pipe trade at that date.

Lawrence Geale, son of Richard Geale of Guildford, was apprenticed to Edward Neave for seven years on 25 March 1689. He was admitted as a freeman in May 1700, when there was a major enrollment of freemen at Guildford - no less than 123 individuals taking their freedom. One of these was Neave, Geale's former master. It is therefore likely that he would have been operating as an independent manufacturer before that date, perhaps from 1696 when his apprenticeship would have expired. This suggestion is supported by the fact that Richard Rutland had been apprenticed to Geale for seven years, and finished his term in 1706, and the fact that Street appears to have been marking his own pipes by c1715 (above). Geale is recorded as a Bailiff of the town in 1721 when Philip Street, who had served a seven year apprenticeship (1707-14) with him, took his freedom. Geale died in 1731, being buried at St Mary's Church on December 10th, and left property in and around Guildford (information from Guildford Museum files, D Barker and R Kingsford-Curram, *pers. comms*).

Geale therefore appears to have been a fairly prosperous maker. He took at least two apprentices, held a position of responsibility in the community and was able to leave land at his death. His products are well known from most parts of Surrey, and in addition have been found from as far afield as London and Sussex (Higgins 1981, 203). The pipes from Epsom indicate that c1715 his stock of pipes came from a total of at least 23 and perhaps as many as 30 different moulds. This is a very

much larger number of moulds than would be expected from documentary sources, but similar to the number recorded for Heys from Buckley (see Chapter 1.VIe). Before the implications of this finding are discussed the moulds will be considered in a little more detail. They can be divided into four main types.

Type 20 pipes. In all 11 of Geales pipes were variants of the London type 20 form, and were made in at least two different moulds. All were marked with his type 1 stamp on the stem. The pit contained at least six other moulds of this type. One of these bore the mark of W.Pemerton, while the other five were unmarked. Since all of the pipes from Geales two moulds were marked it seems probable that he marked all of his products. Likewise both of Pemerton's pipes come from the same mould, and were the only ones from that mould present. The unmarked pipes are therefore likely to belong to at least one other maker who produced this style locally, but did not mark his products.

Type 25 variants. There were 41 examples of this bowl type, of which 34 bore type 1 or 2 Geale marks. Two were broken so short that any stamp was lost, leaving only five definitely without marks on, of which only two were definitely Geale moulds. No mould type could positively be identified that was not Geales, so it seems that this bowl form may be specifically associated with Geales workshop, and that almost all of the output was marked. There were at least 6 and possibly as many as 10 mould types present.

Stamped type 25 pipes. There were 16 pipes of London type 25 form without moulded initials. They were marked with some type 2, but principally type 3 marks, and could be divided into six or seven mould types.

Type 25 pipes with moulded initials. There were 29 pipes of this type, which could be divided into at least nine, and theoretically as many as fourteen different types. The differences between these moulds in many cases was made clearer by the detail of the moulded initials, which in two cases were inverted.

Although these pipes have been divided into four types there is in fact little difference in form between the latter two types other than the style of the mark. It is notable that Geales production range is more limited than that represented in the pit. He does not appear for example to have made any spur pipes. Admittedly spur pipes are rarely marked, although there are precedents for marking from Kingston (Higgins 1981a, 284), and given Geale's consistent use of marks on other styles it would seem probable that he would have marked any that he made.

His products therefore appear to have been stylistically limited, although his equipment appears to have been prolific. It is worth reaffirming here the evidence for this range of moulds. Quite apart from the four basic styles listed above there are clear shape variations within each group, particularly amongst the type 25 pipes. The moulded marks show clear differences in the size and detail of the lettering, ranging from inverted initials (101-102), an L with a bar through its centre (104) and Ls with both square ((100-107) and forked (108-113) tops. Thus even without mould flaw identification many different moulds must have been used to form these different shapes.

Differentiation by mould flaws relies on observing a repeated pattern of marks on the bowl caused by the mould, and not by subsequent handling. Where these marks can be recognised they must represent different moulds. There is rarely any possibility that a mould could have been damaged during use, thus producing two apparently different sets of marks from the same mould, since the marks are usually so different. A pipe identified by a flaw on the heel for example cannot then change to a pipe with a flaw on the bowl simply by being damaged in that area, since both marks should then be visible. In one case possible use damage has been detected. Bowls 9-18 have a sharp nick away from the smoker on the right hand side, and a V shape mark on the top left hand side. On bowls 18-27 this V shape mark is not visible, suggesting that it was only formed by damage to the mould during use. These two types have therefore been considered to represent the same mould, and are counted as such in the totals.

It is therefore with some confidence that this evidence for a large number of individual mould types is put forward. If Geale was using 23-30 moulds at this date, consisting of a limited range of styles, we must consider what this represents in terms of his workshop. It would seem most unlikely that all of these moulds would have been needed at one time. As a well established maker with a large market we may allow him perhaps ten journeymen (see stamp types below), but even with some moulds being repaired or recast only about 12-15 would have been necessary to produce this range. Two possible alternative explanations spring to mind; either he needed more moulds at one time than we can see an obvious use for, or the pipes in the pit represent more than one period of production.

It is possible that there were subtle distinctions in style or length which were sufficient to divide the pipes into more than the basic groups outlined above, in which case more moulds may have been needed. Alternatively the moulds may have been made of a material which was very susceptible to damage, and needed frequent maintenance, thus accounting for the large number of moulds to keep production going. A second possibility is that some of the pipes represent old moulds, already scrapped, but being sold off with newer patterns. It is possible that Geale and/or a middleman was selling from a large store of pipes, or that the pub itself was reburning and drawing on its stocks of old pipes thus causing a mixing of types produced at different times. There is some evidence for old stock from the fact that pipes from mould 30 appear to have been made both before and after the cross was cut on the stopper. Also recutting of one of the stamp types (type 3 below) indicates more than one period of production.

Evidence for the 'shelf life' of a pipe is hard to come by. In Sweden a cellar of 1759 containing a stock of pipes made by a wealthy pipemaker was found to have contained 800,000 pipes (Loewe 1985), while in Bristol an advert of 1779 indicated that Israel Cary had over 4,320,000 pipes in stock (Jackson & Saysell 1987, 17). Walker (1977, 399) considered that a journeyman may have made 3 gross of pipes per day, or 108 gross per week. Even allowing for 10 journeymen working at this rate it would have taken nearly 28 weeks to produce 4.3 million pipes, and presumably there must have been other sales during that period to keep the firm solvent. This suggests that large firms must therefore either have employed very large numbers of people, or have had pipes at least six months old, and probably more, in stock. These sorts of figures do seem

particularly high, and in Cary's case may have been influenced by the disastrous drop in American trade after 1775.

Figures for smaller firms are harder to arrive at. Many pipemakers' probates give no value for any stock of pipes, suggesting that they did not amount to very many. But this may be a product of the way the inventory was compiled, or of the fact that many probates refer to small scale, or old (and therefore perhaps 'semi-retired') makers. Probates including figures for pipes have been found for the later seventeenth and early eighteenth centuries, comparable with Geale's working period. Samuel Hughes of Much Wenlock in 1729 had "In severall places Tobacco pipes", valued at £1.10.00. (Appendix 3). Pope (1982) notes values of £1.13.00 in 1708 for James Atherton of Liverpool, and £0.14.00 for Hugh Lyon of Windle in 1663. Atkinson (1977, p33) notes William Artwell of Arundel had burnt (ie fired) pipes valued at £1.5.00, and unburnt at £0.10.00 in 1727, while Oswald (1975, p23-24) gives John Fox of Spalding with 50 gross of pipes in 1671, James Harford of Boston with 10 gross of pipes valued at 10/- in 1676, Isaac Bilby of Spalding with 15/- of burnt pipes, and 16/- of unburnt pipes in 1728 and William Harpley of Great Yarmouth with 10/- of pipes in 1674. Walker (1977, 419-423) gives some evidence for pipe prices in the late seventeenth and early eighteenth century, which suggests that on average the cost of ordinary pipes remained fairly stable at about 1/6d per gross. Using this as a general rule the approximate numbers of pipes held by these makers can be calculated as follows:-

Table 15 - Documented Pipe Stocks Held by Pipemakers. This table lists the name, date and value of pipes listed in the above inventories. The number of pipes held at that date by the pipemaker has been estimated based on an average value of 1/6d per gross. Burnt and unburnt pipes have been valued the same in the 1676 and 1727 figures. The 1676 total is 10 gross, being the actual figure given in the source.

Name	Date	Value	Gross	Tot Pipes
Lyon	1663	0.14.00	9.3 gross	1344
Fox	1671	-	50 gross	7200
Harpley	1674	0.10.00	6.6 gross	960
Harford	1676	0.10.00	10 gross	1440
Atherton	1708	1.13.00	22 gross	3168
Artwell	1727	1.15.00	23.3 gross	3360
Bilby	1728	1.11.00	20.6 gross	2976
Hughes	1729	1.10.00	20 gross	2880
Average			20.2 gross	2916

This suggests that the average maker would not have held more than about 20 gross of pipes, which represents about two weeks production time for one person. Even allowing for clay preparation, firing and sales it is clear that most makers do not appear to have held large quantities of old stock and would presumably have produced only enough pipes to meet the usual local demand. So although there may be a slight delay in selling pipes, and in the using of them at the tavern, there does not seem sufficient evidence to argue that this is a major factor in the large number of Geale mould types recovered from Epsom.

At the present time no good explanation for the number of mould types Geale used can be offered, other than perhaps we underestimate the

number of journeymen employed, and overestimate the life of early moulds. The evidence exists that at least some of the seventeenth and eighteenth century makers used large numbers of moulds, and we can no longer think of them holding just three or four moulds which served their needs. It would be useful to establish the numbers of moulds used by other makers and particularly their wealth and status. It may be that 'proto-factories' will be recognised, characterised by wealthy makers using large numbers of moulds, employing large numbers of journeymen and holding much larger stocks of pipes, such as the Stockholm and Bristol examples.

Xa : The Geale Stamp Types. Another aspect of Geale's pipes which sheds light on his production arrangements are the stamp types. When his marks were first studied in 1981 four basic types were recognised (Higgins 1981a, 202-203). A detailed reappraisal of the Epsom group however has revealed a much more complex situation. At least eight, and probably in excess of twelve individual dies have now been recognised. They still conform to the basic types outlined in 1981, but reveal interesting data about the way in which marks were made and used. Type drawings of the Geale stamps are given in fig 27.

Very little is known about the dies used to produce pipe stamps. For the seventeenth and eighteenth centuries only one possible pipemaker's stamp is known from England. This is made of wood, a material for which there are parallels in Holland, and was recovered from the Thames at Queenhithe (Le Cheminant 1981b). The lettering is incised in reverse on the die, which is the easiest and most obvious way of making a stamp which would leave a relief mark on the pipe. Two of Geale's stamp types (3 & 4) are of this type.

Only one example of the relief type 4 mark was found in the pit (fig 27, see also Table 18 below, pipe 100). This was on a pipe with moulded initials as well, and is considered to be his latest stamp type. Since only one example was found no additional data is available on this type. The background to the stamp however shows fine scratches to the right of the L and the first E, which may be setting out lines used when making the stamp.

The second relief type however (3) has been divided into three individual dies. The basic form of this mark is characterised by the relief lettering L/GE/ALE above a cross, and surrounded by dots. There are two variations of this mark. The first (type 3a, fig 27), is the slightly smaller of the two. It has quite fine lettering, and a larger number of dots around the border than the second type (type 3c, fig 27). This is slightly taller, has much taller lettering, and fewer dots around the border. These clearly represent two different dies, depicting the same overall design, but with individual differences. The third type however (type 3b, fig 27) appears to be a die variation. It has the same basic size and layout as type 3a, but has much thicker lettering. The sharp serif marks of 3a (particularly those of the surname) have been absorbed in thicker, rather plain letters, while the initial and border remain largely unchanged.

It appears that die 3a has been altered at some stage by a recutting of the initials, making them rather bolder. Support for the fact that it is the same die and not a second similar one comes from individual details of the mark. In die 3a there is a faint mark across the right hand foot of the A, a rounded amorphous junction to the lines of the second L and

a clear flaw to the right of the cross which does not appear to be part of the design. All these features, particularly the latter one can be detected in the 3b mark. So it appears that Geale not only found it necessary to have at least two almost identical marks, but he also took the trouble to have one of them recut to clarify the lettering. In addition the fact that he was able to recut the lettering without affecting the field, or other decoration, makes it almost certain that the die was cut directly into some form of matrix, as in the wooden example given above.

While considering the type 3 marks, it is worth mentioning that there is a very strong stylistic similarity between the dies of this group. The use of a sharp, slightly wedge shaped tool in particular is to be noted. The serifs of the letters and the foot of the cross motif clearly show the use of this tool, which appears to have been punched into the die. It seems reasonable to conclude that the 3a and 3c dies were made by the same hand, by cutting and/or punching directly into the matrix which formed the die.

The type 1 & 2 stamps in contrast are incuse. To form an incuse mark the die must have relief lettering on it. For broad lettering like this it would be absurd to try and cut away some material to leave relief letters with which to form the mark. Quite apart from the problems of leaving the relief letters intact, it would be extremely difficult to produce an even field between them. This suggests an entirely different approach to the actual making of the die. The proposed method is best illustrated by the type 2 marks.

There are three distinct forms of the type 2 mark which can be recognised (fig 27). All have an identical arrangement and size of lettering and border motif, which are like the type 3 marks but incuse. The only real difference between these marks is the border size and shape. Type 2a has a plump, broad shape, with dots visible almost all the way round the mark. Type 2b is much narrower and rather shorter, and has hardly any dots visible. Type 2c has a more pinched bottom where the dots are not visible, a quite sharply pointed base and a clearly indented border on the left hand side of the initial.

There seems little doubt that these marks represent three different dies made from one master pattern. This master would be carved or cut as a positive (ie the lettering could be read directly) in the same way as for a relief mark (except that that is cut in reverse). From the master an impression in some material would be made. Pipeclay springs to mind as an ideal medium for this job. This could then be fired resulting in a permanent die with relief letters, which would produce an incuse mark. A nineteenth century pipeclay stamp is known from Chard (Le Cheminant 1981b, 90). The identical positioning of the elements of the mark, particularly the border dots, leave little doubt that Geale used a master pattern to produce these three dies for use in his workshop, the only real difference being the shape of the finished border, and the number of dots this left visible. The sharp serifs visible on 2b and the base to the cross on 2c strongly suggests that this master was made by the same hand that made the type 3 marks. The same slightly wedge shaped serifs are found on the similarly designed Pemerton marks (fig 27.3).

When the incuse type 1 marks were examined (fig 27) a similar system appears to have been used. A close examination of the border areas, and letters themselves revealed clear differences between them.

Unfortunately although several groups of two or more marks exhibiting the same flaws could be found, it was not possible to divide the marks into indisputable groups. However at least five groups of distinctive flaws could be found, suggesting that Geale used at least that number of individual dies taken from the master pattern.

The analysis of these marks raises several interesting points. Firstly there is evidence that at least the type 2 and 3 marks were made for Geale by the same hand, and this was probably the same person who made the dies for Pemerton. This suggests that an independent craftsman and not the pipemakers produced the dies. Since both positive and negative dies were needed for the incuse and relief marks he must have had a good grasp of the mechanics involved in using the dies. Also if he made dies for at least two makers, and possibly recut them (3b) a certain amount of expertise in this field must have been developed.

Stylistically the type 1 marks appear on earlier bowls than the type 2 marks. Neither, however, occur on bowls with moulded initials as well. The relief types however do, and thus appear to be slightly later in date. Why Geale should change from the incuse marks, which could be easily reproduced from one master, to relief marks which require new dies for each stamp is not clear. Perhaps the dictates of fashion played an important part in this change. The more detailed work on these marks however does little to change the general dating put forward in 1981 (Higgins 1981a, 202-203) and based on a wider study of Geale's products. The suggested lifespan of the forms was; type 1 c1696-1715, type 2 c1705-15, type 3 c1705-15 and type 4 c1710-20.

As to the number of marks, the pit group indicates that Geale used at least 8-12 dies. If a wider chronological range were available this number may well rise. Since 3b is a recut version of 3a they cannot have been used at the same time. It is therefore clear that at least a slight chronological range of Geale's products is represented. The need for so many roughly contemporary dies however, coupled with the large number of moulds surely indicates that Geale had a considerable number of employees. This would be in keeping with his known status, substantial production and wide market distribution.

It is also notable that there is a correlation between the mould types and stamp types. The variant London type 25 bowls (43-83) for example were indistinguishable in form. Yet of the firmly identified mould types moulds 11-13 were always found with type 1 marks, and moulds 14-16 with type 2 marks. Even more specifically moulds 14 & 16 were found with type 2c marks, while mould 15 (5 examples) had only type 2b marks. The marks were only examined after the bowls had been sorted into mould types, and played no part in their identification. Likewise all of the type 20 variant bowls (3-42) were marked with type 1 marks, almost all of the type 25 pipes with type 3 stamps, and the type four stamp was the only type to be associated with the mould marked type 25's. Although not such a close association between mould and die can be claimed for these latter types there is no doubt that the use of the marks is far from random.

At the date of manufacture of these pipes each bowl type can be shown to be associated with its own stamp types. In cases individual moulds consistently appear to have been marked using the same die. At this level of analysis we are able to get beyond the general types produced by a maker, and to see individual craftsmen working at benches, and

using a specific die to mark their production from a specific mould. The clear structured association of these marks and moulds provides a possible interpretation for the number of moulds and dies observed. If demand for pipes was such that a number of moulds was needed to supply that demand the duplication of otherwise identical moulds would be explained. Likewise if each design was associated, and perhaps partly identified by, a specific style of mark that would explain the duplication of otherwise identical marks which would be needed to go with the moulds.

The implication is that the manufacture of pipes was more highly structured and developed than previously thought. The stamps are neither randomly produced or randomly used. They occupy a specific role within the production process, and show that a greater complexity of understanding is needed in the way these features operated. This point will be returned to when the stem lengths are considered below.

Table 16 - Incidence of Geale Marks. This gives the reference numbers of all the pipes with Geale marks, which are broken down by stamp type, and includes figures for those with moulded marks only (LG). It shows the total numbers recovered with bowls, and those recovered as stem fragments only. Type examples of the stamps are illustrated in fig 27.

Mark	Pipes	Bowls	Stems	Total
1	32-54, 65-78, 236-242.	37	7	44
1/2	64, 79.	2	0	2
2a	89-91, 234.	3	1	4
2b	58-61, 98.	5	0	5
2c	57, 63, 235.	2	1	3
3a	85, 94-95, 97-99, 231.	5	1	6
3b	84, 86-88, 92-93, 96, 232-233.	7	2	9
3c	229-230.	0	2	2
LG&4	100.	1	0	1
LG	101-128.	28	0	28
		90	14	104

Stamp Spacing. Another aspect of the stamps which provides a little evidence both for the idiosyncracies of individual workers and the validity of the differences between individual types is their spacing. The distance from the bowl/stem junction of each pipe to the nearest edge of the mark was measured (Table 18). The average distance that the marks were placed from the bowl could then be calculated for each mould type and each of the four main bowl groups (3-42=variants of London type 20, 43-83=variants of London type 25, 84-99=plain type 25, 100=type 25 with moulded initials).

The overall placing of the stamps varied considerably. The type 1 marks for example were placed between 0 and 10mm from the bowl. Since 'type 1' includes a number of undifferentiated die variants this range probably just reflects the larger number of people who would have used the marks. Although the individual mould groups varied considerably (the averages ranging from 3.3mm for mould 11 to 14.5mm for mould 21) there is often a striking similarity of the placing of marks on pipes from the same mould. This variation is likely to reflect the idiosyncracies of individual workers. The six mould 11 marks for example were placed an average of only 3.3mm behind the bowl, while the

Table 17 - Stamp Spacing for Geale and Pemerton Pipes. This records the distance (in mm) behind the bowl/stem junction to the nearest edge of each stem mark. The columns record the reference number of each piece, the stamp type, the distance from the bowl, the mould type on which the marks occur, the average distance behind the bowl which the stamps are placed for each mould type, and the average distance for each stylistic group. The mould types are separated by dotted lines, and major stylistic groups by solid lines. The W Pemerton marks (pipes 3 & 4) are also included.

Pipe N ^o	Stamp Type	Stamp Dist	Mould N ^o	Mould Av	Type Av
3	WP	9	3	11.5	11.5
4	WP	14			
32	1	6	9	4.7	6.3
33	1	8			
34	1	4			
35	1	1.5			
36	1	4			
37	1	10	'10'	7.7	
38	1	10			
39	1	5			
40	1	6			
41	1	5			
42	1	10			
43	1	1.5	11	3.3	5.3
44	1	1			
45	1	4.5			
46	1	3			
47	1	3			
48	1	7			
49	1	8	12	7.8	
50	1	8			
51	1	8			
52	1	7			
53	1	9	13	8	
54	1	7			
57	2c	11	14	11	
58	2b	9	15	8.5	
59	2b	7			
60	2b	9			
61	2b	9			
63	2c	7	16	8.5	
64	1/2	10			
65	1	2	'17'	3.4	
66	1	3			
67	1	0			
68	1	5			
69	1	2			
70	1	4			
71	1	5			
72	1	1.5			
73	1	3			
74	1	2			
75	1	5			
76	1	3			
77	1	2			
78	1	10			
79	1/2	4			
84	3b	9	18	10.4	10.8
85	3a	12			
86	3b	10			
87	3b	12			
88	3b	9			
89	2a	13	19	11.3	
90	2a	8			
91	2a	13			
92	3b	11	20	12	
93	3b	13			
94	3a	14	21	14.5	
95	3a	15			
96	3b	3	22	3	
97	3a	10	'23'	10	
98	2b	10			
99	3a	10			
100	4	3	24	3	

four mould 12 marks were 7.8mm behind the bowl. Since the bowl forms and mark are identical such a regular difference must surely reflect a different worker finishing the pipes. The theory that one finisher in particular stamped very close to the bowl is supported by one of the type 1 dies. Marks 43, 44, 67, 69 & 74 were all considered to have come from the same die, which on average was placed only 1.3mm from the bowl. On average the type 1 stamps were placed 5mm behind the bowl. This is notably less than the average for the other types of mark by either mould or mark type. The average distances by mark were:-

W Pemerton	11.5mm from the bowl.
Geale type 1	5mm from the bowl.
Geale type 2a	11.3mm from the bowl.
Geale type 2b	8.8mm from the bowl.
Geale type 2c	9mm from the bowl.
Geale type 3a	12.2mm from the bowl.
Geale type 3b	9.8mm from the bowl.
Geale type 3c	none with bowl intact.
Geale type 4	3mm from the bowl.

Clearly there are differences in the placing of the mark, the most notable feature being the closeness of the type 1 marks to the bowl. More groups are really needed to tell if this is merely the result of one worker (such as the one who finished the mould 11 pipes) placing the marks close to the bowl, or a stylistic difference characteristic of Geale's workshop as a whole. It is worth noting that Pemerton, using a similar mark on an identical bowl form, placed his marks an average of 11.5mm from the bowl. Geale too placed his type 2 & 3 marks further from the bowl, although again this could be the result of individual finishers rather than deliberate policy.

It seems that for Geale the stamp placing is not a particularly sensitive indicator. It can be used to suggest the individual worker responsible for finishing a pipe, and supports the validity of the mould identification by confirming differences in the pipes by mould group. But the differences are not significant or consistent enough to be used for more detailed analysis. However it may well be worth comparing Geale's products of another period, and those of other Surrey makers to search for chronological or other patterns. Also the study could be extended to regional trends by comparing centres, such as the west country and Broseley types, where stem marks are also used.

XI : Stem Length. The reassembly of so many different forms of contemporary pipe makes this probably the most important source of data on pipe length yet excavated in England. The initial reassembly in 1981 produced 44 complete pipes, which have subsequently been remeasured and catalogued. At the completion of this study (1987) 42 complete pipes were recorded, the other two presumably having come apart again over the years. The individual lengths are recorded in Table 18, and plotted in fig 28. In the graph the stem lengths are recorded within 5mm bands to show the general groupings of the types. The importance of these divisions however should not be over emphasized. As noted above the tip is simply formed by trimming the stem off with a knife, which may not always be at the same point. Quite apart from this other factors such as stretching the stem along the moulding or trimming wire during making, differential shrinkage of the clay due to water content and different firing temperatures can all affect the stem length. Also pipes of just 1mm difference may fall on different sides of a dividing

line creating an artificial division of otherwise almost identical lengths. The difference that 1mm can make in measuring the stem is demonstrated when comparing the 1981 graph (Higgins 1981a, 290) with the current one (fig 28). Although the general groupings remain the same, individual pieces have changed sides of the 5mm division lines. Pipes were never intended to be measured to the nearest millimetre, and it is the general groupings, particularly in relation to bowl form which is important.

Overall the pipes ranged from 269mm (10 9/16") to 367mm (14 7/16"), giving a maximum variation of 98mm (3 7/8"). This range fits well with the variation indicated from other contemporary pipes (fig 4). It is suspected that high status pipes of the period may have been longer, but there is no evidence from the bowl forms to suggest that such pipes were present within this group. This group therefore seems to confirm that the everyday pipes used during the early eighteenth century fell within a fairly narrow size range, irrespective of style. There are very few duplicate pipes which can be shown to have come from the same mould. This makes it difficult to know what length variation it is reasonable to expect as a result of the manufacturing process. The maximum variation found was only 8mm (5/16") for pipes 108 & 109 (mould 30). Even this however shows the futility of plotting lengths to less than 5mm divisions (although the accurate length should always be recorded elsewhere). The main thing to emerge was that even within this fairly small overall length variation clear groupings of pipes emerged.

The complete type 19 pipes were three of the four shortest pipes recovered from the pit (fig 28), and had a range of only 11mm in length (269-279mm). All three are thought to have come from different moulds, suggesting that this bowl form was specifically associated with short stemmed pipes of c10½-11" in length. This suggestion is reinforced by the finding of a similar pipe under the floorboards of a house on Brockham Green, also in Surrey, with a length of 10½" (266mm; fig 5.1).

The variants of the type 20 bowls (3-42) also appear to form a very distinct group. The nine complete pipes had a maximum range of 340-351mm, a maximum variation of only 12mm (½"). As noted above these pipes appear to have been made by Geale, Pemerton and another maker who did not mark his products. Four of the complete pipes were made by Geale, and five by another maker, and in all at least three different moulds are represented. This group in particular indicates that different makers using different moulds were making pipes with a very standard length stem. Given the length variation that can be caused during manufacture the moulds may well have been of a uniform length, and intended to produce pipes of about 13½" in length.

Other pipes of the same form, but from different moulds can also be seen to form groups. The early eighteenth century forms 160, 166 and 175 for example all came from different moulds, and yet ranged in length from only 275-284mm, a maximum variation of only 9mm (⅜"). Likewise the early type 25 bowls 181, 186 and 298 all came from different moulds, and ranged in length from only 286-298mm, a maximum variation of 12mm (½"). Once again these groups suggest that particular bowl forms had very specific lengths associated with them; and the ½" range is within the likely variation of pipes produced in a standard length mould.

This evidence points to a highly developed concept of individual pipe forms during the early eighteenth century. It is important for us to

comprehend this eighteenth century viewpoint if we are really to interpret the pipes we find. Our view of pipe development is based largely on the recognition of a stylistic development; the bowl form typology. This makes us inclined to think of a linear development in which old styles are gradually replaced by the new. When faced with the problem of interpreting this group however we are faced with a much wider range of data which must be seen as a broad contemporary range rather than a narrow chronological avenue. When the bowls are sorted into small stylistic groups we find not only a range of mould types, but a sophisticated standardisation of form and size irrespective of mould or maker. The conclusion must be not that one form was in the process of replacing another, but that all were flourishing at the same time. The small differences in bowl form which are proved to be significant when the stem length is considered show that as yet we have not perceived the market as discerningly as they did. We must not only define the bowl forms much more accurately, but consider the implications for both the making and marketing of pipes much more closely.

One such question is posed by the range of moulded and stamped Geale marks. As noted above there appears to be a correlation between the mould types and stamp types. But when the stem length is considered there also seems to be a correlation between the type of mark and stem length. With one exception all the type 25 pipes with moulded marks range from 300-313mm (at least two moulds). The exception which is 361mm long has a much larger flaring type of bowl and does not really appear to represent the same type of pipe, despite being allocated the same bowl form. This suggests that we need to more closely define the 'type 25', since here at least two distinct bowl forms and lengths are indicated. All of the stamped Geale marks occur on longer stemmed pipes ranging from 341-367mm in length. In *general* typological terms stamped pipes are replaced by moulded marks. But what of this *specific* case. Does this mean that long pipes (stamped) are being replaced by shorter pipes (unstamped) during the early eighteenth century? This seems most unlikely and once again it is suggested that we need to review our simple concept of the industry.

It is accepted that in general terms Surrey makers were moving from stamped to moulded marks at this period. We also know that longer pipes were always more expensive than shorter ones and so, by implication, were of higher social status. Since with one exception all of Geale's longer pipes were stamped, and all of his shorter pipes had moulded initials, it seems fair to assume that his more expensive products had stamped marks at this particular date. Thus the style of marking can be seen as a product of *both* chronological period *and* status. The presence of the long type 25 with moulded initials may reflect the emergence of more expensive pipes without the traditional stamped mark and thus the move to a new concept of what constituted a status pipe. It would also be interesting to know whether Geale's use of stamped marks on pipes with moulded initials as well is restricted to the longer stemmed 'status' pipes, and thus has a valid interpretation in terms of status rather than just being an anachronism perpetuated by an (in our eyes) conservative maker.

One final word must be said about the remainder of the unmarked 'type 25' pipes. There are large numbers of these pipes in the pit which were very hard to adequately define. During sorting many of them did not fit comfortably into the type 25 bracket, and especially since the detailed

analysis of the other forms suggested that specific divisions of the groups were possible, it seems likely that many sub-types should exist within the 'type 25' group. This seems particularly likely given the wide scatter of stem lengths recorded for this group, which presumably reflect variations of form which we are as yet unable to perceive. Individual 'sub-groups' separated during sorting generally had similar length stems, and it is considered that these plain forms need to be much more closely studied. It seems likely that many 'sub-types' will eventually be recognised, and will have regular bowl forms and stem lengths irrespective of mould or maker in the same way as the more obvious forms presented above.

Table 18 - Catalogue of the Pit Group from South Street, Epsom. This lists all the fragments from the group which have been studied. The first column gives the figure number of any illustrated type example, with the reference number of the particular example used (in brackets) if more than one example of that type appears in the following columns. The second column gives the reference number of each piece, which has been pencilled onto the bowl. As far as possible the bowls have been divided into mould types. Each new type is given a mould number in the next column signified with an 'm'. Where the mould number is only a general type since no diagnostic features to identify a specific mould can be found, the mould number is given in inverted commas. The features used to identify each mould type are given under the first occurrence of that type in the final column. Any mark is also recorded, and the length of the pipe if complete (in mm). The Geale full name stamps are given as the type number prefixed by 'G', and the Pemerton marks are just given as 'W.P'. All of the other marks are moulded spur marks. The pipes have been broken into several main groups, each of which is divided by a line. A fuller discussion of these groupings will be found in Section III.

Fig	Pipe	Mould	Mark	Length	Comments
	1	m1			Same profile as 2.
24.1	2	m2		321	Same profile as 1, but has distinctive marks on heel presumably indicating a different mould.
	3-4	m3	W.P		Faint marks RHS heel.
24.2	(5) 5-8	m4			Series of marks on LHS of pipe.
24.3	9	m5		340	Mould 5 has pronounced nick on RHS bowl away from smoker, large 'V' mark at bowl top LHS.
	10	m5		343	As above.
	11-16	m5			As above.
	17	m5		341	As above.
	18-27	m5			As above, but LHS mark not apparent. 26 & 27 have a little milling facing smoker - faint and poor.
	28	-		341	Same profile as m5, but neither mark visible, cannot be assigned a group.
24.4	29	m6			Scratches on RHS heel - another example of this mould found in Epsom (SSE 81 U/S).
24.5	30	m7			More flared heel than above types.
24.6	31	m8		351	Flaws dont match above types.
24.7	32-36	m9	G.1		Striations on both sides of heel, ridge

(32)				at bowl top RHS. Marks 1-8mm behind heel.	
24.8	37	m'10'	G.1	341	m10 is a group of bowls, slightly different in shape to those above, but with no diagnostic flaw to show they all come from one mould. It is simply a group of similar shaped pipes representing at least one mould. Stamps 4-10mm behind heel line.
	38	m'10'	G.1	344	
	39	m'10'	G.1	346	
	40	m'10'	G.1	342	
	41-42	m'10'	G.1		
	43	m11	G.1	353	Flaw on LHS heel.
	44-47	m11	G.1		
	48	m12	G.1	345	Groove LHS heel.
	49-52	m12,	G.1		
	53-54	m13	G.1		Three clear marks on LHS bowl.
	55-56	m13			Although from same mould not marked.
	57	m14	G.2c	348	Poorly defined mould type - simply doesn't appear to match others, and could be same as examples in m'17'.
	58	m15	G.2b	362	This mould group is only defined by a rather more sharply defined heel/bowl junction, and may cover more than one mould.
	59	m15	G.2b	362	
	60-61	m15	G.2b		
	62	m15	-		Stem too short for mark.
	63	m16	G.2c		Marks on RHS bowl.
	64	m16	G.*		* Top of a type 1 or 2 stamp.
	65-78	m'17'	G.1		All those not individually identified, or matching above types lumped together as m17. Almost certainly several individual moulds included here. 65 is burnished.
	79	m'17'	G.*		* Top of a type 1 or 2 stamp.
	80	m'17'	-		Stem too short for mark.
	81	m'17'		348	
	82-83	m'17'			
	84	m18	G.3b	367	Poorly defined group, identified only by a faint line round the bowl just below the rim.
	85	m18	G.3a		
	86-88	m18	G.3b		
	89-91	m19	G.2a		Well defined group, clear flaw LHS heel. Bowls all appear thinner away from smoker, indicating a badly set stopper.
	92-93	m20	G.3b		Line near rim RHS and flaws on both sides of bowl.
	94-95	m21	G.3a		Clear flaw RHS bowl, and faint rim line LHS.
	96	m22	G.3b	359	Fine lines running round both sides of heel.
	97&99	m'23'	G.3a		Unmatched bowls, different from above types. May well be from different moulds.

98 m'23' G.2b				
	100	m24	LG/G.4	The only pipe with both moulded and stamped mark.
	101	m25	LG	RHS bowl scar, and line below G which is inverted.
	102	m26	LG	Mould line round top of bowl, G is inverted.
	103	m27	LG	Small well defined initials, with a pronounced serif at top of G.
	104	m28	LG	Faint bar across the L, mould marks RHS bowl.
	105	m28	LG	Small heel, the G disappears into the heel at its centre.
	106-107	m29	LG	Line down heel below the G.
	108	m30	LG	305 Scar at top LHS bowl. All have a stopper which gives thinner sides than front and back of the bowl. Only 108 does not have an internal bowl cross.
	109	m30	LG	313
	110-113	m30	LG	
	114	m'31'	LG	300 These bowls are only defined by their similar tall tubular shape. Slight differences in the lettering and internal bowl crosses suggest at least three moulds are present.
	115-120	m'31'	LG	
	121	m'31'	LG	Appears to have just one bar across the axis of the pipe internally.
	122	m'31'	LG	306 Both 122 and 123 have an internal bowl cross, and may well represent a separate mould type within m'31'.
	123	m'31'	LG	See above.
	124	m'32'	LG	361 Much larger flaring type of bowl, 128 is particularly large, and could well represent another mould type.
	125-128	m'32'	LG	
	129-132	m'33'		Thick rather forward leaning spur.
24.9	133	m'33'		279 This pipe was recovered unbroken.
	134-136	m'34'		Finer spur type. 135 in particular has bowl marks which may indicate a different mould.
24.10	137	m'34'		278
24.11	138	m'35'		269 Rather thicker spur than m34. Again slight changes in fullness and line of bowl indicate a number of moulds are present.
	139-147	m'35'		
24.12	148	m36		Slightly west-country style bowl, rather different in style from the rest of the spur types.
25.1	149	m37	WC/G	Second initial more likely to be a G than a C. Large fairly thin bowl, appearing rather later than the rest of the group.
25.2	150	m38	WC	Uneven base to bowl interior, possibly with a poor cross motif.

25.3	151	m39	**		Poorly defined crowned initials (probably a London pipe) possibly reading P or R / G or C.
25.4	152	m40	L		Appears to be marked on the christian name side only with ? a reversed L. Possibly a Geale pipe.
25.5	153	m41	PS		Flaw RHS away from smoker, parallel to mould line. Large thin walled bowl by Philip Street of Guildford.
25.6	154	m42	PS		Slightly smaller Street pipe.
25.7	155	m43	RT		Probably a London pipe.
25.8	156	m44	**		Star symbols on heel.
25.9	157	m45	**	311	Crowned star mark.
25.10	159	m'46'			Two similar pipes with small oval heel but not mould matched.
	158	m'46'			
25.11	160	m'47'		275	Similar type with sharper curve into a slightly larger heel. Some (especially 163 & 164) have probable mould marks suggesting the presence of several moulds.
	161-164	m'47'			
25.12	165	m48			Short stumpy bowl.
26.1	166	m'49'		282	Small circular heels. Only 170 & 171 have clear indication they are from the same mould (lump RHS heel).
	167-171	m'49'			167 appears to be broken very near mouthpiece. The surviving length (261mm) indicates a short pipe type.
	172-173	m'50'			Larger round heels.
	174	m'51'			Even larger heel.
26.2	175	m52		284	Faint ridges front RHS heel.
	176-177	m52			
	178-180	m53			Clear flaw centre LHS of bowl.
26.3	181	m53		286	
	182-183	m54			Slight flaw centre RHS of bowl.
	184-185	m'55'			Similar but unmatched types.
26.4	186	m'55'		288	
	187	m56			Clear slash across LHS bowl.
26.5	188	m57		298	Line in centre RHS bowl.
	189	m57			
	190	m58			Similar to m58, but with different flaws both sides of bowl.
	191-192	m'59'			Similar to m58 but not mould matched.
	193	m'60'			Similar bowls, but not mould matched.
26.6	194	m'60'			
26.7	195	m'61'		348	Very poorly defined group. They all have small heels of about 5-6mm dia, but it is likely that 6 or 7 individual moulds are represented.
	196	m'61'		292	Mould flaws and faint line near rim.
26.8	197	m'61'		298	
	198-199	m'61'			198 has internal bowl cross.
26.9	200	m'61'			
	201-202	m'61'			
26.10	203	m62		308	Internal bowl cross, internal knife cut rim, bottered.
	204	m'62'			Exhibits same features as 203, probably same mould type.

	205 m63	332+	Tip appears just broken, bowl has distinctive flaws.
	206 m64	315	Faint line runs round RHS heel. All three examples have properly bottered rim, implies same workman. 206 recovered unbroken.
	207 m64	324	
	208 m64		
	209 m65		Heel flaw LHS.
	210 m66		Faint mould line round rim.
26.11	211 m'67'	364	Undifferentiated types, almost certainly several different moulds within this group.
<hr/>			
	212-220 m'67'		
	221 m68		Flaw facing smoker, LHS bowl.
26.12	222 m79	280	Small oval heel.
	223 m70		Heel only survives.
27.1	224 m71	346	Flaw above heel LHS.
	225-227 m'72'		Undifferentiated but similar bowls.
27.2	228 m73		Large heel.

Stem marks The following stem marks could not be attached to bowls. For identification purposes however they have been allocated numbers in the same series. The stamp types are illustrated in fig 27.

229-230	G.3c
231	G.3a
232-233	G.3b
234	G.2a
235	G.2c
236-242	G.1

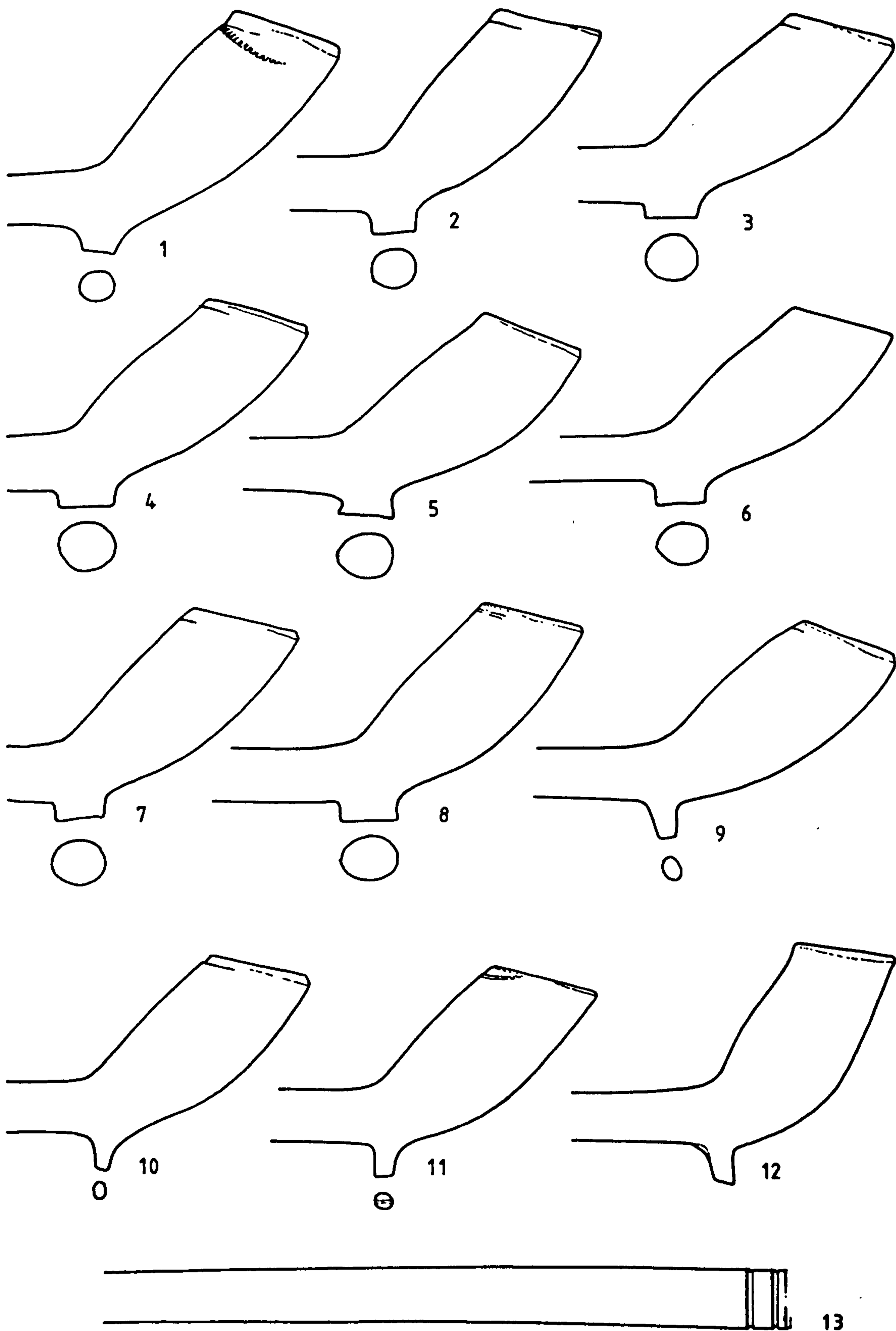


Fig 24 - Epsom Pit Group : Bowl Forms.

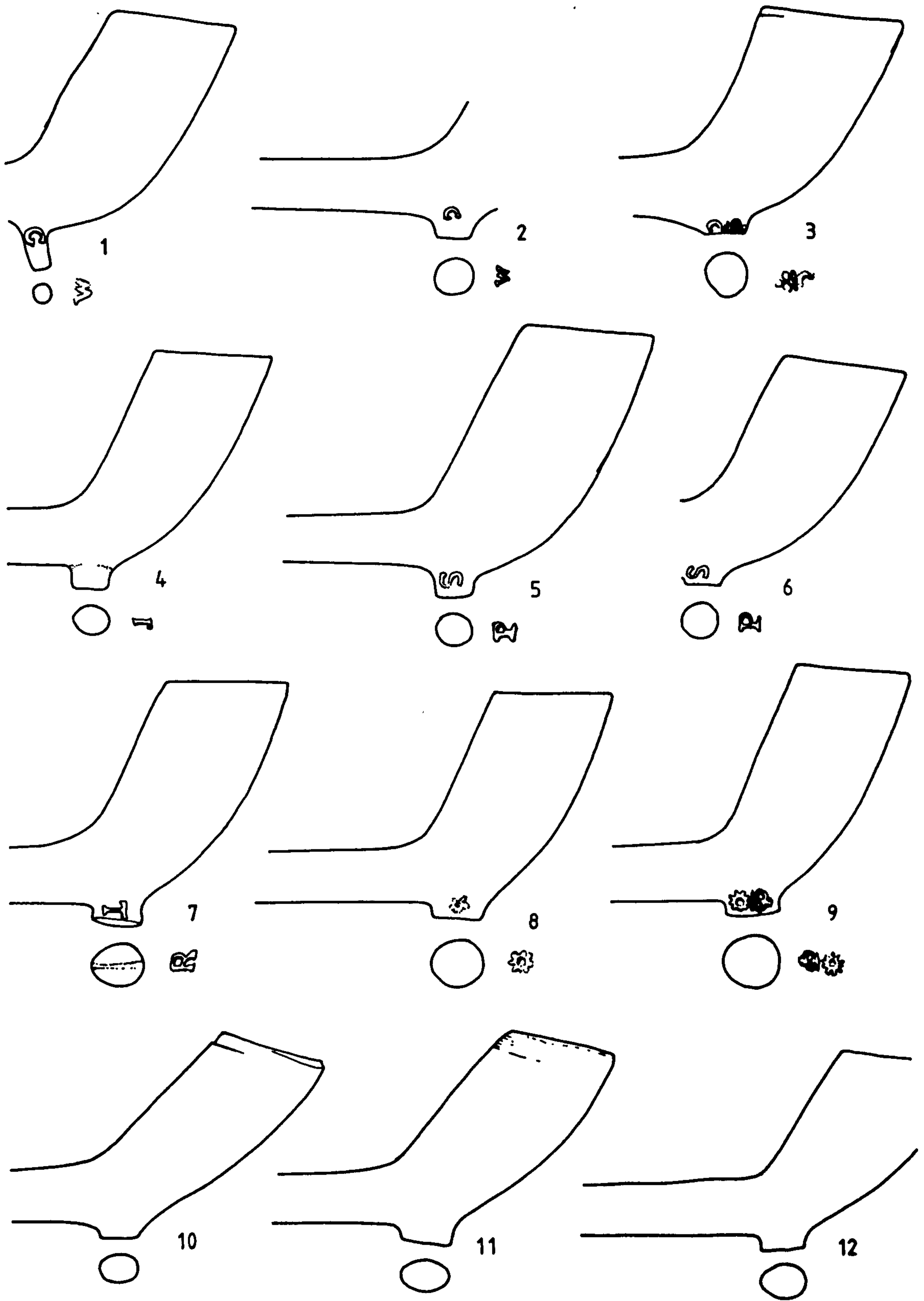


Fig 25 - Epsom Pit Group : Bowl Forms.

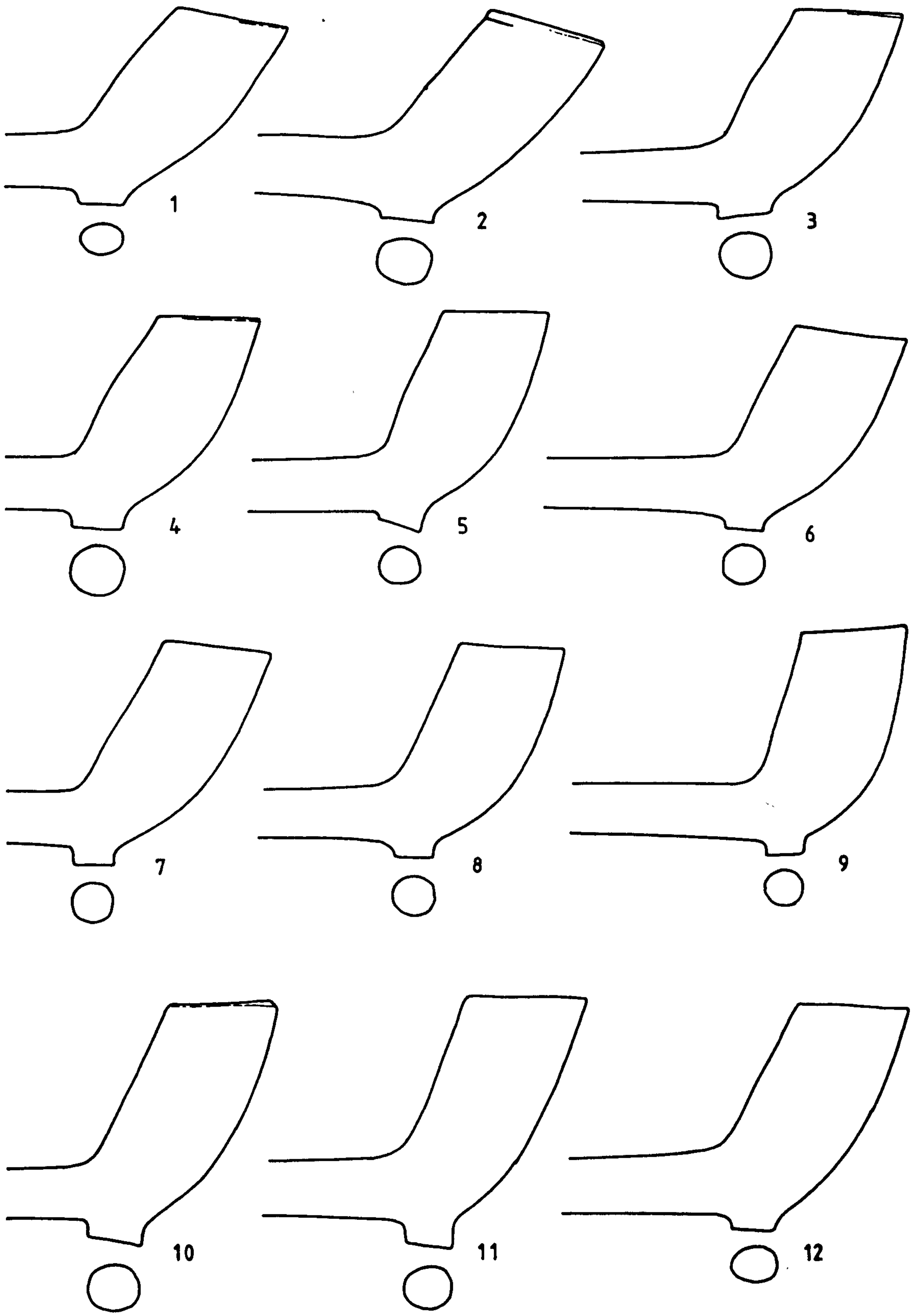


Fig 26 - Epsom Pit Group : Bowl Forms.

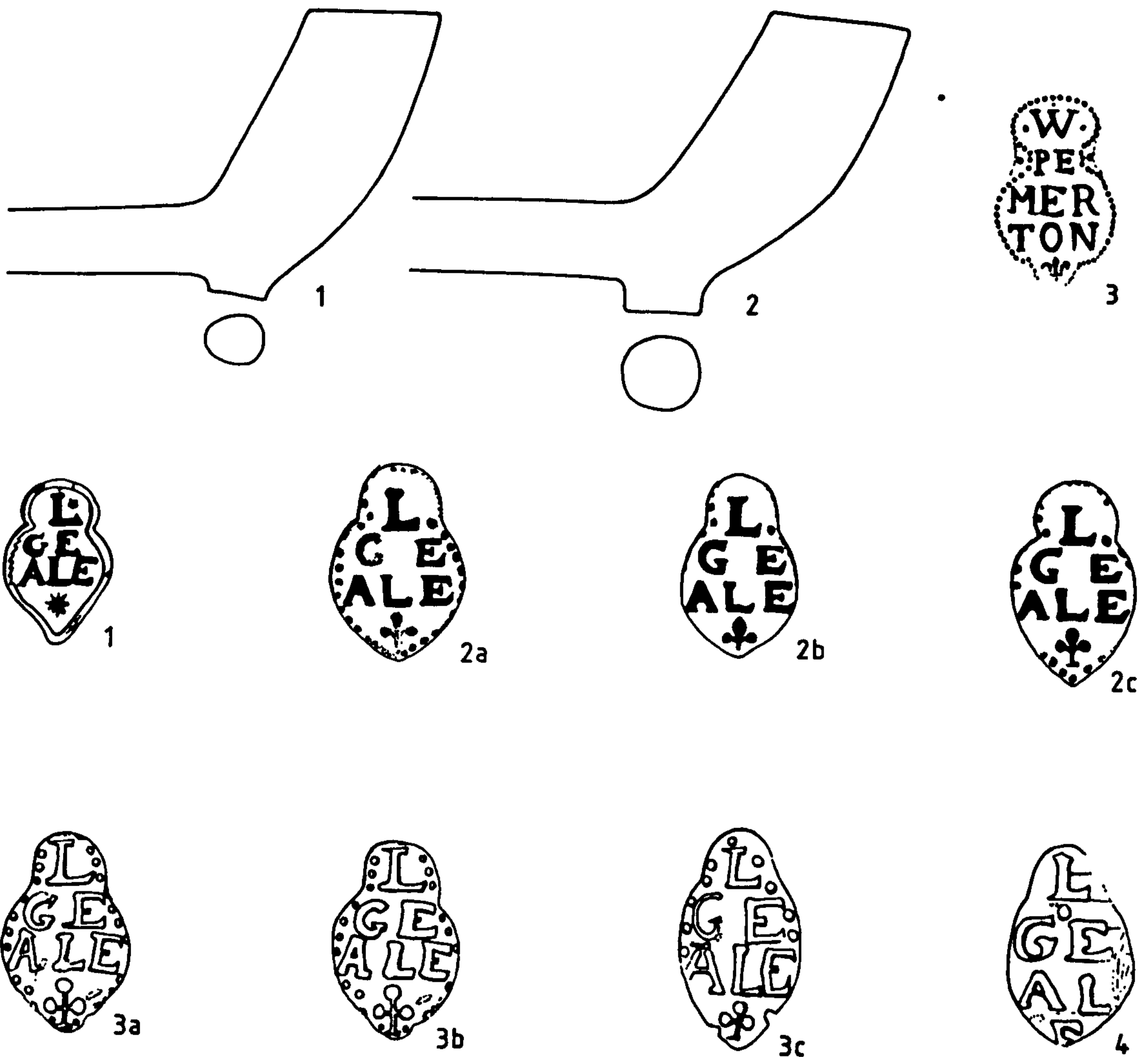


Fig 27 - Epsom Pit Group : Bowl Forms & Stamp Types. The bowl forms (1 & 2) are drawn at 1:1, the stamp details at 2:1. Note that the eight different Geale marks are composite drawings from several individual examples of each type, and are identified with their die numbers (see text). They are not numbered in the same sequence as the first three figures. These stamp types are not associated with the bowl types on this page (see Table 18 for details).

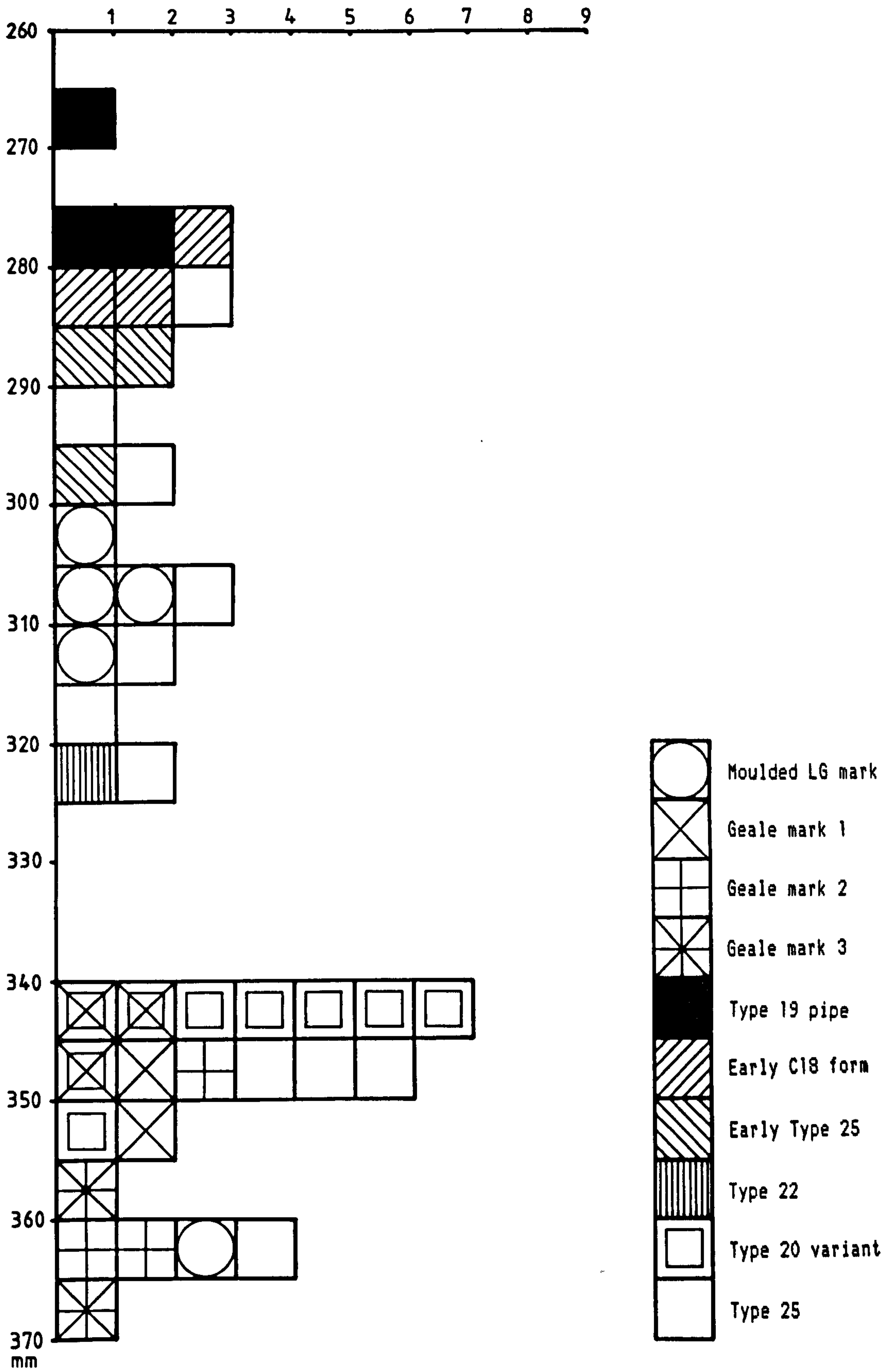


Fig 28 - Epsom Pit Group : Graph of Stem Lengths and Bowl Forms.

APPENDIX 2 - Revised List of Shropshire Clay Tobacco Pipe Makers.

This appendix contains details of all the currently known pipemakers recorded for Shropshire. During the course of this research the Bridgnorth, Broseley, Benthall, Much Wenlock and Wellington lists have been compiled or completely revised. A little work (mainly negative) has been done on Shrewsbury, but none at all on the other small centres listed. They are merely included for completeness. It is hoped that by presenting fairly comprehensive details not only of the makers, but of the way in which each section has been compiled, that the list will form a good foundation for other researchers to work from and to contribute to. Such an extensive list as this is built of innumerable individual references, which have as far as possible been identified and checked for accuracy. My sincere thanks to all those who have helped me with the collection of this data, and my apologies to any future workers who are frustrated by finding any omissions or errors, the responsibility for which must be entirely my own.

The entries are arranged by place, and then contrary to normal practice for pipemakers lists the names are arranged in alphabetical order. Usually pipemakers marks consist of initials only, so the lists are arranged in that way. In this area however the lists are largely based on full name marks, and since there are so many family connections it seems more useful to have them in alphabetical order. The abbreviations used here are as follows:-

AO = information from Shropshire makers list in Oswald, 1975
Bap = Baptism
BG = Bridgnorth
Bur = Burial
BY = Broseley
BL = Benthall
CR = Census Returns
D = Directories
HRO = Hereford Record Office
IGI = International Geneological Index
Mar = Marriage
MW = Much Wenlock
MWA = Much Wenlock Archives
PR = Parish Registrars
PRO = Public Record Office
Wid = Widow

To avoid unnecessary complication each individual reference and source has not been reproduced. Instead individual details (such as date of birth calculated from census returns) have been extracted from the documents, and are given in a standard form at the opening of each entry. Where known the details of the birth, baptism, marriage, children and death of each individual are recorded. The date(s) when the individual is specifically listed as a pipemaker are recorded at the top of each entry, and then the likely working dates between which the person *may* have been working as a pipemaker (calculated from what is known from other entries). Generally for children of pipemaking families it is assumed that they would have become active in the workshop from the age of about 14. The likely working dates have a '+' at either end if the working life is likely to extend in that direction. Following these specific details a more general description incorporating place of residence and so on (from the origin or stated

within the documents) has been given. Where different dates of birth can be calculated from the documents (particularly census returns) both are recorded here with an asterisk by the preferred date. Other persons mentioned in the text who are individually listed as pipemakers appear with their name in bold face. For quick reference a list of the page numbers for each section are given below.

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BRIDGNORTH PIPEMAKERS

This section documents all of the persons known to have been connected with the pipe trade in Bridgnorth. It is based largely on material extracted from the 1841-81 census returns which were searched by Peter Hammond for all families which included pipemakers (and to whom I am most grateful for copies of his notes). It therefore gives a particularly complete picture for this period. It has been supplemented by some parish register and directory material, although it must be emphasised that these sources have not been dealt with systematically or exhaustively. Directory material is taken mainly from Oswald (1975, 190) who has clearly extracted information from several directories, although it is not known exactly which ones. The lack of earlier pipemakers may be purely a product of the current state of research since no attempt has been made to search earlier documents. As an important trade and market centre it would be surprising if no seventeenth and eighteenth century makers chose to work here. It may be significant however that despite extensive documentary work on the earlier periods by Dr Trinder and Dr Wanklyn, they do not recall having come across any pipemakers.

For each person a summary of the known references has been produced, arranged as a brief life history. The object has been to extract from the often numerous and complex references to each individual the salient points, and to produce from these a considered synthesis of the individual's movements and activities. Particular attention has been paid to the likely working period and role of the individual in an attempt to reveal employment figures and structure for the nineteenth century workshops. An attempt has also been made to distinguish between the master makers who would have run their own workshop, and produced a recognisable range of pipes, and those who were simply journeymen or employees working for them. Unless otherwise referenced the information is taken from the Bridgnorth census returns which have been searched for anyone whose occupation is given as a pipemaker.

Edward Bradley Recorded as a pipemaker 1861-1871.

Likely to have been pipemaking c1854-1871+
Born.....c1840 at Bridgnorth.
Married.....1876 - Jan 31 to Elizabeth Taylor (St Leonard's PR).

Edward is first recorded in 1851 when he was living with the Southorns in Pound Street. He is given as the grandson of Elizabeth Southorn thus indicating that she must have had children by her first marriage. The surname Bradley may indicate that there was a link between the Bridgnorth Southorns and the Bradley pipemaking families of Broseley and Bridgnorth, although at his marriage in 1876 his father (Joshua) was given as a weaver. The fact that he was living with his grandmother from at least the age of 12 perhaps indicates that his parents had died or split up. He must have trained and worked at the Southorn factory, and may have continued there after getting married to Elizabeth Taylor, a native of Benthall in 1876. She must have been previously married, since her father is given as George Gething, collier (who may also be related to a pipemaking family). By 1871 when they were both working as pipemakers, and living at 12 Listley Street. The head of the household at that date is given as Mary Bradley (age 65), a widow and apparently cousin to Edward who kept a grocer's shop. Unfortunately no later references to Edward are known, and he has not been found in the 1881 census. He may have either left the declining Southorn works, or moved to set up on his own elsewhere. While living at Bridgnorth it would seem most likely that he was working at Southorns, and therefore independent products are not expected.

Elizabeth Bradley Recorded as a pipemaker in 1871.
Likely to have been pipemaking +1871+
Born.....c1838 at Benthall.
Maiden name.....Elizabeth Gething.
Married.....(1) Taylor.
(2) 31 Jan 1876 to Edward Bradley (St Leonard's PR)

Elizabeth Gething was a native of Benthall, who had married a Taylor. Both of these families were connected with the pipe trade there, although her father is given as a collier. In 1876 she married Edward Bradley, whom she had been living with since at least 1871 (CR). They are both recorded living at 12 Listley Street in 1871, and worked as pipemakers, probably for the Southorn firm. No other references to either of them are known after 1871, but it is unlikely that Elizabeth would ever have marked her own products.

William Bradley Recorded as a pipemaker 1841-71.
Likely to have been pipemaking c1831-71+
Born.....c1817 at Bridgnorth.
Baptised.....23 April 1817, son of William and Elizabeth Bradley.
Married.....Mary.
Children.....c1842*/1844 Alice.
 c1850/1851* Rosa.
 c1856 William.

Nothing is known of William's parents, or whether he is related to the Broseley pipemaking family of Bradley. He is recorded in 1841 living with his wife at the 'Bottom part of Cartway' and working as a pipemaker. By 1851 they had moved to Listley Street, by 1861 to 23

Pound Street, and finally to 44 St Mary's Street by 1871. William is consistently given as a pipemaker, although his wife is only listed as such in 1871. Their children never appear to have been involved in the pipetrade, and had all either left home or died by 1871. Alice appears to have had an illegitimate daughter in about 1859/60 who was still living with them in 1871. The family disappear as pipemakers in Bridgnorth by 1881. They may well have been employees of Southorn's. No marked pipes are known.

Mary Bradley Recorded as a pipemaker 1871.
Likely to have been pipemaking +1871+
Born.....c1811/12/13 at Norton/Bridgnorth/Linley.
Married.....William Bradley.
Children.....c1842*/1844 Alice.
 c1850/1851* Rosa.
 c1856 William.

Mary is first recorded in 1841 living with her husband at the 'Bottom part of Cartway'. By 1851 they had moved to Listley Street, by 1861 to 23 Pound Street, and finally to 44 St Mary's Street by 1871. William is consistently given as a pipemaker, although Mary is only listed as such in 1871. It therefore seems unlikely that they had their own workshop both because of the frequent movement, and because Mary does not appear to have been involved in pipemaking until later life. In addition their children never appear to have been involved in the pipetrade, and had all either left home or died by 1871. Alice appears to have had an illegitimate daughter in about 1859/60 who was still living with them in 1871. The family disappear as pipemakers in Bridgnorth by 1881. They may well have been employees of Southorn's. No marked pipes are known.

Joseph Drinkeld Recorded as a pipemaker in 1861.
Likely to have been pipemaking +1861+
Born.....c1812 in England.

Joseph only appears once in the census returns (1861), when he is living in a lodging house at 58 Listley Street. He was unmarried, and presumably an itinerant pipemaker who stopped for a period as a journeyman in Bridgnorth. Living in Listley Street he may well have been working for the Southorns.

John Perry Recorded as a pipemaker in 1851.
Likely to have been pipemaking c1810-1851+
Born.....c1796 in Broseley.
Baptised....2 March 1799 at Broseley (PR).

John Perry is only recorded once at Bridgnorth, and the rest of his life has proved hard to document. This is particularly frustrating since he appears to be an independent maker to whom marks can be attributed. John, the son of John and Sarah Perry, was baptised at Broseley in 1799. His father may well have been a pipemaker since Atkinson (1975, 73) dates two 'JOHN PERRY / BROSLEY' marks to c1780-1820, which would tie in well with someone baptising a child in 1799. John Jr presumably learnt the trade from his father, and went on to take over the workshop, perhaps being responsible for the later

'PERRY / BROSELEY' mark. Unfortunately neither maker appears in the census returns or any trade directories that I have seen, although Atkinson (op cit) says a John Perry is recorded at Broseley in 1842 & 1853 (no source given). The latter date is particularly odd given the 1851 reference in Bridgnorth. In that year the census returns give John Perry, pipemaker, age 55, born in Broseley, lodging in Foundry Yard. There can be little doubt that this is the same person. The most likely explanation would be that having lived and worked in Broseley for much of his life he finally moved to Bridgnorth. The fact that he is given as a widower in 1851 might suggest that he moved following the death of his wife. Foundry Yard was occupied by several pipemaking families between 1851 and 1881, which may well indicate the presence of a kiln nearby. It is even conceivable that John Perry founded a kiln there, which if our assumptions are correct could then have been operated by the Phillips family. It is not however known whether John was still a master marking his own pipes by this date. No pipes are known marked Perry Bridgnorth, but then again he was getting old, and probably either stopped making pipes, or had died by 1861, so any production would have been comparatively small. On top of this he could well have continued to use his old moulds and mark without bothering to change. Only a proper archaeological examination of kiln waste from Foundry Yard is likely to resolve these points.

Charles John Phillips Recorded as a pipemaker in 1891-1900.
 Likely to have been pipemaking +1891-1900+
 Born.....c1864 in Bridgnorth.
 Baptised.....7 Sept 1864, son of Henry and Jane Phillips
 (St Leonard PR).

Charles is so far only recorded in directories, appearing between 1891 and 1900 (Oswald 1975, 190). He is presumably a member of the Phillips family who had been working in Foundry Yard from at least 1851 (see Daniel 1 below). He was probably the last pipemaker in Bridgnorth. No pipes are known.

Daniel Phillips (1) Recorded as a pipemaker 1834-1885.
 Likely to have been pipemaking c1830-1885+
 Born.....c1813 in Bridgnorth.
 Baptised.....17 Feb 1813, son of Sarah Phillips.
 Married.....Mary.
 Children.....c1833 Clara (bap 11.3.1838 at St Leonard's)
 c1836 Harriet (bap 5.10.1835 at St Mary's)
 c1838 Thirza/Theirza (bap 11.3.1838 at St Leonard's)
 c1841 Daniel (2) (bap 7.3.1841 at St Leonard's)
 c1847 Susan (bap 25.8.1847 at St Leonard's)
 c1848 Henry
 c1849 George
 c1852 Isabella
 c1854 Jeffrey
 c1856 Benniah

Daniel is first recorded in a directory of 1834, when he would have been about 18 years old (Oswald 1975, 190). He is recorded in the 1841 census, when he is living in Pound Street, next door but one to Thomas Southorn, the founder of the Bridgnorth pipeworks. With him

Mary Phillips Recorded as a pipemaker 1861, 1881
Likely to have been part-time pipemaking c1830-1881+
Born.....c1811/1814/1815/1816* in Bridgnorth.
Baptised.....not traced.
Married.....Daniel Phillips (I).
Children.....c1833 Clara
 c1836 Harriet
 c1838 Theirza
 c1841 Daniel (II)
 c1847 Susan
 c1848 Henry
 c1849 George
 c1852 Isabella
 c1854 Jeffrey
 c1856 Benniah

Mary is first recorded in the 1841 census, when she is living in Pound Street, with her husband, also aged 25, and four young children, the eldest of whom is eight (see details above). By 1851 they had moved to Foundry Yard, being given at number 8 in 1861, and number 16 in 1871 & 1881, by which time it was known as Old Foundry Yard. Daniel (I) had set up his own business by 1834 and is recorded as a pipe manufacturer rather than a maker in 1871, and in 1881 as a pipe maker artisan. Mary presumably would have helped her husband throughout this period, even though she only specifically listed as a pipemaker in 1861 and 1881. She may well have helped only occasionally, especially when she was raising the family. It is most unlikely that Mary would ever have marked any pipes that she made with her own name.

William Pullett Recorded as a pipemaker in 1856.
Likely to have been pipemaking +1856+
Born.....c1830.
Married.....1856 - Oct 6 to Susanna Walker (BG PR).

William is only recorded as a pipemaker at his marriage in 1856. He was the son of a gardener and lived in Cartway. He married Susanna Walker, the daughter of a weaver. There does not seem to be any other link with the pipemaking trade, and since he is not recorded as a pipemaker in either 1851 or 61 it seems unlikely that he worked in Bridgnorth for long. Either he had moved, or was only a casual employee for a brief period. No marked pipes are to be expected.

John Rhoden Recorded as a pipemaker in 1807.
Likely to have been pipemaking +1807+

On 24 November 1807 an Indenture was made between the overseers of the poor of Much Wenlock, and John Rhoden of the parish of St Mary Magdalen in the town of Bridgnorth, pipemaker, to take Elizabeth Corns, age 9, until 21 or married (whichever was the sooner), to be apprenticed in Housewifery (Much Wenlock Borough Archives, Pauper Apprenticeship Indentures 1735-1817, Q1/7/25). This is the only known reference to John at Bridgnorth, although no other sources have been searched for his name. It is probable that he is related to the prolific Rodens of Broseley, several of whom were pipemakers. A John Roden was marking pipes in Broseley c1820-40 (Atkinson 1975, 76).

There is an early nineteenth century mark reading 'I.RODEN/B.NORTH' (relief along the stem) in Bridgnorth Museum which must belong to this maker (fig 74.12).

Elizabeth Richardson I Recorded as a pipemaker in 1861.
Likely to have been pipemaking +1861+
Born.....c1813 at Leicester.
Married.....James Richardson.
Children.....Elizabeth, c1843.
Died.....between 1861 and 1871.

Elizabeth is only recorded in the 1861 census (age 48) when she and her husband James Richardson were lodging at 33 Cartway. They must have moved to Bridgnorth during the decade before 1861, and may well have been pipemaking elsewhere before that. Elizabeth was born in Leicester, but had probably married James and was living in St Albans by 1843, since that is where her daughter was born. They may well have worked as pipemakers there before moving to Bridgnorth in the 1850s, presumably as journeymen pipemakers, where they probably worked with the Southorns. Elizabeth had died by 1871 when James is described as a widower, and her daughter Elizabeth Richardson was working as a servant for Southorns. No Richardson pipes are known.

Elizabeth Richardson II Recorded as a pipemaker 1871.
Likely to have been pipemaking +1857-71+
Born.....c1843.

Elizabeth II was daughter of Elizabeth I above, born in St Albans c1843. In 1871 she was recorded as a servant and pipemaker (age 28) with the Southorns. No other details about her are known.

James Richardson Recorded as a pipemaker 1861-1871.
Likely to have been pipemaking +1861-1871+
Born.....c1807/1811 at St Albans/London (both given as Middlesex).
Married.....Elizabeth.
Children.....Elizabeth, c1843.

James appears to have moved to Bridgnorth between 1851 and 1861, probably from St Albans (see Elizabeth I above). In that year he was lodging with his wife, who was also a pipemaker, at 33 Cartway. His wife had died by 1871 when James is recorded at 23 Pound Street, next door to the Southorns, and for whom he was presumably working. His daughter also appears to have been working for the Southorns (see Elizabeth II above). He is not recorded in 1881, and had presumably died. No pipes are known.

John Roden - see John Rhoden.

Elizabeth Southorn Recorded as a pipemaker 1831-1875.
Likely to have been pipemaking c +1831-1875.
Born.....c1788*/1790 at Bridgnorth.
Married.....(1) not traced.
(2) Thomas Parsons Southorn Jr.

Children.....c1828/1829 Isabella (CR).

1832 John Russell, born 23 March, bap 11.3.38 at St Leonard's (BG PR).

c1833 Thomas, bap 31.3.33. at St Leonard's (BG PR).

Died.....late in 1875, aged 86 (Hammond, in litt 10.8.86).

Elizabeth was widowed and then became the second wife of Thomas Parsons Southorn Jr at some date between 1826 (when his first wife died) and 1828/29 (when their daughter was born). She was a native of Bridgnorth where Thomas Jr had established his pipeworks by 1822/3, and must have had children by her first husband since a grandson Edward Bradley is recorded living with her in the 1851 & 1861 census returns. The Bradley families were well known pipemakers in Broseley and Bridgnorth, and the surname of her grandson raises the possibility that either Elizabeth, or one of her children, was related to them through marriage. If not already familiar with the pipemaking trade she presumably learnt it from Thomas, and was responsible for the running of the works from at least 1831 (Directories, Oswald 1975, 190). Oswald in fact lists two Mrs E Southorns, but the dates (1831-56 and 1868-75) indicate that all these entries refer to this one person. It is most unusual for a wife to be listed in the directories before her husband's death, especially when he has already been listed as an independent pipemaker. It has been suggested (above) that Thomas was in financial difficulty, and that part of a marriage settlement may have included Elizabeth taking over the running of the business, which she continued to do until her death in 1875, aged about 86 or 87. In 1871 (when she was about 83), when she is recorded as the employer of three men and two women. She was thus responsible for running the business over the most productive forty years of its existence, although presumably her two sons took on increasing responsibility for it as she got older. It seems likely that she would have continued to play an active part in pipe production until her death in 1875.

John Russell Southorn Recorded as a pipemaker 1851-1885.

Likely to have been pipemaking c1845-1885+

Born.....1832 - March 23 at Bridgnorth (St Leonard's PR, 1838).

Baptised.....1838 - March 11 at St Leonard's (PR).

John was the eldest son of Thomas Parsons Southorn Jr who established the Bridgnorth pipeworks in Pound Street by 1822/3. He was probably born there, and appears in Pound Street in every census from 1841-81. He may however have changed address at some point, since Thomas Parsons may have been at No 1 (see below) while the CR from 1861 onwards give the address as No 24. It is likely that he helped with the family business from a very young age, and would almost certainly have been employed there full time following the death of his father in 1845. He does not appear to have married, and technically appears to have worked under his mother until her death in 1875 (although doubtless he was increasingly responsible for the running of the firm in her later years). After her death he is recorded in the 1881 Census as a master pipemaker, employing one man and one woman. He is last recorded in a directory of 1885 (Oswald 1975, 190), and it is likely that he ceased pipe production and/or died during the late 1880s. Peter Hammond has searched the registers at St Catherine's House for England and Wales until 1900 without success, so either he died abroad, or after this date.

Thomas Parsons Southorn Jr Recorded as a pipemaker 1822/3-1845.
 Likely to have been pipemaking c1785(?)-1845.

Born.....Probably 1771 (Age at death given as 73).
 Baptised.....1771 - May 19 at Broseley (PR).
 Married.....(1) 1790 - October 3 to Susanna Gethen (Dawley Magna PR).
 (2) c1826-29 Elizabeth
 Children.....c1828/1829 Isabella (CR).
 1832 John Russell, born 23 March, bap 11.3.38 at St Leonard's (BG PR).
 c1833 Thomas, bap 31.3.33. at St Leonard's (BG PR).
 Died.....1845 - February 28.

Although his parents were married at Much Wenlock, Thomas appears to have been brought up in Broseley. It was there that he was baptised and, following the death of his father (Thomas Parsons Southorn Sr), that his mother re-married in 1776 (when Thomas was five). His mother (Lydia Legg) and his step-father (Richard Russell) may both have been associated with pipemaking families, so it is possible that Thomas learnt the art through them. He married Susanna Gethen at nearby Dawley Magna in 1790, a woman nearly twice his age. She may also have been from a pipemaking family, so the circumstances suggest that Thomas may always have worked as a pipemaker. Nothing definite is known of the next thirty years of his life. If he did work as a pipemaker in Broseley it is possible that he attracted his young cousins from Cardington to work for him, thus establishing the Broseley dynasty of Southorn pipemakers. Alternatively he may have moved to Bridgnorth and set up there. Wight (1950) gives an unsourced reference that he was working there by 1799, but this has not been relocated. Certainly he is recorded there by 1822/3 when he is recorded as a pipemaker in a trade directory. The 1824 Poor Rate records that he was already living in Pound Street (SRO 3662/P/2), and an unsourced reference in the Bridgnorth Journal (1968) gives his address in 1824 as No 1 Pound Street. A few years later (1826), his wife died, apparently childless (buried 14 April, age 71 and described as of Pound Street - St Leonard's PR). Thomas appears to have moved about at this period, since Pigot's Dir of 1828 gives his address as Raven Street, and in 1832 in Whitburn Street. Also at about this time he remarried to a younger widow (Elizabeth) from Bridgnorth. She bore him three children, two of whom went on to help her run the pipeworks (back in Pound Street) following Thomas's death in 1845. It is unfortunate that we do not know more of Thomas's life, since he appears to be an important link between the Southorns and pipemaking. He is the earliest Southorn known to have been a pipemaker, and may well be related to two of the eighteenth century pipemaking families of Broseley. It is likely that he learnt the trade in Broseley, and may well have worked there as a pipemaker around the turn of the century. He may well also have been responsible for attracting his cousins to Broseley before moving to Bridgnorth. He introduced direct Broseley influence into Bridgnorth, and founded a branch of the family that was to run an important works there for over sixty years.

Thomas Southorn Recorded as a pipemaker 1851-1881.
 Likely to have been pipemaking c1847-1881+

Born.....Probably 1833 at Bridgnorth.
 Baptised.....1833 - March 31 (St Leonard's PR).

Thomas was the younger son of Thomas Parsons Southorn Jr who established the Bridgnorth pipeworks in Pound Street by 1822/3. He was probably born there, and appears at that address in every census from 1841-81. He may however have changed address at some point, since Thomas Parsons may have been at No 1 (see above) while the CR from 1861 onwards give the the address as No 24. It is likely that he helped with the family business from a very young age, especially following the death of his father in 1845. He does not appear to have married, and technically appears to have worked under his mother until her death in 1875 (although doubtless, like his brother John Russell Southorn he increasingly helped with the running of the firm as she grew older). After her death he is recorded in the 1881 Census as an assistant tobacco pipe manufacturer now working under his older brother. No later reference to him is known, and it is likely that he ceased pipe production and/or died during the 1880 s. Peter Hammond has searched the registers at St Catherine's House for England and Wales until 1900 without success, so either he died abroad, or after this date.

Elizabeth Taylor Recorded as a pipemaker in 1871.
Likely to have been pipemaking +1871+
Born.....c1821 at Plymouth.
Married.....Edward Taylor.
Children.....c1863 Benjamin.

Elizabeth is only recorded in Bridgnorth in 1871 when she was living with her family at 9 Old Foundry Yard. Her husband was a labourer, suggesting perhaps that pipemaking was not the normal family trade. He was born in Dudley (Staffordshire), about 14 miles east of Bridgnorth, but must have moved to Plymouth, the home town of Elizabeth, and the birthplace of their son by at least 1863. The fact that both Elizabeth and Benjamin were born there may indicate that the family was in fact based in Plymouth, only moving back north in older age (after 1863, when Edward would have been in his 50s). Elizabeth is unlikely to have been anything other than an employee, perhaps working for the Phillips in Foundry Yard.

Joseph Thomas Recorded as a pipemaker in 1851.
Likely to have been pipemaking +1851+
Born.....c1827 at Manchester.
Married.....Elizabeth.

Joseph is only recorded in Bridgnorth in 1851 when he was living in New Town. In that year, at the age of only 24, he was apparently responsible for his 18 year old wife, together with her three younger brothers and sister. She had been born about 1833 in Liverpool, but must have moved to Leeds by about 1837 when one brother was born, then on to Bridgnorth by about 1838 where the rest of the family was born. Joseph was born in Manchester, but must have moved to Bridgnorth before 1851 where he could have met Elizabeth. He was presumably an itinerant worker, and appears to have moved again by 1861. No marked pipes are known, or likely.

BROSELEY AND BENTHALL PIPEMAKERS
(Including Coalbrookdale and Ironbridge)

This list was based originally on that compiled by Atkinson in 1975. All the names listed in that were taken, and where relevant checked against the Broseley and Benthall PR. The registers from 1570-1750 are published (Langley 1889/90), and those from 1751-1812 housed in the Local Studies Library, Shrewsbury. A similar process has been started for Benthall, but only the surnames up to and including K have been checked against the copy of the Benthall Registers (1640-1812) held at the County Record Office. This point is marked in the list below. The PR after 1812 have not been systematically examined. From the names and dates extracted reasonable assumptions about the relationship between people with the same name have been made, and summaries are presented below. Where there are multiple entries of the same name children baptised and buried within a few years have usually been omitted to help simplify the options for possible pipemakers. Estimates of the date of birth have been made from the age given in the CR where a baptism has not yet been traced. Additional names and / or information from Oswald (1975), pipes, and any other sources have then been added to this list. This means that certain names will not have been systematically checked against the PR, if they did not occur in Atkinson's list. This should be stated with the relevant entry.

For the later makers the following directories have been consulted, Bailey's 1783, Pigot's 1822/23, 1828, 1829, 1834, 1835, Tibnam 1828, Robson 1840, Slater 1844, 1849, 1850, 1859, 1868, Bagshaw 1851, Harrison, Harrold & Co 1861, Kelley 1870, 1879, 1891, 1895, 1900, 1905, 1909, 1917, 1922, 1941, Cassey 1871, Mercer & Crocker 1877, Porter 1888, Bennett 1913 & 1916. In the nineteenth century the CR list numerous people who were not master pipemakers, but workers at the factories. These people have been omitted from the listings, and as far as possible only 'master' pipemakers included. These have been defined as anyone known to have marked their own pipes, or who are listed separately in the trade directories. Some members of families involved in small independent workshops have been included where they are relevant to the functioning and understanding of that unit, and all the members of the Southorn family known to have been pipemakers have been added.

In the listings a summary of the family is presented where sufficient details are known, and the identification as pipemakers is fairly confident. Generally other members of a family known to have been pipemakers are indicated in bold face. When using this list it is important to remember that the majority of names are only known from pipe marks. This is no guarantee that a person of the same name in the PR was actually a pipemaker. Clearly the pipemakers worked and moved around the area, and may have been baptised, married or buried in a range of different places. With so many families of the same name there may be many alternatives at any one date who could be possible makers, and other alternatives may exist in the Wenlock or other registers which have not been searched. Wenlock in particular as the local market and administrative centre needs more research, and it is already clear that many families moved between the two areas freely. Also since few records giving occupation have been examined there are many makers who are known by initial marks only. Obviously these cannot be researched until the full name is found and

this shortcoming of the list must be borne in mind. An attempt has been made at the top of each heading to indicate if a person is actually documented as a pipemaker (with relevant dates), and below that to indicate a likely working period based on the available information, which usually takes the form of recorded marks.

I am particularly grateful to Peter Hammond for freely providing me with a wide range of his research notes on the nineteenth century industry, particularly with regard to the Southorn family, and to Heather-Anne Farley for her work on the Broseley and Benthall PR. They both contributed to the full transcription of all pipemaking families listed in the 1841-81 Census Returns for Broseley and Benthall. It is hoped to present and analyse all the workers in the CR in conjunction with a catalogue of nineteenth century bowl forms at a later date.

Samuel Acton Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1725-50.

There are two Samuel Actons so far recorded who could have made the pipes. The first was Samuel Acton of Benthall. He married Esther by 1692, and they had at least three children; Mary bap 30.4.1692 bur 23.5.1692, Richard bap 5.6.1693 bur 24.8.1694 and Easter (sic), bap 29.2.1695 (BL PR). The second was Samuel Acton of Broseley. He had married Ann by 1731, and they had at least six children, Ann bap 29.2.1731, George bap 8.6.1735, Thomas bap 5.11.1737, Rebecca bap 22.2.1740, John bap 3.6.1744 bur 6.1.1746 and John bap 1.5.1748 (BY PR). This latter Samuel is by far the most likely to have produced the full name marks, but the existence of an earlier Samuel may be significant with regard to the Type 4 pipes marked SA.

Joseph Binner Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

Joseph Binner has not been traced in documentary sources. Atkinson (1975, 46) gives his surname as Binnes, and states that only one example is recorded. Assuming this is the example in his notebooks (fig 35.2) then it is incomplete in the last line. The complete example from Stafford (fig 90.1) makes it clear that the name should be read as Binner. This may be a variation of the local surname Pinner.

Thomas Boden Recorded as a pipemaker from pipe stamps (uncertain).
Possibly pipemaking c1680-1720.

Thursfield (1907) records pipe stamps reading both THO/MAS/BODEN (fig 40) and THO/MAS/RODeN (fig 286). One of these is presumably the example surviving in Shrewsbury Museum (fig 56.8), examination of which shows the first letter of the surname to be either a B or an R (although the 'e' is clearly lower case, and the 'n' probably so). Unfortunately the second example is presumably one of those in the part of the collection lost by the Ironbridge Gorge Museum (see Chapter 2), so it is impossible to check which example survives. Atkinson (1975) also notes THO/MAS/BODEN (p46), THO/MAS/RODeN and THO/MAS/RODEN (p79) marks, the first and last stated as being in the

British Museum. On my visit there (not realising there was a problem over the spelling) I only found one mark which I read as THO/MAS/RODen. There therefore seems to be a problem over this mark in that no example clearly spelt BODEN is currently known. Usually such a spelling difference would be insignificant, but in the Broseley and Benthall registers there appear to be two families called Boden/Bodin and Roden who consistently spell their names in different ways. Both families had members called Thomas, so the exact spelling is important in determining whether one or two makers are likely to be represented. In the absence of a clear Boden mark, and since a probate of 1724 for a pipemaker Thomas Roden is known, the existence of a Thomas Boden pipemaker is currently considered suspect. If one does exist the currently known possibilities are; from Broseley Thomas Bodin who married Elizabeth Nash 3.11.1691 or Thomas Boden husband of Mary who baptised a daughter (Eleanor) on 23.10.1748, and from Benthall the Thomas Boden, husband of Margaret who buried a son (John) on 18.9.1727, or the Thomas Boden (perhaps the same) who was buried on 9.1.1754. There is also Thomas Boden recorded who moved from Benthall to Madeley c1739, and was a ship's carpenter (MWA Q1/3/2 p28), who again could be one of the above.

Andrew Bradley Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1690-1730.

There appear to be two people in Benthall who are relevant. These are;

I Andrew Bradley, husband of Elizabeth, baptised Andrew 11 & 12.1.1667, John 9.10.1670, George 1.2.1673, and probably buried 22.6.1689.

II Andrew Bradley (?the one born in 1667), married Bettridge James 23.5.1695, probably the same Andrew who baptised a son Samuel 23.8.1705.

The first Andrew appears to be the father of the second, who was presumably the pipemaker responsible for the marked pipes which have been found. It is not known if his father (Andrew I) was a pipemaker.

George Bradley I Recorded as a pipemaker from pipe stamps.
Likely to have been at least one maker during C18.

There are many people of this name in the Broseley and Benthall PR throughout the eighteenth and into the nineteenth centuries.

George Bradley II Recorded as a pipemaker 1783-1788.
Likely to have been pipemaking +1783-1788.

George is recorded in a trade directory of 1783 at Benthall, and presumably died in about 1788. A probate of George Bradley of Benthall, pipemaker, dated 11 July 1788 is known to exist, but has not been transcribed.

Henry Bradley Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1660-1700.

There could be two or more Henry Bradleys recorded in the Benthall PR, either of which could have been the pipemaker. In 1672 a Henry Bradley was excused from paying Hearth Tax in the Franchise of Wenlock, and on 28.2.1674 Mary daughter of Henry Bradley of Barrow was buried. Henry and Catherin (sic) Bradley baptised and buried a son Laranc (sic) in 1676, and Katherine (sic) was buried on 7.5.1681. Henry and Eliza then baptise Richard (10.12.1682), Elizabeth (13.2.1685) and Sarah (25.5.1689). A Henry Bradley was buried on 1.3.1700. It is possible that all of these references refer to the same person, since Henry could have remarried to Eliza in 1681/2. The span of references (1672-1700) certainly fits well with the date range for the pipes. Kiln waste has been excavated at Benthall (Chapter 2).

John Bradley I Recorded as a pipemaker from pipe stamps.
Likely to have been at least one pipemaker during
C18.

Many people of this name are recorded during the eighteenth and early nineteenth centuries in Broseley and Benthall.

John Bradley II Recorded as a pipemaker 1828-1834.
Likely to have been pipemaking +1828-1834+

Recorded working at Benthall in trade directories of 1828, 1829 & 1834. There are numerous late eighteenth century baptisms which could refer to this person.

Richard Bradley Recorded as a pipemaker 1851-1861.
Likely to have been pipemaking +1851-1861+
Born.....c1813/1817* at Benthall.
Married.....by ?1845 to Ann.
Children.....c1845 John
 c1848 Mary Ann
 c1852 John
 c1861 Henrietta

Richard is only listed once in trade directories as an independent pipemaker (1851), when his address is given as Broseley Wood. He had probably only recently moved there since his three year old daughter was born in Benthall. The 1851 Census shows that his house was in Simpson's Lane, and that his wife and two lodgers were china painters. By 1861 he had moved to Quarry Road, but he is now given as a labourer and tobacco pipe maker. This suggests his primary occupation was no longer pipemaking. His daughter and a boarder are now given as tobacco pipe trimmers, but it is quite possible that their primary work was at one of the factories, rather than for Richard.

George Brown Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1670-80.

Broseley PR record the baptism of Elizabeth daughter of George and Abigail Browne (1.1.1705) and the burial of George Browne alias Dowk

(5.12.1707). Michael Browne was a Wenlock maker in 1681, so George may not have worked in Broseley at all.

Widow Bryan Recorded as a pipemaker 1835.
Likely to have been pipemaking +1835+

Widow Bryan is only recorded at Broseley in the directory of 1835. She is presumably the widow of William who appears there until 1834. She has not been traced in as a pipemaker in the 1841 census.

William Bryan Recorded as a pipemaker 1828-1834.
Likely to have been pipemaking +1828-1834.
Died.....?1834.

Recorded working at Broseley in trade directories of 1828, 1829 & 1834. 'Widow Bryan' appears in 1835 suggesting that he died just prior to that date.

William Bryan Brothers Recorded as pipemakers 1829.

Atkinson (1975, 49) notes this reference, which has not been retraced. Presumably it relates to the William Bryan above, together with other members of the family.

Thomas Chambrey Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1700.

This mark is recorded by Atkinson (1975, 49) from Port Royal in Jamaica. No person of this name has been traced in Broseley or Benthall.

Thomas Clark(e) Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1670-1720.

There are several people of this name recorded. In Broseley Thomas Clarks were baptised in 1611, 1613, 1637 and 1647, and in 1640 a Thomas Clarke married Maria Gosenes. In Benthall a Thomas was baptised in 1644, Thomas and Mary Clarke baptised a daughter in 1646 and Thomas Clark of Barrow was buried in 1675.

William Darbey Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1700-22.

Married.....Jane.

Children.....William (bur 1.9.1707).

Anne (bap 18.2.1710).

Mary (bur 5.2.1711).

Mary (bap 18.4.1718).

Eliza (bap 30.3.1718).

Died.....1722, buried 17 Jan at Broseley (PR).

William is one of the few people who can be identified with any certainty from the PR alone. Only one person of this name occurs in

the Broseley and Benthall PR, and it seems most probable that he was the person responsible for making the marked pipes.

Thomas Darkes Recorded as a pipemaker from pipe stamps.
Possibly a pipemaker c1680-1720.

This mark has not been recorded during this study and Atkinson did not record any at Broseley either (1975, 50). An example is illustrated from Chester (Rutter & Davey 1980, 109), but here it is possible that the surname should be read as Parkes not Darkes. Clearly there is some doubt as to the origin and reading of this mark.

Thomas Davies Recorded as a pipemaker 1734-35.
Likely to have been pipemaking +1734-1735+

The Much Wenlock Examinations Book (MWA Q1/3/1, 76) records money owed by Thomas Davies of Broseley, pipemaker, on 5 May 1734, and again in 1735 (Q1/3/1, 112). This name has not been searched in any PR.

Edward Deacon Recorded as a pipemaker from pipe stamps.
Probably more than one pipemaker of late C17 & C18.

There appear to be two or three Edward Deacons, any or all of whom could have been pipemakers.

I Atkinson (1975, 51) records a Morris Deacon, son of Edward, bap 1683. This reference has not been traced (see II below).

II Edward son of Morris Deacon bap 1683 (perhaps this reference was confused by Atkinson for I above). He married Elizabeth Synar in 1710, and they had nine children (Eliza 1711, Mary 1713, Joyce 1715, Edward 1717, Samuel 1722, Morris died 1723, Elinor 1724, Maurice born and died 1726 and George 1728). Elizabeth his wife died in 1728.

III Edward son of Edward, bap 1717 (see II above). This Edward presumably also married an Elizabeth, and they had four children (Maurice 1741, Edward born and died 1744, Susanna 1745 and Samuel 1748).

It seems likely that ref I is an error, leaving just two Edwards, presumably father and son. It is quite possible that both were pipemakers, the first being the son of Morris, also a pipemaker, and working c1697-1728+ and the second working c1731-48+. See Much Wenlock for other members of the Deacon family.

Morris Deacon Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1670-1726.

Married.....Sarah.

Children.....c1683 Edward.
 c1684 Samuel.
 c1686 Sarah.
 c1688 Elinor.
 c1690 Mary (died 1698).
 c1692 Lydia.
 c1696 Elizabeth.

Died.....1726 buried 19 March at Broseley (PR).

Although Atkinson (1975, 51) lists two Morris Deacons, one of these is thought to be an error (see Edward Deacon I above). A Morris Deacon was listed in Broseley in the 1672 hearth tax, paying 4/- for two hearths. This could be the same Morris who baptised children at Broseley between 1683 and 1696, and died in 1729. There are no other Morris Deacon references during this period, which fits well with the marked pipes. It therefore seems likely that this is the correct person, and that his son Edward (above) also became a pipemaker.

Richard Deacon Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

No documentary references to Richard have been found in Broseley or Benthall. Perhaps a Wenlock maker.

Samuel Derby Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1670-1720.

This name has not been traced in Broseley or Benthall PR. Atkinson (1975, 52) considers he is likely to be a Coventry maker.

Jath Edwards Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

This maker has not been traced at Broseley or Benthall. Only one example of this mark is known to the author, and that is from Chester (Spence, 1941/2, fig 3).

John Evans Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

During the seventeenth century in Broseley at least eight people named John Evans were born (baptisms in 1613, 1629, 1653, 1655, 1662, 1675, 1680 and 1695). The PR contain numerous references to the name, and it is quite impossible to say which, if any, of them were pipemakers. There is a probate for a William Evans, pipemaker, who died in Wellington 1693/4.

Thomas Evans Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

During the seventeenth century in Broseley at least eight people named Thomas Evans were born (baptisms in 1620, 1639, 1656, 1659, 1666, 1680, 1690 and 1697). The PR contain numerous references to the name, and it is quite impossible to say which, if any, of them were pipemakers. There is a probate for a William Evans, pipemaker, who died in Wellington 1693/4.

James Gething Recorded as a pipemaker in 1759.
Likely to have been pipemaking c1745-1804.
Born.....c1731, bap 16.3.1731 at Benthall.
Married.....13.2.1759 to Mary Jones of Broseley at Benthall (PR).

Children.....John bap 29.4.1759.
 Mary bap 25.9.1760.
 Charlotte bap 28.4.1762.
 Frances bap 28.10.1764.
 Rachel bap 22.2.1767, bur 12.5.1767.
 Rachel bap 8.5.1768.
 George bap 10.3.1771.
 Thomas bap 14.11.1773.
 James bap 24.3.1776, mar Eliz Cotten 12.5.1801.
 Francis bap 31.5.1778 bur 3.7.1768.
 Died.....1804 buried 27 Dec at Benthall (PR).

James, son of Thomas and Jane Gething was baptised in 1731. He is given as a pipemaker at his marriage in 1759, and appears to have lived and worked in Benthall, all 10 of his children being baptised there. His wife was buried there of 19 Nov 1779, and James on 27 Dec 1804. His son John could possibly be the pipemaker recorded in early nineteenth century directories.

John Gething I Recorded as a pipemaker in 1738, and from pipemarks.
 Likely to have been at least one maker c1730-60.

John Gethings were baptised in Broseley and Benthall in 1699, 1719, 1736, 1759, 1761, 1768, 1788, 1791 and 1804. Marriages are recorded in 1719 and 1749, and burials in 1778, 1782, 1792 and 1798. The main families were John and Mary (bap children 1720 & 1723, Mary died 1749), John and Elizabeth (marr 1759, bap 12 children 1750-1781 - at least two families) and John and Sarah (bap 6 children 1785-1799). The 1730-60 pipemaker is most likely to be John of Benthall, bap 1699 son of Thomas and Ann, married Mary and baptised children Ann in 1720 and Thomas in 1723. The alternative is John of Broseley, bap 1719 son of William and Mary, and perhaps husband of the Elizabeth who started baptising children in 1750. There are likewise several options for the nineteenth century maker (below), including the 1759 son of James above. The only definite reference to a pipemaker of this name is 23 Jan 1738 when John Geathen of Benthall, pipemaker, acknowledged a debt of £5 (MWA Q1/3/1, 148).

John Gething II Recorded as a pipemaker 1828-1834.
 Likely to have been pipemaking +1828-1834+.

Recorded working at Benthall in trade directories of 1828, 1829 & 1834. He has not been found as a pipemaker in the 1841 census. James Gething had a son John in 1759 who could be this maker, although the name was very common in eighteenth century Broseley.

Samuel Gething Recorded as a pipemaker from pipe stamps.
 Likely to have been pipemaking in mid C18.

In Broseley Samuel and Ann Gething baptised six children between 1747 and 1759. Samuel and Esther baptised a child in 1781, but this is too late for the marked pipes. In Benthall a Samuel son of Thomas and Jane was baptised in 1724. Samuel and Alice Gething were married in 1761, and baptised and buried five children between 1763 and 1775. A Samuel Gething was buried in 1792. The Broseley Samuel appears to

cover the pipe dates best, although the 1724 Samuel from Benthall could equally well have made them.

Thomas Gething Recorded as a pipemaker in 1778.
Likely to have been more than one pipemaking in C18.

Marks attributable to Thomas Gething start around 1700. A probate of Elizabeth Gething of Broseley (1778) names Thomas Gething, tobacco pipe maker, as administrator. Marks of wide ranging date are found, and there were probably several makers of this name. At Broseley baptisms are recorded in 1722, 1753, 1754 and 1775, a marriage in 1772 and burials in 1728 and 1748. The main families are Thomas and Elizabeth (bap 4 children 1720-1727), Thomas and Mary (married 1714, child 1714, Mary died 1717), Thomas and Ann (bap a child 1772) and Thomas and Cicely (bap 9 children 1773-1794). In Benthall there were baptisms in 1703, 1723, 1724, 1726 and 1775, and burials in 1724, 1769 and 1806. The main families are Thomas and Ann (bap 6 children 1694-1707), Thomas and Jane (bap 11 children 1724-1750), Thomas and Ann (bap 7 children 1755-1768) and Thomas and Mary (bap a child in 1773).

William Gething Recorded as a pipemaker in 1759.
Likely to have been pipemaking c1700-59.

A William Gething, pipemaker, was buried at Benthall on 22 May 1759. If the WG marks on type 5 pipes do indeed belong to a William Gething then there are probably two makers represented. The date of 1759 however does provide a useful terminal date, since no known marks seem to be later than this, and so a number of later William Gethings can be discounted. In Broseley a William was baptised in 1727, and burials took place in 1757 and 1773. The main families were William and Mary (baptised or buried 12 children 1716-38) and William and Elizabeth (baptised a child in 1754). In Benthall there was a baptism in 1694 (William, son of Thomas and Ann) which would fit well with the burial of 1759. There are also William and Elizabeth who baptised and buried three children 1672-1710, William and Ann who baptised 7 children 1744-1763 and William and Jane who baptised a child in 1753. The William and Mary (children 1716-38) or William and Elizabeth (children 1672-1710) seem most likely for the WG marks, and William (?1694-1759) for the stem stamps.

T. Groom Recorded as a pipemaker from pipes.
Likely to have been pipemaking c1820-40.

Atkinson (1975, 55) records a relief mark along the stem (with dividing bar) reading 'T.GROOM/BROSLEY'.

Harold Harper Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

No person of this name has been found in the Broseley or Benthall PR.

John Harper/Edwards Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking during mid C18.

A John Harper, alias Edwards was buried in Broseley on 4 August 1744 (note William Harper/Edwards below). Several John Harpers are also recorded in Benthall where baptisms occurred in 1714 and 1716, and where two are families recorded. John Harper and Mary Kidson married in 1701 and baptised four children 1703-1708, and John and Elizabeth baptised two children in 1736 and 1739.

Richard Harper Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking during mid C18.

This name has not been checked in the PR.

Ralph Harper Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking late C17 to early C18.

Several Ralph Harpers are recorded at Benthall. Ralph (buried 1697) and Katherine baptised and buried two children 1684/85, Ralph (? bur 1741) and Ursula (bur 1729) Hartshorne were married in 1699, and baptised or buried seven children (one called Ralph, 1714) 1700-1714, and Ralph and Mary Thomas were married in 1743. Another Ralph was baptised in 1700. The most likely pipemakers are Ralph and Katherine until 1697, and then Ralph and Ursula until 1741. Robert (below) was the son of Ralph and Katherine. Atkinson (1975, 57) gives a birth date of 1684 for the second Ralph.

Robert Harper Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1700-50.
Born.....c1684 at Benthall.
Baptised.....13.11.1684 at Benthall(PR).
Married.....Sarah by 1710, she was buried at Benthall 24.1.1764.
Children.....William (bap 11.2.1710).
 Cattren (bap 27.9.1713).
 Elizabeth (bap 17.7.1715, bur 30.12.1731).
 Anne (bap 8.7.1718 at Broseley).
 Margaret (bur 11.7.1744).

The Benthall records only appear to list one Robert Harper, who was the son of the first Ralph Harper (above).

William Harper/Edwards Recorded as a pipemaker in 1773 & 1783.
Likely to have been pipemaking c1700-83+

There was clearly a William Harper, pipemaker, in the early eighteenth century and in the 1770's. In Broseley a William Harper alias Edwards was buried in 1736 (note John Harper/Edwards above). A William Harper married Sarah Mayor in 1744, and they had a child in 1745 (bur 1746). William and Mary Harper baptised a child there in 1775. In Benthall William Harpers were baptised in 1697 and 1710, and a William Harper buried a daughter in 1770. In 1773 (14 Aug) William Harper, pipemaker, married Mary Gethin. In 1783 (7 June) a William Harper was buried. A probate at Hereford Record Office of

10.6.1783 records that he too was a tobacco pipe maker, although whether the same one who married in 1773 is not known. Certainly at least one William Harper was working at Benthall from 1773-1783.

James Hart(shorne) Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1700.

The Hartshornes were a prolific local family, making it almost impossible sort out individuals who were pipemakers. The same families seem to have been using both Broseley and Benthall Churches. Seventeenth century baptisms of James Hartshornes took place in 1665, 1666, 1687, 1691, 1697 and 1677. James and Anne baptised four children 1665-1674, James and Margaret (bur 1684) baptised nine children 1663-1681, James and Mary baptised twelve children 1691-1706 (possibly two families), James and Jane baptised a child in 1708 and the James who married Gwen Jones in 1686, baptised a child in 1687 (Gwen died in 1688). Burials of James Hartshornes took place in 1672, 1696, 1700, 1727, 1741, 1750, 1754 and 1755. This means that there are six or seven people documented in the late seventeenth century, any one of whom could have been the pipemaker.

George Hartshorne Probably a pipemaker (pipe stamps marked GH).
Likely to have been pipemaking c1650-80.

In the 1662 Hearth Tax a George Hartshorne of Benthall paid 6/- for three hearths, and another George Hartshorne in Wenlock Franchise was discharged. The PR references appear to relate to three families during the seventeenth century. In Broseley a George Hartshorne, baptised in 1635 or 1640 married Elizabeth Eves on 27 Dec 1659. They baptised seven children 1660-1680. Elizabeth died in 1701 and George in 1706 (bur 23 June). In Benthall there were two families. The first was the George who married Elinor Holland on 31 Oct 1671. They baptised seven children 1673-1686 and Elinor died in 1686. The second was George Hartshorne Jr who appears to have married twice. He married Margaret first, and they baptised a son in 1668. She died in 1670 and he remarried to Mary Gener in 1674. They had four children and Mary 1675-1683, and Mary died in 1695. George Hartshorne the Elder died in 1670, and others in 1727 and 1731. A George Hartshorne was baptised in 1603. The most likely candidates for the GH pipes appear to be George the Elder (?1603-70), then George Jr who could have worked c1660-90+. The fact he is given as George Jr suggests that he was the son of the George the Elder, rather than the George who married Elinor, hence the preference for him to have been a pipemaker.

John Hartshorne Recorded as a pipemaker in 1738 and from pipemarks.
Likely to have been pipemaking c1670-1750.

Although more than one John Hartshorne must have been a pipemaker it is quite impossible to identify them. Excluding some known to have died in infancy no less than 22 were baptised between 1650 and 1750. The Hearth Tax of 1662 lists one in Benthall paying 6/- for three hearths, and another excused. The Broseley and Benthall PR suggest that the Hartshornes lived mainly in Benthall, and it seems likely the pipemaking was concentrated there at this time. Baptisms occur

in 1652, 1654, 1661, 1672, 1672, 1685, 1686, 1686, 1692, 1698, 1703, 1704, 1715, 1722, 1726, 1729, 1733, 1735, 1735, 1737, 1743 and 1745, and burials in 1688, 1683, 1694, 1723, 1739, 1740, 1741, 1766, 1772, 1780, 1784, 1785, 1786, 1789, 1794, 1797, 1800, 1803, 1803 and 1805. In the Much Wenlock Examinations Book (Q1/3/1) on 14 November 1738 John Hartshorne, pipemaker of Benthall, reported hearing William Jones, otherwise Potter, of Much Wenlock, swearing on a Sunday. He signed the statement with a good signature.

Richard Hartshorne Recorded as a pipemaker in 1768.
Likely to have been pipemaking +1768.

Richard Hartshorne of Broseley is given as a tobacco pipe maker in a probate of 23.2.1768 (HRO).

Thomas Hartshorne Recorded as a pipemaker in 1743.
Likely to have been pipemaking c1690-1743.

A probate for Thomas Hartshorne survives (Appendix 3), which is fortunate since there are 24 baptisms of Thomas Hartshornes in the seventeenth and early eighteenth centuries, while the burial of the Thomas known to have been a pipemaker is not recorded. However this does not make it much easier to work out his life history. The will tells us that he has four sons, John, Robert, Thomas and Morris, and that his wife was still alive in 1741. The only suitable children with these names were born to Thomas and Elizabeth. Unfortunately in all 15 children around this time were born to Thomas and Elizabeths', indicating several families with these names. The entries can be sub-divided into the following groups (dates given are baptisms);
Thomas (alias Spott) and Elizabeth, Jane 1677, Edward 1685.
Thomas (alias Spot) and Jane, Richard 1696.
Thomas and Elizabeth (Betridge), Richard 1696.
Thomas Sr and Elizabeth Robert 1688.
Thomas Jr/The Younger and Elizabeth Richard 1676, Alice 1678.
Thomas and Elizabeth Elizabeth 1672, Jane 1680, Alice 1692, John 1692, William 1694, Thomas 1702, Moris (sic) 1705, Mary 1708.
Exactly how many families these names represent is uncertain. Did they always mention the alias Spot, and was Thomas Sr always called Thomas Sr? It seems that Thomas (alias Spott) can be discounted, since none one of his children's names matches those in the will. The Robert born in 1688 to Thomas Sr also seems unlikely since someone described as 'Sr' in 1688 is hardly likely to have lived another 55 years. That leaves just the three names John, Thomas and Morris amongst the children baptised to the final set of names, Thomas and Elizabeth. Unless all the others had died by 1743 we must assume that there are still at least two families represented here. If we accept that the children named in the will are those listed as being baptised 1692-1705, then Thomas would probably have been born c1665-75. Also if the sons were listed in age order in the will Robert should come between John and Thomas (1692-1702). Thomas Hartshornes were baptised in 1663 (2, parents John & Jane and John & Ann) and 1667 (2, parents Thomas & Catherine and Walter & Mary). Of these the latter two would seem most likely for someone starting a family in 1692. In the probate the pipemaking tools are described as, "a parcell of Old Tobacco pipe tools", and only valued at 12/6d (in other probates a set of tools was usually worth at least £1.0.0).

This suggests that he may not have been actively pipemaking for a few years before his death, and that his later products may not have been up to date. The probable working life of c1690-1740 fits well with the products recorded for this maker.

Hopkins & Co Recorded as a pipemakers 1879.
Likely to have been pipemaking +1879+

The firm only appears once in trade directories (1879), when the entry records, "Hopkins & Co, tobacco pipe manufacturer, Raleigh tobacco pipe works and Tile and Terra Cotta works, Jackfield." An advert in that directory makes it clear that Hopkins had taken over Edwin Southorn's 'Raleigh Pipe Works' by the New Inn, and that he was still using Edwin's mark on the pipes. John Joseph Hopkins went bankrupt in 1881, but later reappears in Partnership with John Marsden Edwards. They went bankrupt in 1889.

Edward Hat Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1670-90.

This maker is recorded from a pipe stamp reading 'ED/HAT' in the Thursfield Collection (fig 53.12). The name (which may be an abbreviation of Hatchett or Hatton below) has not been searched for in any PR.

Iere Hatchett Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

This maker is recorded from a Broseley type 5 pipe found at Buckley in Clwyd (fig 104.2). This is the only recorded example of this mark, and the maker (presumably Jeremiah Hatchett) may not have worked at Broseley. A concentration of other IH marks with an what appears to be an axe occur around Nantwich in Cheshire, and this maker may have come from there (see Chapter 4.VIII). This name has not been searched in any PR.

Peter Hatton Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1700-20.

No documentary references to a maker of this name have been found in Broseley or Benthall.

Willim Horn Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1760-70.

Mary wife of William Horn was buried at Broseley in 1758, William being buried there on 8 January 1770.

George Hughes Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

No George Hughes is recorded at Broseley or Benthall.

John Hughes Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

A John Hughes and Elizabeth of Benthall baptised children at Broseley in 1665 and 1668. Elizabeth died in 1676. Other John Hughes were baptised in Broseley in 1677 and 1691.

Mary Hughes Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

Most of the references to Mary Hughes relate to Benthall. People of that name were baptised in 1689 and 1701, and buried in 1704 and 1742. In addition a Mary Hughes, widow, is recorded in 1708. Thomas and Mary baptised children in 1660 and 1663, and Joseph and Mary in 1701. There are clearly several people who could have marked pipes. Other members of the Hughes family were working in Much Wenlock.

Thomas Hughes (Jones) Recorded as a pipemaker in 1735.
Likely to have been pipemaking c1682-1735.

Thomas is recorded as a pipemaker in a probate of 1735 (see Appendix 3). In that year he is given as Thomas Hughes the Elder, late of Broseley, but at his decease living as a sojourner with his son Thomas in Madeley. Once again there are several people of this name listed in seventeenth and eighteenth century Broseley and Benthall. The most likely possibilities (at Broseley) seem to be either a Thomas Hughes, son of Thomas and Elizabeth, baptised in 1665, or a Thomas son of Thomas and Jane, baptised in 1668. One of these is presumably the same Thomas, husband of Joan, who baptised children from 1685 to 1694 (Thomas 1685, Mary 1689, John 1691, Joseph 1693 and Joan 1694). This would fit well, since we know pipemaker Thomas had a son Thomas in 1735. Also Joan died in 1727 (BRPR) which would explain why he was living with him in Madeley. If this Thomas is the pipemaker then both he, and possibly his father Thomas, appear to have used the alias Jones as a surname. At his death the tobacco pipe tools were valued at only 10/-, the lowest value tools recorded for a Broseley or Much Wenlock maker. There was at least one Thomas Hughes in Much Wenlock, since a Thomas Hughes married Alice Dawley (of Benthall) there on 7 July 1664 (MW PR).

William Hughes Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

A William, son of Thomas and Elizabeth Hughes was baptised at Broseley in 1665.

Humphrey Humphrey Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

There were at least two Humphrey Humphreys in Broseley. One, son of Morgan and Elizabeth, was baptised in 1674. Humphrey and Anne baptised a son Humphrey in 1707, and a son John in 1713. Humphrey and Mary baptised a daughter Elizabeth in 1711. One of the Humphrey Humphreys was buried in 1723.

Andrew James Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1719-1767.
Married.....Mary by 1719.
Children.....c1719 Elizabeth (Bap at Broseley 13.10.1719).
 c1721 William (Bap at Broseley 7.1.1721).
 c1724 Elinor (Bap at Broseley 29.3.1724).
Died.....1767 buried 19 April at Broseley (PR).

Only one Andrew James is recorded at Broseley or Benthall, and it seems most likely that he is the pipemaker.

John James Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1670-1720.

Several John James are recorded in Broseley and Benthall. Baptisms occurred in 1677, 1702 and 1705, and burials in 1679, 1717 and 1749. The main families were, John and Margery (bap two children 1672-1677), John and Millicent (bap eight children 1677-1697), John and Elizabeth (at least two families, bap six children 1700-1741), John James alias Shelton and Anne (bap five children 1704-1708) and John and Mary (bap three children 1731-1736).

Richard James Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1700.

All the likely references occur in the Broseley registars. There was a Richard baptised in 1684, and one buried in 1741. A Richard and Margaret Amias married in 1694, and Richard and Elizabeth baptised a daughter in 1705.

William James Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1720-40.

In Broseley a William James was buried in 1717, and another baptised in 1721. A William James married Sarah Roden, and they had a daughter in 1716, and a William and Ruth baptised a son William in 1743. In Benthall a William and Elizabeth Hughes married in 1764, and William and Margaret baptised two children in 1769 & 1771.

John Jones Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1690-1730.

There are numerous people of this name in Broseley and Benthall throughout the seventeenth and eighteenth centuries.

Thomas Jones Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1670-1700.

There are numerous Thomas Jones recorded, principally in Broseley. Seventeenth century baptisms occur in 1632, 1647, 1659, 1682, 1687, 1690, 1694, 1695 and 1698, and burials in 1676, 1709, 1725, 1726, 1727, 1734 and 1737. At least one of them used the alias Hughes (see Thomas Hughes above).

John Kitson Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking +1700-26.
Married.....Mary by 1700.
Children.....c1700 Edward (bap 6 March, BLPR).
 c1705 Ann (bap 25 July, BLPR).
Died.....c1726 (Probate, Appendix 3).

John Kitson (Gidson) appears in the Benthall registers in 1700/1705. In 1721 John and Mary Kidson (parish of Much Wenlock) bury a son Edward at Benthall. If this is the same Edward that was baptised in 1700 then it suggests that John moved to Wenlock sometime after 1705, returning to bury his son at Benthall in 1721. In fact it seems likely that this is the same person as the John Kidson of Wyke who died in 1726 (Appendix 3). Wyke is a small cluster of houses between Benthall and Much Wenlock, so John could have appeared in either set of Parish Registers, and in fact Benthall may well have been his usual church.

.....

The list of names given in Atkinson (1975) has not been checked against the Benthall PR after this line. Additional dates for those listed below, or alternative individuals with the same name may be found there, so care must be taken in using negative evidence, or placing too much reliance on the details given here.

John Lee Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1710.

Although this mark is illustrated in Atkinson's notebooks, and mentioned in the text (1975, 88) as an alternative for the Lif mark (below), it does not appear in his makers list. No other examples have been seen in this study, and the name has not been checked in the local PR.

Benjamin Legg Recorded as a pipemaker from pipe marks.
Likely to have been pipemaking c1660-1775+

There were clearly several makers of this name, the recorded marks ranging from 1660 until well into the eighteenth century (see below). In Broseley PR Benjamin Leggs were baptised in 1702, 1711, 1741 and 1779, married in 1726, 1734 and 1749, and buried in 1748 and 1775.

Benjamin Legg Recorded as a pipemaker 1783.
Likely to have been pipemaking +1775-1790+
Married.....8 April 1779 to Susanna Taylor at Broseley (PR).
Children.....c1780 Edward (bap at Broseley 27.2.1780).
 c1781 John (bap at Broseley 18.3.1781).
 c1782 Isabel (bap at Broseley 17.11.1782).
 c1786 Thomas (bap 14.5.1786, bur 8.11.1787; Broseley).
 c1787 Michael (bur 3.11.1787 at Broseley).
 c1790 Paul (bap at Broseley 10.2.1790).

Recorded working at Broseley in the trade directory of 1783. Although there are many Benjamin Leggs in the Broseley registers, this seems to be the only one who would have been likely to be working in 1783.

H Leg Recorded as a pipemaker from pipe marks.
Likely to have been pipemaking c1780-1800.

Atkinson (1975, 66) records the mark H*/LEG/BRO/SLY. The only reference in the Broseley PR is to Henry and Elizabeth Legg who baptised a son Richard in 1712. This is far too early for the recorded marks.

John Legg Recorded as a pipemaker from pipe marks.
Likely to have been pipemaking c1670-1800.

Clearly there were several makers of this name. In Broseley baptisms of John Leggs occurred in 1655, 1686, 1711, 1721 (2), 1751, 1781 and 1805, marriages in 1710, 1738, 1750, 1777, 1788 and 1804, and burials in 1747, 1766 and 1794.

Michael Legg Recorded as a pipemaker 1697 (pipemark).
Likely to have been pipemaking +1697+

This maker has not been traced in the Broseley PR.

Richard Legg Recorded as a pipemaker in 1735 & 1775 (also marks).
Likely to have been pipemaking c1660-1800+.

There were clearly several makers of this name, two of which have been separately identified below. Other Richard Leggs recorded in Broseley PR were baptised in 1651, 1690, 1695, 1707, 1712, 1716, 1725, 1729, 1752, 1767 and 1788, married in 1678, 1715, 1742, 1793 and 1807, and buried in 1700, 1714, 1752, 1768 and 1780. Two of these are recorded from documents as pipemakers. In the MW Examinations Book (Q1/3/1, 111-2) for 21 Jan 1735 Richard Legg of Broseley, pipemaker, is accused by Edward Lloyd, collier, of stealing coals from a waggon. Richard Legg denied the charge, and signed with a good signature. In a later book (Q1/3/2) an entry of 1775 records that Richard Legg of Broseley, pipemaker, served a summons on 18 inhabitants of Broseley to appear at the Wenlock court. He too signed with a good signature.

Richard Legg Recorded as a pipemaker 1783-1790/91.
Likely to have been pipemaking +1783-1790.
Died.....before 29 Jan 1791 (probate).

Richard is one of two makers of that name recorded in a directory of 1783. He had died by Jan 1791 when his probate records (29 Jan) that Richard Legg, son of his brother Thomas Legg, is to get his house in Broseley (in the occupation of Charles Jones, John Howells, Ann Evans, Joyce Stedd and John Boden), and Thomas Davies is to have his

pew and the sycamore tree at the side of the fold. See above for earlier Richard Leggs.

Richard Legg Recorded as a pipemaker 1783-1835.
Likely to have been pipemaking +1783-1835+

Richard is recorded working at Broseley in trade directories of 1783, 1822/3, 1828, 1829, 1834 & 1835. He was the son of Thomas Legg, but appears to have worked closely with his Uncle Richard, whose estate he inherited (see Richard above). No pipemaker called Richard of this age has been found in the 1841 census, and may have died c1835-41. Alternatively he could have given up pipemaking and become a potter, for at Harris's Green in 1841 was a Richard Legg, potter, age 74. This would give a birth date of 1767, making him just 16 in 1783 when the directory entry appears. This birth date for Richard the potter is confirmed since a Richard Legg, base child of Sarah Legg, was baptised at Broseley on 18 October 1767. Another Richard Legg, collier, of Madeley (son of Richard Legg, Pipemaker), was married to Mary Denstone in 1841 (Madeley PR, 3.5.1841). The pipemaker referred to at the marriage however was only 53 in 1841 (living on Legg's Hill, also in 1838 Tithe award), perhaps the son of Richard above (working c1783-1835). His collier son Richard also became a pipemaker (working +1851-1871+). These later Richards are never listed as independent makers, nor do Richard Legg marks of this date occur, so they are not included separately in this list. Earlier references to the name are listed in a separate entry above.

Samuel Legg Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1690-1790+

There appear to be just four Samuel Leggs recorded in seventeenth and eighteenth century Broseley, and it is quite possible that (unless other references are found in Benthall) they represent four generations of the same family. If the first three were all pipemakers then between them they could have continually marked pipes for a century, which ties in with the recorded finds. Samuel Legg I. He was a son of Richard (?also a pipemaker) and Jane Legg, and baptised in 1670. He is presumably the same Samuel who married Mary Hartshorne on 15 May 1696, and who had the following children; Mary bap 1697, Ann bap and bur 1701, Samuel bap 1702, Richard bap 1705 bur 1706, Richard bap 1707 and Benjamin bap 1711. Mary died in 1728, and Samuel in 1729. Samuel Legg II. He was the son of Samuel I, baptised in 1702. He married Elizabeth and had the following children; Ann bap 1733 bur 1736, Mary bap and bur 1735, Samuel bap 1736 bur 1737, Ann bap 1737, Edward bap 1740, Samuel bap 1742, Mary bap 1744 and Lydia bap 1746. Samuel Legg III was the son baptised in 1742, who married Anne and had the following children; Samuel bap 1772, Edward bap 1774, Lydia bap (at Benthall) 1776, Elizabeth bur 1781, Mary bap 1782, Isaac bap 1784 and Amy bap 1786. The fourth Samuel would have been working c1790, but no pipes of this date have yet been recognised.

Thomas Legg Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1670-1800.

There were clearly at least two pipemakers of this name. In Broseley baptisms are recorded in 1653, 1678, 1713, 1730, 1739, 1757, 1770, 1784, 1786, 1802 and 1806, marriages in 1677 and 1783, and burials in 1717 and 1729.

William Legg Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1780+

There were clearly at least two pipemakers of this name. In Broseley baptisms are recorded in 1664, 1688, 1727, 1740, 1744, 1755, 1775, 1790 and 1808, a marriage in 1799, and burials in 1725, 1755, 1778 and 1790/91. In the Domestic State Papers for 1666, Col. William Legg petitioned the Lord Lieutenant for permission to make and sell tobacco pipes in Ireland (Oswald *in litt* 22.1.84). No link has been demonstrated, but it does seem odd that a Colonel should have an interest in tobacco pipe making, and especially with the surname Legg.

John Lif Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1700.

Oswald (1975, 191) records this mark, but no examples have been seen in this study. Atkinson too regards it as a suspect reading (1975, 88), possibly an error for Lee. It should perhaps be excluded from other lists unless it can be confirmed.

Henry Marshall Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1690.

Atkinson (1975, 70) records this mark from the Scilly Isles. There is no record of this name in the Broseley registers, and it is unlikely that he worked there.

Thomas Mason Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1720-70.

This maker could have worked in Broseley or Wenlock. Few references to this name have been found. In Broseley a Thomas son of Richard and Anne was baptised in 1714, and in 1716 Thomas Mason and Mary Sceat, both of ?Chapt of Much Wenlock, were married by licence at Benthall. The former of these may also have married a Mary, since a Thomas and Mary baptised a daughter Frances in Broseley in 1737.

Jane Mats Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1700.

Jane Mats is not recorded in the Broseley registers (although Oswald 1975, 191 gives dates of 1649-89), and marked pipes are usually found around the Warwickshire/Leicestershire border. She probably worked there, and was probably related to John Mats (below), who may have moved to that area from Broseley.

John Mats Recorded as a pipemaker in 1689 & 1698 (from pipemarks).
Likely to have been pipemaking c1680-1720.

John and Cicely Mats (Matts) of Benthall baptised four children at Broseley between 1649 and 1663. This is too early for the pipes, but the last child's name was also John, who could have made the pipes. As with Jane Mats, the pipes are found around the Warwickshire / Leicestershire border, and he must have worked in that area. It seems probable that Jane was his wife, and he may well have moved from Broseley taking the distinctive style of pipe and mark with him.

Randle Morris Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

This name has not been found in the Broseley PR. Could possibly be the father of William below.

William Morris Recorded as a pipemaker in 1756.
Likely to have been pipemaking prior to 1756.

William is recorded as a pipemaker in a probate of 1756 (Appendix 3). This mentions his brother Samuel who was to have his clothes, and wife Mary who was left the remainder, which included the pipemaking tools. It therefore seems unlikely that he had any children (who would otherwise presumably have been mentioned), or that his brother was a pipemaker (otherwise he may have been left the tools). The PR have not been searched for this name.

Richard Nayl Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1660-70.

This name has not been found in the Broseley PR. Possibly it is abbreviated, perhaps Naylor.

Thomas Overley Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1732.

This is a dubious mark, illustrated in Thursfield (1907, fig 251). Neither Atkinson nor this research have located any other examples, and it may have been misread. Oswald (1975, 191) says a son was baptised in 1732. This name has not been rechecked in the registers.

Daniel Overton Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

This name has not been found in the Broseley PR. Atkinson (1975, 71) suggests the name may be a mis-reading of JANE/OVER/TON. This author however maintains that the correct reading of the mark is DANL/OVER/TON, and that it is the 'Jane Overton' marks which are mis-read. The first line is invariably poor, as if the die has been trimmed too close to the lettering. The first part of the D is missing, but the curve of remaining section makes it most unlikely that it is a J. Also the last letter of the first line is often

clearly an L, and none of the numerous examples seen by this author look like an E. The mark is fairly common at Much Wenlock, and it is suspected that he worked there.

Jane Overton Although recorded in some lists and reports, this mark is considered to be a misreading of the Daniel Overton mark above. Unless clear evidence to the contrary is found this maker should be dropped from future lists.

Thomas Overton Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1700-30.

This is a dubious mark, illustrated in Thursfield (1907, fig 254). Neither Atkinson nor this research have located any other examples, and it may have been misread. Oswald (1975, 191) gives a marriage in 1700, and a death in 1730. This name has not been rechecked in the registers.

Francis Owen Recorded as a pipemaker 1822/3-1828.
Likely to have been pipemaking +1822-1828+

Recorded working at Coalbrookdale in trade directories of 1822/3 & 1828.

Thomas Parkes - see Thomas Darkes.

John Partridge Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1700-1742.

Atkinson (1975, 72) says that John was born in 1680 and died in 1742. These references have not been relocated in the Broseley PR, but they do not conflict with those that have. The only doubt is that a *William* Partridge was buried in 1742, and it is possible the Atkinson's references have been confused. John and Millicent Partridge are recorded as baptising An (sic) in 1713, John in 1715, and William in 1718. It was presumably his son John who married Elizabeth and baptised or buried five children between 1747 and 1755. This however seems too late for the pipes.

William Partridge Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1742.

A William Partridge was buried in Broseley in 1742, which would fit well with the date of the recorded pipes. He was presumably related to John, perhaps a brother.

Edward Pary Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1700.

This maker has not been found in the Broseley PR, and his marks are found in South Wales. It is therefore most unlikely that he worked at Broseley.

Randle Peck Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1670-1700.

This maker has not been found in the Broseley PR.

William Peck Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

This name has not been checked against the Broseley PR.

John Perry Recorded as a pipemaker from pipes.
Likely to have been pipemaking c1780-1840+.

Atkinson (1975, 73) records three types of mark reading either John Perry, I Perry or just Perry, Broseley, which he dates to c1780-1820. This author however feels they may run a little later. Atkinson also notes a John Perry living in 1842 and 1853, but these sources have not been traced. There could however be more than one maker of this name represented. The Broseley PR make it clear that there were at least four John Perrys during this period. In 1799 a John Perry son of John and Sarah was baptised, both of whom (the Johns) could have been pipemakers. In 1804 John and Mary Perry baptised a son George, and in 1811 a daughter Elizabeth. There was also a John and Mary Perry who baptised a daughter Mary in 1807.

Joseph Pinner Recorded as a pipemaker from 1842-1853.
Likely to have been pipemaking +1842-53+

This information is given in Oswald (1975, 191), who references it to Atkinson. Atkinson however does not include the name in his list, nor have these references been relocated. No marked pipes are known.

Samuel Pinner (Pennor) Recorded as a pipemaker 1828-1850.
Likely to have been pipemaking +1806-1850.

Born.....c1791 (baptism, c1796 CR).

Baptised.....29.3.1791 (son of Samuel & Lavinia Pinner) at Broseley.

Married.....by 1823 to Sarah.

Children.....c1823 Jane (bap 27 July 1823 at Broseley).

Died.....1850 - burial 12.4.1850 at Broseley (age 59).

Samuel Pinner and Lavinia Leg married at Broseley in 1782, and it appears to be their third child, also Samuel, who produced the marked pipes. He is recorded working at Broseley in trade directories of 1828, 1829, 1834, 1835, 1840, 1844, 1849 & 1850. Oswald (1975, 191) gives a starting reference of 1822 for this maker, but this is referenced to Atkinson who does not give it in his list. The Tithe survey of 1838 shows that Pinner was living in a group of buildings just off King St (458e, Pipe shop, relet by James Foster to Samuel Pinner - the owner being Lord Forester). Atkinson (1975, 73) notes

that in 1845 both Samuel & Sarah and Samuel & Elizabeth Pinner are recorded in Broseley (source of reference not traced). The census however makes it clear that it was the Samuel with Sarah who was a pipemaker. In 1841 their address is given as Crews Park, and both are age 45. This would give a birth year of c1796, casting a little doubt that the 1791 baptism in the PR is the correct one, if Atkinson is right in saying that there was a second Samuel in Broseley in 1845.

Robert Pool Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

This maker has not been found in the Broseley PR, and marked pipes are usually found on the Cheshire/Staffordshire border. It is unlikely he worked at Broseley, although the 1672 Shropshire Hearth Tax records four people of this name; one each in Up Rossell and Ashley in the Liberty of Shrewsbury (where four of the seven taxed families were named Poole), one in Garmeston (South Bradford Hundred), and one in Conover Hundred. Given the prevalence of this name it is quite possible that the pipemaker was either from, or worked in, Shropshire somewhere.

George Povel (Powell) Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

There has been some confusion over this maker. Atkinson (1975, 74) put both the GRFE/POVL and GeORG/POVeL marks together, and suggested they belonged to a George Pool. As a result he obtained dates from the Broseley PR for this name. In fact we now know that GRFE/POVL is Griffith Powell, a Wenlock maker, who died in 1673. Given the similar treatment of the surname it is likely that George is in fact a related Powell (?son), possibly also from Wenlock. George Pool and the dates given by Atkinson must therefore be discarded. The Broseley registers have been searched for Povel, which does not occur, but not for the surname Powell.

Richard Powell - see Richard Sir.

Oliver Price Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.
Married.....14 Oct 1684 to Anne Hartshorne at Broseley (PR).
Children.....John, bap 28.7.1685, bur 10.3.1690 (Broseley PR).
Elizabeth, bap 1.7.1688, bur 23.9.1689 (Broseley PR).
Elizabeth, bap 31.8.1690 (Broseley PR).
John, bap 22.5.1694 (Broseley PR).

There is only one Oliver Price in the Broseley registers, making him one of the few makers who can be identified with any certainty.

Richard Price Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

There only appears to be person of this name in the Broseley PR who could have made the pipes with full name marks. That is Richard, son of Thomas Price Jr. and Elizabeth, who was baptised on 10 March, 1673. There are however earlier RP marks, and if these also belong to a Richard Price possibilities in the Broseley PR are; baptisms of 1610, 1626 and 1636; burials of 1651 and 1664; and families who baptised children; Richard and Elizabeth from 1633-48, and Richard and Margeret 1634-39.

William Price Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1680-1720.

This name has not been checked against the Broseley registers.

James Roberts Recorded as a pipemaker from pipe stamps
(unconfirmed during this study).
Possibly pipemaking c1700.

This name occurs in Oswalds list (1975, 191), referenced as a pipe mark reported by Atkinson. It does not however occur in either Atkinson's list (1975) or notebooks, nor has the author seen an example. The existence of this maker must therefore be regarded as suspect, and should be excluded from future lists until proved otherwise.

John Roberts Recorded as a pipemaker in 1678 (Wenlock).
Likely to have been pipemaking c1670-1710.

There are numerous people of this name in the Broseley PR; there were baptisms in 1636, 1637 and 1651, and burials in 1648 and 1683. In addition there were many baptisms of children to various couples with a husband named John throughout the seventeenth century. There is also a reference however to a John Roberts making pipes in Wenlock in 1678 (S Mullins, in litt.) Since Richard Roberts is also recorded there it is likely that the whole family should be searched for in Wenlock rather than Broseley.

Richard Roberts Recorded as a pipemaker in 1716, (Wenlock).
Likely to have been pipemaking c1690-1716.

Although Richard Roberts were baptised in Broseley in 1659 and 1661, a probate records the death of a Wenlock pipemaker of that name in 1716. Rich Roberts' marks are not recorded from Broseley, and it seems almost certain that all these marked pipes were produced at Wenlock. It is not known whether one of these Richards went to work there, or whether there was another family of that name in Wenlock. See also John Roberts.

Thomas Roberts Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1670-1720 (?Wenlock).

Although not yet traced in Wenlock, the evidence of John and Richard above suggests that this maker should be sought there rather than in

Broseley. There were however baptisms of Thomas Roberts in Broseley in 1649 and 1654, and a burial in 1678. Also Thomas and Joyce are recorded in 1678, Thomas and Elizabeth from 1652-61, and another couple from 1723-28, Thomas and Jane from 1729-44, and Thomas and Sarah in 1731. Oswald (1975, 191) also notes a baptism of 1624, but this has not been relocated.

Mrs Adah Roden Recorded as a pipemaker 1856-59.

Likely to have been pipemaking +1856-1859.

Born.....c1800/01 at Broseley.

Maiden Name.....Adah Jones.

Married.....Noah Roden on 21 February 1826 at Wombridge (IGI).

Children.....1826 George (bap 3 Dec 1826 at Broseley).

1829 Noah (bap 27 Dec 1829 at Broseley).

1832 Charles (bap 5 Feb 1832 at Broseley).

1834 William (bap 9 March 1834 at Broseley).

c1836 Henry (CR).

1837 Sarah (bap 8 October 1837 at Broseley).

1849 Catherine (bap 29 July 1841 at Broseley).

1841 Martha (bap 20 June 1841 at Broseley).

1843 John (bap 13 April 1843 at Broseley).

Died.....5 Aug 1872 at Stafford Lunatic Asylum.

Adah was married to Noah Roden II, and is recorded as a pipemaker working at Benthall in a trade directory of 1856, and Benthall and Broseley in 1859. She presumably took over the running of the works following Noah II's death c1855, until it was taken over by Edwin Southorn. In 1871 (CR) she was living in Fox Lane, Broseley (no occupation given), with her unmarried children Charles (38, Musician) and Sarah (33, Dress maker). She died the following year in Stafford Lunatic Asylum. Her will was proved at Shrewsbury on 29 August 1872 by Sarah Roden of Broseley, spinster, her daughter and sole executrix. The effects came to under £100.

John Roden Recorded as a pipemaker in 1835.

Likely to have been pipemaking +1835+

John is recorded at Broseley in a directory of 1835. Unfortunately there are several people of this name, but the most likely so far found appears to be John, son of Samuel and Joyce Roden, baptised at Broseley on 27 March, 1796. This John is the brother of Samuel and Thomas, and son of Samuel all of whom are thought to have been pipemakers. He is not recorded in the 1841 census.

Joyce Roden (Rhoden) Recorded as a pipemaker from pipemarks.

Likely to have been pipemaking c1750-70.

The Joyce Rhoden mark is one of the most interesting Broseley stamps, but at the same time one of the most difficult to trace and attribute. Atkinson (1975, 76) appears to have overlooked a number of points in his interpretation of the mark. He gives the dates as 'born 1709, children 1734-46'. While it is true that the Broseley PR gives the baptism of a Joyce Roden in 1709, this cannot be the same Joyce Roden who had children 1734-46, since the name would have changed with marriage. Also he dates the mark to c1730-40. During

the period 1736-46 she gave birth to five children. It hardly seems likely that a young mother would have had time to run a pipeshop, let alone use her name rather than her husband's when he was clearly still alive. It is suggested that we must search either for a spinster or a widow who would have been in a position to run a pipeshop, and preferably someone whose father or husband had previously been a pipemaker. The alternatives from the Broseley PR are as follows; a Joyce Roden was baptised in 1709, another had children 1736-46, burials are recorded in 1769 and 1771, and two further Joyces raised families 1786-1802 and 1795-1810. The latter two appear too late for the style of the mark, and one of those who died in 1769 or 1771 seems most likely. It is possible that the 1709 Joyce remained a spinster, and thus that the two burials are of the two remaining known alternatives. The first is Joyce Roden, daughter of Samuel and Elizabeth who was baptised 26.4.1709. Nothing else of her is known. Samuel (her father) could have been responsible for some type 4 pipes with the spur mark SR. Numerous later eighteenth century stem marks are known. The second alternative is in fact Joyce Roberts who married Thomas Roden on 23.9.1734. They baptised five sons; William 1736, Thomas 1739 & 1741, John 1744 and Robert 1746. Neither Thomas nor any of the sons are known to have been pipemakers. She may however have been widowed sometime after 1746, and run a pipeshop with her sons help. It is hardly supporting evidence in an age of erratic spelling, but at their wedding the surname was spelt Rhoden as it is in the stem mark. Either way it seems likely that the terminal date for the marks is 1769/71, and that since either of the women would tend to be older before running a workshop, that we may place the mark towards the end of this period, from say 1745 (when the 1709 Joyce would be 36), or 1750 when the second Joyce could have been widowed. This is perfectly in keeping with its style and the associated stem twist, but it does undermine Atkinson's suggestion that it provides an early example of this type of decoration (illustrated in Atkinson 1975, 76).

Noah Roden I Not recorded as a pipemaker.
 Likely to have been pipemaking 1780's-1827.
 Born.....c1767.
 Baptised.....22 Feb 1767 at Broseley (PR).
 Married.....4 Nov 1798 to Sarah Muckle (Roden) at Broseley (PR).
 Children.....1800 Noah Roden II (bap 25 Dec 1800).
 Died.....buried 29 August 1827 at Broseley (PR).

Although no contemporary record yet discovered specifically identifies Noah I as a pipemaker, it seems highly probable that he was. The person assumed to be his widow appears as a pipemaker the year after his death, and his son became a pipemaker. In addition later nineteenth century sources talk of the advances made by Noah Roden early in the century. For example, Thursfield (1862) says "a pipe maker, named Noah Roden, brought the long pipes to great perfection....he died about 1829", clearly a reference to Noah I.

Noah Roden II Recorded as a pipemaker 1822/3-1851.
 Likely to have been pipemaking c1815-1851+.
 Born.....1800 at Broseley (bap 25 December 1800).
 Married....Adah Jones (Roden) on 21 February 1826 at Wombridge (IGI).
 Children...1826 George (bap 3 Dec 1826 at Broseley).

1829 Noah III (bap 27 Dec 1829 at Broseley).
1832 Charles (bap 5 Feb 1832 at Broseley).
1834 William (bap 9 March 1834 at Broseley).
c1836 Henry (CR).
1837 Sarah (bap 8 October 1837 at Broseley).
1849 Catherine (bap 29 July 1841 at Broseley).
1841 Martha (bap 20 June 1841 at Broseley).
1843 John (bap 13 April 1843 at Broseley).

Died.....c1855.

Noah II is recorded working at Broseley in trade directories of 1822/3, 1828, 1829, 1834, 1835 & 1844 and Benthall and Broseley in 1848 & 1849. His father, Noah I, was buried at Broseley on 29 August 1827, age 60, so the earliest reference could refer to him. Noah II married in 1826 and lived in Broseley where his first four children were born. Both he and his mother Sarah appear in directories, so he may have set up his own workshop in the 1820's. Between 1834 and 1836 he moved to Benthall (perhaps on the death of his mother, last recorded in 1835), where he became landlord of the New Inn, his occupation being given as publican in the 1841 census. He does not appear as a pipemaker in a directory of 1840, nor is any kiln listed at the New Inn in the Tithe Survey of 1844. In that survey Noah held three pieces of land; 110 'Garden', 123 'New Inn, House, Buildings, Garden, Road etc' and 256 'Field' (in use as pasture). This field lay directly behind the New Inn, and the garden was opposite, running down to a small pool. The layout and buildings are very little changed today. It seems likely that Noah may have been primarily a publican for a while, but maintained a pipe workshop in Broseley, later building a new pipeworks at the New Inn during the later 1840s. This would explain the 'Benthall and Broseley' references in trade directories of 1848 & 1849 (and 1859 for his widow). He had presumably died by 1856 when his widow is listed in the directories as a pipemaker. His son Noah III is recorded as a pipemaker in the 1851 CR, but it is not known what happened to him after his father's death.

Samuel Roden Recorded as a pipemaker from pipe stamps.
Likely to have been pipemaking c1700-1800.

Appart from the later documented makers of this name (below), there were clearly others operating from the start of the eighteenth century. There are numerous people of this name in the Broseley PR. Baptisms are recorded in 1702, 1720, 1734, 1749, 1763, 1800 and 1803, marriages in 1708, 1728 and 1745, and burials in 1728, 1790, 1795 and 1810.

Samuel Roden Recorded as a pipemaker 1783-1790/1812 (2 makers).
Likely to have been pipemaking +1783-1812

A Samuel Roden is recorded working at Broseley Wood in a trade directory of 1783. There are numerous Samuel Rodens in the eighteenth century Broseley Parish Registers, (above) making firm identification of this maker impossible at the moment. In addition there are two probates recorded (but not yet transcribed) indicating two contemporary pipemakers of this name. One is dated 21 July 1791, and the other 30 June 1812. Clearly one of these is the Samuel Roden

buried at Broseley on 9 Sept 1790. It is impossible to separate them at the moment in the records, but a possibility for the latter is a Samuel Roden with a wife Joyce, who baptised children from 1795-1810. One of these (Samuel, bap 14 April 1803) could then be the person listed below.

Samuel Roden Recorded as a pipemaker 1823-1861.
Likely to have been pipemaking c1815-1861+
Born.....c1800/01/02 at Broseley (CR).
Married.....Priscilla Langford Shaw (after 1823).
Children.....7 Feb 1823 Mary Ann (MW Bastardy Books).
 c1826 John (who was a waterman in 1848).
 1828 Thomas (bap 24 August 1828 at Benthall).
 1830 Margaret (bap 8 September at Benthall, married a
 brickmaker in 1851).
 c1835 Sarah (married a brickmaker in 1856).
 c1837 Samuel.
 c1846 William (bap 2 Feb 1851 at Broseley).

The ages given in the 1841, 51 and 61 census returns for Samuel all give different dates of birth. This is particularly unfortunate since two Samuel Rodens were baptised in the early years of the century. The first was Samuel, son of John Doughty Roden and Joyce, bap 15 June 1800, and the second was Samuel, son of Samuel and Joyce Roden, bap 14 April 1803. The latter is preferred, since a Samuel Roden, pipemaker, is recorded in 1783. This could be the same Samuel who married Joyce (see above), and would thus provide the 1803 Samuel with the link of family name and occupation so often found amongst pipemakers in Broseley. Also the other two sons of Samuel and Joyce became pipemakers (see John and Thomas Poole Roden). The first clear reference to Samuel Roden, pipemaker, appears in the Much Wenlock Bastardy Books under 1823. On 10 April of that year Priscilla Langford Shaw of Benthall gave oath that Samuel Roden of Broseley, pipemaker, was the father of a child born to her on 7 February. They must subsequently have married, the child appearing in the Census Returns as Mary Ann. In both 1828 and 1830 Samuel is given as a pipemaker at the baptisms of his children Thomas and Margaret. He is recorded working at Broseley in trade directories of 1835 and 1840, and at Coalford in 1849, 1850 and 1859. The location of his pipeworks is given by the 1838 Tithe survey of Broseley in which Plot 598b (House, Pipe Manufactory and Garden) is owned by Lord Forester, and occupied by Samuel Roden. The site lay on the hillside above Calcutts, overlooking the River Severn (this area is also known as Coalford). It was narrowly missed by the construction of the railway, and is now rough pasture. Earthworks in the field suggest that below ground survival of archaeological deposits should be good. The census returns of 1841 and 1851 continue to give his address as Coalford, then by 1861 he has moved to Lloyd Head. Presumably he died or retired from pipemaking during the following decade.

Sarah Roden Recorded as a pipemaker 1828-1835.
Likely to have been pipemaking +1828-1835+
Maiden Name..Sarah Muckle.
Married.....4 November 1798 to Noah Roden I at Broseley (PR).
Children.....1800 Noah II 1800 (bap 25 December 1800 at Broseley)

It has not yet been proved, but seems probable that the Sarah Roden listed at Broseley as a pipemaker in trade directories of 1828, 1829, 1834 and 1835 is the wife of Noah Roden I, and mother of Noah Roden II. Noah I certainly married a Sarah Muckle in 1798, and died in 1827. The following year a Sarah Roden, presumably his widow, appears in trade directories, and runs the business for a few years until either she dies or retires. Atkinson (1975, 79) records her as 'Sarah Roden Brothers' in 1829, but this reference has not been found. See Noah's I and II for more details.

Thomas Roden Recorded as a pipemaker in 1724.

Likely to have been pipemaking c1670-1723.

Born.....c1654/57 at Broseley.

Baptised.....16.11.1654 or 24.1.1657 at Broseley (PR).

Married.....10.7.1683 to Sarah Deacon at Broseley (PR).

Children.....c1684 Elizabeth

c1686 Thomas

c1688 Mary (bur 1689)

c1690 Mary

c1693 Sarah

c1695 Hanna (sic)

c1699 Richard

c1702 Samuel

Died.....1723, buried at Broseley 12 December (PR).

We are fortunate in having a probate for Thomas Roden (Appendix 3), which although the will itself has not been studied, provides sufficient clues to make a probable identification of his life and family from the many people of that name in the Broseley PR. The probate gives us a date after which other Thomas's can be discounted, and says that possession of the goods listed has come into the hands of his sons Richard and Samuel. The only Richard and Samuel Rodens baptised at that period were both sons of Thomas and Sarah. The only wedding of a Thomas and Sarah was in 1683, when a Thomas Roden married a Sarah Deacon, perhaps a member of the well known pipemaking family. Eight children were baptised in the following years. Most of these were girls, thus explaining their absence in the probate. The only other son, Thomas, would have been 37 when his father died, and so had presumably already left home (or died). The wife Sarah is not mentioned since she died in 1718 (bur 12 April). If we are right in suggesting Thomas was married in 1683 then this limits the date of his birth. Four possible baptisms are listed, 1654, 1657, 1666, 1668, but the latter two would probably be too late for someone who married in 1683. It therefore seems likely that Thomas was either the son of James and Anne (bap 1654) or Richard and Elizabeth (bap 1657). His probate is of particular interest since it individually lists and names the moulds he used.

Thomas Poole Roden Recorded as a pipemaker 1841-1859.

Likely to have been pipemaking c1813-1859+

Born.....c1798/99 at Broseley (CR).

Baptised.....4 June 1800 at Broseley (PR).

Married.....1 - before 1824.

2 1824 - 7 June to Susanna Lavender (wid) at Broseley.

Recorded in census returns at Coalford in 1841 and 1851, and at Coalford in trade directories of 1849, 1850 and 1859. This Thomas is assumed to be the son of Samuel and brother of John and Samuel, all of whom are thought to have been pipemakers. Assuming there is only one Thomas Roden, he appears to have married twice - since he is given as a widower in his marriage of 1824. Unfortunately, although he is given as married in the 1841 census, his wife is not with him at the time to confirm this reference. In 1851 he is given as single, so she too had presumably died by then. Thomas himself had probably died or retired before the 1861 census.

Shaw Recorded as a pipemaker from pipes.
Likely to have been pipemaking c1840's

Atkinson (1975, 80) notes a relief mark along the stem reading SHAW / IRONBRIDGE. This presumably represents one of the Shaws listed below. The only example I have seen is a damaged example from Much Wenlock. This reads R.SH?A/ /RONBRI/, almost certainly R.SHAW / IRONBRIDGE. Atkinson's example may well be a damaged example of this. If so it is presumably the Richard Shaw listed below. If this is the case the use of the term Ironbridge seems odd, since from at least 1828 Richard is recorded at Benthall and his workshop can be pinpointed from at least 1841. Recovery of some kiln waste from the site would resolve whether he was actually making pipes in Benthall which were marked Ironbridge.

Edward Shaw Recorded as a pipemaker 1824-1828.
Likely to have been pipemaking +1824-1828+

Edward Shaw is only recorded twice in the trade directories. In 1828 he is listed under Benthall; the 1824 reference given by Oswald (1975, 191) has not been rechecked.

Jeremiah Shaw Recorded as a pipemaker 1841-46.
Likely to have been pipemaking c1832-1846+
Born.....c1812-18 at Benthall.
Baptised.....26 July 1818 at Benthall (PR).

Jeremiah was the son of Richard Shaw, and presumably worked and learnt with his father. Oswald (1975, 191) records him as a pipemaker in the 1841 census, age 25, and in a directory of 1846. He also appears in one of 1844.

Morris Shaw Recorded as a pipemaker from pipemarks.
Possibly pipemaking c1650-1717, and/or c1685-1732.
Born.....c1631 at Broseley.
Baptised....12.2.1631 at Broseley (PR).
Married.....Elizabeth.
Children....c1658 Samuel
 c1660 Anne
 c1663 Mary
 c1665 Joyce, bur 1675.
 c1667 Thomas
 c1670 Morris, ?bur 1732.

ca1672 Sarah

Died.....1717 buried 24 Sept at Broseley (PR).

The above reconstruction of the Shaw family is a little tentative, since it gives a very long lifespan for Morris I and Elizabeth, and there are some uncertainties in the later entries. Morris I was son of Richard and Anne Shaw, baptised in 1631. He appears to have married Elizabeth and had seven children, one of whom was also called Morris (II). Elizabeth, wife of Morris, was buried on 10 Jan 1715, and a Morris Shaw, presumably the first one, on 24 Sept 1717. His son could however have carried on making pipes (or indeed have been the pipemaker), and may well be the one buried on 11 Sept 1732. The situation however is slightly complicated by the presence of another Morris at this period. He appears to be the son of Thomas and Elizabeth, baptised 13 Oct 1707, and presumably the one who married Judith, and baptised children in 1729 and 1731. He could therefore also have been the one buried in 1732, although this seems less likely, and generally this third Morris seems too late for the pipes.

Richard Shaw Brothers Recorded as pipemakers 1829-50.
Likely to have been pipemaking ca1829-50.

Oswald (1975, 192) records this firm from Directories. Presumably it is the same Richard Shaw as listed below.

Richard Shaw Recorded as a pipemaker 1812-1859.
Likely to have been pipemaking ca1810-59+
Born.....ca1796 in Shropshire.
Married.....1816 - Sept 30 to Mariah Bradley at Benthall (PR).
Children.....15 October 1812, unnamed child, possibly Jeremiah below.
ca1818 Jeremiah (bap at Benthall, 26 July 1818).
ca1826 Edward.
ca1826 George.
ca1827 William.
ca1829 Margaret.
ca1830 John (wit. to James Tonkiss wedding; 1867).
ca1832 Elizabeth (m. Rich Wale 1.10.54 at Benthall).
ca1833 Edwin.
ca1834 Charles.
ca1836 Mariah.
ca1839 Thomas.

Richard is first recorded as a pipemaker in 1812. On 15th October of that year the Much Wenlock Bastardy Books record the birth of his child to Mariah Bradley. The child is not named in the book, and could be the Jeremiah baptised in 1818. Mariah signed the book with a competent signature, indicating a good level education at a time when most of the other unmarried mothers signed with a cross. They subsequently married, and Richard is again recorded as a pipemaker in 1818 when Jeremiah was baptised. He is also listed in Benthall trade directories of 1828, 1829, 1834, 1835, 1844, 1849, 1850, 1856 and 1859. In the 1841 census he was living in Benthall Lane, and his three eldest sons were colliers. The 1844 Tithe Survey shows he was holding four pieces of land; 183 'House and Garden', 184 'Patch' (used as meadow), 237 'Long Length' (used as meadow) and 238 'Long

Length with Road' (used as pasture). These four pieces ~~adjoin~~ join one another, and lie at the north-eastern end of the occupied length of Benthall Lane. The fact that he held three areas of meadow and pasture suggests that small scale domestic livestock played a part in his livelihood. The building shown in 1844 appears to have been demolished, the site now being occupied by Benthall Villa Farm. This has however prevented the site from being open cast for coal, a fate which has befallen most of the plots 237 & 238. The suggestion that he was farming by 1844 is confirmed by the 1851 census in which he is described as a Farmer of three acres, employing two men. They were living with him, as well as eight of his own children, who are described as iron stone miners, carters and a bricklayer. Quite who was making the pipes at this date is unclear - perhaps his wife and two youngest children for whom no occupation is given. Alternatively George and Edward Payn, the agricultural labourers, may have been partly engaged in pipemaking, since three men for three acres sounds a little labour intensive, even in 1851. By 1861 Richard is recorded as a coal master employing six men and five boys. His last reference in directories as a pipemaker was in 1859, subsequent entries referring to him as a coal master and farmer. It seems that Richard started life as a pipemaker in the 1820s and 30s, but that during the 1840s farming became increasingly important, and then during the 1850s the coal trade. Pipemaking must have been carried on as a family sideline, probably in a small workshop attached to the farm, until at least 1859, and perhaps longer. It is likely that Richard died or moved during the 1860s.

Richard Sir (Surr/Powell) Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1670-1700.

No Richard Sir is recorded in the Broseley PR. The Hearth Tax for the Franchise of Wenlock (1672) however records that Richard Surr Sr and Richard Surr Jr were both excused tax. Also the probate of Griffith Powell of Wenlock (1673, Appendix 3) gives one of the appraisers as Richard Sir alias Powell. This suggests several links; pipemaking, Wenlock and Powell, and it seems likely that Richard Sir/Powell was a Wenlock maker, perhaps related to Griffith Powell.

Goerge Smith Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1670-1720.

The Broseley PR suggest three possible alternatives. George Smith married Gillian Sanbatch on 28 Nov 1631. This is far too early for the full name pipes, but a tentative suggestion for earlier initial marks. Another George, son of Richard and Mary Smith, was baptised on 14 Jan 1661. He would fit well with the full name pipes. Thirdly there was a George who married Elizabeth Bayliffs on 31 Jan 1708. They had a son George who died, as did Elizabeth in 1710. George the father then seems to have married Ann Armisrow on 24 July 1715, and they baptised a son John in 1716. Although a possibility, this George does seem a little too late. Oswald (1975, 191) gives a death in the PR of 1712, but this has not been relocated, and may be an error.

I Smith Recorded as a pipemaker from pipes.
Likely to have been pipemaking c1840s.

Atkinson (1975, 81) records a relief mark along the stem with a dividing bar reading I:SMITH/BROSELEY, which stylistically should date to the first half of the nineteenth century. He notes a John Smith recorded in Broseley in 1845 (ref not traced). There are several possibilities in the Broseley PR. John Smiths were baptised in 1804, 1808 and 1813, and buried in 1799, 1807 and 1810. In addition John and Ann baptised children 1800-1804, John and Mary in 1799, and John and Sarah 1798-1809.

William Smith Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1760-80.

Possible candidates for this maker were baptised in Broseley in 1705, 1717, 1727 and 1732. In addition William and Elizabeth baptised a daughter in 1749, William and Ann children in 1756 and 1758, and William and Mary a daughter in 1779.

Rowland Smitheman I Recorded as a pipemaker 1888-1903.
Pipemaking 1881-1903.

Born.....c1836/7 at Broseley.
Married.....Clara Ann Oliver (his niece, previously married).
Children.....c1881 Eleanor Clara (bap 4.1.1891 at Broseley).
 c1883 Rowland II (bap 4.1.1891 at Broseley).
 c1896 Isabel Mary (bap 4.1.1891 at Broseley).
Died.....11 June 1903 at Broseley.

Rowland's father had died by 1851, when at the age of 17 he was living with his mother (a dressmaker) at Ferney Bank in Broseley. He was working then as a mason, and then in 1861 was a builder living in Cape St. In 1881 he was at King St, recorded as a builder employing five men and two boys. In that year he also founded The Crown Pipeworks in King St (an advert in Kelly's Dir of 1895 gives the foundation date). This was a substantial factory unit, requiring considerable capital outlay and quite different from the small family workshops of earlier periods. A box label from the King Street works (now in the Ironbridge Gorge Museum Collections) indicates that in 1884 they were awarded a highly commended at the Wolverhampton & Staffordshire Fine Arts Exhibition. This suggests that the firm became quickly established. Rowland's last will was made on 3 Feb 1902, and appoints his wife, her son by a previous marriage (William Henry Oliver) and his son Rowland as trustees. His property consisted of his house and builder's business in King St, his pipeworks in King St, and cottages at the Tuckies in Jackfield, and in Broseley Wood. He left everything to his wife until she should re-marry or die; the builder's business and pipeworks to be run in joint partnership with Rowland. When she died or re-married Rowland was to have both businesses, and the house in King St, and his two daughters the cottages at Jackfield and Broseley Wood. In the will the pipeworks is described as, "All my Tobacco Pipe Manufactory with the workshops, yards, kilns, buildings and appurtenances thereto belonging situate in King St, Broseley." It also refers to "my plant, engines, machinery and stock in trade," but this applies to both the builders and pipe businesses. The will was proved at

Shrewsbury on 16 July 1903, the gross value of the estate being £1303.0.7 and the net value of the personal estate £490.13.4.

Rowland Smitheman II Recorded as a pipemaker 1903-1917.
Likely to have been pipemaking +1903-1917+
Born.....c1883.

Rowland II and his mother Clara Ann became joint partners responsible for the King St pipeworks following the death of Rowland I in 1903 (see above). Very little is known of this later period, although it is likely that the young Rowland would have been actively engaged in its operation. The last reference to the firm is in a directory of 1917 - it is no longer listed in 1922. The factory was subsequently taken over by Wm Southorn & Co, who moved there from their old Legg's Hill site.

Ada Southorn Recorded as a pipemaker 1851.
Likely to have been pipemaking c1847-1854.
Born.....c1833 at Shrewsbury (CR).

Ada was the eldest daughter of Joseph Southorn, the youngest of the Cardington brothers. She was born in Shrewsbury, but had moved back to Broseley by 1838 when her sister was born. She is only once recorded as a pipemaker (1851 Census), when she was presumably helping with the family business. She had left home by the 1861 census, presumably married. Nothing is known of her later life.

Ann Southorn Recorded as a pipemaker 1861-1871.
Likely to have been pipemaking c1853-1871+
Born.....c1839 at Greatbridge/Tipton, Staffordshire (CR).

Ann was the only known child of John Southorn I, one of the Cardington brothers. She was born in Staffordshire where her father worked as an engineer for a while. He had returned to help with the family pipe business by 1851, bringing Ann with him. When old enough she too was employed there, presumably at William Southorn's works. She is given as specifically a moulder in 1861 when she would have been about 22. She continued as a pipe maker after her father's death in 1866, but is last recorded in the 1871 Census. After this date she presumably either married or moved from the area.

Edwin Southorn Recorded as a pipemaker 1858-1876.
Likely to have been pipemaking +1858-1876.
Born.....1820 - November 19 at Broseley.
Baptised.....at Madeley Wood Wesleyan Methodist and Broseley Wesleyan Chapels.
Married.....1852 - December 22 to Judith Catherine Mentinick at St Breock, Cornwall (Hammond, in litt 13.9.84).
Children.....c1854 William Edwin Grose (died 1863)
 c1855 Walter
 c1857 Emma
 c1858 George Henry
 c1859 Charles
 c1861 John Grose

1863 Sydney (died 1864)
 c1864 Arthur C.
 c1865 Judith C.
 c1866 Nicholas Grose
 c1867 Joseph Grose
 c1868 Edwin
 Died.....1876 - September 12, buried at Benthall Church Sept 16
 (PR).

Edwin was the eldest son of William Southorn I, founder of the Wm Southorn & Co pipeworks. Edwin himself was one of the most important members of the Southorn family since he founded the substantial E Southorn works, the mark of which appears to have been used until 1960. He was born in Broseley and is recorded with his family at Broseley Wood in the 1841 Census. Unusually for someone of his age (he was then 20), no occupation is given. Doubtless however he would have been familiar with the pipemaking process used at his father's works. He must then have moved away from Broseley for a time, being absent in the 1851 Census. He may have been acting as a travelling representative for the firm, and indeed may well have been working in London, since he appears to have been responsible for the firm's exhibit in the Great Exhibition of that year (he claims to have exhibited there in later adverts). He married in Cornwall the following year (1852). There is no record of his trade during this period and little other information about him directly. Indirectly however we may infer that he fell out with his father, being bequeathed only £124.02.06 in his will of 1853. This was less than half that of his sister Margaret, and only a fraction of the estate (including the pipeworks) that passed to his younger brother William.

Edwin however set up his own business, taking over Noah Roden's works at the New Inn in Benthall. When the registration of trade marks was introduced in 1876 his was said to have been in use for 'about eighteen years' (Hammond 1985a, 115), suggesting he was working independently from around 1858. The 1861 Census records him living with his family, and a nurse for the children, at Speeds Lane in Broseley Wood. He is described as a Tobacco Pipe Manufacturer employing ten men and boys, and eighteen females. If the 1858 date accurately reflects his setting up of the business, then it developed with some speed to have employed so many people within three years. He also seems to have fallen out with his brother William, who had taken over the running of the Wm Southorn & Co works, and with whom he presumably set up in direct competition. In 1860 he registered a design, and took out a patent, in an effort to protect his business (see Chapter 2.11d).

Another advance which Edwin may have brought to Broseley was the use of steam power for the production of pipes. The advert of 1869 says, "BROSELEY GLAZED TOBACCO PIPES, Which have obtained a world-wide celebrity, are manufactured by steam power". The use of steam may however have led to other problems for the firm, for in May 1869 there was a fire at the works. This was reported to have originated from the engine flue which had a damper near to where one of the beams was situated (Shrewsbury Chronicle 21 May 1869, Tobacco Trade Review 12 June 1869).

The trade adverts also provide valuable evidence of the considerable rift that split the two firms. In an advert of 1869 Edwin delivers a

quite stunning attack on his brother, "Beware of spurious and vile imitations of the Patent Broseley Pipes, stamped "W.S. & Co., Broseley," and "Brosley," now being offered by unprincipled agents and itinerants." Similar warnings to would-be buyers are offered in the advert of 1877. It is possibly this state of considerable hostility which prompted Edwin to register his mark in 1876. He was quick to make use of it as an advert of 1879 (presumably prepared before his death) shows. It styles him as the sole manufacturer and patentee of the famous Broseley glazed tobacco pipes, and says that, "in Madeley, and adjacent districts... vile imitations...are now being offered...under the SPECIOUS STYLE and description of "Southorn's," or "Southorn and Co.'s"." It illustrates his registered trade mark, and emphatically states "NO CONNECTION WITH ANY OTHER FIRM". His claims to a virtual monopoly of the Broseley pipe industry do seem somewhat unreasonable, especially in view of a foundation date in the 1820s for his brother's firm. Perhaps as the eldest son of William Southorn I he considered that the business should have passed to him.

Under the terms of his father's will he does in fact seem to have been left comparatively little. Apart from a share of the residue of the household goods his brother William was to pay him £124 2s 6d within two years of their father's death. Initially his young sister was to receive £300, although under the second codicil this was changed to about £175. William was to have the house and all the pipeworks and trade. Since the approximate value of the estate came to about £1,000 he was left considerably more than Edwin. From this it seems clear that there had been some rift in the family before the 'trade war' between the two firms. The only evidence to the contrary is that in 1850 William did baptise his son William Edwin thus showing at least tacit recognition of his family. At any rate there cannot have been open hostility between them at this date, and perhaps the split came during the early 1850s.

Presumably at some time after his father's death in 1853 he returned to Broseley, and unable to share in the family business set up in direct competition with it. As stated above the relationship between the brothers must have deteriorated rapidly during the 1860s. This must have led to considerable strain amongst not only the members of the family in Broseley, but also the workers. Such public animosity between two firms situated only about 200 yards apart, and reliant on the same pool of very local, and traditionally interrelated labour is bound to have created conflicts of loyalty. Despite this Edwin's business grew steadily from the ten men and boys and eighteen females listed in 1861 (total 28), to thirty one women, eight men and one boy in 1871 (total 40).

Edwin died in 1876, leaving all his property to his wife (Hammond in *litt* 6.1.85). It is ironic that although he had 11 children, none of them appear to have carried on at the works. His wife left Broseley shortly after his death, perhaps unable to cope with the hostility that had been created there. She moved to Wolverhampton taking the children with her (Hammond in *litt* 6.1.85), and the works appears to have been taken over by Hopkins & Co, who advertised as such in 1879. Hopkins went bankrupt in April 1881 and appears to have sold out to William, the brother against whom Edwin had struggled for so long. Moulds and equipment from Edwin's business are still retained at the King Street works, and were probably in use for over eighty years

manufacturer living at 21 Simpson's Lane when his son William was baptised in 1920, but as a publican (at the same address) in 1921 when Alexander was baptised. He continued production until his death in 1957, when he is described as of the King's Head Inn, 7 King Street, Broseley. It appears that he combined the running of the works with the trade of being a publican. He died in the Beeches Hospital, Ironbridge, aged 69. The labour force had dwindled during this period, the remaining two staff finishing in about 1960 (*pers comm*, Ida Bennett). With the closure of the works came the end of an unbroken family business of more than 140 years.

Jane Southorn Recorded as a pipemaker in 1871.
Likely to have been pipemaking +1871+
Born.....c1801 at Broseley.
Maiden name....Jane Richards.
Married.....1827 - April 30 to John Southorn at Dawley Magna
(PR).
Children.....c1838 Ann.
Died.....1874, age 74.

Jane was the wife of John Southorn, one of the Cardington brothers. John does not seem to have entered the family business immediately, and in 1841 was living with his wife and young daughter in Tipton, Staffordshire, where he worked as an engineer. They had moved back to Broseley Wood by 1851, but Jane is not recorded as having any occupation (John was a pipemaker). In 1861 however (when she was 60), they were living in Simpson's Lane (Broseley Wood) and she is recorded as 'formerly china burnisher'. Her husband is now given specifically as a pipe packer. He died in 1866, and by 1871 widow Jane had moved to King Street with her daughter Ann, both of whom are then given as pipe makers. It therefore seems that Jane was very much at the edge of the pipemaking trade, only actually being recorded in the trade when she was 70. She presumably was employed at the family works, and died in 1874.

John Southorn I Recorded as a pipemaker 1851-1861.
Likely to have been pipemaking +1851-1866.
Born.....1799 at Cardington.
Baptised.....1799 - June 9 at Cardington (PR).
Married.....1827 - April 30 to Jane Richards at Dawley Magna,
the marriage was witnessed by William Southorn I
(PR).
Children.....c1838 Ann.
Died.....1866 buried March 17 at Broseley (PR).

John was one of the Cardington brothers who moved to Broseley and became pipemakers. John does not seem to have entered the family business immediately, and in 1841 was living with his wife and young daughter in Tipton, Staffordshire, where he worked as an engineer. They had moved back to Broseley Wood by 1851, by which time John had become a pipemaker, presumably helping his brother William. Having been an engineer he may have been able to help with the production and/or maintenance of the moulds and presses. By 1861 his address is specifically given as Simpson's Lane (which is in the area known as Broseley Wood anyway), and he is described as a pipe packer, a less strenuous job than moulding and perhaps a sign of his age (he was

then over 60). He died a few years later (1866), but his wife and daughter were still working as pipemakers in 1871 (above).

John Southorn II Recorded as a pipemaker 1861
Likely to have been pipemaking c1854-61+
Born.....c1840*/1842 at Broseley.

John was the eldest son of Joseph Southorn, youngest of the Cardington brothers. Joseph is important in that he is listed as an independent maker after 1849, and presumably operated a separate workshop to William from at least that date. John II would have learnt the trade from his father in that workshop. They were living at Legg's Hill in 1841, but had moved to King St by 1851, then Ferney Bank by 1861 when John (then about 20) is first recorded as a pipemaker. His father died in 1865, although his mother still appears at Ferney Bank as a pipe packer in 1871. John appears to have left home by this date, and nothing is yet known of his later life.

Joseph Southorn Recorded as a pipemaker 1841-61.
Likely to have been pipemaking c1833-65.
Born.....c1809 at Cardington.
Baptised.....1809 - 17 July at Cardington (PR).
Married.....1829 - 1 June to Susanna Payne at Dawley Magna (PR).
Children.....c1832 Ada
 c1837 Sarah
 1840 John
 c1842 John
 c1844 Joseph
 c1846 Susanna
Died.....1865 buried 26 July at Broseley (PR).

Joseph was the youngest of the Cardington brothers, and may have moved to Broseley about 1825 following the death of his father. His older brother William had already established his pipeworks by this date, and Joseph may well have initially worked there. He married Susanna Payne from Bridgnorth in 1829, and then may have moved to Shrewsbury for a short while, since his first daughter was born there in about 1832. He had returned by 1837 when his second daughter was born, and in the 1841 census is recorded living with his family on Legg's Hill, near to William's works. At some date however he decided to set up his own workshop, and is recorded in the trade directories of 1849-59 as an independent maker in King Street. The 1851 census records that he was employing five persons, which may well have been in addition to his two daughters who are now listed as pipemakers. By 1861 they had moved to Ferney Bank, the only child listed with them being John who is then also given as a pipemaker. Joseph is given as employing three males and four females. He is also a Wesleyan local preacher. He died in 1865, but his widow is still recorded as a tobacco pipe packer in 1871, when she had a pipemaker and his family lodging with her. Possibly she carried on his works for a period, although no occupation is recorded in 1881. She died in 1882.

typologically should date to the first half of the century. The only alternative Southorn with the initial S known to have been a pipemaker is Susanna, the widow of Joseph (and it is to her that Atkinson attributes the mark). Joseph however did not die until 1865, and always used an incuse mark, which became standard in Broseley from the 1840s. It is most unlikely therefore that she would have reverted to such an outdated design in the 1860s. Besides which she was about 58 when Joseph died, and it is by no means certain that she carried on independently for long, if at all. It therefore seems almost certain that the marks should be attributed to Samuel. Samuel married Susanna Baugh in 1836, but died nineteen months later. What became of Susanna is not known. Since she also has the christian name initial S it is possible that she could have carried on using Samuel's mark without any change being detected. If she did make any pipes on her own the enterprise must have been short lived, since she is not listed in the 1841 census. This makes Samuel's marks some of the best dated for the nineteenth century Broseley industry. If he became an independent maker at about the age of 20 then they can be dated to the period 1825-37. Samuel's occupation was repeated as that of a pipemaker when his son married at Bridgnorth in 1856.

Sarah Southorn Recorded as a pipemaker 1851.
 Likely to have been pipemaking c1851+
 Born.....c1838 at Broseley.
 Maiden name....Sarah Southorn (it is not known if she married).

Sarah was the second daughter of Joseph Southorn, one of the Cardington brothers, who had established an independent works in Broseley by 1849. She was living at Legg's Hill in 1841, but had moved to King Street by the age of 13 (1851) where she was helping her father at his pipeworks. She presumably married during the following decade, since she had left home by 1861. Nothing is known of her later life.

Susanna Southorn Recorded as a pipe packer 1871.
 Born.....c1806/1807*/1808 at Bridgnorth.
 Maiden name....Susanna Payne.
 Married.....1829 - June 1 to Joseph Southorn at Dawley Magna (PR).
 Children.....c1832 Ada
 c1837 Sarah
 1840 John
 c1841 John
 c1844 Joseph
 c1846 Susanna
 Died.....1882 age 75 (St Catherine's House indexes).

Susanna married Joseph, the youngest of the Cardington brothers in 1829. They appear to have moved to Shrewsbury for a short while, since their first daughter was born there in about 1832. They had returned by 1837 when a second daughter was born, and in the 1841 census are recorded living at Legg's Hill, near to William's works. At some date before 1849 Joseph set up his own workshop, their address in 1851 being given as King Street. By 1861 they had moved to Ferney Bank. Joseph died in 1865, but Susanna is recorded as a

Four of William's brothers also moved to Broseley and became pipemakers. Of these only Samuel and Joseph ever appear as independent makers, and it is likely that some or all of them would initially have been helping William at his works. His first wife died in 1834, and he remarried to Mary, from Beverley in Yorkshire. She is recorded as a pipemaker in Broseley Wood in 1841, William being absent at the time. They lived in Simpson's Lane in 1851, when William had two servants, and was recorded as employing 36 hands. Clearly he had built up a substantial and thriving business. William died in 1853, leaving the works to his younger son William III. There must have been some sort of split within the family since his eldest son Edwin was left comparatively little, and he subsequently took over Noah Roden's works at the New Inn, setting up in direct competition with his brother's firm. William's widow Mary moved to Ironbridge by 1861, and died there in 1867.

William Southorn II Recorded as a pipemaker 1851-1861.

- Likely to have been pipemaking c1842-1861+

Born.....c1824 at Broseley.

Married.....1845 to Harriet in Wolverhampton area (St Catherine's House).

Children.....c1847 George.
c1850 Jabez.

William was the younger son of Thomas, one of the Cardington brothers. He is first recorded in 1841 when he was living with his father at Legg's Hill. Although he was by then 17 no occupation is given. Since he was still living with his father and working as a pipemaker in 1851 it is likely that he started soon after 1841, presumably at William's works. By 1851 he had married Harriet from Gillsfield in Montgomery, a woman 15 years older than him, and had two young children. They had moved out to Mill House in Bridge Road by 1861, when Harriet is recorded as a charwoman. Only their son Jabez was with them (age 11), working as an iron moulder. They appear to have moved by 1871, and nothing else of them is known.

William Southorn (III) Recorded as a pipemaker 1849-94.

Likely to have been pipemaking c1842-94.

Born.....c1827 at Broseley.

Baptised.....1827 - April 29 at Broseley (PR).

Married.....(1) 1849 to Mary Ann Davis at Worcester (Mar Settlement).

(2) 1891 - October 23 to Margaret Jones (widow).

Children.....1850 - March 28 William Edwin

Died.....1894 - July 23.

William III was the second son of William I, founder of the William Southorn & Co works. In 1841 (age 14) he is recorded living with the family at Broseley Wood. Although no occupation is given, he doubtless would have been involved in pipemaking from an early age. His father by this time must have been a prosperous maker, which would have enabled William to have a good education and wider ranging social contacts. This is reflected in his marriage to Mary Ann Davis, the only daughter of William Henry Davis, a grocer in Worcester. Mr Davis had originally come from City Road, London, and appears to have been fairly well off. In a marriage settlement dated

23 April 1849 (in which William is given as a pipe manufacturer), it is stated that Mary had been bequeathed property in Longborough, Gloucestershire, by her uncle William Cockshead. Her entitlement was £800, which was held in annuities by trustees until its release to her in 1879. Their son William Edwin was born in 1850, and in 1851 William III is given as a commercial traveller living in King Street. He must have been responsible for representing the sales interests of his father's firm, and was reasonably well off, having a servant - a luxury which he maintained for the rest of his life.

His father died in 1853, leaving the pipeworks to William. This may have been largely responsible for the rift between the two brothers, since Edwin was left comparatively little. William continued to run the works, which had had 36 hands in 1851. It seems to have contracted slightly, since in 1861 (when they were living in Simpson's Lane) he was employing a total of only 28 (16 girls, 6 men and 6 boys). This may have been due in part to competition from his brother Edwin, who appears to have taken over Noah Roden's works at the New Inn by about 1858, and set up in vigorous competition with his brother. This may also have been responsible for financial problems for William during the 1860s. In June 1864 he sold some houses in Broseley Wood (off Legg's Hill) to John Milward of Broseley (yeoman), for £242. The following month an indenture of mortgage was made between William and trustees of the Ironbridge, Coalbrookdale and Shropshire Permanent Building Society for the sum of £200, a further four indentures being made during the early to mid 1870s (Shropshire R.O. - Cooper & Co 1681, box 110).

His position does not seem to have improved until 1876 when two events occurred which acted in his favour. Firstly his wife's aunt, Ann Cockshead of Gloucestershire died (30 January), leaving her niece all of her property and the sum of £150, plus £50 to William. Secondly William's brother Edwin died in that year thus ending the inter-family competition. Although Edwin's works was initially run by Hopkins & Co, it soon passed into William's hands, thus giving him a virtual monopoly of the Broseley pipe trade (John Joseph Hopkins went bankrupt in 1881, Hammond in litt 13.9.84). In June 1879 the freehold house at Longborough was sold for the sum of £200, the money being given to William for his own use. The remainder of the £800 that had been released to his wife in March 1879 was used to pay off a mortgage on the houses, pipe works and premises owned by William. By 1881 William had therefore been able to consolidate his position, and take over the New Inn works. In that year they are still recorded as living in Simpson's Lane, but William is recorded as employing seventy hands, male and female. He openly copied Edwin's adverts, and claimed to have a registered trade mark, which was not in fact true. His first wife died early in 1891, and within a few months William remarried to Margaret Jones, a widow from Newtown, Montgomery. He made his last will on 27 March 1894 when his address is given as the Woodhouse, Broseley, and died on 23 July of that year. The *Shrewsbury Chronicle* of 27 July gave a brief obituary as follows:-

DEATH OF MR W SOUTHORN BROSELEY : The death of Mr William Southorn, the well-known 'churchwarden' pipe manufacturer, which took place on Monday evening, was quite unexpected. Deceased, who always enjoyed the best of health, caught a chill on Saturday week, when he went with a trip to Liverpool, promoted

by Maw's work-people. He never left his house since. Deceased, who was nearly 70 years of age, married a second time some three years ago. His only son is a member of the Wenlock Corporation.

His estate was valued at £920 13s 4d. The running of the works was then taken over by his son William Edwin Southorn. What became of his wife is not known, although she was still alive in 1902. She did not leave a will.

William Edwin Southorn Recorded as a pipemaker 1881-1910

Likely to have been pipemaking c1864-1910

Born.....1850 - March 28 at Broseley.

Baptised....1850 - June 2 at Broseley (PR).

Married.....(1) 1874 - Dec 18 to Ellen Cooke Yates at Wombridge (PR).

(2) 1878 - Oct 7 Nellie Worthen Yates at Oakengates (PR).

Children....1879 Ethel Mary.

1880/81 Margaret Weston.

c1886 William Onslow.

c1887 Henry Starr.

Died.....1910 - May 19 buried May 23 at Benthall (PR).

William Edwin was the only child of William (III), and was born in Broseley in 1850. He was living in King Street in 1851, and Simpson's Lane in 1861, when he is recorded as a scholar, age 11. His father always had house servants, and like him William Edwin would have had the advantage of a good education. He would have learnt the trade at the Legg's Hill works, and like his father appears to have become a commercial traveller selling the firm's products. This is probably the reason for his absence from Broseley in the 1871 census. He married Ellen Cooke Yates, daughter of Frederick Yates, Gentleman in 1874 when he is described as a commercial traveller. Ellen died soon after, and William remarried in 1878 to Nellie Worthen Yates, the widowed daughter of Yves Edmonds Onslow, veterinary surgeon of Broseley. In the 1881 census William Edwin and his wife are listed next door but one to his father in Simpson's Lane with their two children, and two servants.

William worked in partnership with his father until the latter's death in 1894, when the "partnership between Southorn W. and Southorn W.E. (trading as William Southorn & Co), tobacco pipe manufacturers, Broseley, Salop" was dissolved (*Hammond in litt*, 1.9.86). William Edwin made his last will on 7 December 1909, when his address was given as 16 Legg's Hill. In the will he left all his estate to his wife Nellie Worthen Southorn. He died in 1910, when the estate was valued at £1,875 13s. His widow continued to be actively involved with the pipemaking business along with her daughter Ethel Mary, who remained at home, and never married. It was Ethel who appears to have been responsible for the running of the works on her mother's behalf (*Shrewsbury Chronicle*, August 12, 1932). In January 1929 they both signed an agreement for the amalgamation of the business with the Ironbridge Pottery Co, and a copy agreement of 1930 states that the Benthall and Ironbridge Pottery Co. Ltd. agreed with Mrs and Miss Southorn for the sale and purchase of the clay tobacco pipe manufacturing plant in Broseley. However it is not clear whether the deal was followed through, for Ethel Mary died in September of that year, aged 51, followed shortly afterwards by her mother, Nellie Worthen on 7 October, aged 75. Both were buried at Benthall, and

stated as being of 16 Legg's Hill. Nellie Worthen's effects amounted to £1,320 17s 6d, the probate being granted to her son Henry Starr Southorn on 24th November.

Edward Taylor Recorded as a pipemaker in 1736.
Likely to have been pipemaking +1736+

Edward Taylor of Broseley, pipemaker, is recorded in the Much Wenlock Examinations book on 18 May 1736 (Q1/3/1, 115). An Edward Taylor is also recorded at Much Wenlock as a pipemaker before 1734, perhaps the same person (see Much Wenlock list below).

John Taylor Recorded as a pipemaker in 1816.
Likely to have been pipemaking +1816+
Children.....22 Feb 1816.

John is recorded as a Broseley pipemaker in the Much Wenlock Bastardy Books. On 22 Feb 1816 Mary Bradeley (sic) of Broseley gave birth to a child of his. Nothing else is known of John, and he may well not have been a master maker.

Thomas Taylor Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking I; c1710-39,
II; c1740-70.

Although we have a probate for Thomas I (Appendix 3), his will needs to be examined for more details of the family. He died in 1739, but some stem marks are later in date indicating a second maker of this name. Thomas Taylors are recorded in the Broseley PR being married in 1670 and 1718, and buried in 1726, 1739 (the pipemaker mentioned above), 1751, 1777, 1786, 1801, and 1803. In addition Thomas and Mary (Whitmore) baptised or buried children 1723-36, Thomas and Mary Taylor alias Syner in 1730-32, Thomas and Ann in 1723, and a second couple 1750-62, and Thomas and Elizabeth in 1723.

Richard Tonkis Recorded as a pipemaker 1834-1875.
Likely to have been pipemaking c1820-1872
Born.....1805 at Broseley, son of Humphrey and Ann Tunkies (sic).
Baptised....26 May 1805 at Broseley (PR - but see below *).
Married....Harriet by c 1831 (bur 27.4.1890, age 86, Benthall PR).
Children....c1831 Samuel (bap 9 Sept 1831 at Broseley Baptist Chpl, when married in 1858 he was an encaustic tile maker).
 c1837/8 Elizabeth.
 c1838/9 John Humphries (bap at Broseley 24.7.1842).
 c1841 Sarah Ann (married an iron moulder, 1866).
 c1845 James (was a tilemaker in 1868 when married).
 c1848 Harriet (married an encaustic tile maker, 1872).
Died.....1872 - buried 3 December at Broseley.

Richard was one of the last Broseley makers to operate a family workshop production system. His wife, and almost certainly all his children would have helped (at least when young) in the family workshop. Richard is regularly recorded as a pipemaker in trade directories, being listed in 1840, 1844, 1849, 1850, 1851, 1856,

1859, 1861, 1868, 1870 and 1871. Oswald (1975, 192) lists him in directories 1834-75, but this last date is after his death. The directory may well have been out of date. The later directories and census returns show that throughout this period he lived at Barratt's Hill. Directory entries suggest that he died in the 1870s, making it fairly certain that the 1872 burial recorded is the correct one (age at death is also given as 72 years, giving a birth date of c1805). *It is important not to confuse this Richard with another Richard Tonkeys/Tonkiss, pipemaker (not listed separately since he is never recorded as a master pipemaker). This other Richard married Elizabeth, and baptised a son Charles (born 1828) on 26 December 1830 at Madeley, and a daughter Elizabeth on 2 January 1835 at Broseley Particular Baptist Chapel, when their address was given as King St. He has not however been recorded after this date. The fact that both families were pipemakers, and attended the same Baptist Chapel suggests they were related, although how is not known. The parents of this Richard are given as Humphrey and Ann, since the date of birth matches. It is just possible however that they were the parents of the other Richard. Both of the parents were buried at Broseley; Humphrey on 14.9.1846 (labourer age 77 years), and Ann on 24.4.1848 (widow of Humphrey).

Richard Upton Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

Atkinson (1975, 86) lists children between 1674 and 1690 for this maker, although these references have not been rechecked.

Thomas Ward Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

Atkinson (1975, 86) lists a baptism in 1628, but this has not been relocated. Another of 1668/9 however is recorded in the Broseley PR. Also there are a number of Thomas Wards recorded baptising children, Thomas and Sarah in 1645, Thomas and Joan in 1654, Thomas and Margaret (of Benthall) in 1719, Thomas and Mary from 1736-48, and Thomas and Elizabeth from 1744-9.

Williams Recorded as a pipemaker from pipes.
Likely to have been pipemaking c1840-50.

Atkinson (1975, 87) records a relief stamp, along the stem within a frame with serif lettering reading WILLIAMS/BROSELEY.

Abraham Wong ?Recorded as a pipemaker from pipemarks.
Likely to have been pipemaking c1680-1720.

Very poor, crude marks possibly reading Abraham Wong have been found. This unlikely sounding name has not been found in the Broseley PR.

CLEOBURY MORTIMER PIPEMAKERS

This list is taken entirely from the entries given in Oswald (1975, 190). The presence of at least six documented makers at such a small place, and over such a short period of time, suggests that there was a thriving industry here during the seventeenth and early eighteenth centuries. It would seem likely that Broseley style pipes and marks would have been produced, and judging from the number of makers already listed they must have been exporting considerable numbers to the surrounding areas. There are numerous John Farmer pipes from South Wales, and two Joseph Farmers who are recorded as pipemakers in Cardiff (Chapter 4.IXb), some or all of whom may be connected with the Cleobury family. Cleobury Mortimer seems to be a pipemaking centre of some importance which offers great potential for documentary and artifactual research.

John Chetwin Son bap 1692 (PR).

Joseph Farmer Bur 1684 (Bromfield, PR).

Richard Farmer Bur 1689 (PR).

John Newall Bur 1718 (PR).

Humphrey Sheffil Wife buried 1655, Bap a daughter 1656 (PR). In an independent list H Judd gives his dates as 1656-65. Given the rather odd order of Oswald's references it may be that his dates have been confused. They need checking in the PR. There is a mark (WS) which may belong to this maker in the Bewdley Museum (fig 75.9).

William Sheffil Bur 1699 (PR).

LUDLOW PIPEMAKER

This reference is taken from Oswald (1975, 189). No additional research has been carried out on Ludlow, but as an important regional market town other makers may have worked there.

John Arthur Died 1734 (Shrewsbury Lib).

MUCH WENLOCK PIPEMAKERS

This is a provisional working list of people now known to have been pipemakers in Much Wenlock. It has only been compiled during the course of this study and is still being added to regularly. Already, however, it is clear that Much Wenlock was a pipemaking centre of considerable importance and it may well have been the original centre around which the 'Broseley' industry grew. It certainly acted as a focal centre for the industry in this area during the seventeenth and early eighteenth centuries. Several of the well known pipemakers previously attributed to Broseley are now known to have been Wenlock makers, and pipes previously described as

'Broseley' are now known to be 'Wenlock'. These have been found as far away as Jamaica.

When researching pipemakers in this area it must be remembered that Broseley and Benthall lie only a few miles from Wenlock, which was traditionally the local market centre. Many of the pipemaking families moved freely between the two areas, and the Wenlock archives contain many references to Broseley and Benthall. Likewise the Parish Registers of Wenlock doubtless contain references to Broseley and Benthall makers. So until a thorough research programme has been carried out on the Wenlock archives it will be impossible to be sure of the full extent of the Wenlock industry, or to be sure that Broseley and Benthall makers have been properly or fully identified. It is hoped that this provisional list can be used as a basis for future research into the Wenlock industry.

So far the documentary research has concentrated on searching sources which give the name and occupation of individuals, in order to identify pipemakers. All the surviving probates are thought to have been transcribed (Appendix 3), and a number of classes of information at the Much Wenlock Archives examined. The following documents have been fully examined for pipemakers: Pauper Apprenticeship Indentures 1735-1817 (Q1/7/1), Settlement Certificates 1691-1779 (Q1/4/1-155), Bastardy Examination Books 1811-1832 (Q1/5/10; Q1/6/11), and the Examinations Books 1729-1739 (Q1/3/1); 1740-1753/1774-1777 (Q1/3/2). Other odd references have been noted in the course of study, and some of the names have been searched for in a nineteenth century transcript of the Parish Registers. This source however needs to be fully and systematically checked for all known Wenlock, Broseley and Benthall makers.

I am particularly grateful to Sam Mullins (previously curator of the Much Wenlock Museum) for allowing me to use his transcripts of Wenlock probates, to David Cox at the Shropshire Victoria County History for allowing me access to his notes on pipemakers from the town, and to Peter Wakelin for his help in searching for, and transcribing, references to pipemakers in the Much Wenlock Archives, and other sources he has worked on. Joy Simms and Ivor Godfrey of Much Wenlock have helped search the Parish Registers for the names of some of the known pipemakers, and Yvette Staelens (also a previous curator of the Museum), brought many recent finds of pipes to my attention.

John Andrews Recorded as a pipemaker in Spittle St in 1714 (Nat. Lib. Wales, Wynnstay Coll, E/62 1714, No 34). Mullins (*in litt*, 13.1.87) notes that he was deceased in 1714, had lived in Binnars Tenement in Spittle St, and had a furnace for burning tobacco pipes.

Thomas Andrews Recorded as a pipemaker in Spittle St in 1714 (Nat. Lib. Wales, Wynnstay Coll, E/62 1714, No 34).

Michael Browne Recorded as a pipemaker when he baptised a daughter in 1681 (Mullins, *in litt*, 13.1.87). Michael Browne married Anna Ridley in April 1681 (PR).

Samuel Browne Died about 1668 (probate of 24 August in 20th year of King Charles II, Appendix 3). The probate includes pipemaking tools.

William Bruce Living with Rich Roberts and left his pipemaking tools in his will of 1717. Presumably Bruce was also a pipemaker.

William Bryan Sr. (Brion) Recorded as a pipemaker working in Spittle St from 1688 to 1714 (Nat. Lib. Wales, Wynnstay Coll, E/62 1714, f28). Died about 1731 (probate 9 Sept 1731, Appendix 3). The probate includes pipemaking tools. Widow Brian is still recorded in Spittle Street in the survey of 1736 (Nat. Lib. Wales, Wynnstay Coll, M2530). He also paid 2s window tax in 1715 & 1719 (Mullins, *in litt*, 13.1.87).

Thomas Dawley Died in 1714 (buried May 8 (MWPR), probate June 3, 1714, Appendix 3), and his probate includes ale and beer valued at £10.0.0, and pipemaking tools valued at £2.0.0. I am most grateful to Peter Wakelin for bringing a case in the Exchequer Kings Remembrances to my attention (Public Record Office E134 26 Geo2/East7), regarding a dispute over Thomas Dawley's will in 1753. The case reveals many details about the family, and witnesses give evidence about Thomas Dawley himself. Thomas had a brother John, and he had three children; Sarah, Margaret (?bap Dec 30, 1714) and William (who was probably born in about 1701). Sarah married George Clifton, and Margaret married Thomas Hartshorne. Margaret was dead by 1753. It is possible that she and husband Thomas Hartshorne had lived in Benthall since people of that name baptised a son George there in 1735, a daughter Jane in 1739, and a Margaret, wife of Thomas, was buried there in 1746. In the court case Thomas Dawley is recorded as a pipemaker and innkeeper in Much Wenlock. His wife was his executrix (? also called Margaret), and subsequently married Thomas Corfield. She too may have died by about 1720, John Dawley (her brother-in-law) being her executrix. In the statements John Reynolds said that Thomas Dawley had followed the trade of pipe maker "and kept a great many Journeymen and Women in the Pipe Making Trade and likewise kept an Inn". Benjamin Palmer said that Thomas had "Lived in good Credit and Repute, That he carryed on Considerable Business, and sold a great deal of Ale". His son William Dawley said that "in the Business of Pipe Making his father usually employed three or four Journeymen and as many Women", and also that he believed his Uncle John Dawley had sold "some of the Tools for Pipe Making". Unfortunately the trades of William, his uncle John and brother-in-law Thomas Hartshorne do not appear to be recorded in the document. It is interesting that pipemaking generally seems to be mentioned before innkeeping, and may therefore have been his primary trade. Also that he employed about six to eight workers (yet his tools were only valued at £2.0.0), and that about half of these were women. The probate value of £90.05.00 suggests he was a fairly wealthy man.

Alice Deacon Died about 1690 (probate 26 Feb 1690, Appendix 3). The probate includes pipemaking tools. Alice is probably the widow of Samuel II, since her estate included a large pipeshop (the tools were valued at £13.05.00), and she left the substantial sum of £258.04.08

George Deakin Recorded as a pipemaker at Lawley Cross in 1640 (Borough Court Papers, Mullins, *in litt.*), making him the earliest documented maker in the area. George Deacon 'an old man' was buried at Wenlock on 15 September 1646. If this is the same person he may have been pipemaking well before 1640, and could well be related to the Samuel Deacons below.

Samuel Deacon I Died 21.6.1655 (MWPR). Not recorded as a pipemaker. Possibly the father of Samuel II.

Samuel Deacon II Samuel and Mary baptised a daughter Mary (23.10.1664, buried 23.5.1665), and a son Andrew (5.3.1664). He later also had a daughter Lucia (below). Samuel may have later married an Alice (above), and Samuel III may have been their son, although these references have not been checked fully. Samuel II is recorded as a pipemaker in the lay subsidy of 1661 when he paid tax of 2/6d (PRO E179/168/214), and died about February 1673 when he was buried (MWPR, probate 8 Feb 1673, Appendix 3). The PR records that he lived in Spittle Street, where he paid tax for three hearths in 1672 (the average number of hearths per house for which tax was paid in that street was 1.9). He was clearly a fairly wealthy man, leaving an estate valued at £93.01.10. The probate includes pipemaking tools. Lucia, the daughter of the late Samuel Deacon was buried in Oct 1676.

Samuel Deacon III Samuel, son of Samuel Deacon was baptised Aug 21, 1667 (MWPR). Although not recorded as a pipemaker he is likely to have been one, and presumably ran the large workshop owned by Alice after his father's death. This would explain the continued occurrence of Samuel Deacon marks right into the eighteenth century.

Thomas Edwards alias Harper Died about 1668 (probate 30 March 1668). Described as a pipemaker in the probate.

Thomas Harper See Tho Edwards above.

Thomas Hokins This name occurs on a pipe bowl in the Wenlock museum dating to about 1700-30. He could possibly be a Wenlock maker. A Sam ?Hotchkiss is listed in Wenlock in 1734 (no occupation), and may be the same person.

John Hughes Paid Hearth Tax on one hearth in 1662, willed implements by Samuel Browne in 1688 (Mullins, *in litt.*, 13.1.87).

Joseph Hughes Recorded as a pipemaker in working in Barrow St in a deed of 1729 (SRO 1224, box 97).

Samuel Hughes Died about 1729 (probate 16 Oct 1729, Appendix 3). Described as a pipemaker in the probate.

Samuel Jaxon Samuel son of Samuel Jaxon, pipemaker, buried 21 June 1655 (MWPR).

John Kidson Recorded as a pipemaker in Wyke (between Wenlock and Benthall) in a probate of 1726 (Appendix 3). This is almost certainly the John Kitson listed in Benthall above.

Robert Lumas Robert Lomas, pipemaker, and Joyce his wife baptised a son Edward 3.12.1654. They also had a daughter Mary (bap & bur 1665), and a daughter Elenor (bap 26.7.1663).

George & Edward Meyrick, one or both recorded as pipemakers in 1737, the reference being ambiguous. George, son of Edward Meyrick, pipemaker, was admitted as a burgess of Much Wenlock in 1737 (Court records). Eighteenth century stem marks reading GM are known, which could well be George Meyrick, and thus provide support for his being a pipemaker.

Griffith Powell (Povel) Died in 1673 (buried in November, when he was described as of Spittle Street; probate 20 Nov 1673, Appendix 3). Described as a pipemaker in the probate. Griffith Powell and Margaret baptised a son Francis in 1653 (MWPR). Griffith Powell paid tax on one hearth in Spittle Street in 1662.

John Roberts Recorded as a pipemaker in 1678 (Mullins, *in litt*, 13.1.87).

Rich Roberts Paid window tax in 1712 (Mullins, *in litt*, 13.1.87). Died about 1716 (probate 28 Dec 1716, Appendix 3) Described as a pipemaker in the probate in which he left his tools to William Bruce.

William Savage Died about 1686 (probate 10 Sept 1686, Appendix 3). Described as a pipemaker in the probate.

Richard Shaw Recorded as a pipemaker in a deed of 1726 (SRO 1224, box 89) - also known from marked pipes of c1700-40. Richard appears at intervals in the Much Wenlock examinations books until at least 1735. In 1730 Richard Shaw (pipemaker) and his wife Alice complained that Samuel Bowdler, Gunsmith, had often broken his windows and thrown stones into his house, and continued to do so. He signs with a poor 'R' (MWA Q1/3/1, 13). He does not appear to have made himself altogether popular in the town, another case in 1734 (Q1/3/1, 94) recording a dispute in which he was in effect accused of collecting money under false pretences, and in yet another case (Q1/3/1, 99) he 'reported' someone for swearing on a Sunday. Unfortunately there appears to have been another Richard Shaw in Wenlock at this time, since the Parish Regs record the baptism of Joseph, son of Rich and Elizabeth Shaw on 13 Sept 1720, and ?John, son of Richard and Elizabeth in 1723. Also in 1747 a Joseph Shaw, son of Richard Shaw of Much Wenlock (coachman) was admitted as a Burgess of the town, so

care must be taken in linking a reference to the pipemaker Richard Shaw unless his occupation is given.

George Smith Pipe marks date to about 1680-1720, possibly a Wenlock maker, since other makers of this name worked there. A George Smith is recorded in New Town in the Wenlock Survey of 1736 (Nat. Lib. Wales, Wynnstay Coll, M2530).

Joseph Smyth Recorded as a pipemaker in 1715 (PR) & possibly in Barrow St in 1718 (Mullins, *in litt*, 13.1.87).

Richard Smyth Recorded as a pipemaker in 1721 (Mullins, *in litt*, 13.1.87).

Edward Taylor Marked pipes of about 1700-40 (but perhaps later) frequently found in Wenlock. Perhaps the father of Samuel below. There are several references to Edward Taylors in the Wenlock PR, but one couple fit the suggested dates and details well. They are Edward and Elizabeth Taylor who baptised eight children between 1707 and 1724, one of whom was called Samuel (1712). Also an Edward Taylor Jr was buried in 1741. A specific reference to Edward Taylor, pipemaker, appears in the Much Wenlock Examinations book on 1 July 1734 (Q1/3/1, 78) regarding his last place of legal settlement. In the statement he says he was born in Kings Swinford in Staffordshire, and that about nineteen years ago (1715) he was bound apprentice for seven years to George Wilkinson, pipemaker of Much Wenlock. He signs with a cross. If this is the Edward Taylor who marked the pipes then the earlier PR references can be discounted, and the starting date of his pipes put as late as 1722+ when he would have completed his apprenticeship. An Edward Taylor of Broseley is recorded as a pipemaker in 1736 (MWA Q1/3/1, 115), perhaps the same person.

Samuel Taylor Recorded as a pipemaker in St Mary's Lane in 1739 & 1769. There are two Samuel Taylors in the Wenlock PR. One married Joyce Tucker in 1737, the other married Abigail and baptised eight children between 1739 and 1755. In 1769 a survey of Wenlock describes Taylor's property as 'a poor stone dwelling with a pipe maker's work shop with straw cover' (Nat. Lib. of Wales, Wynnstay Coll L1288, 1769, Mary's Lane, south side, 2, tennent in 1736 and 1769 Samuel Taylor).

Thomas Tucker Recorded as a Much Wenlock pipemaker in 1734 when he acknowledged a debt in the MW examinations book (Q1/3/1, 87). A Thomas Tucker is recorded in New Town in the 1736 survey of Wenlock (Nat. Lib. Wales, Wynnstay Coll, M2530).

George Wilkinson Recorded as a pipemaker in 1715 when he took Edward Taylor apprentice for seven years (see Edward Taylor above). A person of this name in Wilmore Street in 1715 (Mullins, *in litt*, 13.1.87).

William Wilkinson Died about 1728 (probate 3 April 1728, Appendix 3). Described as a pipemaker in the probate.

Morris Vaughan Died about 1683 (probate 13 April in the 23rd year of Charles II, Appendix 3). He is described as a labourer in the probate, the contents of which includes 'tobaccopipe clay' valued at £0.03.04. He was not necessarily a pipemaker.

Richard Vaughan Given as a pipemaker in Barrow St in a deed of 1708 (SRO 1224, Box 97).

OSVESTRY PIPEMAKERS

This list is taken from entries given in Oswald (1975, 190), to which no additional work has been carried out.

G Haswell 1834-75 (Directories).

Thomas Jones 1844-51 (Directories).

SHREWSBURY PIPEMAKERS

This list is based largely on the work of J E Andrews who has studied the Taylor family, and all the information on them has been extracted from his article (Andrews, 1986). In addition the author has added the Walker and Roden marks, but has failed to find any other evidence of pipemaking in the town. The Shrewsbury Burgess Roll has been checked, but contains no pipemakers, nor have any makers been found in the directories examined. As the county town for Shropshire it would seem likely that some makers would have set up there, despite the nearby presence of Broseley and Much Wenlock. The documentary evidence however is not yet forthcoming.

Samuel Roden Amongst the Samuel Roden marks, Atkinson (1975, 78) lists one which reads SAM*/RODEN/SALOP, c1760-1800 (fig 47.20). This may well refer to Shrewsbury rather than Shropshire in general, and thus indicate the presence of at least one eighteenth century maker.

A & E Taylor (Mrs) Anna and Elizabeth are sometimes listed under their own names in the trade directories of 1888-1903. They appear however to have been alternatively known as W. Taylor (& Co), and were clearly continuing their father's business (see William Taylor below). Somewhat confusingly the only marked pipe known has the incuse moulded name along the stem E. TAYLOR & C(O) / (SH)REWSBURY (fig 59.3), a variation not recorded in the directories.

Samuel Taylor Samuel was the son of Andrew, and the grandson of William below. He is reported to have made some pipes after 1912 in conjunction with the tobacconists at 52 Longden Coleham which superceded the pipeworks.

Thomas Taylor Thomas was the son of William below, and is the only member of the family to appear under a different name and address in the same directory as other members of the family. He is recorded as a pipemaker working at 1 Pipe Passage in 1880 & 1882. This is clearly very near the family workshop and he may well have shared facilities such as the kiln. No pipes are known.

William Taylor Recorded as a firm 1830-1912.

Likely to have been pipemaking c1830-59+

Born.....1816 at Birmingham.

Married.....1837 to Ann Chidlow (Chidley) at St Mary's, Shrewsbury.

Children.....1839 William.

1844 Thomas.

1847 George.

1848 John.

1850 Elizabeth.

1853 Lavinia Maria.

1855 James.

1857 Andrew.

1859 Anna.

Died.....not traced.

William and his brother (? possibly named Thomas) came to Shrewsbury and established a pipeworks in about 1830 (1885 advert). A Thomas Taylor is recorded in Birmingham directories 1828-31, so if this was his brother they may have worked there previously. The works appears to have been at 52 Longden Coleham, except for the period 1886-90 when the address is given as the adjacent 18 & 19 Pipe Passage. Several members of the family clearly helped with the pipemaking business, and some of them are recorded independently (A & E, Samuel and Thomas Taylor). Unfortunately the business was clearly known by a number of names, W. Taylor, W. Taylor & Co, or just Taylor & Co. These terms alternate in the different directories together with A & E Taylor, so that it is difficult to know exactly who was working in it or running it. Basically the family as a unit appears to have been involved in running the firm, which was sometimes recorded as Mrs A & E Taylor in the period 1888-1903. The regular operation of the family business appears to have ended in 1912. No marked pipes are known (but see A & E Taylor above).

J Walker The Judd collection of pipes includes a stem with a relief stamped mark along it reading J WALKER / SALOP (fig 60.3). Stylistically it dates to c1800-40, and presumably it represents an otherwise unrecorded Shrewsbury maker.

WELLINGTON

Only one pipemaker has been recorded for Wellington, which lies about 6 miles NNW of Broseley. No other research on either the pipes or documents has been carried out.

William Evans A probate dated 12 March 1693/4 for William Evans, pipemaker, of Wellington has been published by Trinder & Cox (1980, 300). A transcript is included in Appendix 3.

APPENDIX 3 - Probate Inventories of Shropshire Pipemakers.

All the pipemakers' probate inventories so far known to have been transcribed for Shropshire are contained in this appendix. They almost all come from Much Wenlock, Broseley and Benthall where systematic work on the probates has been carried out. These areas coincide with the principal pipemaking centres for the county, and it is likely that all of those surviving for these areas have now been identified. Unfortunately not all of the Broseley and Benthall ones have yet been transcribed (there are 12 known in all), nor have any of the accompanying wills. In addition it is quite possible that some probates may exist for pipemakers in other areas of the county which have not yet been examined. This is particularly true of Cleobury Mortimer, which appears to have had a thriving industry in the late seventeenth to early eighteenth centuries. I am most grateful to Mr S Mullins for permission to use his transcripts of the Wenlock probates, and to Dr B Trinder for permission to use his transcripts of the Broseley and Benthall probates. The Wellington inventory was published in 1980 by Trinder & Cox (p300). The inventories are arranged alphabetically by place. Each place is divided by a solid line, and each probate by a dotted line. The originals of all the probates are housed in the Hereford Record Office.

BENTHALL & BROSELEY

Thomas Hartshorne - Summary of will dated 12 September 1741; to son John one silver spoon marked with his own name in 2 letters & bought with my own money with the vice & materials belonging; to son Robert one silver spoon maked with RBG on the backside & 2 bedsteads by fireside in my chamber if he will accept them; to son Thomas one silver spoon marked on the backside with RBG & my Joyn box, my pewter can & my pewter dish marked with my own name; All the rest I bequeath unto my poor lame and decriped wife then to son Morris for he hath been a good help child to us his Aged parents both in duty and assistance ever since he was able to work still using a good conscience; he is named executor.

An Inventory of all and singular the Goods and personal Estate of Thomas Hartshorne late of Benthall in the County of Salop Tobacco pipe maker Deceased taken and Appraised the Tenth day of September in the year of Our Lord 1743.

In the Kitchen

A Brass Pan, two Brass Potts, three Brass Kettles, two Pr. of Candlesticks, A Brass Morter and Pestell	01 10 00
Ten Pewter Dishes, fourteen pewter plates, two pewter tankards, One Pewter Candlestick, a pewter Chamber pot a pewter Salt and Mustard pott	01 10 00
A fire Grate three pair of tongs. One fire Shovel a fire plate two spitts A dreeping Pan 2 Cleevers 2 fleshforks	01 01 00
An Iron Morter and pestell	00 05 00
A parcell of Tinn Ware	00 02 00
A Warming Pan and frying Pan	00 04 00
Two Tables a fourm and Joyn Stool	00 07 00
Two Joyn Chairs, two Ash bottom'd Chairs, three Segg Chairs and a Chafing Dish	00 08 00
Three Smothing Irons A Pair of Bellows & basting Spoon	00 03 06

A Pair of Hedge Sheers And A Cast Iron fireplate	00 02 06
A Bible and some other Old Books	00 16 00
In the Scullery	
A Small Boyler two Iron Potts and pothooks One Marment	00 10 00
An Old Vice two pails and Other Lumber	00 05 00
In the little Room and Buttery	
A Press Cubbert a fourm a Table and Churn three small measures	00 15 00
ffour Old Barrils two Milking Gauns a Tuning dish	00 10 00
In the Chambers above stairs	
Three feather Beds bolsters and Pillows	04 10 00
A flock bed and bolster one Coverlid	00 07 06
Three Rugs four Blankets	01 10 00
Three pair of Bedsteds one sett of Curtans	01 10 00
A Side table and Glass three chests three Boxes a trunk and Close stool	01 14 00
One Silver Cup and Eight Silver Spoons	03 00 00
Three pair of flaxen sheets 3 pair of hemp sheets 4 pair of Hurden sheets 2 Dozen of Napkins 3 pillow beers	03 00 00
A table a Coffe two Chairs and other odd things	00 12 00
The Deceasaed Wearing Apparrill	01 01 00
In the Shop	
A parcell of Old Tobacco pipe tools	00 12 06
Three Spinning Wheels 2 Coolers and two tubs	00 12 00
A parcell of rakes and Pike Evils 2 Dresing rakes an Old Sythe	00 04 00
A Mathook, a hack, an Ax, a broomhook & two spades	00 06 00
All other Lumber and things not particularly Mentioned	00 05 00
In the Ground	
Two Milking Cows	06 15 00
A small rick of Hay	<u>01 00 00</u>
	Inventory totall <u>35 08 00</u>

Jno Instone
Tho Pitt
Appraisers.

Exhib. at Ludlow. 12 Sept 1743 by Morris Hartshorne the Executor.

.....

An Inventory of the Goods Chattles and personall substance of Thomas Hughes the Elder Late of Brosley in the County of Salop Tobacco pipe maker but at his Decease a sojourner (with his son and Executor Thomas Hughes) in the parish of Madeley in the county of Salop Aforesaid Taken and Appraised the 18th Day of July in the year of Our Lord 1735 By us whose Names are hereunder subscribed.

Imprimis. pewter of all sorts	00 10 00
Two old ff feather and fflock Beds and beding thereon	01 00 00
ffour Overworn pair of Sheets	00 06 00
Two pair of Lumber Bedsteds	00 05 00
Three Old Coffers	00 03 00

Tobacco pipe Tools	00 10 00
The Deceaseds Wearing Cloaths and money in his pocket	02 00 00
The Reversion of a mortgage Deed	08 00 00
Two Old Barrills Two Small Tubs One old Iron pot One Old fire grate and all other Lumber unmentioned	<u>00 10 00</u>
Inventory Total	<u>13 04 00</u>

The Marke of John Rowlands
John Hartshorne
Appraisors.

Exhib. at Ludlow 25 May 1736 by Thomas Hughes the Executor.

.....
William Morris, tobacco pipe maker of Broseley, probate dated 5 July 1756. The will of 10 Dec 1755 leaves apparell to brother Samuel, and the rest to wife Mary.

In the Kitchen
one Dresser of Drawers a pewter frame and the Pewter thereon 01 10 00
Three old tables & Three Chairs 00 10 00
A Fire Grate fire shovel & Tongs 00 06 00
A pair of Steel Irons & some other iron work of the fire
place 00 04 06
A Little Cupboard & other Lumber 00 03 00

In the Pantry
One Salting Bench & shelves 00 02 06
One little firkin & abt 12 Glass Bottles 00 02 06
One little Brass pott on Iron pott & one Marment 00 05 00

In the Kitchen Chamber
One pr of Bedsteads one Curtain a feather Bed Bolster &
Bed Cloathes 01 10 00
One Chest and one table 00 06 00

The Chamber over the House
One pair of Bedsteads one Curtain one ffeather Bed &
Bed Cloathes & skreen 02 00 00
One Chest with two Drawers & a Coffe 00 10 00

In the Backhouse
Two Kneading Tubs a Meal Tub & two cast mettles Iron
Boylers & one Dresser 00 13 06

In the Buttery
One Dresser & Shelves & other Lunber 00 02 06

In the Shop
Tobacco Pipe Tools of all sorts 01 01 00
Linen of all sorts pretty much overworn 00 12 00
Tot 09 18 06

M Stphens
Jno Hartshorne Apps.

.....

A True and perfect Inventory of ye Goods and Chattles & Credits of Thomas Roden of the pish (parish) of Broseley in the County of Salop lately deced, which since his Death hath Come to the hands or possion of Richard Roden and Samuel Roden n'tall and lawfull Sons of the sd Deced. [This probate exhibited 16 June 1724]

Imps. The deced wearing Apparell	01 00 00
Item Two joint Chests and a Midling Joint Table	01 02 06
Tt. Two indifferent ffeather bedds and bedsteads two old blanketts, One Indifferent Ruggs one old Coverlid and two bolsters and other Materials thereunto belonging	02 10 00
It. Two pair of old hurden Sheets	00 04 00
It. One pair of flaxen Sheets One hempen Sheet and one hempen Table Cloth	00 10 00
It. Ten indifferent pewter dishes and 12 plates	01 05 00
It. One old Cupboard one old Skreen Table & one other old Table and joint stool and two drawers	00 16 00
It. One old Warming pann One Iron Spitt a small ffire Grate a Candle box and a Small pair of Tonges and Creeper	00 06 00
It. Two old battered Barrells	00 01 00

The Implements and Tooles for ye art of Tobacco Pipe making belonging to the deced above mentioned

It. One Curricomb Screw and one Cheek Screw	01 03 00
It. One long pair of peak heel moulds and one long pair of broad heel moulds	00 12 06
It. Two pair of Short moulds one pair of broad heels ye other round heels	00 10 00
It. Two old pair of Short moulds	00 05 06
It. One pair of hunting Moulds	00 05 00
It ffour stoppers for the Moulds	00 00 04
It. One old ffire Shovell	00 01 00
It. Working Clay in the Shop	00 07 06
It. One old ffire Grate belonging to the Shop	00 08 06
It. One Dozen of working boards and 14 Wooden Grates for the Pipes &c	00 10 06
It. Three Slob Benches One old Mitt and Trough two Slob blocks	00 05 09
It. One Small Marmulet in the Shop	00 03 06
It. Other old Lumbers and Small Usefull Implemts. elsewhere not in Custody unseen and unmentioned	00 05 00
Total	<u>12 12 07</u>

John Browne
 Thomas Hartshorne Apprizors
 Richd Harper

Richard Roden
 the mark of Saml Roden X

.....

An Inventory of all and Singular the Goods Chattles and personall Estate of Thomas Taylor late of Brosley in the County of Salop Deceased which came to the hands of his Executors at his Death taken and Appraised the 21st Day of January in the year of our Lord One

Thousand Seven Hundred and Thirty Nine by us whose Names are hereunder Written.

In the Kitchen

One Dresser of Drawers and pewter frame	00	04	00
four pewter Dishes Seven pewter plates, Three pewter Quarts, One pewter pint Two pewter porringers	00	10	06
One Tinn Candle Box and Cullinder	00	00	08
A Clock and Clock Case	01	10	00
One fowlding Table	00	01	06
One Small Iron pott	00	01	06
One Small fire grate fire shovel & Tongs	00	04	00

Three Barrells, One Kneeding Tubb in the Buttery	00	08	00
--	----	----	----

In the Room over the Kitchen

One feather Bed, Two Blancketts, One Rugg One pair of Bed steads and Curtains	01	15	00
One Chest, One Table Two Small Coffers, 2 Boxes	00	10	00
Six pair of Course Hurden Sheets, One pair of fine Hemp Sheets	00	19	06

In the Roome Over the Shop

One feather Bed, Two Blancketts, One Rugg One pair of Bedsteads	01	15	00
One Small Ovel Table	00	02	06

In the Shop belonging to the Tobacco pipe trade

Three Screws Seven pair of Moults, Twenty Grates, Twenty Boards, three Slob Benches	06	00	00
---	----	----	----

The Deceased Wearing Appaerell	01	00	00
--------------------------------	----	----	----

All other Lumber and things Unmentioned	00	07	06
---	----	----	----

Inventory Totall 15 07 06

John Hare

John Hartshorne

Appraisers

MUCH WENLOCK

A true Inventory of all the goods & chattells of Samuell Browne late of Much Wenlock deceased taken and aprised the 24th day August in the 20th yeere of the Raigne of our Sovraigne Lord Kinge Charles the second [1668] by the grace of god Kinge of England Scotland France & Irland defender of the faith etc

Imprimis his teniment with ye aportinents there unto belonginge

one bible with other bookes	00	05	00
one scrue belonginge to tobacco pipes	00	06	08
one paire of bedsteeds	00	03	04
one Coffe	00	01	00
one iron pott	00	04	00
ine iron gratt	00	02	06
one planck	00	01	06

his wearing Apparrell	00 10 00
all other thigs one prised	<u>00 01 08</u>
	The totall some is <u>06 15 08</u>

Roger Shawe
George Carver prisers
Edward Smart his marke
William Sanedge his makre

Thomas Taylor his marke
Moses Meredith

.....

An Inventry. of all & Singular ye Goods Chattles and Cattle of William Bryan senr. late of Much Wenlock in the County of Salop deced. wch: came to the hands of his widow and Executrix Elizabeth Bryan at his decease taken & Apprized the ninth day of September Annoq. Domi. 1731 By us whose are hereunder Written

In ye Kitchen
Brass Pewter & Iron Ware of all sorts 01 01 06
A small Ovall Table wth. other Lumber Benches 00 05 00
Tobacco pipes Tooles 01 03 00

in the Buttery
two old Brewing tubbs & 3 Barrells 00 08 06

in ye Chamber over ye Kitchen
One old Lumber pair of Joined Bedsteeds, one old pair of Truckle Bed-steeds & Bedding on Both 01 10 00
One Table & Forme one Chest & one Joyn stoole 00 12 00

In the Chamber over Willm. Bryan's shopp
One old pair of Bedsteeds & Bedding thereon 00 18 00
One old Table: two Chaires wth: other old Lumber 00 06 06

In the Barn
a small quantity of Corn and other Grain unthrashed 03 00 00
One small Trowel 01 00 00
Two old Horses & their Gearing for paiking 03 10 00
a small quantity of Hay 03 00 00
the deceaseds wearing Apparrell 00 18 00
Linnen of all sorts 01 00 00
All other old Lumber unmenconed 00 05 00

Invtry. Tot 18 17 06

Richd. Penn
John Hartshorn Apprs.

Exhib. 28th September 1731.

.....

June ye 3rd 1714 An Inventory of ye goods & chattels of Tho Dawley deceased Aprised as follows

1 Cow 02 00 00

1 acre of wheat growing	01 00 00
1 acre of lent graine	00 15 00
6 piggs	01 00 00
Ale & Beere in ye house	10 00 00
A clock & case	02 00 00
a silver cupp	02 00 00
3 Beadsteeds : Beads & furniture	07 00 00
Linnings & yarne	05 00 00
Pewter & Brass	02 10 00
Grates Broaches & Iron goods	01 10 00
A furnace	01 10 00
Wooden vessels	01 00 00
A Chest table Boards A press chaires & other Joyr.	02 00 00
Provision for ye house	02 00 00
Tools belonging to ye pipe trade	02 00 00
Boards & Joyce	02 00 00
Wearing apparell & money in pocket	04 00 00
Bills Bond & desperate debts	36 00 00
The title of ye house	04 10 00
Lumber & other things out of sight	<u>00 10 00</u>
	total <u>90 05 00</u>

Aprised ye day and year above written by us whose names are under subscribed

John Skett sener
The mark of Richard Dawley
Rich. Parsons

.....

A True and perfect Inventory of all and singular the Goods Chattles and Cattle of Alice Deacon late of Much Wenlock in the County of Salop and diocese of Hereford deced taken and apprized this six and Twentyeth day of February in the third year of the Rayn of William and Mary now King and Queen of England etc Anno qs dni 1690 by us whose names are here subscribed.

Imprs In the Parlor one Joyned Bedstead and Bedding a Table and frame a Chest a Cupboard and Benches	04 05 00
in the Buttery hogsheads Barrells Bottles and drawers	03 00 00
In the Chamber Three Bed steeds and Bedding Two Chests and Boxes	04 00 00
Over the shopp Three bedsteeds and Bedding	03 10 00
All Toolles Clay and Implements for Tobacco-pipe makeing	13 05 00
In the shopp one brewing fornace and Grate	01 12 06
In the house and Buttery Two Tables and frames with benches stooles Chaires and shelves	03 05 00
All Brass and Pewter	03 15 00
All Iron Mensells in the house	05 10 00
All wooden Mensells of household and huswifery	06 00 00
four oxen five Cows six young beasts six Piggs four horses	65 00 00
All Corne and Graine in the house Barne and fields	79 15 00
All Implements of husbandry	23 03 10
Meat and Provision in the house	10 10 00
All Linnens hemp and yarne	06 00 00
The decds wearing Apparrell	05 00 00
for things forgotten and unseen	00 13 04

Good debts	05 00 00
desperate debts	<u>15 00 00</u>
Suma totalis	<u>258 04 08</u>

Apprized the day above by us
Richard Bullock
William Cocke

.....

An Inventorie of the Goods & Cattles of Samll. Deacon of Much Wenlock deceased. Taken and appraised by us whose names are subscribed the eith day of Febr. in the XXXth yeare of kinge Charles the Second & in the yeare of our Lord God 1673

Imprs. In the parlor one Joynd bedsteed and beddinge belonginge	03 00 00
One truckle Bedsteed one Little table board & Carpett, two Joynd formes	00 10 00
One Joynd Chest, one Cubbard, one Glas...rate one box eleven pewter dishes two pewter Chambr potts one flagon one salt one Candlestick	00 15 00
two brass Kittles one posnett one warmeing pan one brass Candlestick	00 15 04
two Iron potts one iron Grate two fire shovells one payr. of fire tongs one iron spitt & Cobberds one Iron Morter, one frying pan, one payer of bellows	00 13 04
In the Kittchin one table board & forme, one Spininge wheel four old Chayres with benches & shelves	01 02 06
In ye Little Chamber over ye porch one old bedsteed & flock bed with Cover and bolster one Chest one falling table and one bench	00 10 00
In ye Chamber over the hall one bedsteed with feather bed & bolster one old Green Rug two old blanketts with old Curtains & Vallons	00 12 00
one Chest and one forme	02 00 00
pease fetches and Oats threshed in the howse	00 05 00
In the Chamber over ye Shopp two old bedsteeds & flock bedds with old Cover Letts & blancketts one table board & frame one old Coffe	01 14 00
In the Shopp & his workeing Roome for his Trade: Tobacco pipes Moulds & other Implements for his trade some Clay to make tobaco pipes, with pipes burnt and unburnt	00 15 00
In the Little buttery, one nest of Drawers one hogshhead, two Little Rundletts, a Childs Cradle, one planke one little table	04 05 00
Bookes of all Sortts	00 11 00
Pvision in ye howse viz. beefe Bacon butter and Cheese	00 10 00
all Linnons as sheets table Cloaths napkins baggs etc	01 16 00
one single Oxe £3 six Kine £13 two 3 yeare old heifers & two yeare old heifer £4 10s one Little bullock 20s	02 10 00
	21 10 00

one horse & one very old Mare £5, 20 sheepe; 20s. 5 small swine 20s	07 00 00
Corne in the barne with some hay & pease	05 10 00
one Corne Wayne & Wheelles, one tumbrell boddy, three yokes two iron Chayres with plows, Geares and other small Implements of Husbandry	03 10 00
one hackney saddle, two pack saddles & Girths	00 10 00
Corne Growinge in the field	30 00 00
all wooden ware, earthen & trinnen Ware	00 06 00
one Mill & stone to Grind tobacco pipes Clay	00 06 08
the deceadants Wearing Apparrell 40s	02 00 00
All smal things nott apprayed	<u>00 05 00</u>
Su. totall	<u>93 01 10</u>

Apprayed by

Rich. Field
Abell Fenimore
George Carver

.....

A True & pfect Inventory of all & Singular the Goods & Chattels of Thomas Edwards als Harper late of Much Wenlock in the County of Salop Tobacco-pipe-maker: Taken and Apprised the Thirtieth day of March Anno Dm 1668: And eight yeare of the Reigne of our Sovarigne Lord King Charles the Second, thatt noro is of England etc the XXth: By George Adney, Thomas Deyos & Willm Loton Appriseth as followeth

Imprimis one Brasse pan	00 10 00
Item one Chest	00 09 00
Item one Quoffer	00 00 09
Item one payer of tobacco-pipe Moulds	00 10 00
Item Debtts Seperate & desperate due & owinge to the decedent	08 00 00
Item all things unprised and nott Remembered	<u>00 01 00</u>
Summa totalis	<u>09 10 09</u>

Geo: Adney
The marke of Thomas Deyos Aprisers
The mke of Willm Loton

Exhib 30 March 1668

.....

A True and perfect Invty. of all & singular the goods & Chells of Samuell Hughes late of Much Wenlock in the County of Salop Tobacco pipe maker Deced. taken & apprized by Mr Joseph Carver & Robert Barwell the 16 day of October 1729 as followeth

In the Kitchen	
Two Cupboards & one forme five pewter dishes two Iron pots one Iron Kettle one brass Kettle pothooks Links fire grate fireshovell tongs Tools & Implemts. for the pipe making Trade & other small things & 5 pewter dishes	02 03 06

In the Back room

Two barrells one ovall mitt one stand one Cupboard & other Lumber things	00 11 06
In the Chamber over the Kitchin	
Three Chaff beds 3 bedsteads sheets blankets 1 Chest 3 Coffers 3 boxes & other small things of little value	01 10 00
In sevrall. places Tobacco pipes	01 10 00
In the Barn & Stable Corn Hay & lent graine	04 10 00
Cloth & wearing apparell	01 00 00
Two & twenty sheep	05 00 00
Money in the House	<u>40 19 00</u>
	[should be 57 04 00] <u>57 14 00</u>

Mr Joseph Carver
Robert Barwell
Apprs.

Exhib. 30 March 1729

.....

A True and perfect Inventory of the Goods & Chattles of John Kidson
Pipemaker late of Wyke in the parish of Much Wenlock deceased taken &
apprized the 18 day of January 1726

3 Cows 1 yearling 1 Calf & a Mare	08 00 00
Brass & pewter	00 07 06
Iron Ware	00 07 06
All wooden ware	01 00 00
Beds & Bedding	00 10 00
Linnen of all sorts	00 05 00
The Shop tools	<u>01 00 00</u>
	Tot <u>11 10 00</u>

Apprized by
Richard Russell
Sam'l Instone

.....

A True & pfectt Inventory of all the Goods & Cattell of Griffith
Powell late of Much Wenlock in the County of Salop Tobacco pipe-
maker, Taken & Apprised the Twentieth day of November In the yeare of
our Lord god 1673 Anno Regni RR Caroli Secundi nunc Anglia etc
vicesimo quinto: By George Adney, George Carver, Richard Sir als
Powell & Richard Vaughan jn., Apprisers: as followeth

Imprimis two poore horses	02 00 00
one Swine	00 11 00
Moulds, skrews & all other things belonginge to the trade of tobacco pipe makinge	01 00 00
Brasse & pewter	00 04 00
one Iron grate & all other Iron Ware	00 03 00
Beddinge of all sortts	00 09 00
Cowpers ware, and trinnen ware of all sortts	00 02 06

one swine	00 09 06
hay in the barne etc	05 00 00
Iron Ware of all sortts	00 16 00
Linnen of all sortts	01 00 00
wooll & wollin yarne	00 11 00
one peece of new Cloath	00 17 06
one Clock & one Jack	01 10 00
winter-grasse	01 00 00
Trinnen-ware, barrells & stoonds	00 15 00
18en: boards att	00 09 00
one Cart, wth. saddles and horse geares	02 14 02
one tableboard & frame, one forme, one Joyned presse,	
one Joyned stoole & 3:Chaires	01 00 00
the desceadentts wearinge Apparrell	04 00 00

in the Parlour

one bedsteed 1 feather bed & boulster, 1 flock-bed & boulster, 1 Rugg & one blankett, wth Curtains & Valentts	04 03 04
two Joyned Chestts & 1:quoffer	00 16 00

in the Chamber

Bedds, bedsteeds & other Beddinge	03 10 00
-----------------------------------	----------

Beefe, Bacon, butter & cheese & other pvisions etc	01 10 00
Manure & plowinge etc	01 16 00
in Ready money	19 19 00
all things unprised & not remembered	<u>00 10 00</u>
	<u>115 05 04</u>

George Carver
Lewis Browne Apprisers
Geo: Adney

.....

A True and perfect Inventory of all & singular the Goods and Chells. of William Wilkinson of Much Wenlock in the County of Salop Tobacco pipe-Maker lately deced. taken & appraized the third Day of April in the year of our Lord God 1728 by John Dawley and George Morral Apprzrs.

In the Kitchen and parlor

One Iron pott one Iron Kettle one little Barrell one Ovall Mitt two Cupboards one Box a Chaff Bed & Bedstead & other things of smal value	01 04 00
---	----------

In the shop

Tobacco pipes & Implemts of pipe Makeing	02 15 00
--	----------

In the Room where the Clay is ordered Clay Troughs and other things

	00 06 00
--	----------

In the Chamber over the Kitchen

one pair of Bedsteeds	00 01 06
-----------------------	----------

In the Barn Wheat and Oats

	03 00 00
--	----------

In the South Field one acre of Wheat Growing

	01 15 00
--	----------

The Reversion of the Lease	02 00 00
Hay Debts reced wearing apparell & other things of small value	<u>01 10 06</u> <u>12 12 00</u>

John Dawley
Geo. Morrall
Apprzrs.

Exhib. 9 April 1728

.....

A True & pfect Inventory of all the Goods, Cattells, and Chattells,
of Morris Vaughan late of Much Wenlock in the County of Salop
laborer, taken and Apprised the thirteenth day of Aprill, in the
yeare of the Reigne of our sovraigne Lord King Charles the Second
that now is of England etc the three & twentieth [1683], By Geogre
Adney, Thomas Powell John Hughes & Patt Price apprisoers as followeth

one Teniment in the pish of Mootley in the County of Montgomery wth a garden & backside there to belonginge [this item has been deleted with a line drawn through]	13 06 08
18 sheepe & fower lambs	04 00 00
2 horses wth their furniture	05 00 00
Corne upon the ground	03 00 00
Corne in the house	01 04 00
one little swine	00 08 00
Brass & Pewter	01 10 00
hey & fother	00 10 00
Lent graine in the field	01 10 00
a little manure	00 03 04
one Joyned Presse & Cubbartt	00 13 04
beefe & Bacon	00 14 00
tobaccopipe Clay	00 03 04
one bible & other bookes	00 06 08
one Joyned table & frame	00 06 08
one foldinge Table	00 03 04
one Iron Pott, one payer of tongues, fire shovell & all other Iron Ware	01 18 06
one payle, one Barrell, & other trinen ware	00 05 00
two Joyned bedsteeds	01 10 00
Wooll & hempe	01 10 00
one Chest & 6 Coffers	01 00 00
the deceadentts wearinge Apparell	01 00 00
one old feather bedd & 2 Chaffe bedds	01 00 00
2 blancketts & 2 Coverletts etc	01 00 00
4 boulsters, 2 pillows, 2 pillows bears, 6 payer of sheetts & other beddinge	02 00 00
1:Chayre 1:bench 1:hutch 3:Cushions	00 05 04
1:strike of pease	00 03 06
1:plinke[?] & 1:payer of bellows	00 02 00
Debttts Seprate owinge to the Testator by specialtie & wth.outt	02 10 00
Desperate Cebttts owinge to the Testator by specialtie & withoutt	42 07 10

all other things unprised and nott Remembered

00 05 00

75 19 10

George Adney
Thomas Powell (mark)
John Hughes (mark)
Patt Price (mark)

WELLINGTON

William Evans of Wellington, pipemaker, taken by Robert Peate and Nathaniel Spruce on 12 March 1693-94 and exhibited on 13 March 1693-94.

Impr. one old Bed Bedsted and Rugg	00 15 00
Linnens	01 00 00
one old pott wth other old Brass and pewter	01 00 00
one Chest and one Quooffer	00 10 00
one old table and press	00 05 00
one little Table and one old Chaire	00 04 00
one grate ffireshovell and Tongs	00 05 00
Two Beds with ye furniture thereto belonging	02 00 00
weareing Apparrell	01 10 00
his wife's weareing Apparrell	01 10 00
his workeing Tools and Clay	01 00 00
Debts Seprate and desperate	02 00 00
Things not seene omitted or forgotten	<u>00 05 00</u>
	<u>12 04 00</u>

APPENDIX 4 - Illustrations of Study Material.

This appendix contains selected drawings of pipes from collections consulted as part of this research. The collections were examined in detail and catalogued in a record book (see Introduction V). Casts were made of all the makers' marks for reference purposes, and drawings made of selected pieces. These were either chosen to illustrate local bowl forms or marks, or because they were previously unrecorded or particularly good examples of Broseley marks. To save unnecessary repetition each bowl form has not been individually dated, since a revised typology (figs 19 - 22) has been prepared. Likewise marks have not been attributed to specific makers due to the uncertainty of the current lists (Appendix 2). The makers' lists however have been prepared with likely working dates for the makers to enable them to be used as far as possible for identification and dating where required.

The nature of the collections studied varies considerably, ranging from completely unprovenanced material to well dated and excavated pit groups. Brief notes about the nature of each collection and details of the illustrated pieces will be found below. The bowls are all drawn at 1:1, and stamp details at 2:1. The different scales are usually obvious, the mark as placed on the pipe fragment usually being shown in addition to the separate enlargement. On occasions individual enlargements of marks are shown without the relevant fragment, but if this is the case the scale should be stated in the text. Burnishing lines are shown on the pipes so treated, but it should be noted that sometimes the surface is too abraded to determine the finish. As far as possible an attempt has been made to distinguish between unburnished and abraded pipes in the text. The drawings are arranged by area, with brief introductions to the collections consulted. Where the pipe has any accession or reference number, this is given first, followed by details of findspot and other notes where relevant.

The first section of illustrations re-examines some of the material in collections which have been used as the basis for previous publications on the Broseley pipe industry. Despite the importance of these collections in forming our current understanding of the industry, very little of this material has ever been published. The collections covered here are the relevant parts of the Bragge Collection in the British Museum, which includes the R Thursfield Collection, the Atkinson Notebooks, and the surviving portion of the T H Thursfield Collection in the Shrewsbury Museum. The remainder of the illustrations are drawn from a variety of sources, including private and museum collections, and excavated material. These regional groups have been arranged to start in Shropshire, and then progress in a roughly anti-clockwise direction around the county.

PREVIOUS COLLECTIONS.

Fig 32 British Museum - Bragge Collection. I am grateful to David Gaimster at the Dept. of Medieval and Later Antiquities for arranging access to this collection for me. The collection was formed by William Bragge (1823-1884), who amassed a collection of 13,000 pipes which were sold in 1882 at Sotherby's, part of the collection ending up in the British Museum (Tengnagel 1984, Bedlington Jones 1986, Rapaport 1987). The collection is still mounted on its original cardboard sheets, each pipe being individually wired on. This combined with a century's dust

makes the pipes very hard to examine, and although it was possible to arrange removal of selected specimens, there is no doubt that the pipes would repay careful cleaning and examination. Some of the bowls have provenances written on them. At least four collections of importance to Broseley were acquired by Bragge - 'Bousfields Collection', 'W J Bernhard Smith's Collection', some pipes from 'Mr Southorn' (presumably either Edwin Southorn or his brother William, both of whom ran pipeworks in Broseley), and the R Thursfield Collection, which was purchased from his widow by Bragge in 1871 (stated on cards). In all there are just over 300 pipes which probably come from the Broseley area, a small selection of which are illustrated here.

1 BG455, Thursfield Collection. Found during excavations at Wenlock Abbey. This is an early London style bowl (c1620-50), apparently marked CD. However the earliest recorded maker in the area (died 1646) was George Deakin, and the mark could possibly read GD. This piece is particularly important as one of the earliest provenanced pieces from the Broseley area.

2 BG502, Thursfield Collection. No prov. Very yellow fabric.

3 BG471, Thursfield Collection. No prov.

4 BG282, from Bousfield Coll. No prov. Marked on bowl and heel, surface abraded so any burnish not determined.

5 BG438, Southorn Collection, No prov. This does not appear to be a Broseley form. Not certain whether originally burnished.

6 BG304, from Bousfield Coll. No prov. Probably not a Broseley form. The mark is unclear, but appears to have a date in the 1660's. If this is correct it suggests an earlier date than usually given for this tailed heel form. Not certain whether burnished.

7 BG510, Thursfield Collection. No prov.

8 BG301, from Bousfield Coll. No prov.

9 Drawing based on BG16 & BG274. Several examples of this mark, which is generally given as Abraham Wong, although the lettering is not clear. The mark is often inverted on the pipe, and the fabric is often pinkish in colour.

10 BG610, Thursfield Collection. No prov. Not certain whether this bowl is burnished or not.

11 BG460, Thursfield Collection. Found during excavations at Wenlock Abbey. The name stamp is dated 1687, and the bowl decorated with other marks. There are traces of milling, and possibly other stamps, on the left hand side of the stem. This piece was first illustrated by R Thursfield in 1862, and has frequently been reproduced and copied since.

12 BG504, Thursfield Collection. The bowl is labelled 'Shirlett' (near Much Wenlock), although the bowl is a typical London spur form. If it does come from Shirlett it is the only spur pipe of this date recorded from the Broseley area, and must certainly have been an import.

The Atkinson Notebooks. In 1983 David Atkinson kindly allowed me to borrow and copy his notebooks, and I am most grateful to him for allowing me to reproduce them as a part of this study. He had used the notebooks over the years to compile notes and drawings of pipes from Broseley and the surrounding areas, and they presumably formed the core material for his study of Broseley pipes (1975). Since this body of material formed the most comprehensive collection of data then available, and has never been fully published, it has been included here in its entirety. The drawings have been arranged in roughly alphabetical order to assist searching for material, but otherwise have been copied as they appear in the notebooks. Much of the accompanying notes regarding likely makers are now out of date, and so have been omitted. Individual drawings have not been commented upon, unless there

were any notes of importance. Unless otherwise stated all the pipes were found in and around Broseley and Benthall. All of Atkinson's drawings appear to have been drawn at 1:1.

Fig 33 Atkinson Notebooks; AA - EB.

- 1 Eighteenth century relief mark rolled round stem.
- 2 Found at Ludlow.
- 3 Found at Ludlow.
- 4 Across stem; early use of place name.
- 5 Across stem.
- 6 Found at Benthall.
- 7 & 8 Both examples appear to be marked SA.
- 9 Found at Radnor.
- 12-17 Found together in a field at Benthall, April 1968, and considered to represent kiln waste. All are presumed to belong to Andrew Bradley.
- 22 Two examples from Church Stretton, both inverted.
- 23 Same EB mark as 24, found at Broseley Wood.
- 24 Two examples from Church Stretton.

Fig 34 Atkinson Notebooks; FB - HB.

- 1 Found at Worcester.
- 4 Marks across and along stem together.
- 5 No 43 or 45 in relief along stem with Geo Bradley mark across it. Perhaps a reference to John Wilke's paper No 45 - see 44.14 below.

Fig 35 Atkinson Notebooks; IB - ED.

- 5 Found at Broseley, Benthall and Nr Craven Arms (Shropshire).
- 9 Found at Benthall.
- 25 Found at Broseley and Church Stretton.

Fig 36 Atkinson Notebooks; MD - VD.

- 13 Same mark on heel and bowl, where it is surrounded by four impressions of a decorative stamp.

Fig 37 Atkinson Notebooks; WD - H.

- 2 Found at Broseley, Benthall and in Fulham, London.
- 27 Single incuse letter H. Similar marks noted on London type 25 (Atkinson & Oswald 1969) bowls.

Fig 38 Atkinson Notebooks; GH - IH.

- 1 Found at Wroxeter, Shropshire.
- 12 Found at Broseley.
- 16/19 Found at 24 Hillcroft / Hillcrest, Benthall. See 39.15 below.

Fig 39 Atkinson Notebooks; IH - RH.

- 1 Found at Bicton, Shrewsbury.
- 3 Found at 24 Hillcroft / Hillcrest, Benthall - see 15 below.
- 13 Found at Church Stretton.
- 15 Found at 24 Hillcroft / Hillcrest, Benthall with 38.16/19 above. These three types of mark were found with others marked IAMS/HART. All were considered to include kiln waste.
- 16 & 17 Across stem.

Fig 40 Atkinson Notebooks; RH - TH.

Fig 41 Atkinson Notebooks; VH - II.

- 6 Found at Broseley.

- 9 Many examples reported from Gloucester / Hereford area, indicating Ross-on-Wye as the production place.
- 11 Found at Ludlow (2 examples), across stem.
- 13 Found at Church Stretton.

Fig 42 Atkinson Notebooks; II - BL.

Fig 43 Atkinson Notebooks; BL - RL.

- 11 This bowl has the same John Legg mark as 43.12 on it.

Fig 44 Atkinson Notebooks; RL - SL.

- 10 Found at Hockley.
- 12 Found at Hockley.
- 13 Found at Broseley & Ludlow.
- 14 Stem with Rich Legg mark across and No 45 relief along stem. Another has 'WILKES' on it. Atkinson suggests this refers to John Wilke's paper No 45. See also 34.5 above.

Fig 45 Atkinson Notebooks; SL - TM.

- 15 Across stem.
- 17 Found at Church Stretton.

Fig 46 Atkinson Notebooks; RN - IR.

- 3 This author considers this to be a mis-reading of a DANL/OVER/TON mark.
- 4 Found at Church Stretton and Benthall.
- 19 Found across a stem with a twist.

Fig 47 Atkinson Notebooks; IR - ES.

- 11-13 Found at Church Stretton, 13 also found at Wall.
- 20 'Salop' may well refer to Shrewsbury rather than Shropshire in general, and thus indicate a Shrewsbury maker.
- 34 Crude incuse mark, appears to read C^m.

Fig 48 Atkinson Notebooks; GS - VS.

- 1 Found at Wall, Nr Church Stretton.
- 2 Found at Ironbridge.
- 3 Found at Church Stretton.
- 12 & 13 Examples of R Smitheman & Co bowl forms.

Fig 49 Atkinson Notebooks; VS - TV.

- 9 Metal token from the Southorn firm. Relief lettering with incuse stamped 'C'.
- 11 Found at Munslow, rare example of a moulded mark (ET) from the Broseley area.
- 20 Found at Church Stretton.
- 21 Several examples found in Ludlow area.

Fig 50 Atkinson Notebooks; TV - VV, plus symbol marks.

- 2 Found Nr Bridgnorth.
- 5 Unclear initials.
- 9 & 10 Found at Ludlow.

The T H Thursfield Collection. T H Thursfield presumably collected his pipes during the late nineteenth and early twentieth centuries, and published his paper on Broseley pipes in 1907. His collection was subsequently split between Shrewsbury Museum and the Coalbrookdale Archive Society (Oswald and James 1955, 188). The latter part of the

collection subsequently passed to the Ironbridge Gorge Museum who have since tragically lost it. The former part was located in a poor condition in Rowleys House Museum in 1985, but no supporting documentation or accession record could be found. The bowls were cleaned and numbered from 1 - 69 in pencil for reference purposes. There were only two duplicates; 56 & 57 being Griffith Powell marks (55.9), and 67 & 68 being WP marks (56.7). All the different types are illustrated here in the order in which they were numbered (1 being fig 51.1, and 69 being fig 56.8). None of the bowls have any provenance, but all appear to come from the Broseley area. I am grateful to Bruce Bennison at the Rowleys House Museum for finding the Thursfield pipes, and allowing me full access to work on them.

Fig 51 Thursfield Collection; AB - MB.

Fig 52 Thursfield Collection; SB - SD.

Fig 53 Thursfield Collection; SD - EH.

Fig 54 Thursfield Collection; GH - RH.

Fig 55 Thursfield Collection; VH - RP.

Fig 56 Thursfield Collection (1-8); RP - TR.

REGIONAL GROUPS.

Fig 56 Judd Collection (9-12). The Judd Collection belongs to Mr H H Judd of Shrewsbury, to whom I am grateful for allowing me to examine and record his collection. It was collected over many years, principally from in and around Shrewsbury, although there may be some pieces from other areas. None of the pieces are provenanced. Illustrated pieces from the collection will be found on figs 56, 59 & 60.

Fig 57 Shrewsbury - Edwards Collection. The Edwards Collection belongs to Mr G. E Edwards of Shrewsbury, to whom I am grateful for allowing me to examine and record his collection. The pipes were collected over the years from the Preston Boatts area of Shrewsbury. Many of the pieces are badly water rolled, and have clearly been in the river for some time. On many of them it is not therefore possible to determine whether they were originally burnished. Pieces from this collection are also illustrated in fig 58.

Fig 58 Shrewsbury - Edwards Collection & Andrews Collection. For Edwards Collection see above. I am grateful to Mr J Andrews of Shrewsbury for allowing me to record his collection of pipes. They have been collected over the years from a number of sources around the county. One group in particular is of interest. It was collected from Lower Brompton, near Cross Houses on the banks of the Severn during an excavation in search of a Roman road. A deposit of c1630-50 was encountered which produced a rare group of early pipes from the area (9, probably 10, 11 - 14).

1 - 5 Edwards Collection.

6 - 8 Overley Hill, Nr Telford, Andrews Collection.

9 - 14 Lower Brompton, Near Cross Houses, Andrews Collection. Only 10 is not individually labelled, but its form and colouring suggests it originally formed part of the same group.

15 Wroxeter, Andrews Collection.

Fig 59 Shrewsbury - Andrews Collection, Judd Collection & misc.

- 1 Abbey Foregate, Shrewsbury, Andrews Collection.
- 2 Overley Hill, Nr Telford, Andrews Collection.
- 3 Bear Steps, Shrewsbury, Andrews Collection. Incuse moulded stem mark E.TAYLOR & C(O) / (SH)REWSBURY, a type of mark rarely found in the Broseley area.
- 4 Wroxeter, Finger Post Excavations, Andrews Collection.
- 5 - 7 I am grateful to A Scott-Davies for bringing these pipes to my attention. No 5 was found during the renovation of 'The Hole in the Wall', Draytons Passage, Shrewsbury, and remains in my care, and 6 & 7 were found in the 'Zeba', Fish Street, Shrewsbury. The 'Zeba' pipes were found in a blocked fireplace on the first floor together with an almost identical Samuel Decon bowl. The three bowls are clearly contemporary, and form a useful group of contemporary but different marks. Thge pipes have been returned to the finder.
- 9 - 14 Judd Collection (see above). Nos 10 - 12 are stem marks, across the stem, illustrated at twice life size. The wig curlers (13, 14) have irregular holes in the centre.

Fig 60 Shrewsbury & Broseley, Judd Collection & misc.

- 1 Judd Collection. Unusual incuse roll stamp decoration, source unknown, later eighteenth century.
- 2 Judd Collection. Relief roll stamp decoration consisting of a series of 'trefoil' shapes within a 'milled' border. It is applied as a spiral round the stem, and forms part of a group produced at an unknown centre. Late eighteenth or possibly early nineteenth century.
- 3 Judd Collection. Relief mark along the stem in Broseley style, but Salop probably indicates a Shrewsbury maker.
- 4 - 8 A Scott-Davies Collection, unprovenanced.
- 9 A Scott-Davies Collection, from canal bank Nr Pimley Manor, Sundorne, Shrewsbury.
- 10 C Harrison Collection, purchased from a junk shop in Low Town, Bridgnorth. Incuse moulded stem mark /SINGLETON /RHAMPTON. Oswald (1975, 193) records C Singleton at Wolverhampton about 1840.
- 11 C Harrison Collection, found in garden of Highfields, Benthall.
- 12 Unprovenanced & unaccessioned bowl found in the Ironbridge Gorge Museum store in Coalbrookdale, 1983. This was the last reported store of the Thursfield Collection, which the Museum appears to have lost. This may be the only surviving fragment of that collection.
- 13 Pipe from the garden of 5 Maypole Road, Broseley Wood, retained by finder, Miss Y E Staelens.

Fig 61 Excavated pipes from The Wharfage, Ironbridge. This group of pipes was excavated by J C Temple from 36/37 The Wharfage, Ironbridge, in 1983, and a report prepared by the author (Higgins 1985g). The majority of the pipes found (IB 83.8) were in fact redeposited from 9 Severn Bank in Ironbridge, but provide a valuable sample of seventeenth century pipes from the area. The pipes are now held with the Ironbridge Gorge Museum.

1 - 16 IB 83.8

Fig 62 Excavated pipes from The Wharfage, Ironbridge.

1 - 10 IB 83.8

Fig 63 Excavated pipes from The Wharfage, Ironbridge.

1 - 5, 7, 8, 10 - 12, 14 & 18 IB 83.8

6 & 9 IB 83.1
13, 16 & 17 IB 83.17
15 IB 83.40

Fig 64 Broseley area - Taylor Collection & misc. I am grateful to Mr M Taylor for allowing me to record his collection of pipes from the Broseley area.

1 - 12 Miles Taylor Collection from Broseley area.
13 Found near the site of Sunnyside Tower in Coalbrookdale by a member of the Telford Development Corporation Landscape team. Relief mark I RUSS(ELL) / C.B.D(ALE). Now in Ironbridge Gorge Museum Collections.

Fig 65 Groups from 23 Benthall Lane & the Calcutts, Jackfield.

1 - 8 Group of pipes recovered from the garden of 23 Benthall Lane, Benthall by Mr P Knott, and donated to IGMT. The group included possible waste material belonging to the IH maker.

1 1982.1225.
2 1982.1228.
3 1982.1234.
4 1982.1245.
5 1982.1230.
6 1982.1236.
7 1982.1235.
8 1982.1249.

9 - 14 Pipes found during the laying of a new drain along the footpath through the buildings at the Calcutts, Jackfield in 1983. IGMT Coll.

Fig 66 Bedlam Furnaces & The Severn Trow, Jackfield.

1 - 7 Pipes excavated from the site of Bedlam Furnaces in the Severn Gorge by the Ironbridge Gorge Museum in 1986 (MY 86 B), IGMT Coll.

8 - 15 Pipes found in the garden of the old pub the 'Severn Trow' in Jackfield. The pipes have been returned to the owner. No 12 is a William Legg mark identical to 7, and No 13 reads THO*./LEGG/BROSE/LEY with a lion at the end. Note the difference between the stem twist on that pipe, and that in No 14 which is probably a later nineteenth century example.

Fig 67 Severn Trow, Jackfield; Crewes Park, Broseley & 15/15a Holly Road, Little Dawley.

1 - 2 Pipes from the 'Severn Trow', Jackfield (see above).

3 - 8 Pipes found in the garden of 49 Crewes Park, Broseley Wood. Returned to owner.

9 - 12 Pipes excavated by the author at 15/15a Holly Road, Little Dawley, now in Ironbridge Gorge Museum Trust Coll.

9 LD83.15, unusual bowl form. It has similarities with contemporary London styles, and must have been based on a model imported to the area. The use of milling and burnish however is characteristic of Broseley.

10 LD83.136
11 LD83.44
12 LD83.116

Fig 68 Much Wenlock Museum Collection.

1 18/67.
2 No accession number.
3 146/77/1a.
4 No accession number.
5 59/76/a vi.
6 35 High Street (presumably Much Wenlock).

- 7 No accession number.
- 8 44/76, Court Lodge, Brimfield.
- 9 No accession number.
- 10 Mocktree, Leintwardine, Herefordshire.
- 11 61/81, six examples of this mould type, all with a light poor burnish and none milled. Made of a hard fired yellow / brown local fabric. Two examples have the mark illustrated, four the mark shown on No 12.
- 12 61/81, one example of different mould type to No 11, showing the second stamp type. Same fabric, but not burnished at all, not milled.

Fig 69 Much Wenlock Museum Collection.

- 1 61/81.
- 2 61/81.
- 3 61/81.
- 4 61/81.
- 5 -12 1/83, 21 Oakfield Park, Much Wenlock.
- 13 - 16 From garden and orchard of Mardol House, Much Wenlock.

Fig 70 Much Wenlock - 4 St Mary's Lane.

- 1 - 12 Pipes from 4 St Marys Lane, Much Wenlock, returned to the finders, Adam and Gregory Shields, to whom I am grateful for bringing them to Wenlock Museum for identification.

Fig 71 Much Wenlock - 3 & 4 St Mary's Lane.

- 1 - 8 Found by Adam and Gregory Shields (see above).
- 9 - 12 15/81, 3 St Mary's Lane, MW Mus Coll.

Fig 72 Much Wenlock - 3 St Mary's Lane & Stretton Road.

- 1 - 3 15/81 - 3 St Mary's Lane, MW Mus Coll.
- 4 - 13 Pipes found 1987 by Richard Dyer, Robin Griffiths and David Herbert in a field by the Stretton Road, Much Wenlock. Pipes returned to finders.

Fig 73 Ludlow - Carmelite Friary Excavation. I am grateful to Annette Roe of Birmingham University Field Archaeology Unit for giving me access to these pipes from the 1984/5 excavations.

Fig 74 Ludlow - Carmelite Friary Excavation, Bridgnorth Museum Collection & Dowles, Nr Bewdley.

- 1 - 6 Finds from the 1984/5 excavations at Ludlow (see above).
- 7 - 11 Found at Dowles, Bewdley, Worcestershire. I am grateful to Mavis Barratt for collecting and passing these pipes on to me.
- 12 - 13 No accession numbers, but displayed together, and possibly found together. Of the mark it is stated 'I Roden, Bridgnorth, Probably Foundry Yard', although it is not known what the basis of suggesting he worked at Foundry Yard is. The suggestion may merely be based on the fact that later makers worked there.

Fig 75 Bewdley Museum - Porter Collection. By far the largest proportion of the Bewdley Museum Collection of pipes is made up of the Harold Porter Collection. This was collected by a retired engineer living at Hawkbatch, near the Severn. A newspaper cutting of 1976 gave his age as 69, and stated that he had started the collection about 1967. Unfortunately the collection was not properly catalogued, and the majority of the pieces are unprovenanced. The collection was clearly derived from a number of sources, but can be divided into two major elements; seventeenth and early eighteenth century bowls which were

clearly collected locally, and a large quantity of nineteenth century material which must have been derived from rubbish dumps around the midlands, and particularly in the Barnsley area. I am grateful to Charles Fogg and Jane Thomas of Bewdley Museum for their help and hospitality when studying these pipes.

- 1 Wig curler.
- 2 Hawkbatch.
- 3 Unprovinanced.
- 4 Hawkbatch or Wyre Hill (two labels attached!).
- 5 Unprovinanced, but other examples from Hawkbatch.
- 6 Hawkbatch.
- 7 Unprovinanced.
- 8 Hawkbatch, two examples, one with mark inverted.
- 9 Hawkbatch.
- 10 Hawkbatch.
- 11 Unprovinanced.
- 12 Unprovinanced.
- 13 Hawkbatch.

Fig 76 Bewdley Museum - Porter Collection.

1 - 12 All unprovinanced, but clearly not collected in the Bewdley area.

Fig 77 Worcester - 43-49 St John's. Sample of pipes recovered during building work at 43-49 St Johns, Worcester. The pipes have been returned to the developers.

Fig 78 Worcester - The Commandery Collections. I am grateful to Tim Bridges at the Commandery Museum for his help in locating and giving me access to the collections, primarily from excavations, which are stored at the museum.

- 1 1978/90T, Market Hall excavations. Incuse unbordered mark EL.
- 2 1978/90T, Market Hall excavations.
- 3 1978/90T, Market Hall excavations.
- 4 1979/20e, Queen Street (Gardner's Bakery site).
- 5 1981:45a, Pump St, pit A.
- 6 1978/90T, Market Hall excavations.
- 7 1981:45a, Pump St, pit A.
- 8 1981:45a, Pump St, Level B.
- 9 1979/20e, Queen Street (Gardner's Bakery site), possibly a John Jones mark. Four examples were found on this site, all with almost illegible marks. The pipes are made of a very coarse, but light biscuit like fabric, none are milled.
- 10 Wychbury Hill, Hagley.

Fig 79 Oxfordshire, Misc. I am grateful to the County Museums service and the Oxford Archaeological Unit for their help in recording these pipes. In particular Judi Caton at Woodstock Museum was of great help in locating the collections and in providing documentary backup material. The collections at Fletchers House Museum at Woodstock, and at the archaeological store at Botley have been consulted. The Museum collection consists primarily of small groups or stray finds collected from various parts of the county, while the archaeological store holds excavated groups. These too come from various parts of the county, and material from Abingdon, Banbury, Chalgrove, Oxford and Wallingford has been consulted. Examples of pipes from both collections are illustrated in figures 74 & 75. The accession number for pipes held at the Woodstock Museum are prefixed with W/ and those from the Botley

archaeological store with B/. All drawings 1:1, with details (Fig 79 1-7, 9-11 & 13) at 2:1.

- 1 Parks Road, Oxford, c1580-1610. London style bowl with fox mark. Similar marks have been noted from Chester, Nunney Castle (Somerset) and Salisbury (Oswald 1975, 34). The apparent absence of this type from London may indicate that it is an early provincial product, perhaps from the West Country. W/5455.
- 2 Nuffield College, Oxford, c1620-50, London style bowl, W/Nuff 5461.
- 3 Nuffield College, Oxford, c1620-50, Probably Dutch, W/Nuff 5495.
- 4 Parks Road, Oxford, c1630-60. London style bowl. Oswald (1984, 253) notes another example from Oxford, numerous examples in London, and others at Stoney Stratford, Wincanton and Gloucestershire. Possibly made by Peter Cornish, recorded in London 1634. W/5465.
- 5&6 Parks Road, Oxford c1630-55. London style bowls, possibly with Oxford influence in design. There are ten examples of ***.5, possibly with two or three die variants. Possibly an as yet unrecorded Oxford maker. W/4568-73, 4575-78, 4580.
- 7 Parks Road, Oxford, c1630-60. London style bowl. W/5459.
- 8 Parks Road, Oxford, c1660-80, made by Thomas Hunt of Marlborough, W/5460.
- 9 Parks Road, Oxford, c1660-90, West Country bowl possibly made by one of the Gauntlett family. W/5464.
- 10 Banbury Castle, c1640-60. Crude incuse EB mark, several other examples known from Banbury. Probably made locally. B/BAN 72 E 4.
- 11 City Library basement, Oxford, c1670-90. Made by Oxford maker Robert Gadney I or II. W/74.19.3.
- 12 Trinity College, Oxford, c1670-90. Typical Oxford type spur bowl. This form is very common in Oxford c1660-90, and must have been made by many of the local makers. B/Trinity College, pit group C2.
- 13 Keble Road, Oxford, c1690-1720. Made by Oxford maker Robert Gadney I or II. W/5484.

Fig 80 Oxfordshire, misc.

- 1 St Ebbe's, Oxford, c1760-90. Made by Samuel Acton of Broseley. B/OX 69B I 29 a.
- 2 St Ebbe's, Oxford, c1740-60. Made by Joyce Rhoden of Broseley. B/CH ST 68A 60b. The stamp is drawn at 2:1.
- 3 16-17 Queen St Oxford, c1700-40. Local spur type copying West Country form. W/5503.
- 4 16-17 Queen St Oxford, c1720-60. Eighteenth century spur form, with moulded mark TC. Probably made locally. W/5540.
- 5 16-17 Queen St Oxford, c1760-80. Two examples of an Oxford style bowl, with moulded initials ?BA. Possibly Ben Abbott of Ramsden, recorded 1758 (Oswald 1974, 262). W/5509 & 5517.
- 6 Unprovenanced, c1770-90. Faint relief lettering moulded on one bowl side only, possibly reads J or H B. W/3794.
- 7 Park Farm, Kidlington, c1841-76. Four examples of a fine walled bowl stamped incuse B HUGGINS / OXFORD, and relief mould marked on the spur BH. Oswald (1984, 262) records Benjamin Huggins 1841-76, and other examples of his pipes from St Ebbe's, Oxford. W/79.1.11 1-4.
- 8 St Helen's Passage, Oxford, c1870+. Thick spurless bowl rubber stamped (in ink) C G Todd, Air Balloon, Oxford. Part of an incuse stem stamp indicates the makers mark was E.Southorn / Broseley. The bowl form is in fact too late for this maker, and it would have been made by W Southorn & Co of Broseley who operated until 1960 using this earlier mark. They made a wide range of pipes personalised with the customer's name and address. B/OX HP 80 16.

- 9 Unprovenanced, c1880+. Complete pipe with incuse moulded stem mark M & L / LONGTON. W/3795.
- 10 & 11 Wig curlers from St Ebbe's Oxford. Fig 10 is burnished, and has a wire hole going right through it's centre. Botley store.

Fig 81 Dudley Castle Excavations. I am most grateful to Peter Boland, director of the Dudley Castle Archaeological Project, for enabling me to consult and use pipes from the current excavations at the castle. The material from the castle is of particular importance since it provides one of the few sites where good groups of excavated pipes, including Broseley material, have been recovered. In particular the castle was garrisoned during the civil war from 1642-6, before being slighted in 1647 (Boland 1985, 10). Many of the pipes, despite being redeposited in later layers, clearly belong to this phase of activity, and provide a valuable indication of the styles and makers' marks current in the 1640s.

- 1 DC 84 1154, SF 2519.
- 2 DC 85 5001, SF 3380.
- 3 DC 5003.
- 4 DC 86 5053, SF 4001.
- 5 DC 84 1 U/S.
- 6 DC 86 5052, SF 4004.
- 7 DC 84 1119, SF 162.
- 8 DC 85 5003, SF 3701.
- 9 DC 84 1126, SF 274.
- 10 DC 85 5051, SF 5054.
- 11 DC 84 1015, SF 1189/1192 (composite drawing of two identical examples).
- 12 DC 84 1126, SF273.

Fig 82 Dudley Castle Excavations.

- 1 DC 84 U/S, SF 1113.
- 2 DC 85 4138, SF 3056.
- 3 DC 83 2001, topsoil.
- 4 DC 85 U/S, SF 3523.
- 5 DC 85 5014, SF 5017.
- 6 DC 85 5001.
- 7 DC 85 4138.
- 8 DC 85 4102, SF 3010.
- 9 DC 85 4102, SF 3008.
- 10 DC 85 5001, SF 3527.
- 11 Composite drawing from several examples.
- 12 DC 85 5001.
- 13 DC 84 U/S find from Bailey area.

Fig 83 Warwickshire, misc. With the exception of No 2, these drawings are all copied from notes sent to me by Nigel Melton of Atherstone, and I am most grateful to him for his permission to reproduce them here. Number 2 is from a drawing sent by Margaret Jones of Minworth, Sutton Coldfield, to whom I am likewise grateful for sending me details of marks found in her area.

- 1 Hawkswell, ?EB (poor impression).
- 2 Minworth, Sutton Coldfield, (Jones Collection).
- 3 Polesworth Excavations.
- 4 Mancetter.
- 5 Mancetter.
- 6 Unprovenanced, but found in North Warwickshire.
- 7 Old Vicarage Excavations, Mancetter.

- 8 Hawkswell and Oldbury finds.
- 9 Oldbury.
- 10 Nuneaton.
- 11 Hawkswell.
- 12 7 examples from Mancetter Manor excavations.
- 13 Mancetter.
- 14 Oldbury.
- 15 3 examples from Mancetter Manor excavations.
- 16 Mancetter.
- 17 Church End, west of Nuneaton (now in Warwick Museum).

Fig 84 Leicester, misc. I am most grateful to the staff at the Leicestershire Museums Archaeological Field Unit, and at the Newarke Houses Museum for making these pipes available for study.

- 1 13380 Causeway Lane area, Leicester (Higgins Coll).
- 2 111177 Nr Leicester Infirmary (Higgins Coll).
- 3 - 14 Group of pipes found in cellar of 'Shoefayre', Cheapside in 1979.
- 15 - 16 ?Thornton Lane, Leicester (Newarke Houses Museum).
- 17 Blue Boar Lane (Newarke Houses Museum).

Fig 85 Leicester, misc.

- 1 74'1961, Belgrave Bridge reconstruction (Newarke Houses Museum).
- 2 169'1962/3 Ashby area (Newarke Houses Museum).
- 3 20 IL 1964/151 Claybrook ?Harbour (Newarke Houses Museum).
- 4 420 Unprovenanced (Newarke Houses Museum).
- 5 169'1963/1 Ashby area (Newarke Houses Museum).
- 6 283 1959 Thornton Lane (Newarke Houses Museum).
- 7 13380 Causeway Lane area (Higgins Coll).
- 8 13380 Causeway Lane area (Higgins Coll).
- 9 525'1961 Blue Boar Lane (Newarke Houses Museum).
- 10 'Shoefayre', Cheapside (see above - now in Newarke Houses Museum).
- 11 Beaumont Botanical Gardens, Oadby (Higgins Coll).
- 12 13380 Causeway Lane area (Higgins Coll).

Fig 86 Leicester, misc.

- 1 389 1973 U/S Austin Friars excavations (Field Archaeology Unit).
- 2 389 1973 U/S Austin Friars excavations (Field Archaeology Unit).
- 3 19380, Stamford Hall, Oadby (Higgins Coll).
- 4 389 1973 U/S Austin Friars excavations (Field Archaeology Unit).
- 5 389 1973 U/S Austin Friars excavations (Field Archaeology Unit).
- 6 Norfolk Street (Newarke Houses Museum).
- 7 389 1973 Austin Friars excavations (Field Archaeology Unit).
- 8 4280, Stamford Hall, Oadby (Higgins Coll).
- 9 98'1957/2 Anstey Gorse (Newarke Houses Museum).
- 10 98'1957/1 Anstey Gorse (Newarke Houses Museum).
- 11 52'1955 Thrussington (Newarke Houses Museum).
- 12 Norfolk Street (Higgins Coll).
- 13 12-18 Belgrave Gate (under cellar floor, Newarke Houses Museum).
- 14 Nr Coventry Street (Higgins Coll).

Fig 87 Leicester, Elbow Lane group.

- 1 - 15 Unstratified group of material (c1780-1820 collected during topsoil stripping for excavations in Elbow Lane, 1977 (Higgins Coll).

Stoke City Museum Collections. I am most grateful to David Barker at the Stoke City Museum for his help while studying the substantial quantity of pipes stored there. These include various groups from around the county, as well as some very large groups recovered during

the recent Birmingham University Rescue Archaeology Unit excavations at Stafford.

Fig 88 Stafford - Mount Street pit group. This pit group was probably deposited during the second decade of the eighteenth century, and provides a valuable sample of contemporary products. A full report on the pipes from the pit has been published (Higgins 1986).

- 1 K4.42.1985.
- 2 K4.17.1985.
- 3 K4.33.1985.
- 4 K4.19.1985.
- 5 K4.14.1985.
- 6 K4.12.1985.
- 7 K4.15.1985.
- 8 K4.38.1985.
- 9 K4.32.1985.
- 10 K4.46.1985.

Fig 89 Stafford - Mount Street pit group - (see above).

- 1 K4.43.1985.
- 2 K4.41.1985 - occurs on same bowl as No 1 above.
- 3 K4.4.1985.
- 4 K4.3.1985 - probably same mould as 5 below.
- 5 Four examples in pit, probably all occur on same mould as 4 above.
- 6 K4.34.1985.
- 7 K4.20.1985.
- 8 K4.2.1985.
- 9 K4.58.1985.
- 10 K4.13.1985.

Fig 90 Stafford - St Mary's Grove pit group ST 29 I 1051. This is another good pit group excavated in Stafford. It dates to c1770-80, and provides valuable information about the later eighteenth century types of pipe produced at Broseley. Only the Binner bowl (1) appears to be residual.

Fig 91 Stafford - St Mary's Grove pit group ST 29 I 1051 - see caption for fig 90 above.

Fig 92 Stafford Excavations, St Mary's Grove. All the following pipes were recovered from excavations at St Mary's Grove, Stafford (ST 29 I).

- 1 ST 29 I 1601.
- 2 ST 29 I 1413.
- 3 ST 29 I 1065.
- 4 ST 29 I U/S & 1413 (composite drawing of two identical pipes).
- 5 ST 29 I 1122.
- 6 ST 29 I U/S.
- 7 ST 29 I U/S.
- 8 ST 29 I U/S.
- 9 ST 29 I U/S.
- 10 ST 29 I U/S.
- 11 ST 29 I 1413.
- 12 ST 29 I 1140.
- 13 ST 29 I U/S.
- 14 ST 29 I U/S.
- 15 ST 29 I 1413.

Fig 93 Stafford Excavations, St Mary's Grove. All the following pipes were recovered from excavations at St Mary's Grove, Stafford (ST 29 I).

- 1 ST 29 I U/S.
- 2 ST 29 I U/S.
- 3 ST 29 I U/S.
- 4 ST 29 I 1413.
- 5 ST 29 I 1186.
- 6 ST 29 I 1349.
- 7 ST 29 I U/S.
- 8 ST 29 I U/S.
- 9 ST 29 I 1182.
- 10 ST 29 I 1182.
- 11 ST 29 I U/S.
- 12 ST 29 I 1260.
- 13 ST 29 I 1413.
- 14 ST 29 I 1413.
- 15 ST 29 I 1413.

Fig 94 Stafford Excavations, misc. With the exceptions of 3, 6 & 8 all the following pipes were recovered from excavations at St Mary's Grove, Stafford (ST 29 I).

- 1 ST 29 I 1142.
- 2 ST 29 I U/S.
- 3 ST 32 1193 (Stafford excavations).
- 4 ST 29 I U/S.
- 5 ST 29 I U/S, 12 examples.
- 6 79.1971 (Water St / Mill St Junction).
- 7 ST 29 I 1212.
- 8 ST 32 1360 (Stafford excavations).
- 9 ST 29 I U/S.
- 10 ST 29 I U/S.
- 11 ST 29 I U/S.
- 12 ST 29 I 1026, an interesting bowl with moulded decoration and name. The suggested reading is (NI)CHOLLS / WA(LSALL). Oswald (1975, 193) records a Wm Nicholls at Walsall in 1818, and David Barker at Stoke Museum has found a reference to Wm Nicholls at Ablewell St, Walsall in 1822/3 (Directory). The pipe may therefore be dated to c1810-30, and provides one of the most westerly examples of this type of marking.

Fig 95 Staffordshire - Stafford, Uttoxeter, Lichfield, Tamworth & Stoke.

I am grateful to Andrew Simpson of the Staffordshire Roving Archaeological Unit for bringing the Lichfield and Tamworth pipes for me to examine. The Uttoxeter pipes were excavated by David Barker, and are at the Stoke City Museum. Marks 1-8, 16 & 19 are drawn at 2:1.

- 1 U/S, St Mary's Grove, Stafford.
- 2 1065, St Mary's Grove, Stafford.
- 3 1078, St Mary's Grove, Stafford.
- 4 1442, St Mary's Grove, Stafford.
- 5 1142, St Mary's Grove, Stafford.
- 6 U/S, St Mary's Grove, Stafford.
- 7 WHF 85 TG 16, Wood Farm, Uttoxeter.
- 8 WHF TF3, Wood Farm, Uttoxeter.
- 9 WHF 85 TF 3 OB, Wood Farm, Uttoxeter.
- 10 WHF 85 2 TG, Wood Farm, Uttoxeter.
- 11 WHF 85 2 BD, Wood Farm, Uttoxeter.
- 12 WHF 3 TG, Wood Farm, Uttoxeter.
- 13 LFA 16, Lichfield, Friars Alley excavation.
- 14 HH 86, Handsacre Hall, Nr Armitage.

- 15 LFA 86 1, Lichfield, Friars Alley excavation.
- 16 LHI 86 77, Hartshorne Inn excavation, St John's St, Lichfield, C18 roll stamped stem with name, ?Fletcher.
- 17 C20 pipe with relief moulded makers name on one side only, Higgins Coll, purchased in Liverpool.
- 18 TAM LRE TR II 2, Lichfield Road industrial estate excavation, Tamworth.
- 19 LHI 86 71/78, Hartshorne Inn excavation, St John's St, Lichfield, C18 roll stamped stem, composite drawing from three examples. The makers name appears to read IOHN.BR?M, possibly an abbreviation of Birmingham?

Fig 96 Cheshire - Middlewich (MW 81) & Church Lawton (CLN). These pipes were excavated by the Liverpool University rescue Archaeology Unit.

- 1 MW81 Cutting I U/S.
- 2 MW81 Cutting I.1 & U/S.
- 3 MW81 Cutting I U/S.
- 4 MW81 Cutting I.1.
- 5 MW81 Cutting I.1.
- 6 MW 81 Cutting I U/S.
- 7 MW81 Cutting I.1.
- 8 MW81 Cutting I U/S.
- 9 CLN SW1.
- 10 CLN SW1, composite drawing of two pipes from the same mould.
- 11 CLN SW1.
- 12 CLN NE1.
- 13 CLN SE5.
- 14 CLN SW1.
- 15 CLN SW1.
- 16 CLN SW1.
- 17 CLN 1.

Fig 97 Cheshire - Sandbach (SB 81). These pipes were excavated by the Liverpool University rescue Archaeology Unit in 1981, see also figs 98 & 99.

- 1 SB 81 F1.
- 2 SB 81 F3.
- 3 SB 81 III U/S.
- 4 SB 81 F3.
- 5 SB 81 F3.
- 6 SB 81 F4.
- 7 SB 81 VI 302.
- 8 SB 81 I F3.
- 9 SB 81 VI 302.
- 10 SB 81 III U/S.
- 11 SB 81 IV 127.
- 12 SB 81 II.

Fig 98 Cheshire - Sandbach (SB 81). These pipes were excavated by the Liverpool University rescue Archaeology Unit, see also figs 97 & 99.

- 1 SB 81 VI 324.
- 2 SB 81 109.
- 3 SB 81 F3
- 4 SB 81 F3.
- 5 SB 81 VI 302.
- 6 SB 81 VI 302.
- 7 SB 81 109.

- 8 SB 81 VI U/S.
- 9 SB 81 115.
- 10 SB 81 IV 104.
- 11 SB 81 II.
- 12 SB 81 F1.

Fig 99 Cheshire - Sandbach (SB 81). These pipes were excavated by the Liverpool University rescue Archaeology Unit, see also figs 97 & 98. The roll stamped stem details (9-14) are drawn at 1.5 times life size.

- 1 SB 81 F1.
- 2 SB 81 F1.
- 3 SB 81 II.
- 4 SB 81 II & F4 (2 examples).
- 5 SB 81 F4.
- 6 SB 81 II F6.
- 7 SB 81 II F6.
- 8 SB 81 II U/S.
- 9 SB 81 F1.
- 10 SB 81 109.
- 11 SB 81 U/S.
- 12 SB 81 F3.
- 13 SB 81 18.
- 14 SB 81 F31.

Fig 100 Cheshire - Tatton Hall. These pipes were excavated by Nick Higham of the University of Manchester. See also fig 101.

- 1 TH79 111, small find 39.
- 2 TH79 111, small find 40.
- 3 TH79 55, small find 38.
- 4 TH79 55, small find 35.
- 5 TH79 20.
- 6 TH79 1M, small find 2.
- 7 TH79 55, small find 34.
- 8 TH79 112, small find 65.
- 9 TH79 44, small find 64.
- 10 TH79 20, small find 55.
- 11 TH79 20, small find 55.
- 12 TH79 144, small find 64.
- 13 TH79 20, small find 51.

Fig 101 Cheshire - Tatton Hall and Village. These pipes were excavated by Nick Higham of the University of Manchester. They come from sites at both Tatton Hall (TH) and Tatton Village (TV). Stamp detail 1 is twice life size, stamp details 2 and 6 at 1.5 times life size. See also fig 100 for Tatton pipes.

- 1 TH79 5, small find 22.
- 2 TH79 5, small find 72.
- 3 TV81.D.
- 4 TV81.D.
- 5 TH79 146.
- 6 TV81.D.
- 7 TV81.D.
- 8 TV81.D.
- 9 TH79 35, small find 28.
- 10 TV81.D.

Fig 102 Brookhill, Buckley, Clwyd. These pipes were recovered from excavations carried out by Jim Bentley on the site of a pottery workshop

at Brookhill in Buckley, Clwyd. The stamp details A_F are composite drawings from the various examples, drawn at twice life size. A full report on these pipes has been published (Higgins 1983b). See also figs 102-105 below.

Fig 103 Brookhill, Buckley, Clwyd. - see above.

Fig 104 Brookhill, Buckley, Clwyd. - see above.

Fig 105 Brookhill, Buckley, Clwyd. - see above.

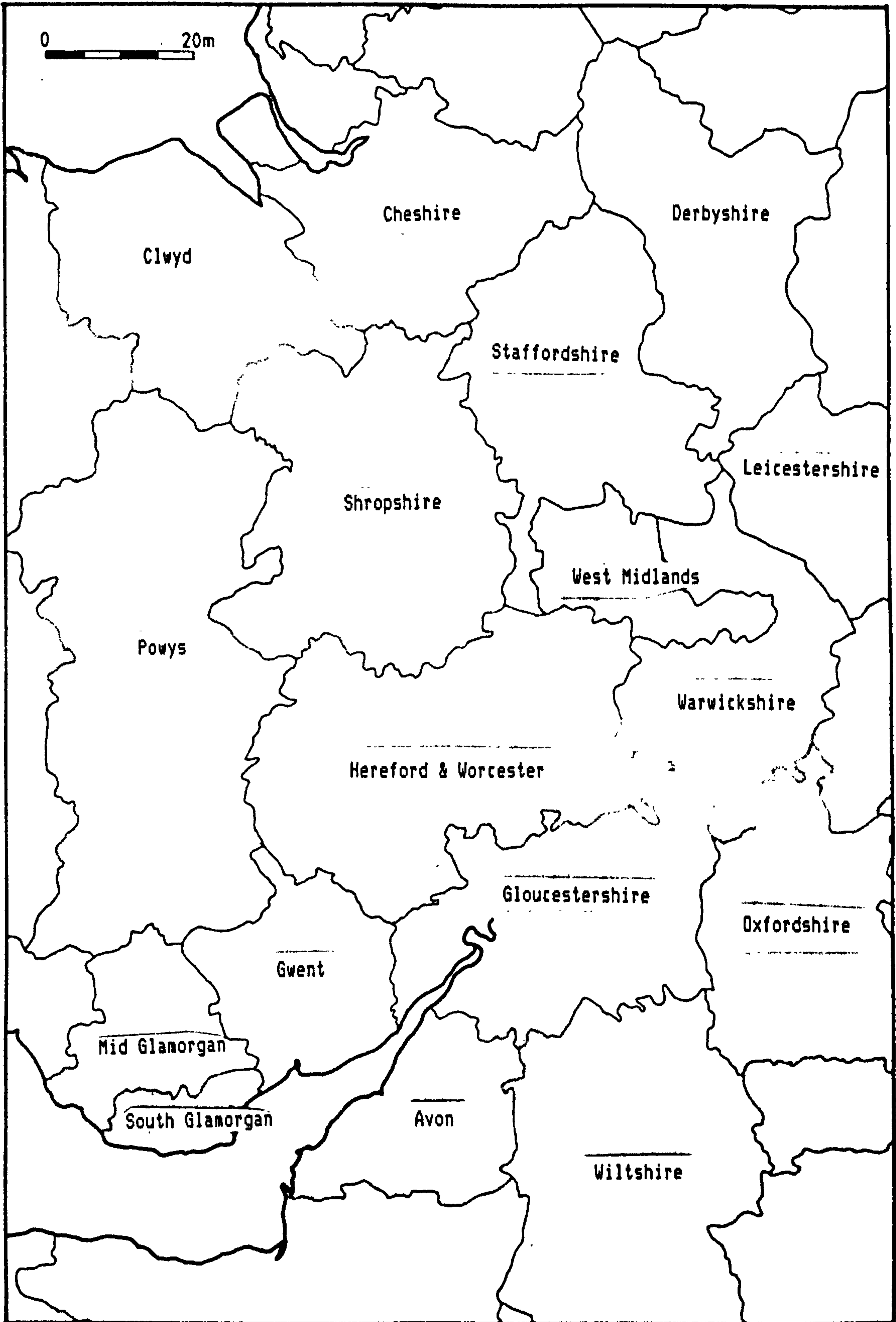


Fig 29 - General Location Map of Shropshire and Surrounding Counties.

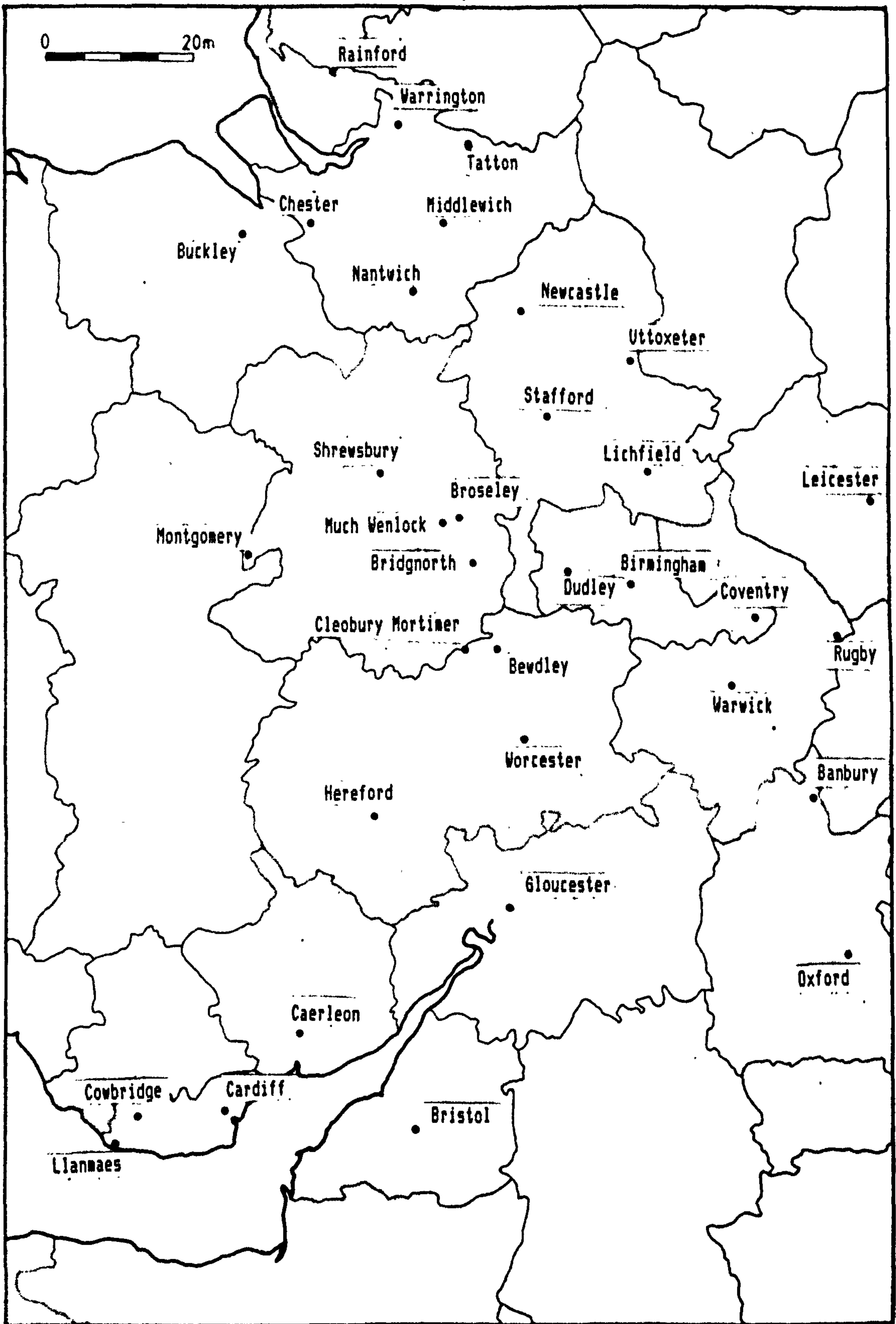


Fig 30 - General Location Map of Collections and Places Mentioned.

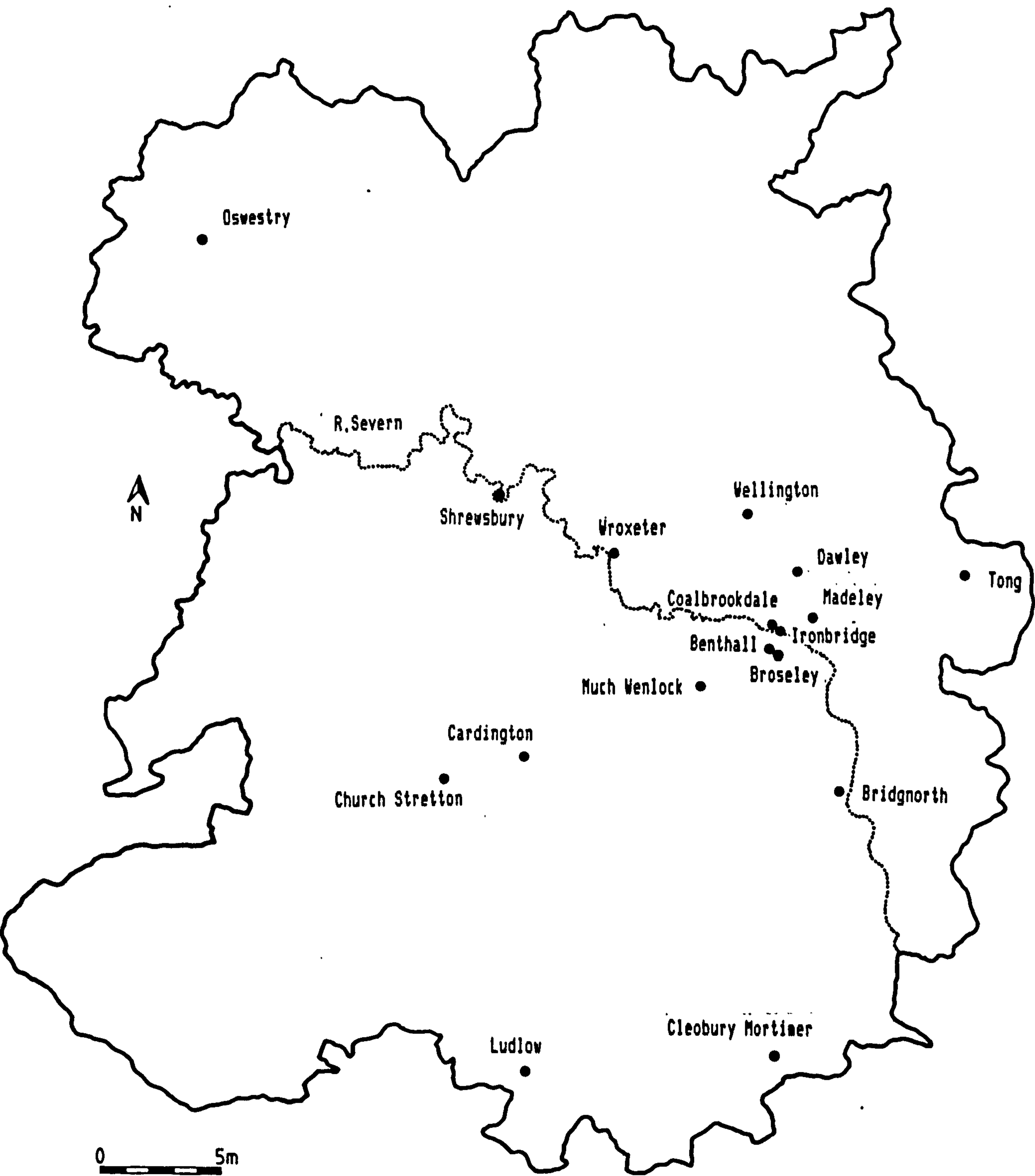


Fig 31 - General Location Map of Places Mentioned in Shropshire.

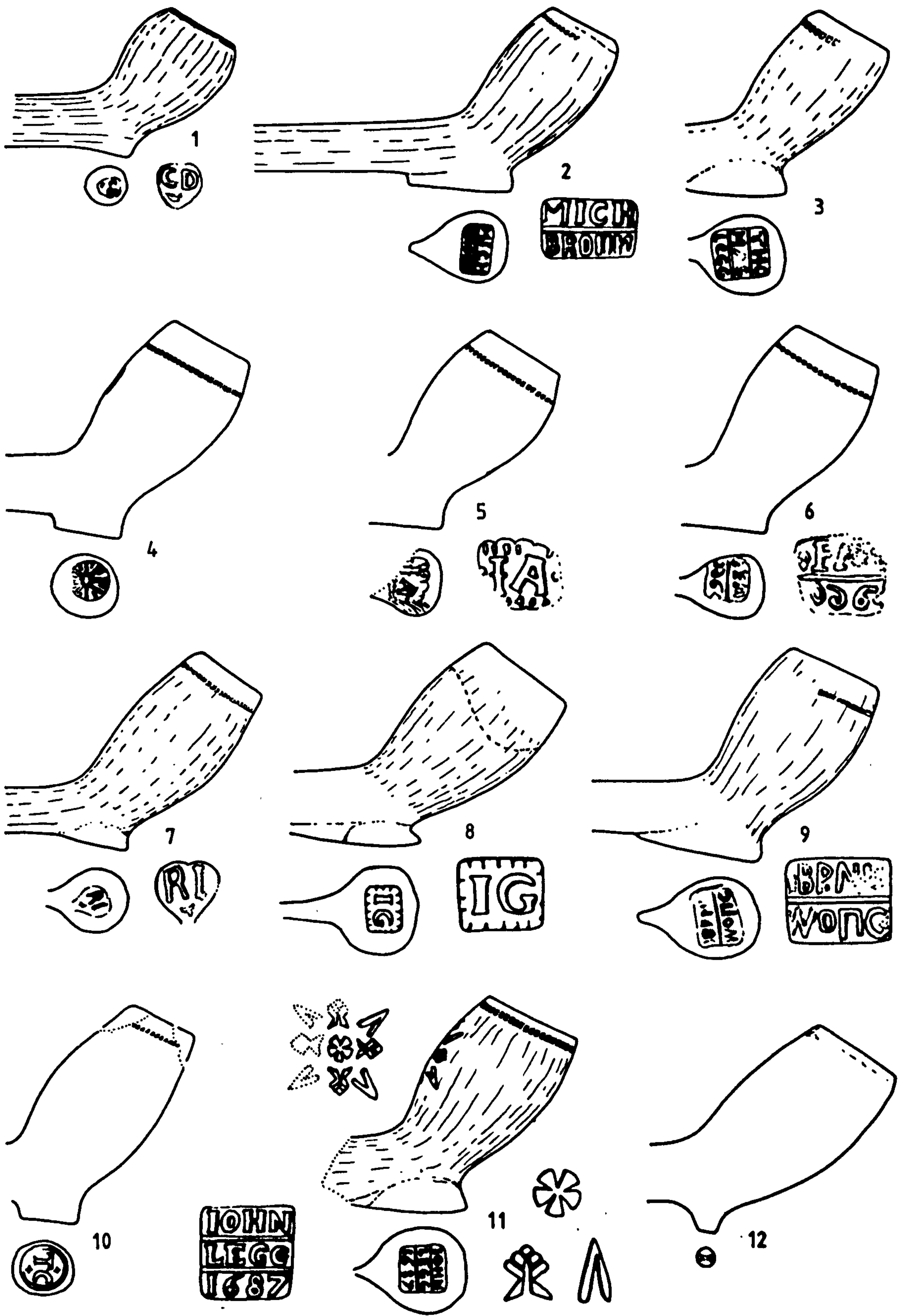


Fig 32 - British Museum - Bragge Collection.

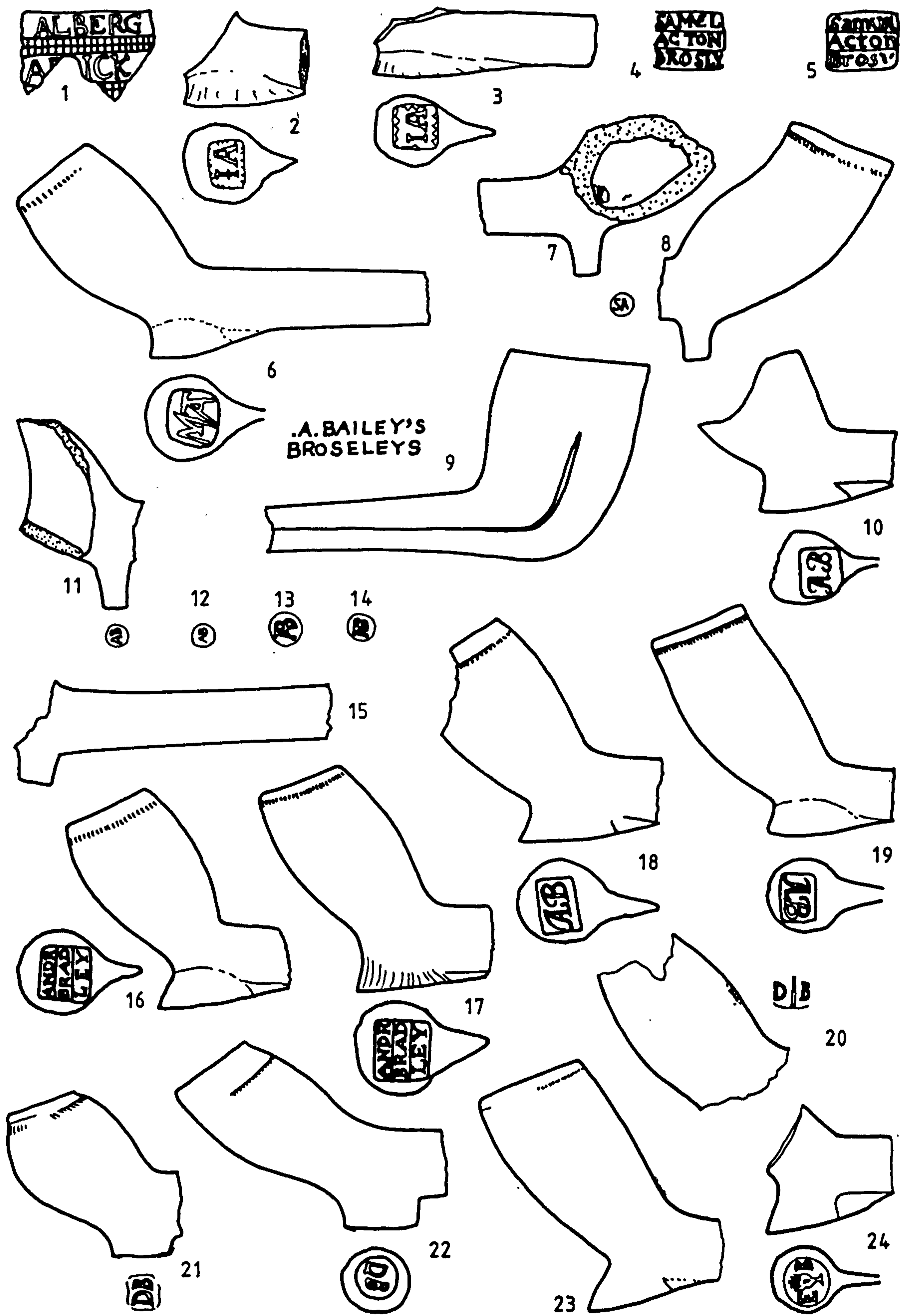


Fig 33 - Atkinson Notebooks; AA - EB.

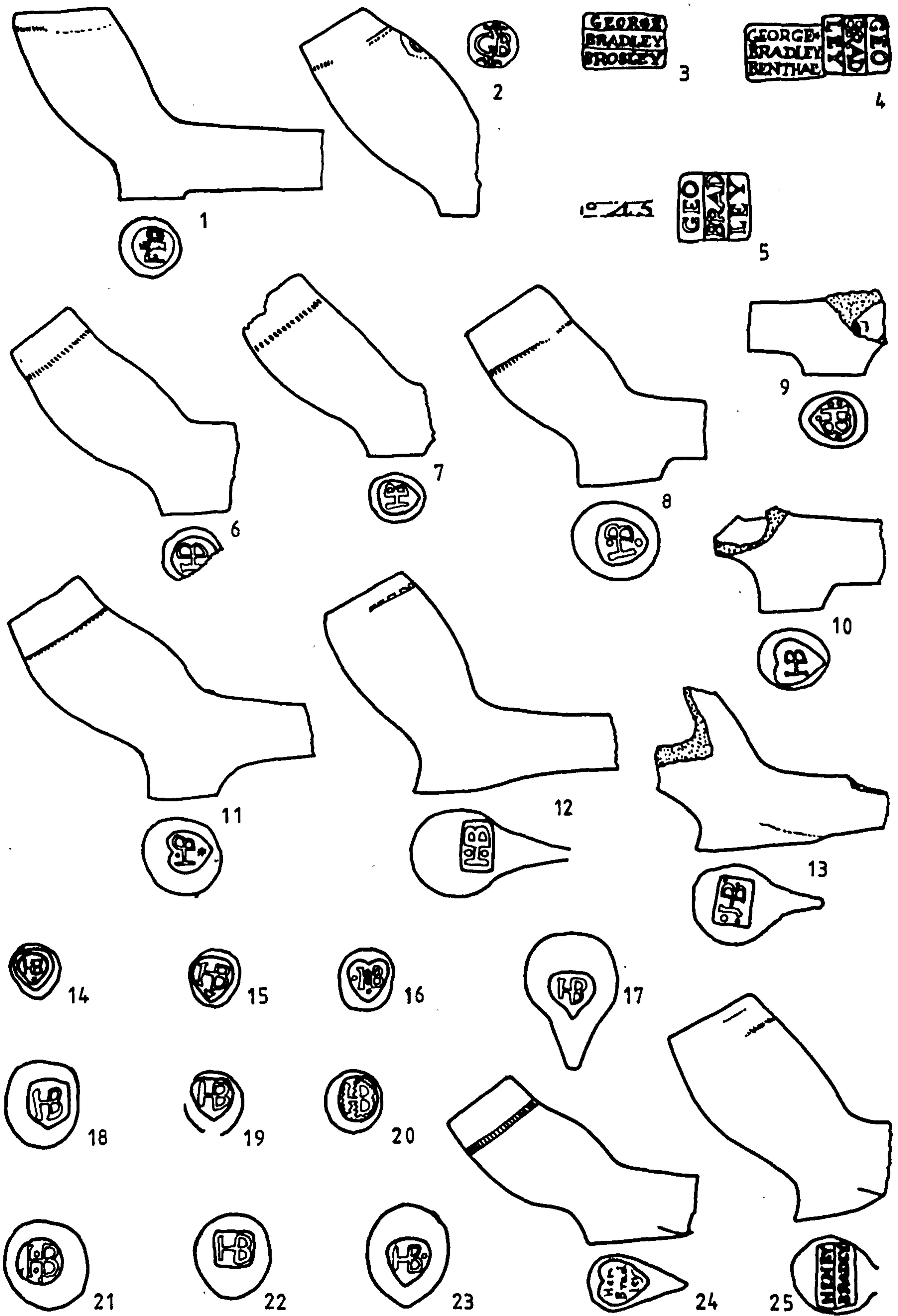


Fig 34 - Atkinson Notebooks; FB - HB.

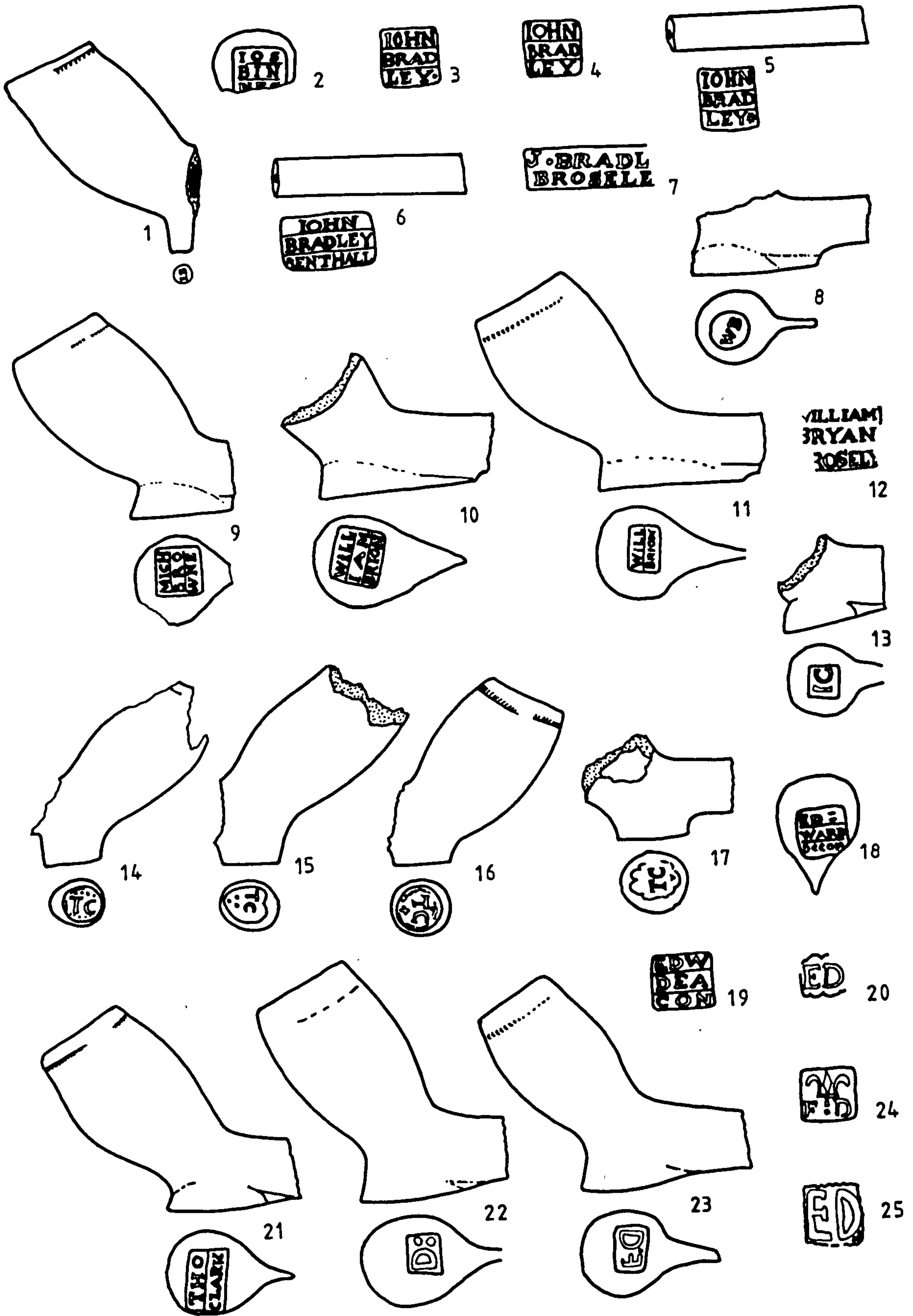


Fig 35 - Atkinson Notebooks; IB - ED.

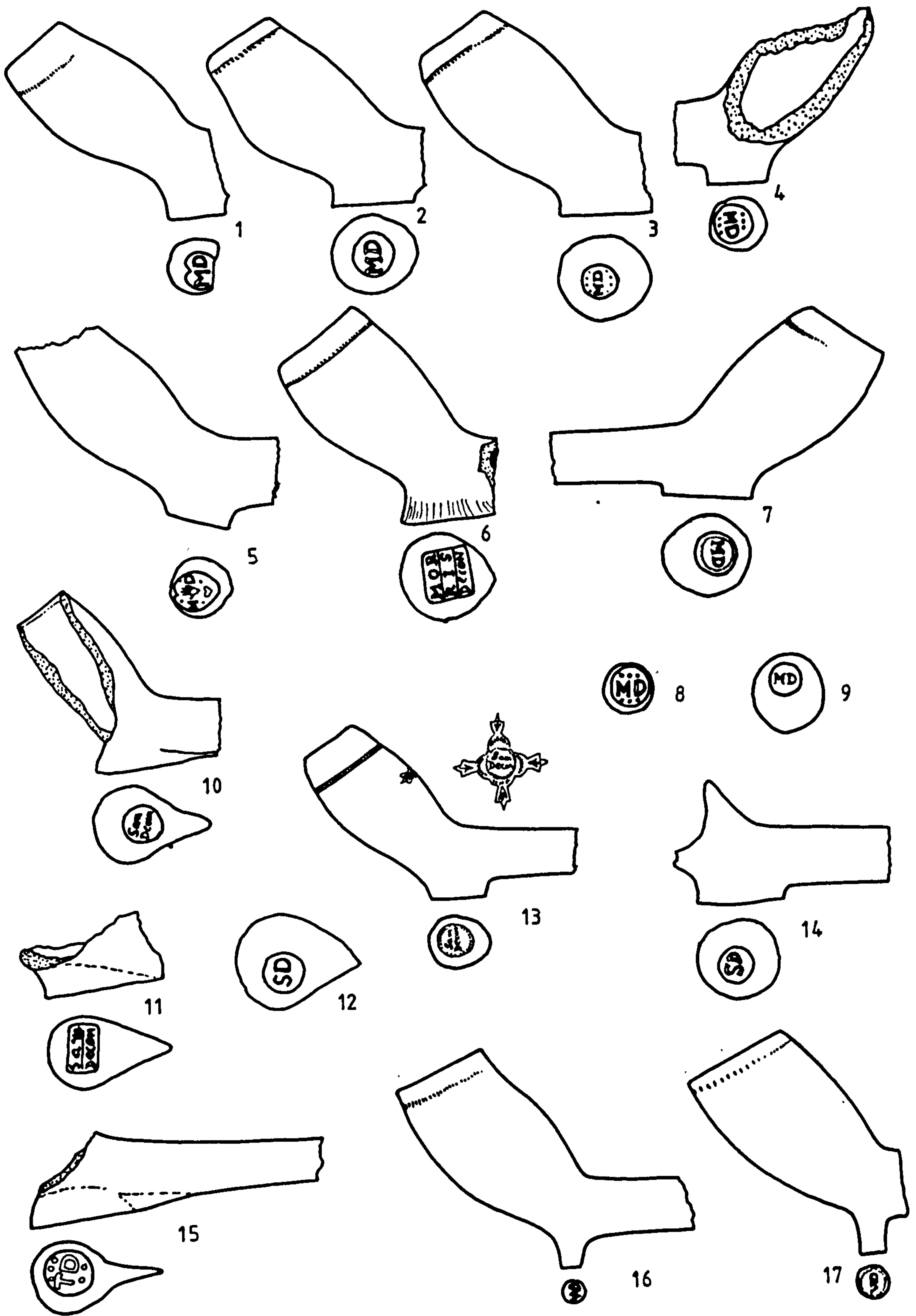


Fig 36 - Atkinson Notebooks; MD - WD.

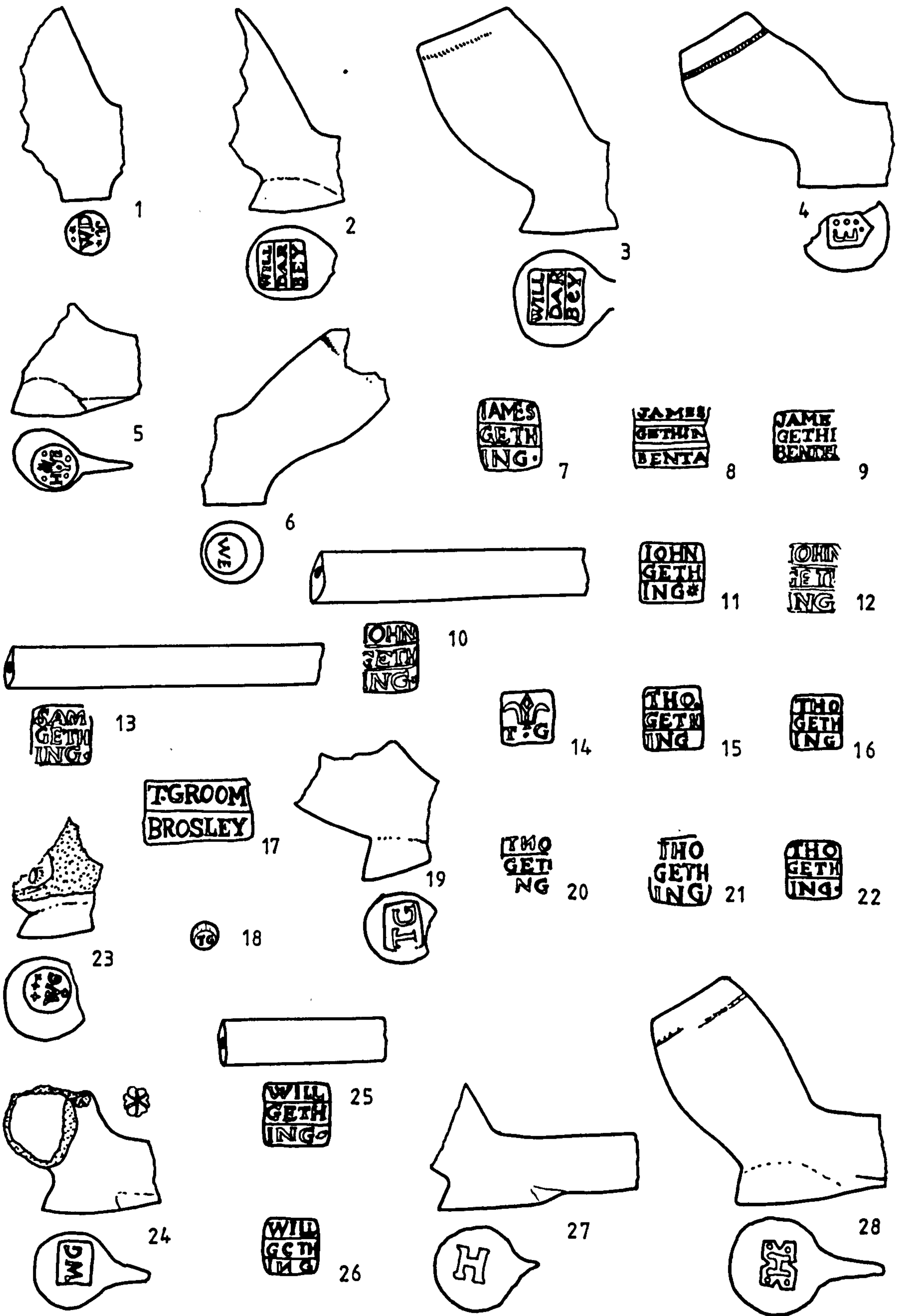


Fig 37 - Atkinson Notebooks; WD - H.

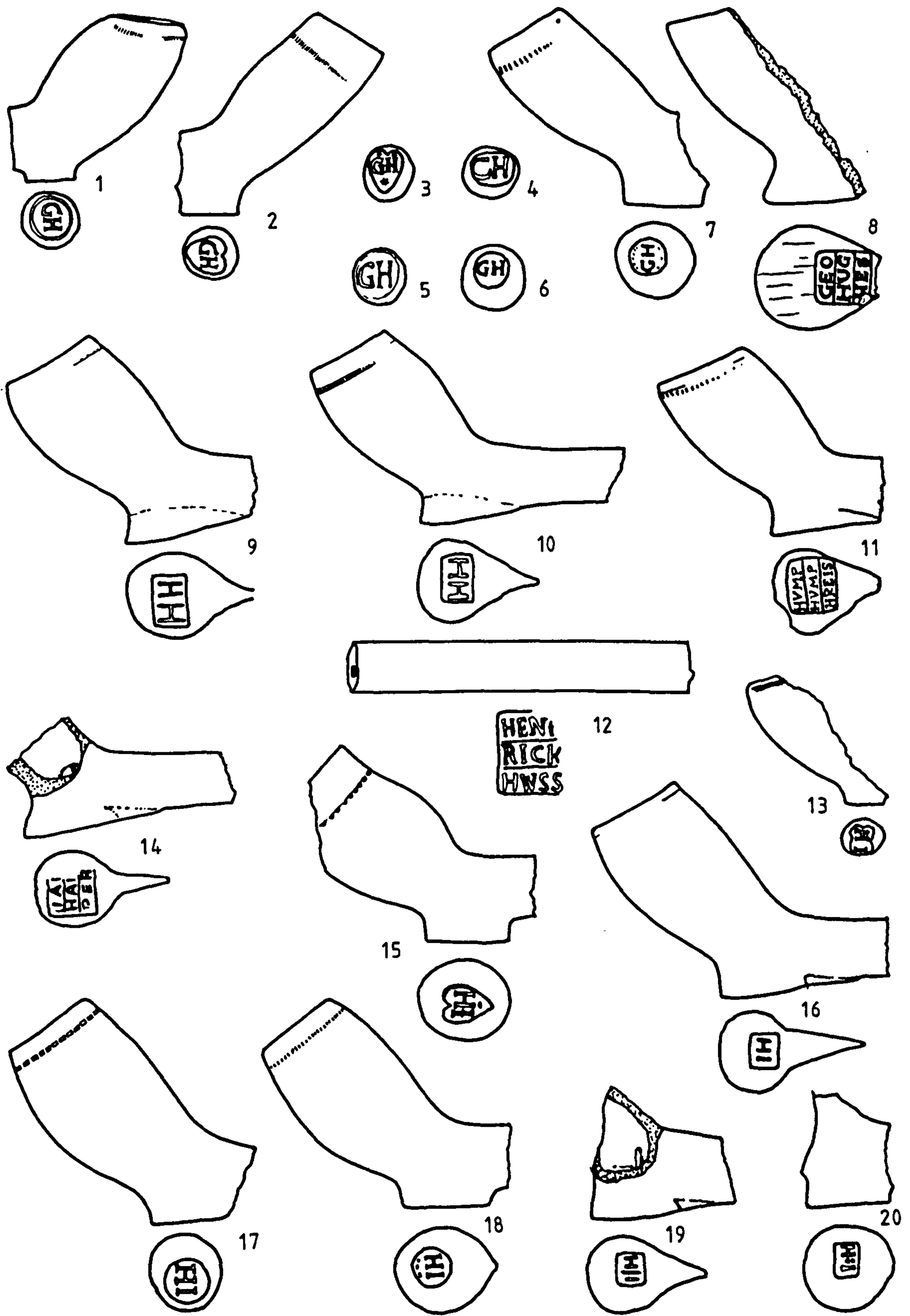


Fig 38 - Atkinson Notebooks; GH - IH.

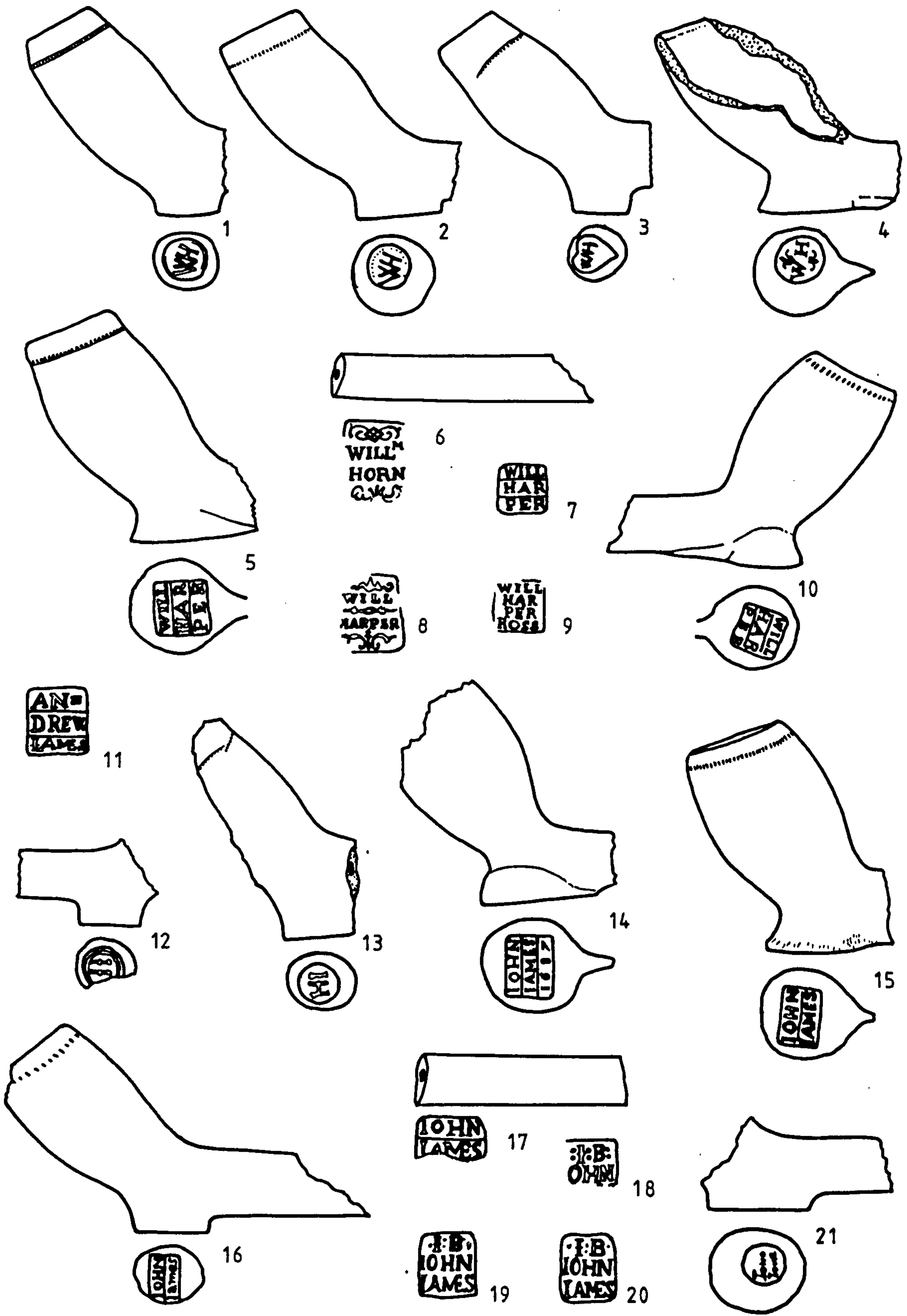


Fig 41 - Atkinson Notebooks; WH - II.

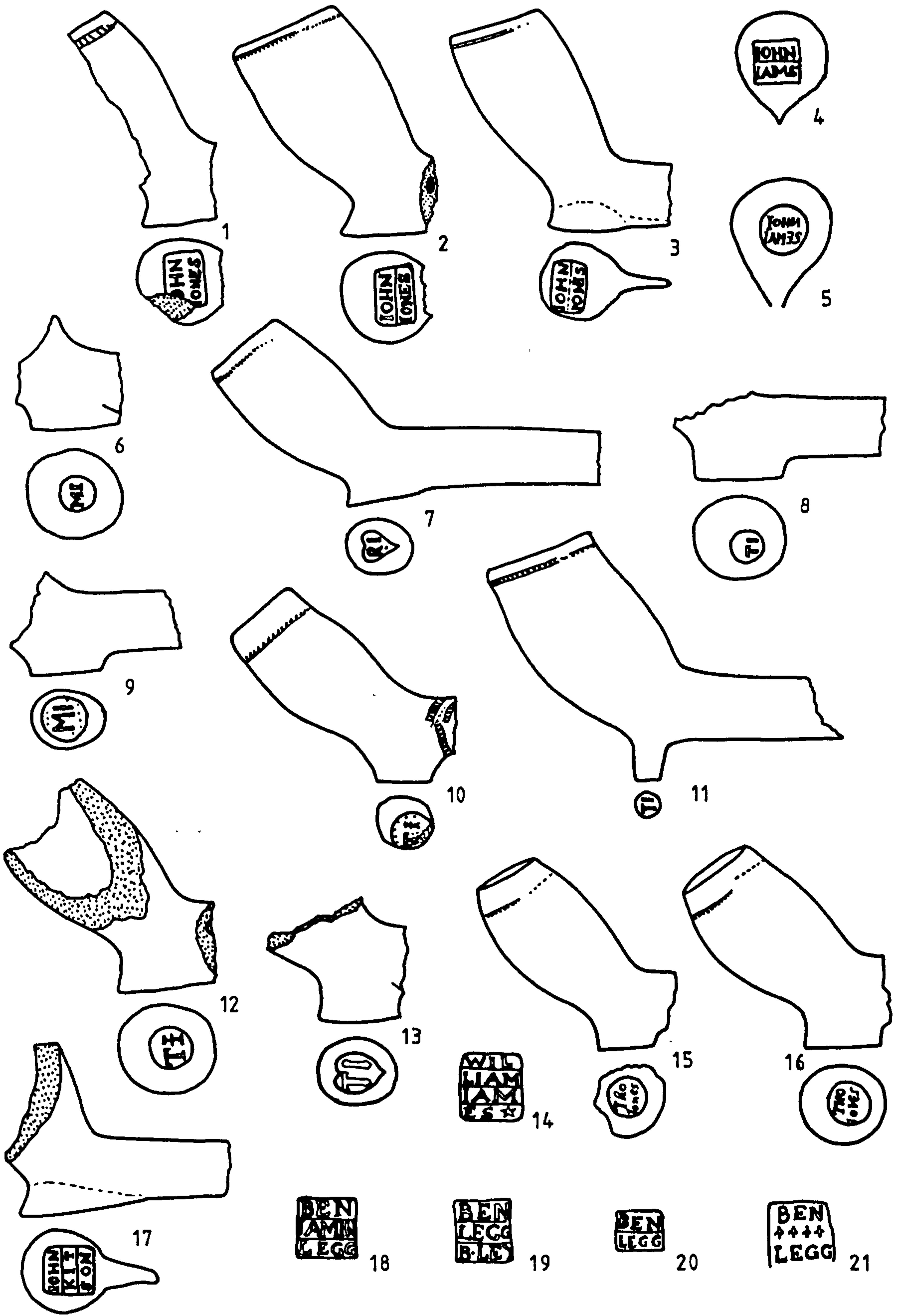


Fig 42 - Atkinson Notebooks; II - BL.

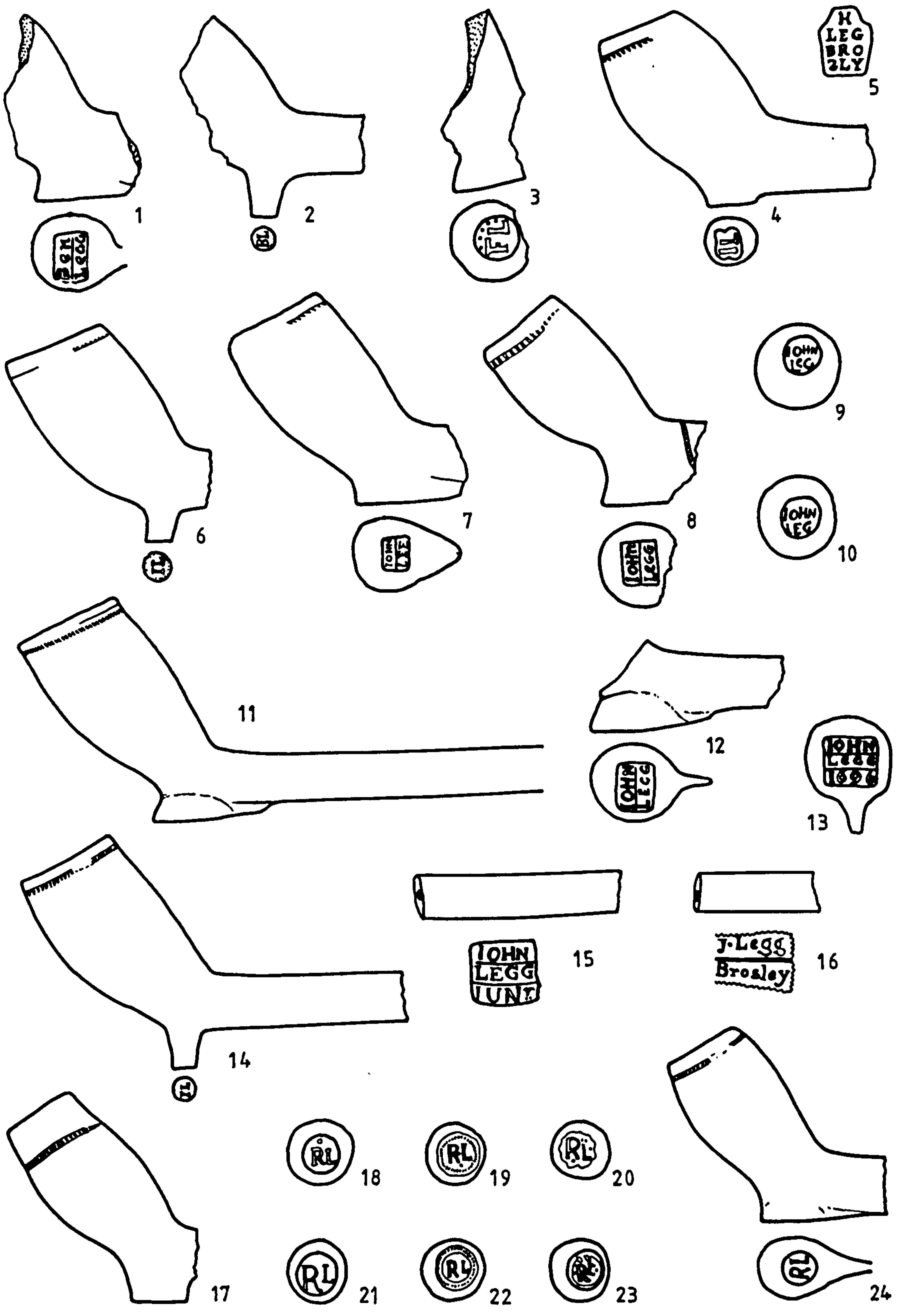


Fig 43 - Atkinson Notebooks; BL - RL.

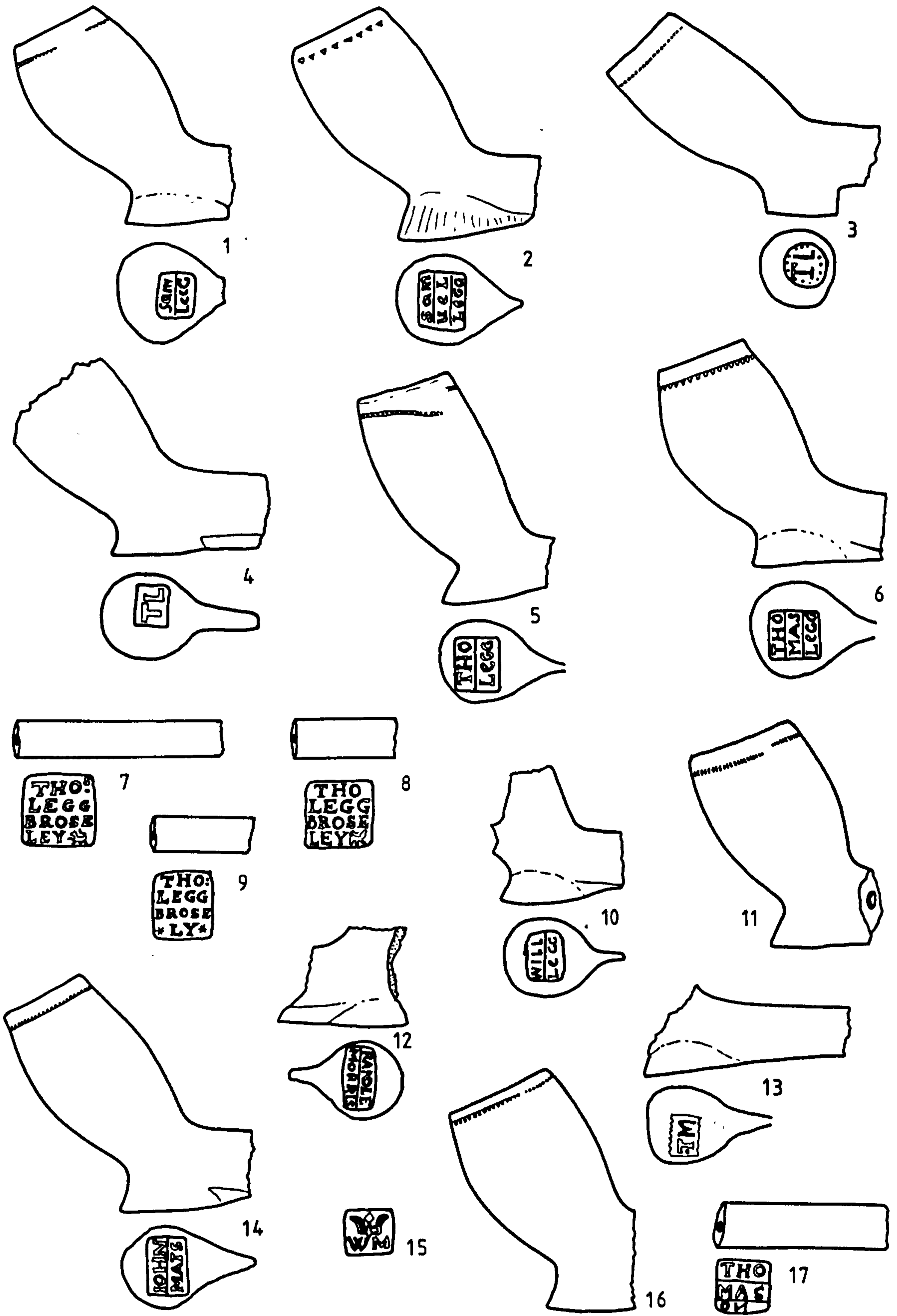


Fig 45 - Atkinson Notebooks; SL - TM.

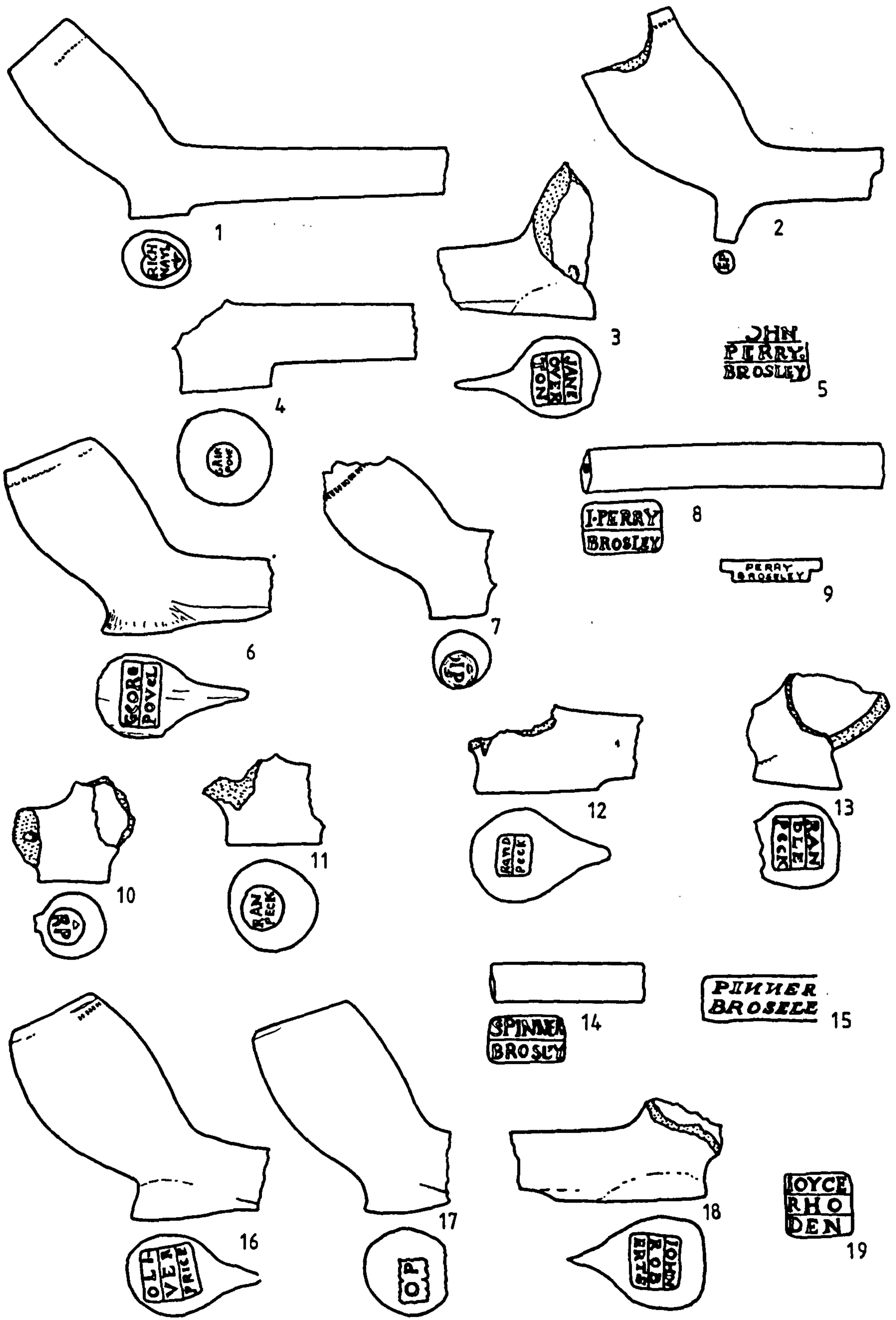


Fig 46 - Atkinson Notebooks; RN - IR.

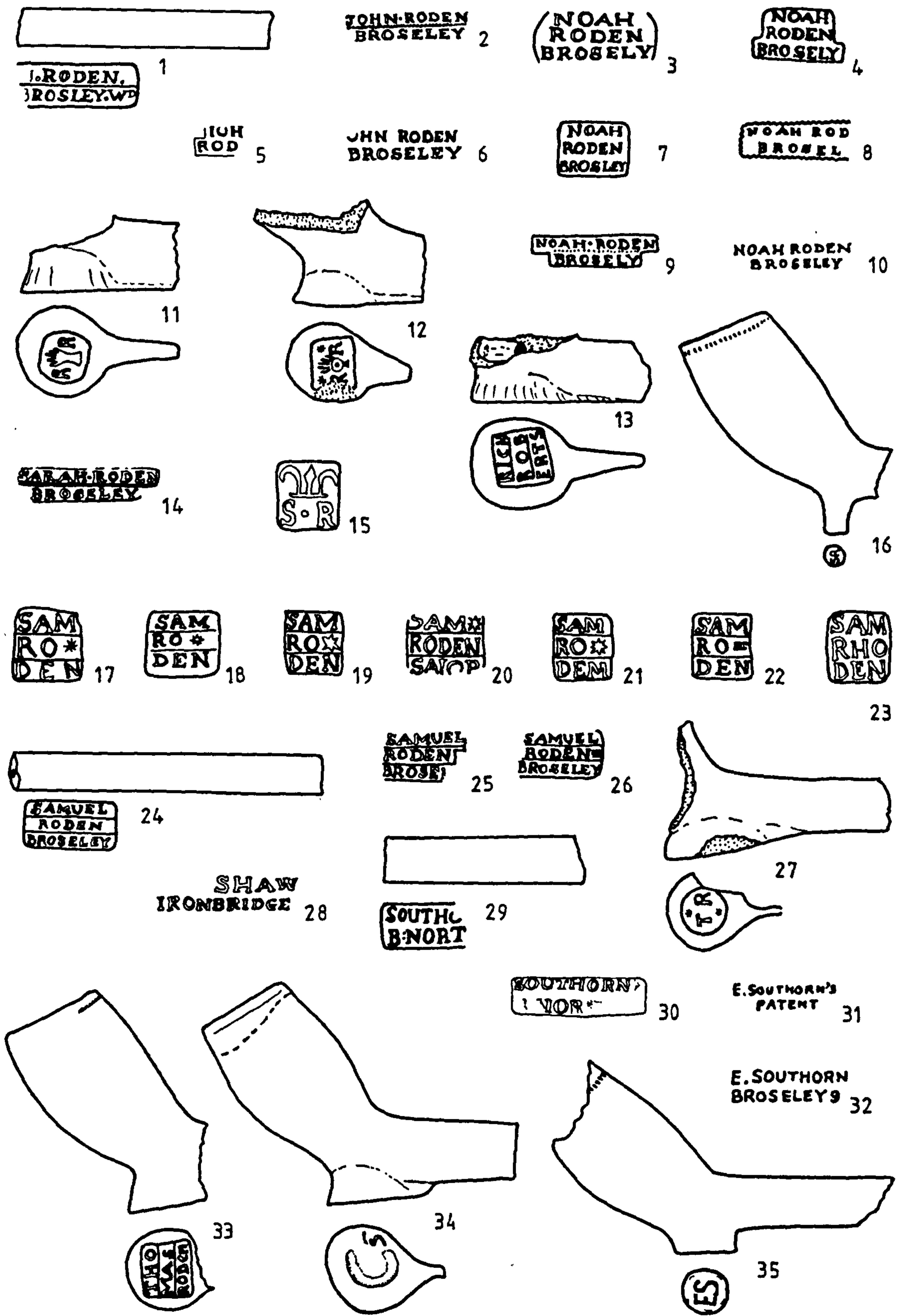


Fig 47 - Atkinson Notebooks; IR - ES.

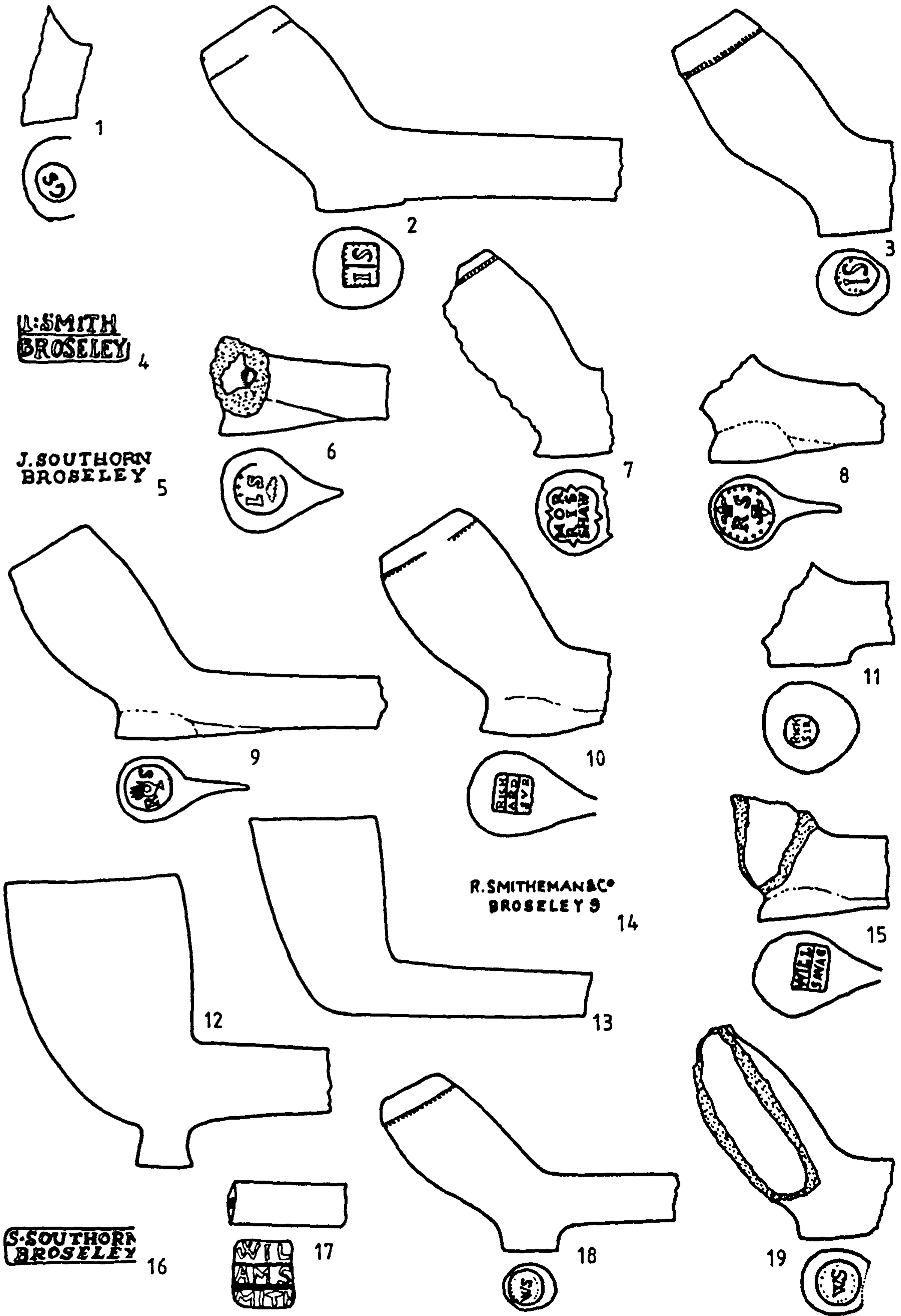


Fig 48 - Atkinson Notebooks; GS - WS.

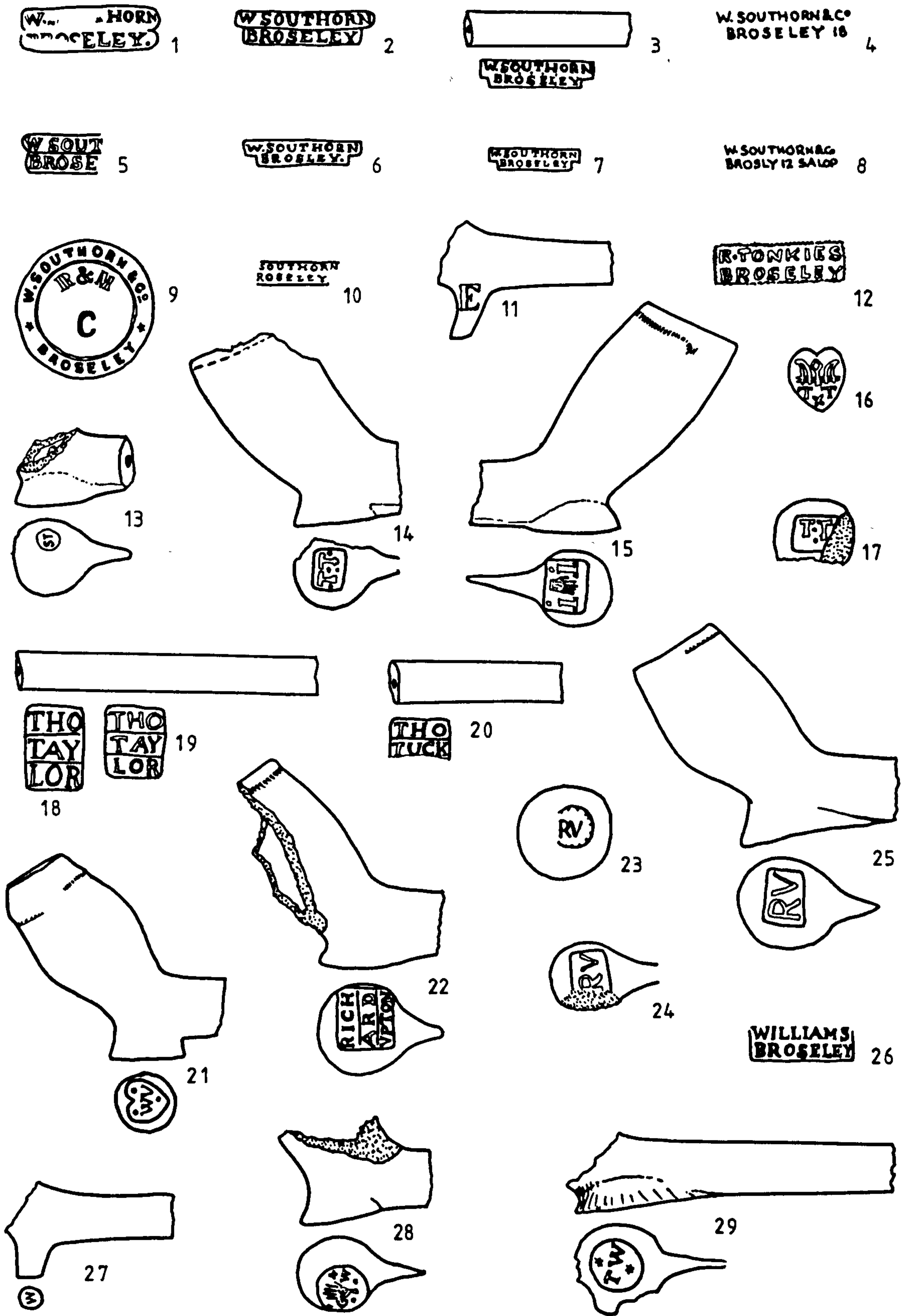


Fig 49 - Atkinson Notebooks; WS - TW.

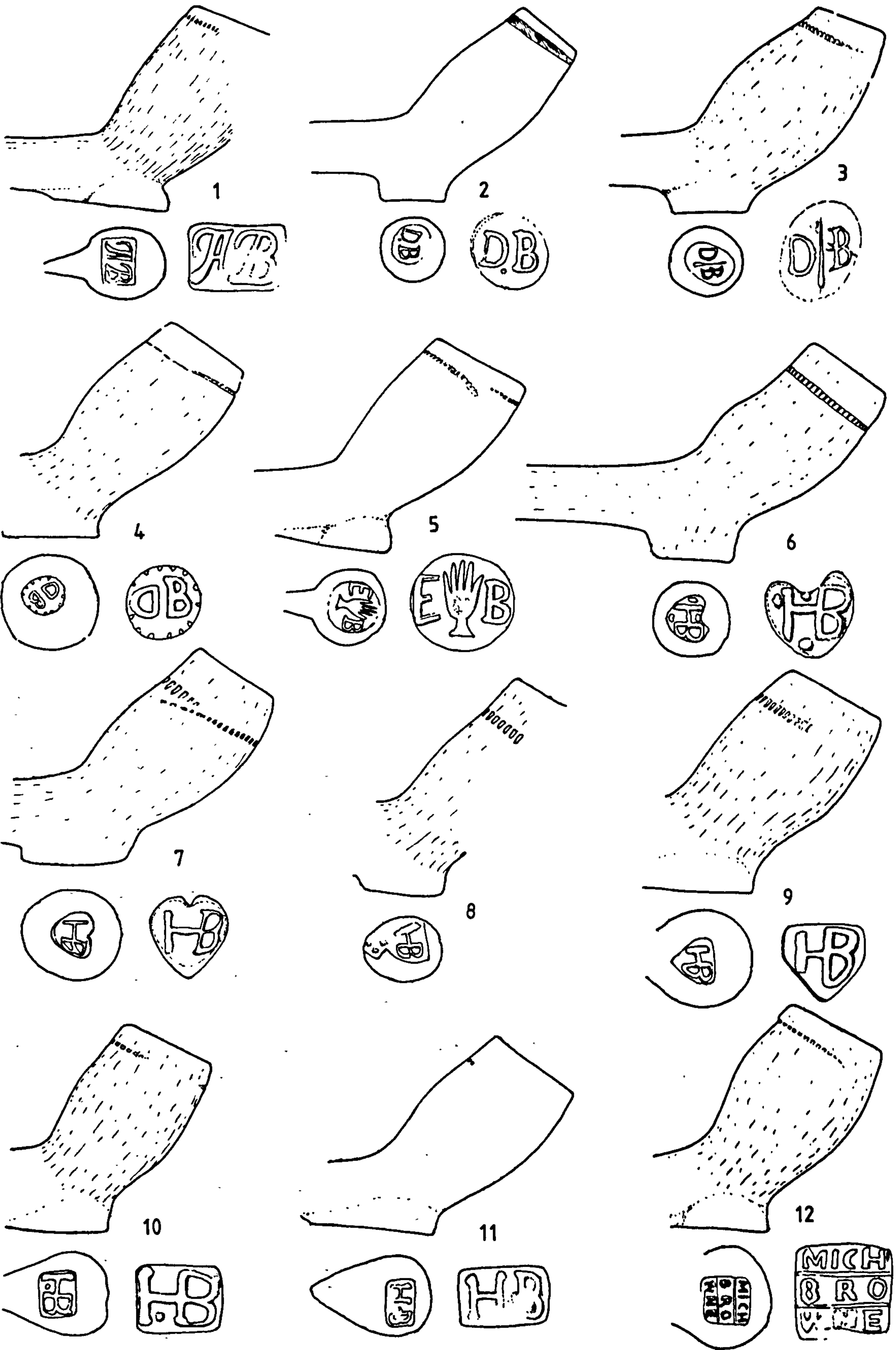


Fig 51 - Thursfield Collection; AB - MB.

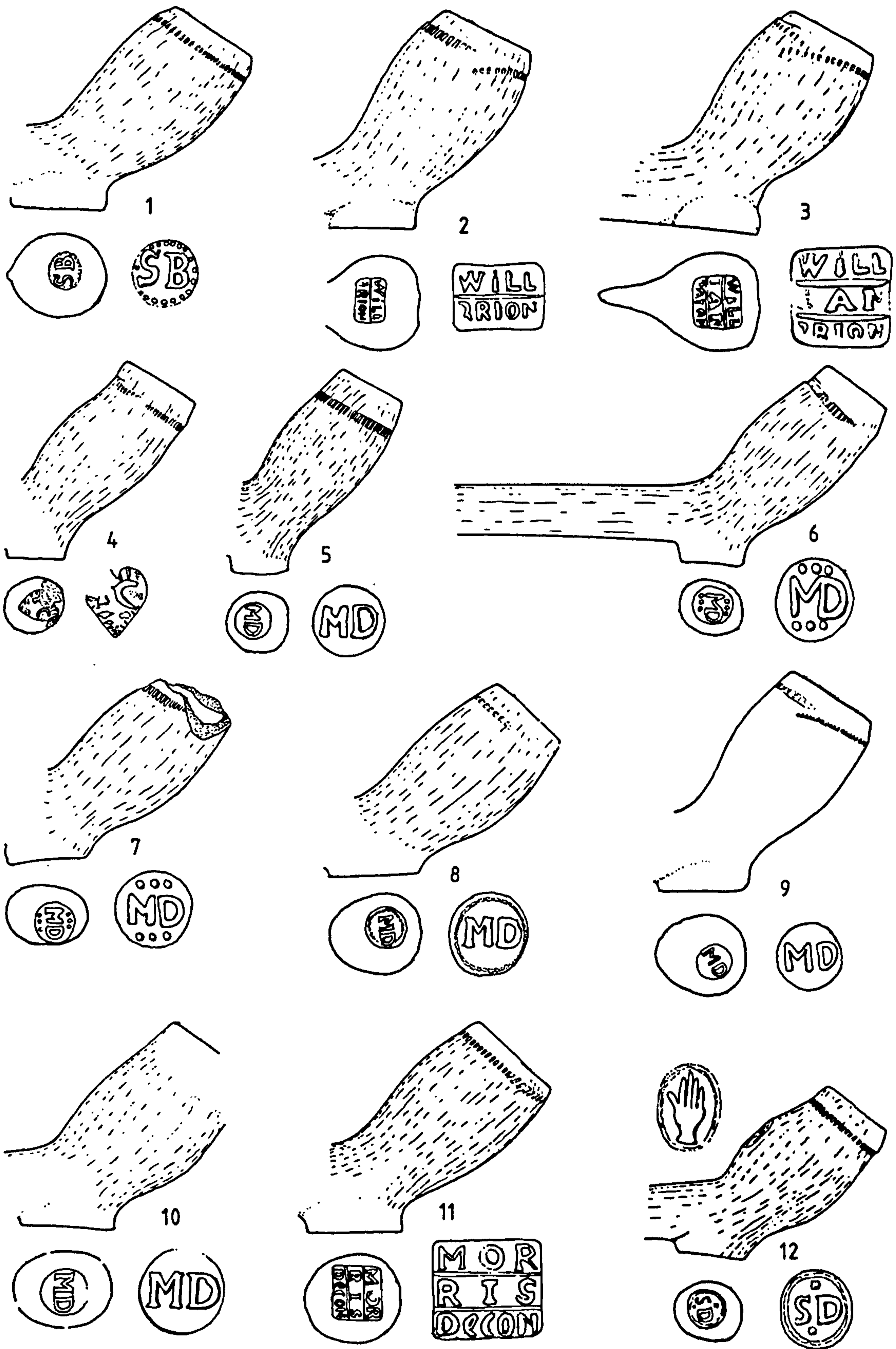


Fig 52 - Thursfield Collection; SB - SD.

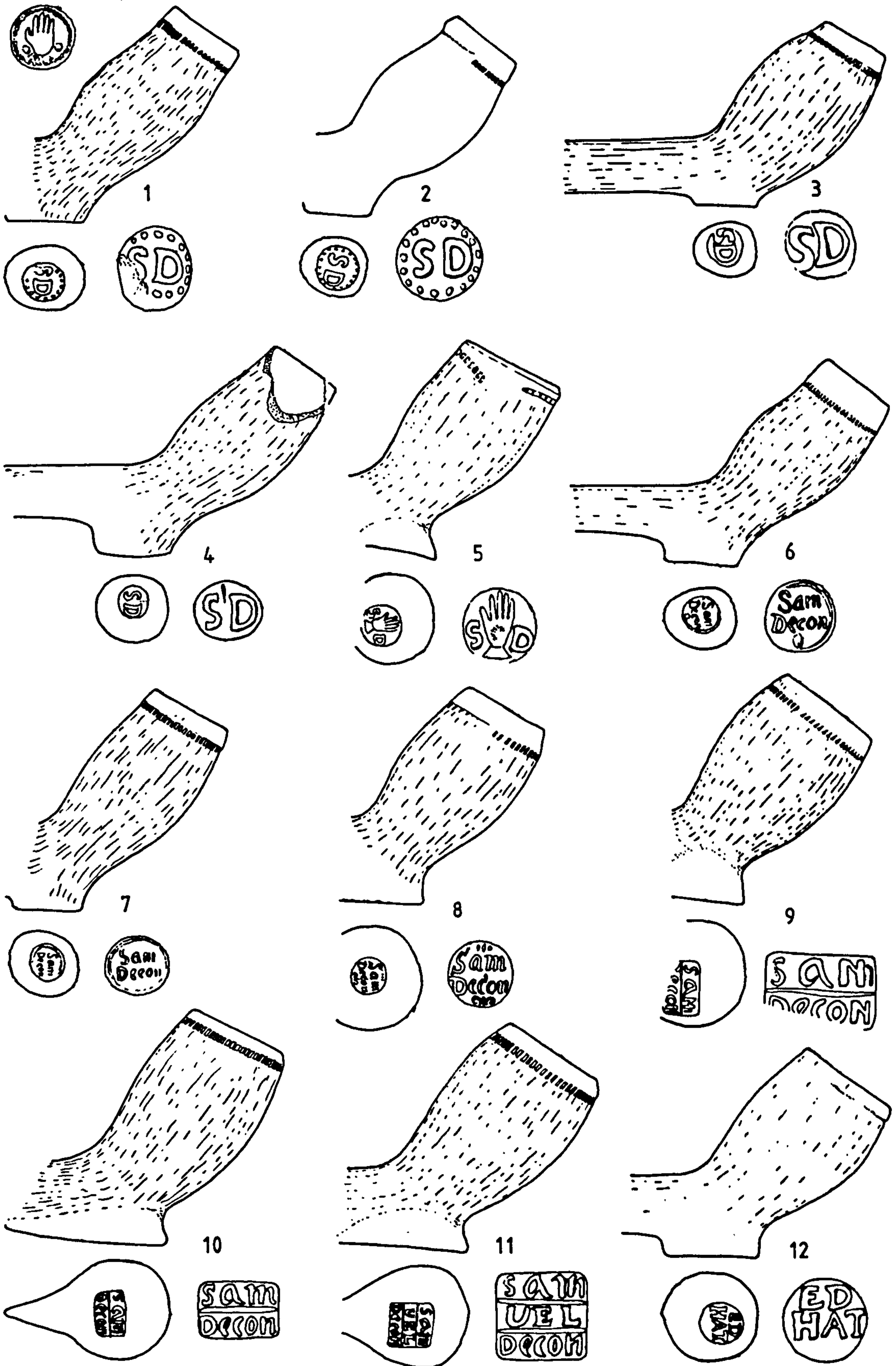


Fig 53 - Thursfield Collection; SD - EH.

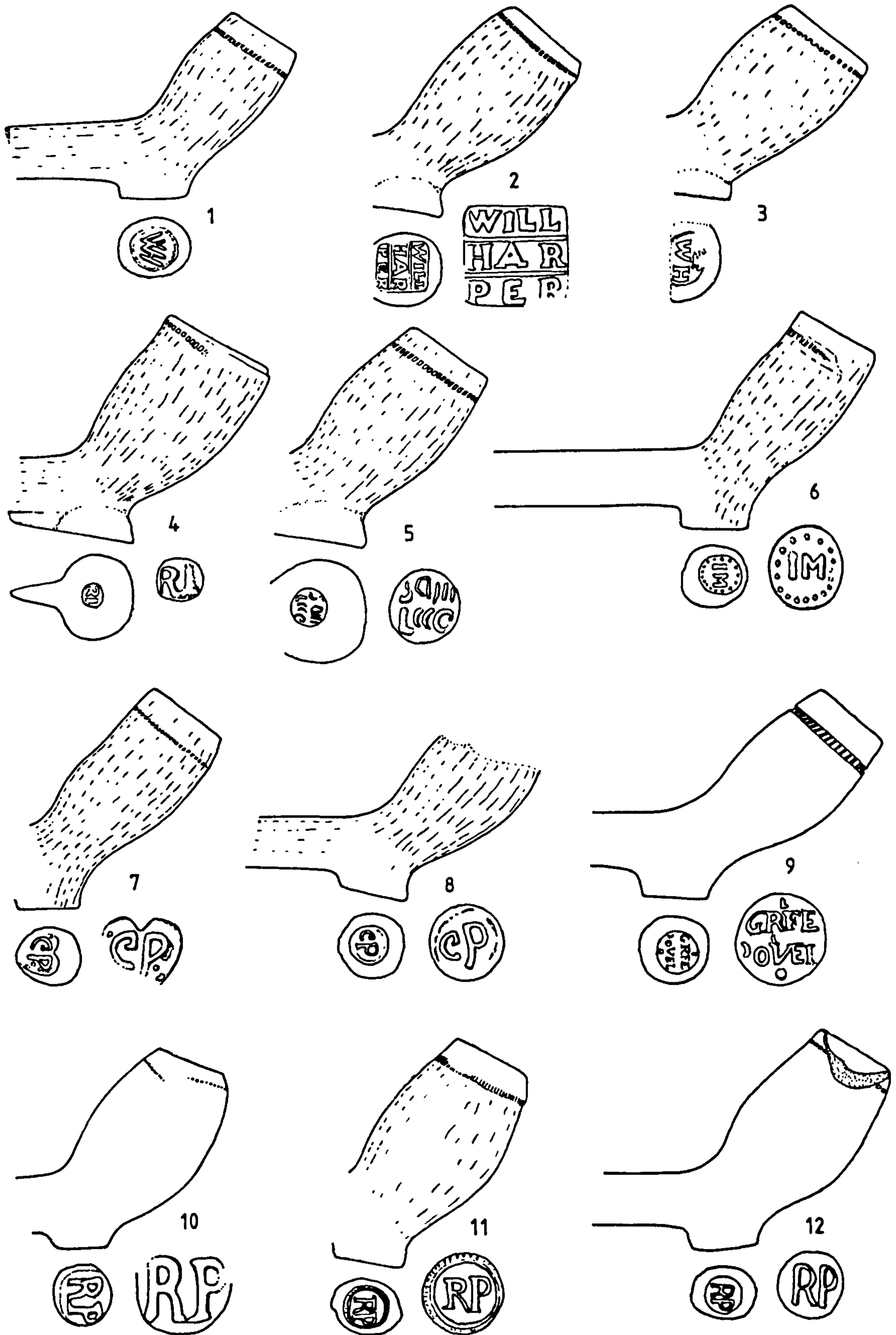


Fig 55 - Thursfield Collection; WH - RP.

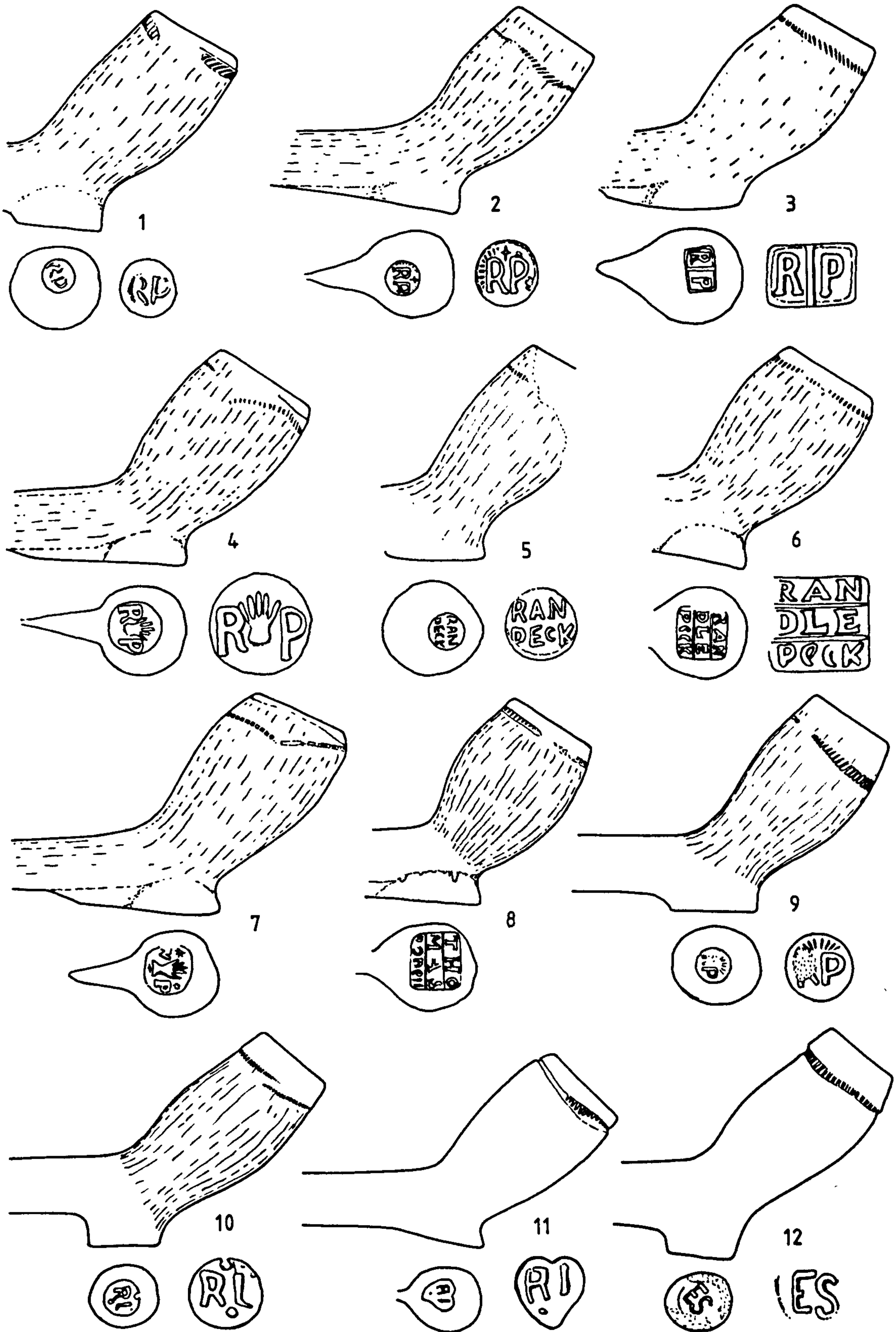


Fig 56 - Thursfield Collection; RP - ES & Judd Collection.

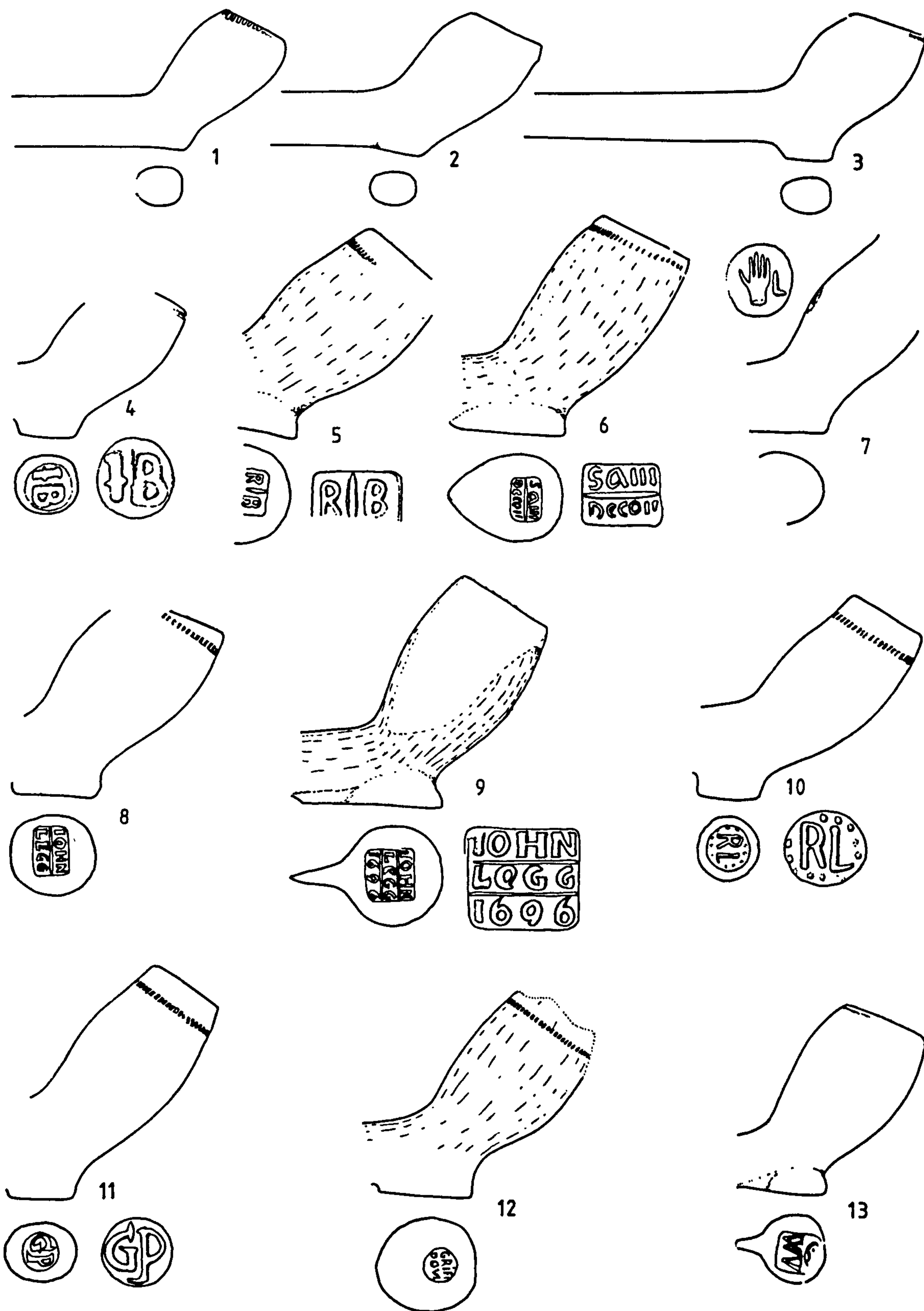


Fig 57 - Shrewsbury - Edwards Collection.

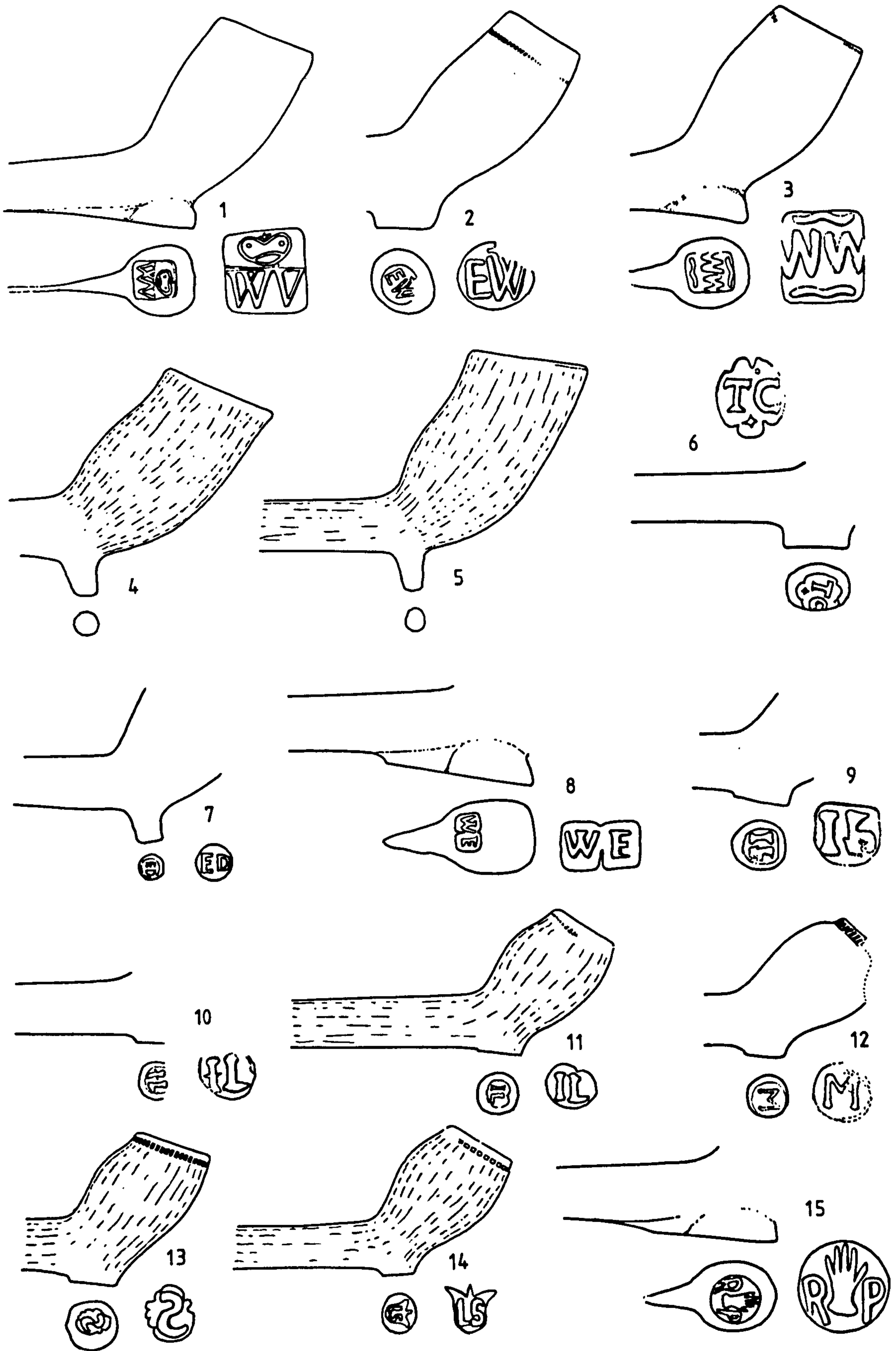


Fig 58 - Shrewsbury - Edwards Collection & Andrews Collection.

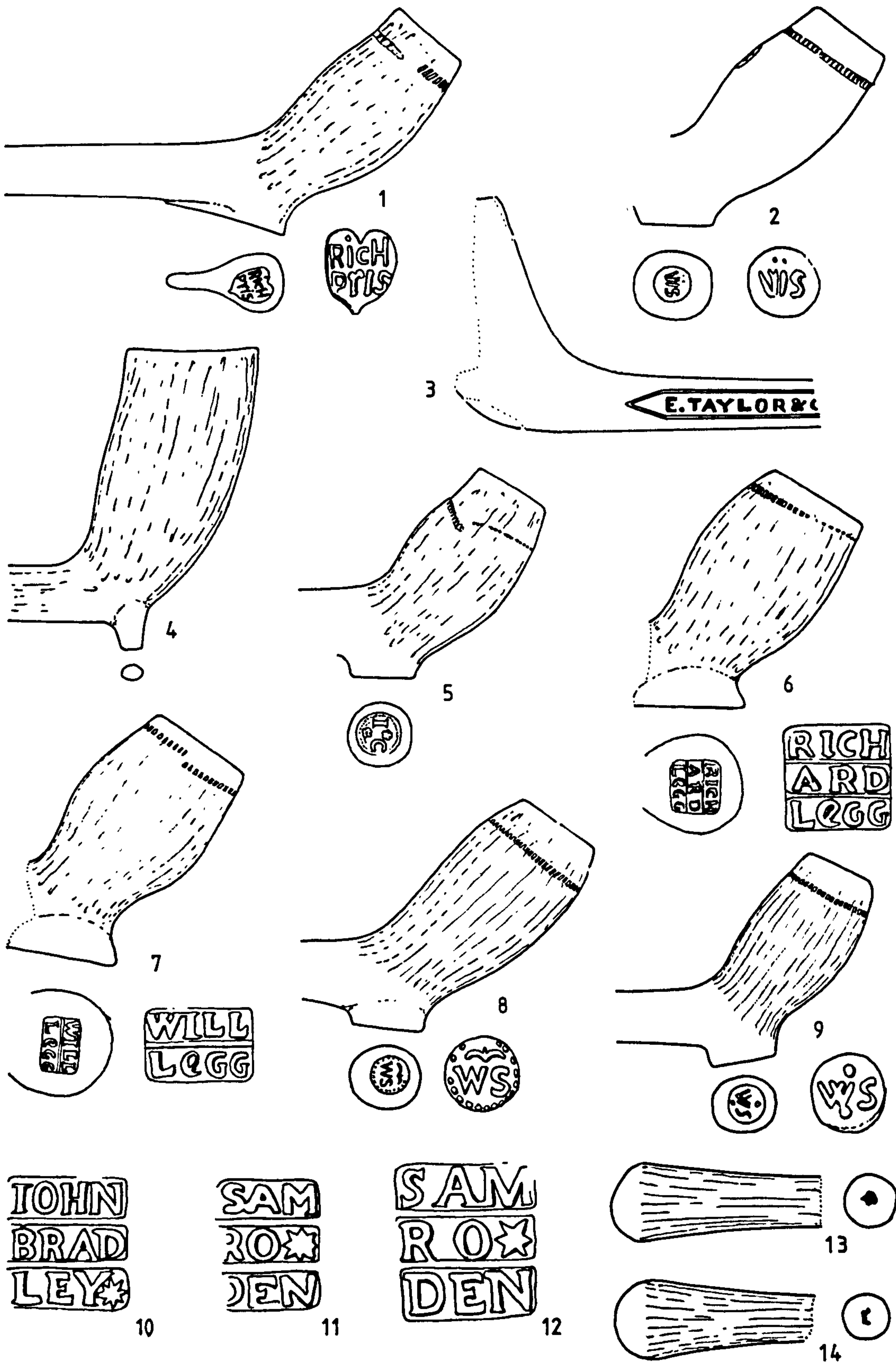


Fig 59 - Shrewsbury - Andrews Collection, Judd Collection & misc.

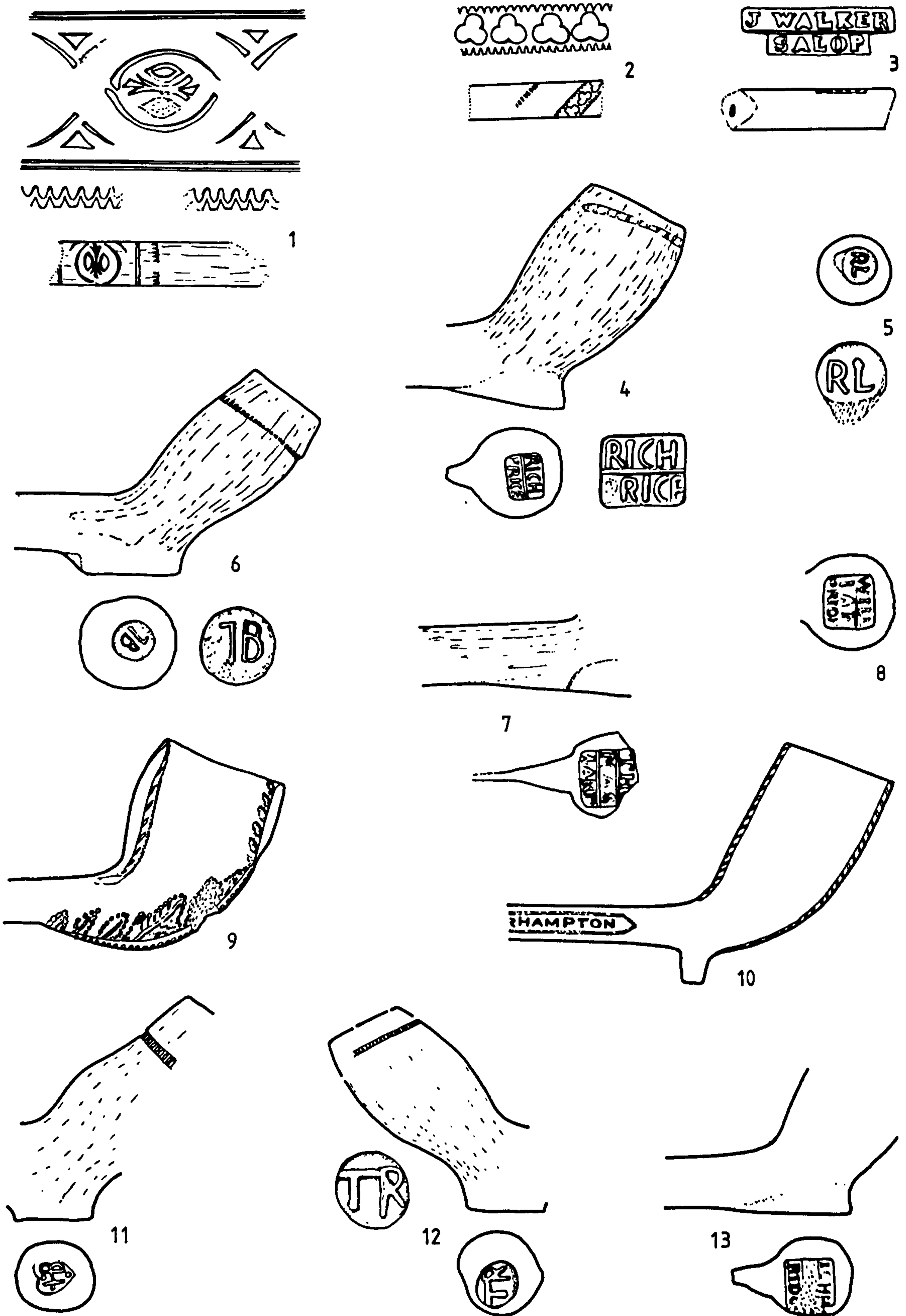


Fig 60 - Shrewsbury & Broseley, Judd Collection & misc.

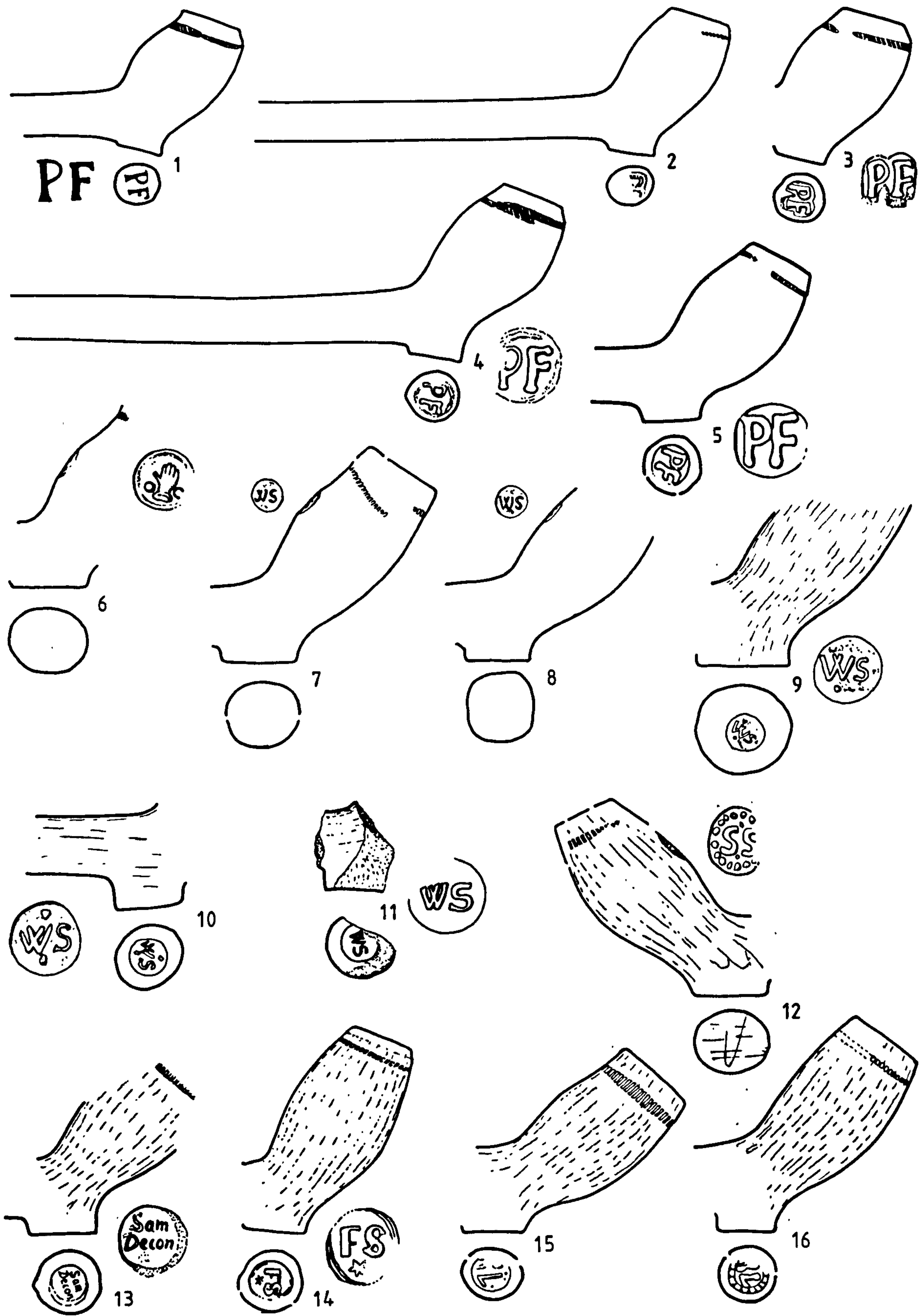


Fig 61 - Excavated pipes from The Wharfage, Ironbridge.

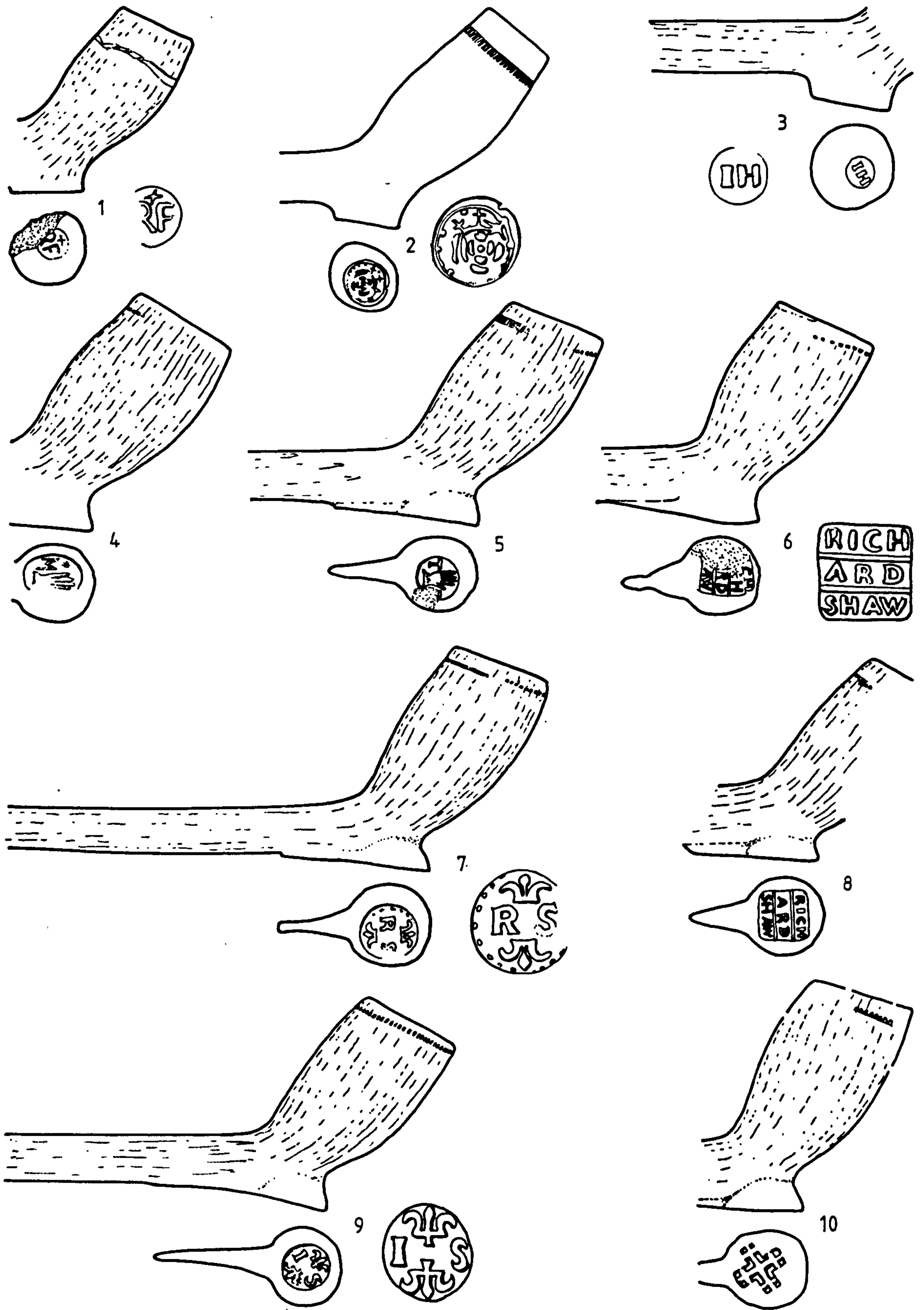


Fig 62 - Excavated pipes from The Wharfage, Ironbridge.

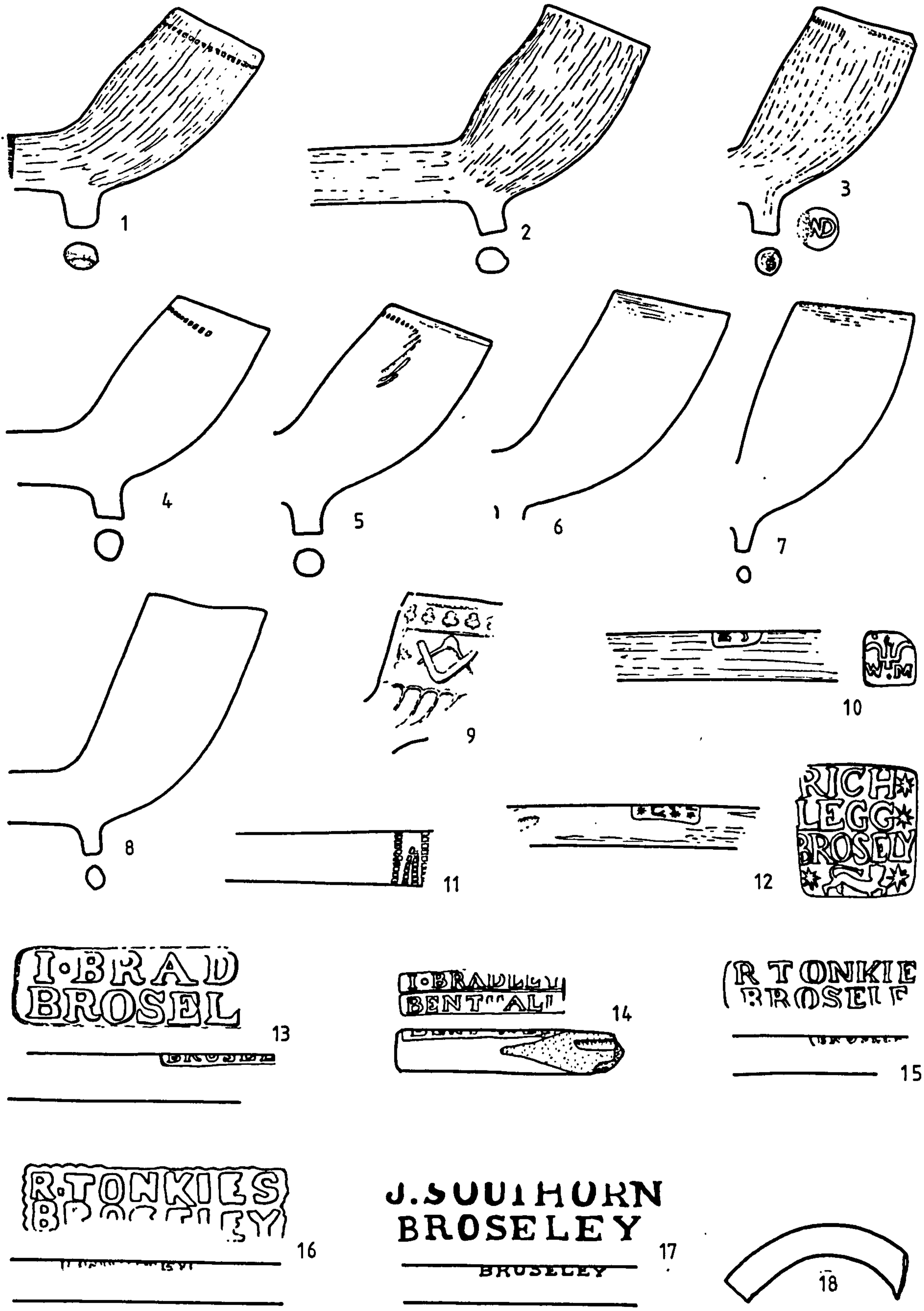


Fig 63 - Excavated pipes from The Wharfage, Ironbridge.

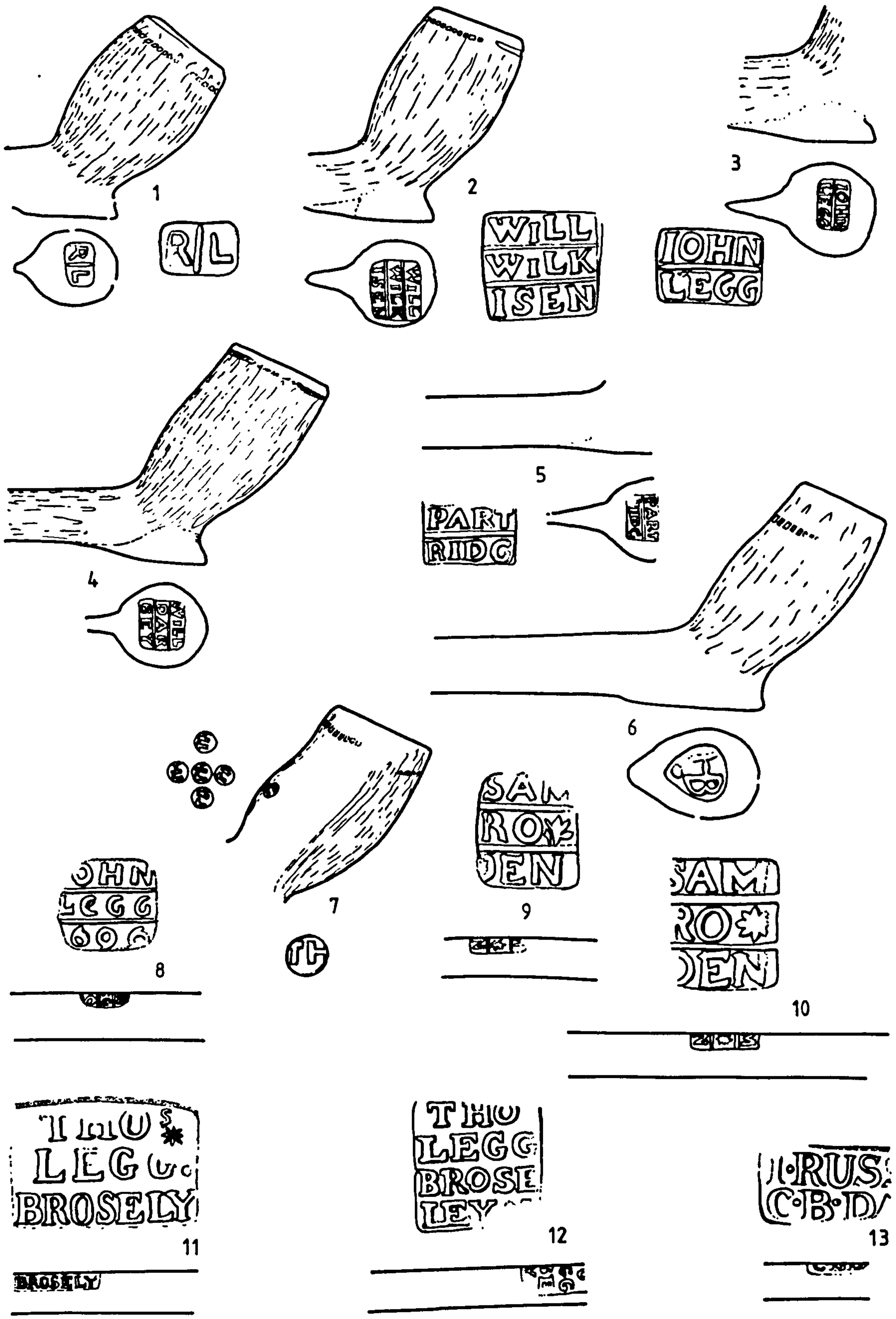


Fig 64 - Broseley area - Taylor Collection & misc.

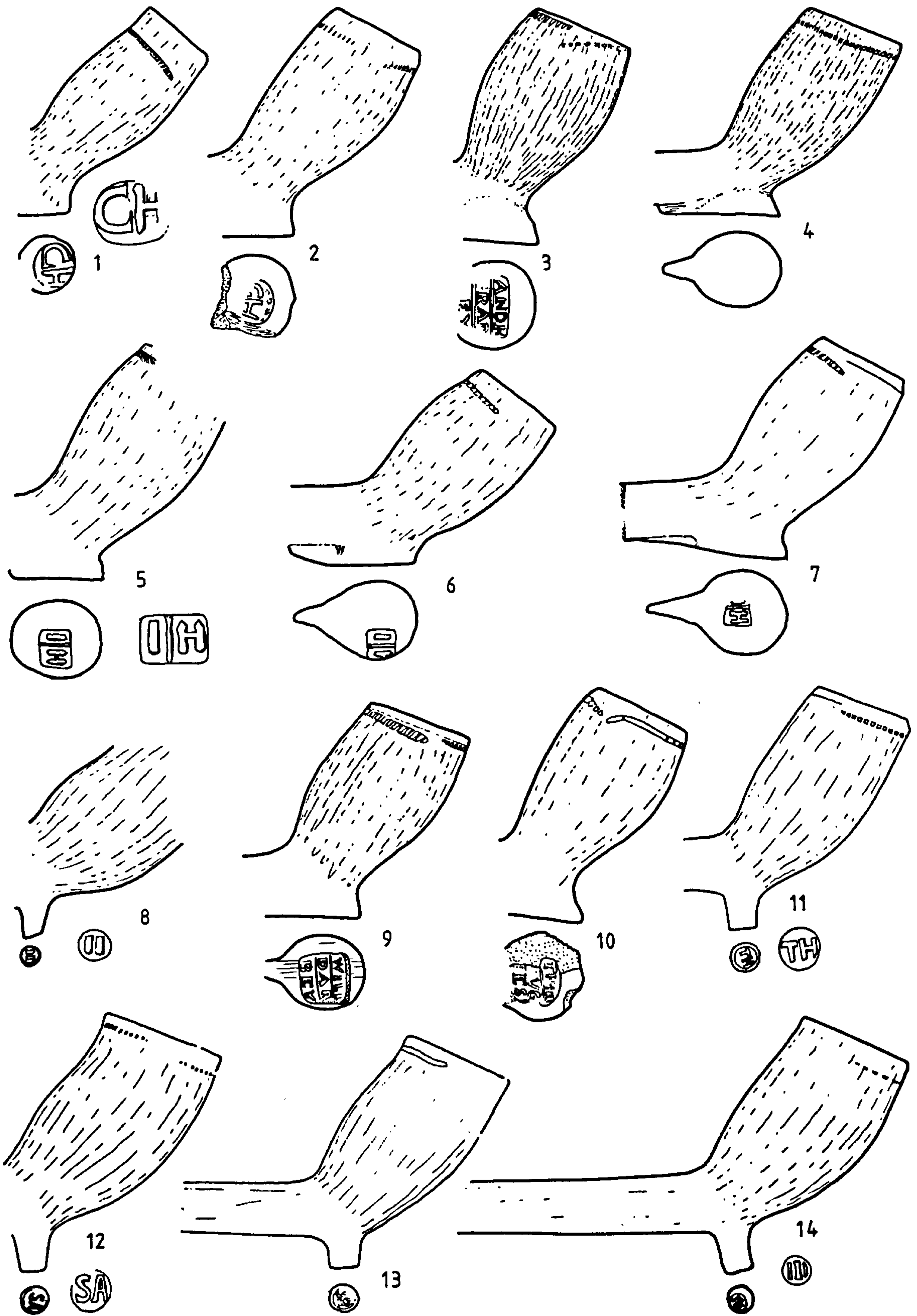


Fig 65 - Groups from 23 Benthall Lane & the Calcutts, Jackfield.

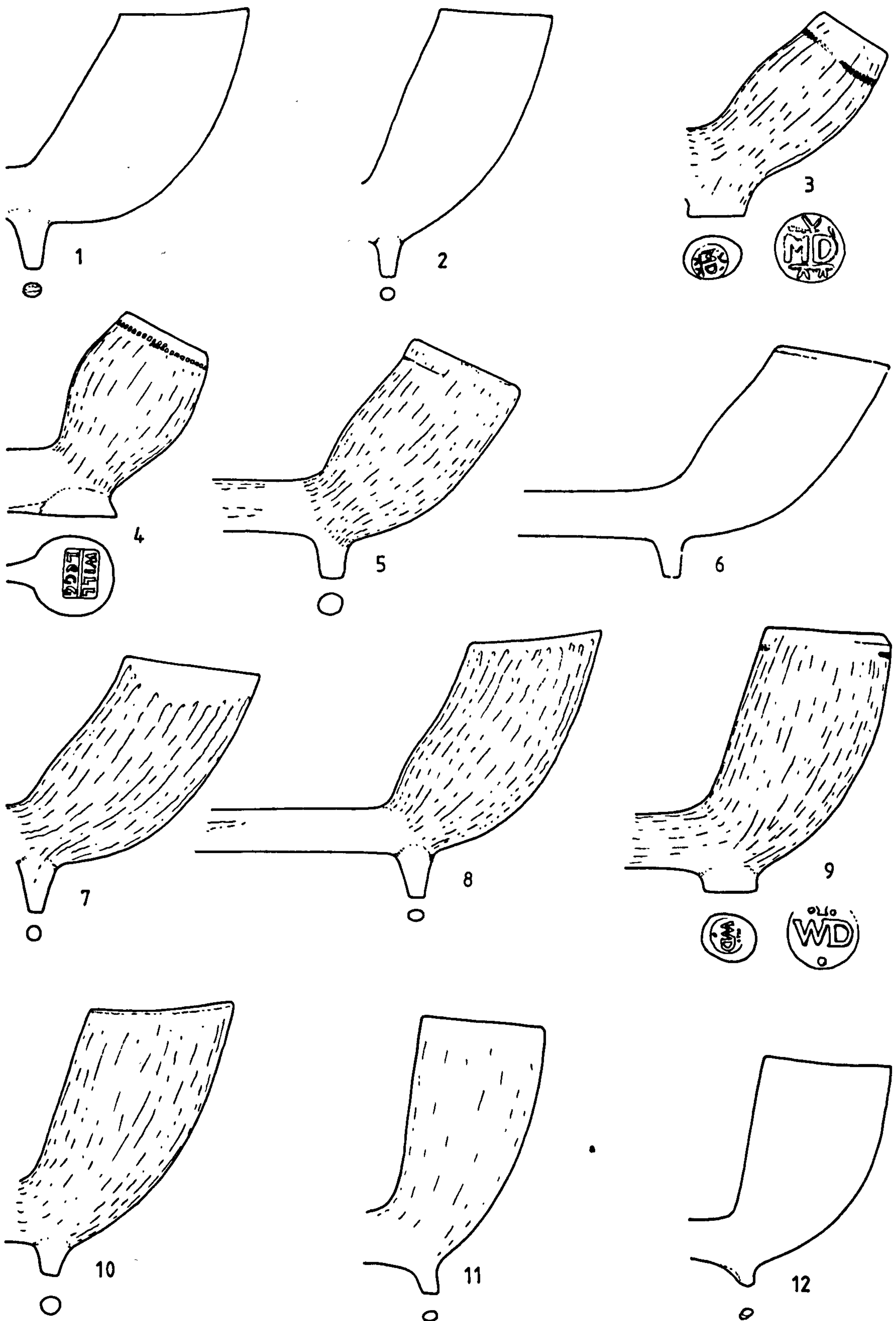


Fig 67 - Severn Trow, Jackfield; Crewes Park, Broseley & 15/15a Holly Road, Little Dawley.

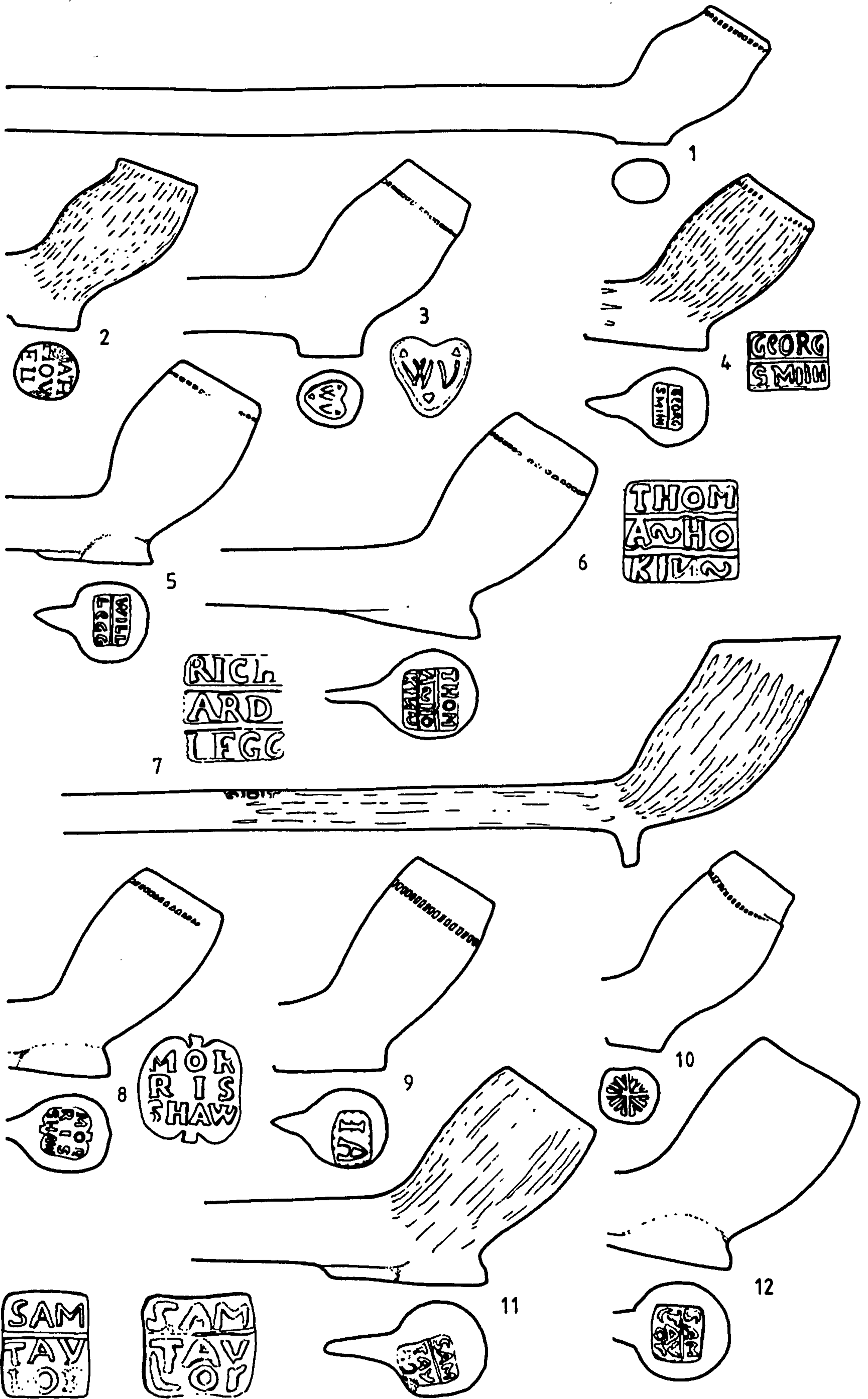


Fig 68 - Much Wenlock Museum Collection.

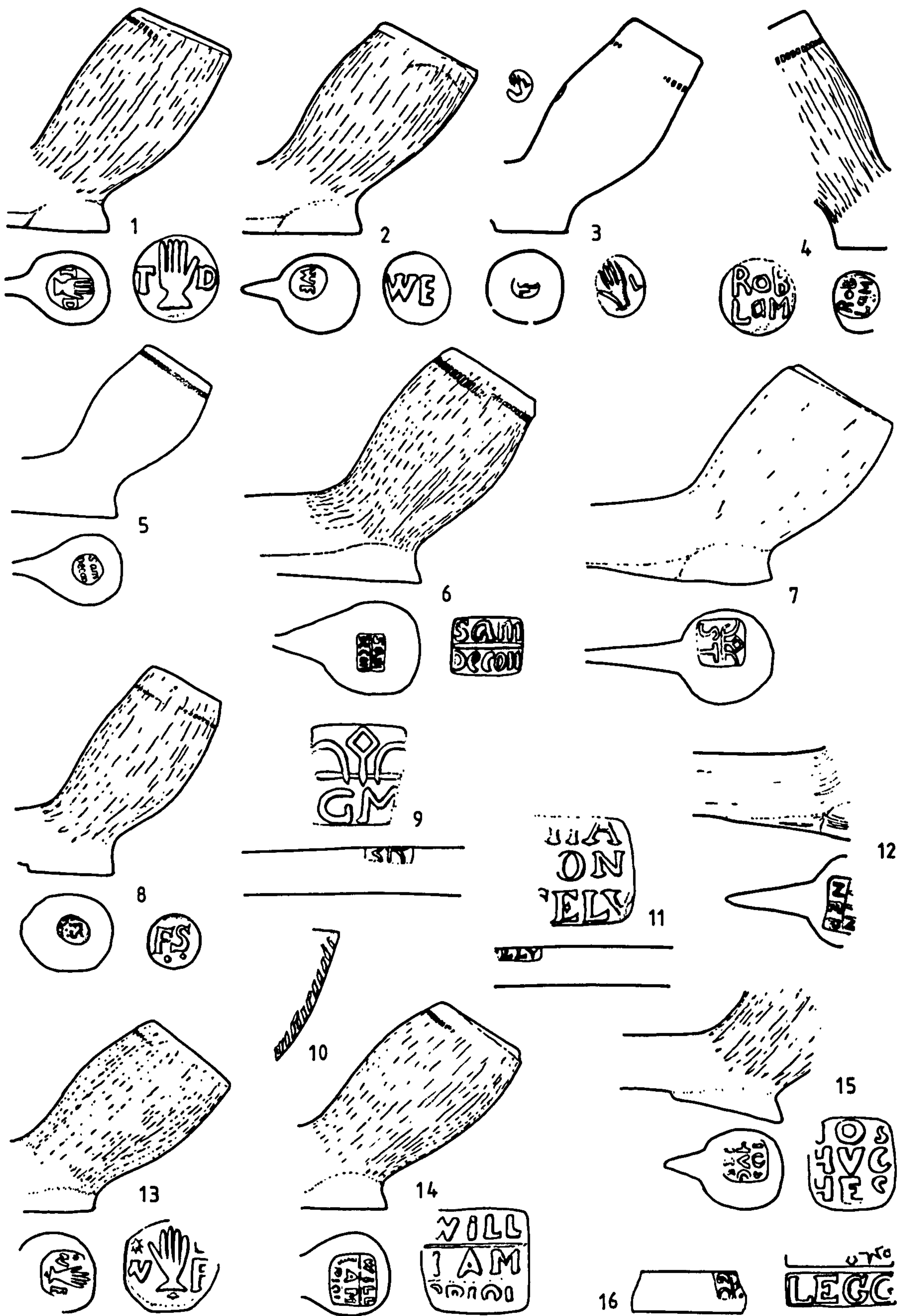


Fig 69 - Much Wenlock Museum Collection.

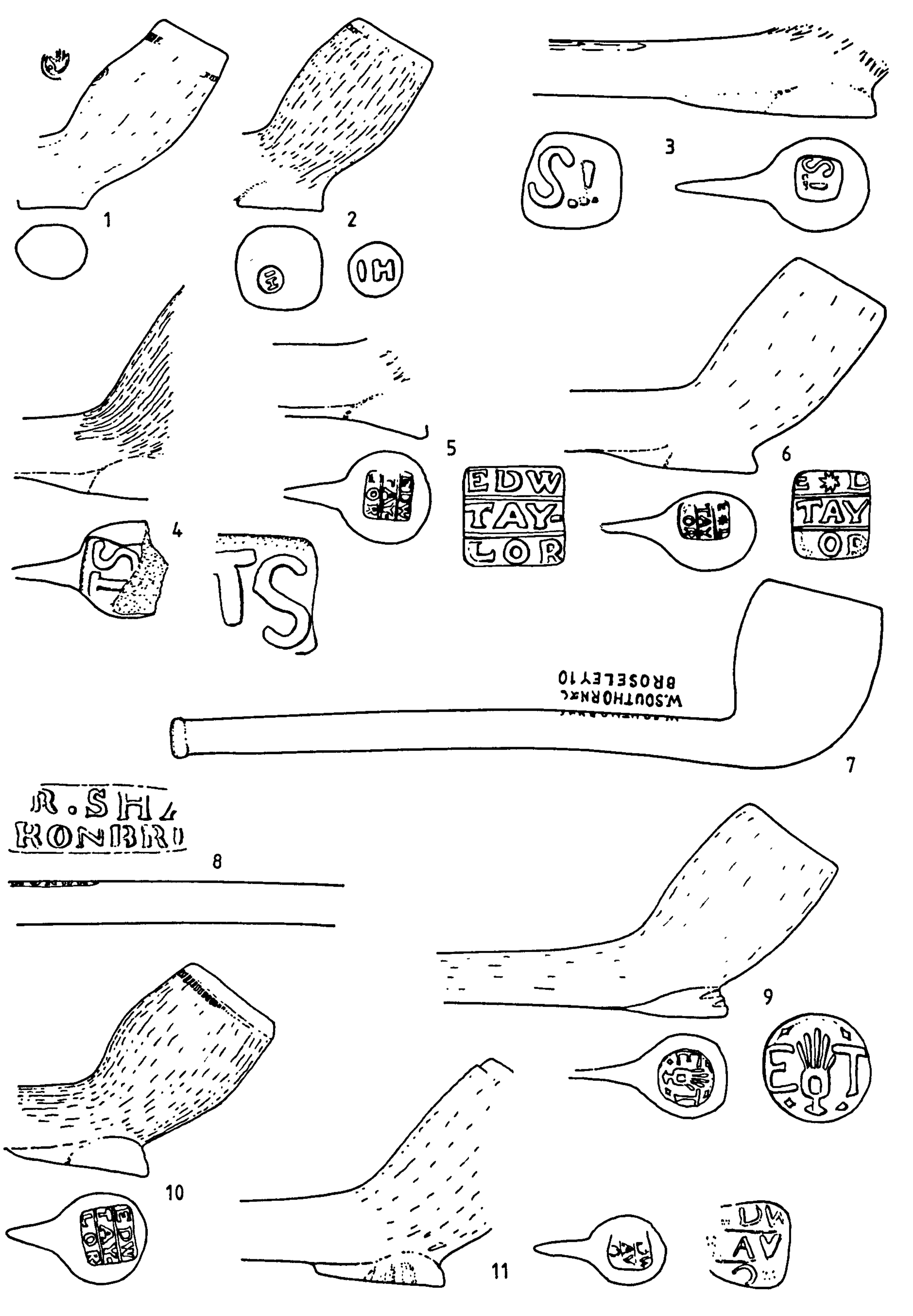


Fig 70 - Much Wenlock - 4 St Mary's Lane.

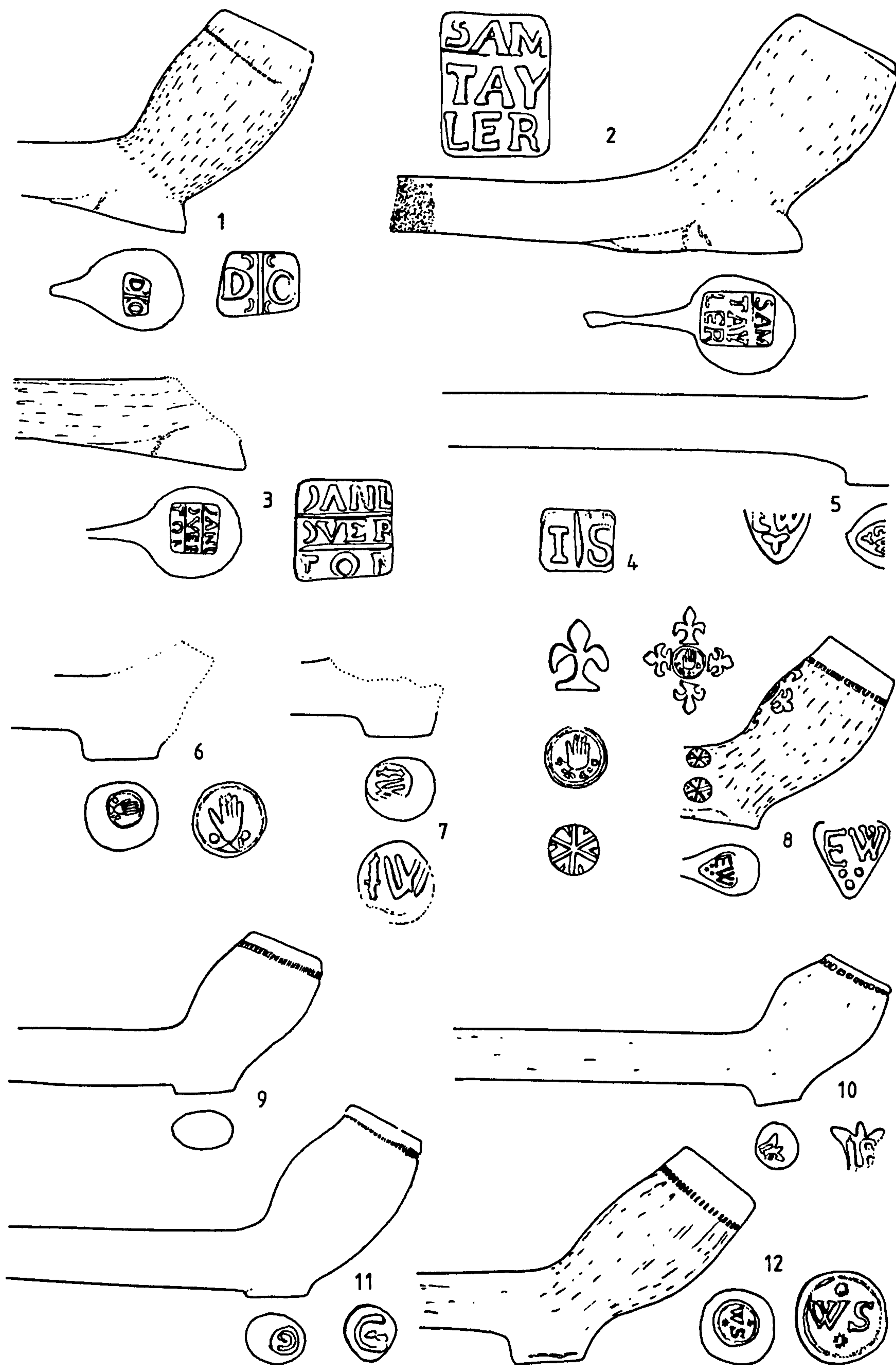


Fig 71 - Much Wenlock - 3 & 4 St Mary's Lane.

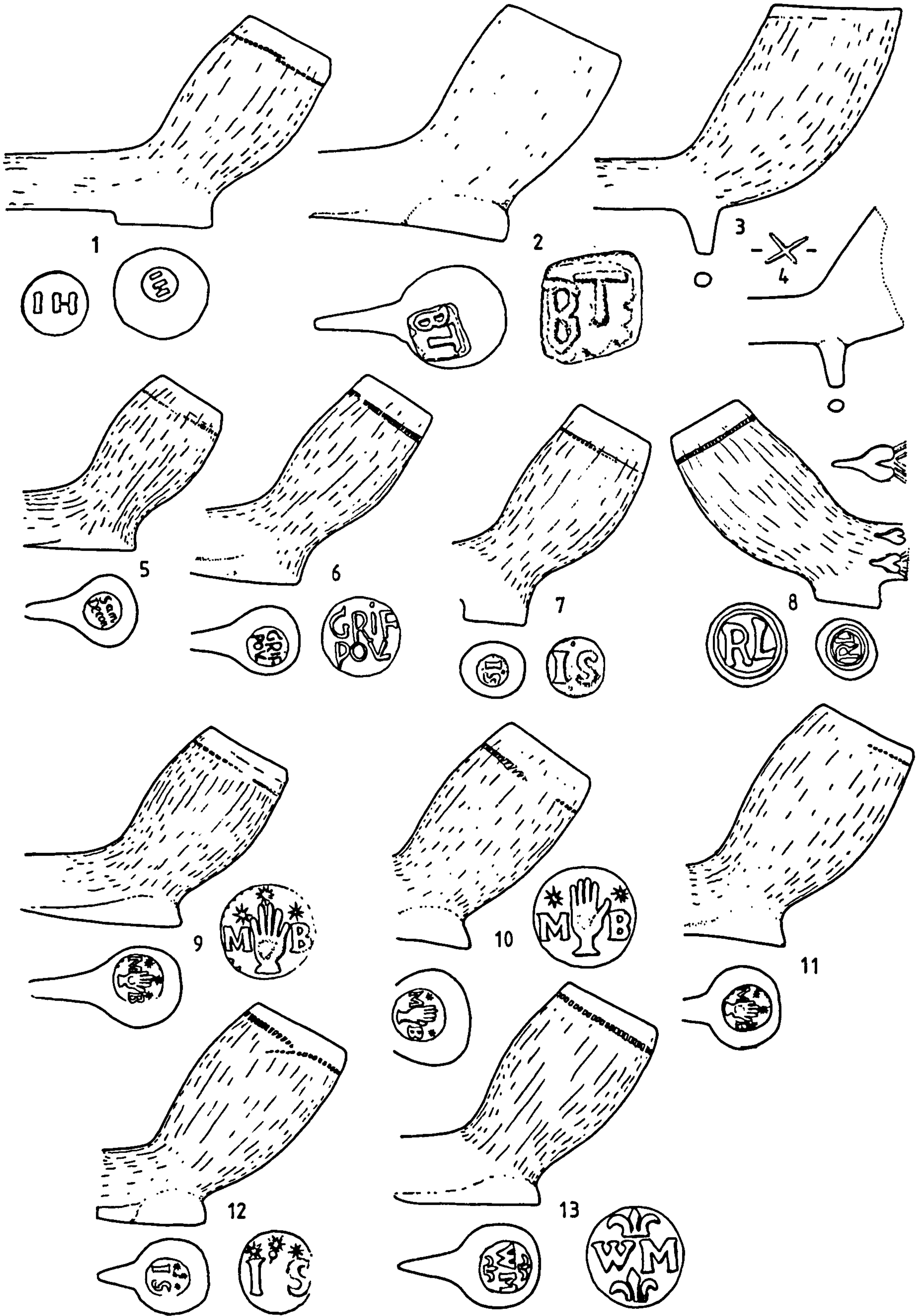


Fig 72 - Much Wenlock - 3 St Mary's Lane & Stretton Road.

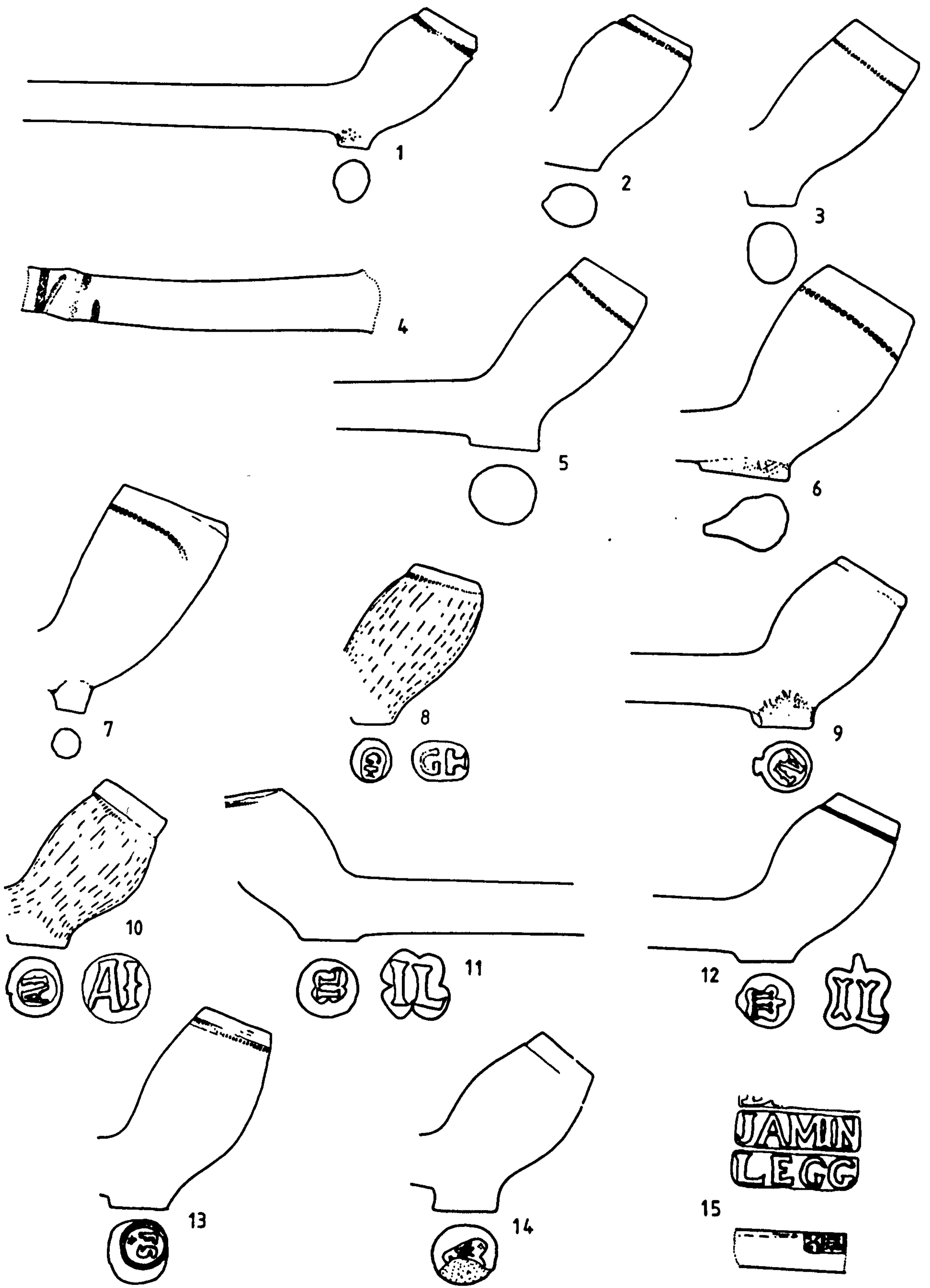


Fig 73 - Ludlow - Carmelite Friary Excavation.

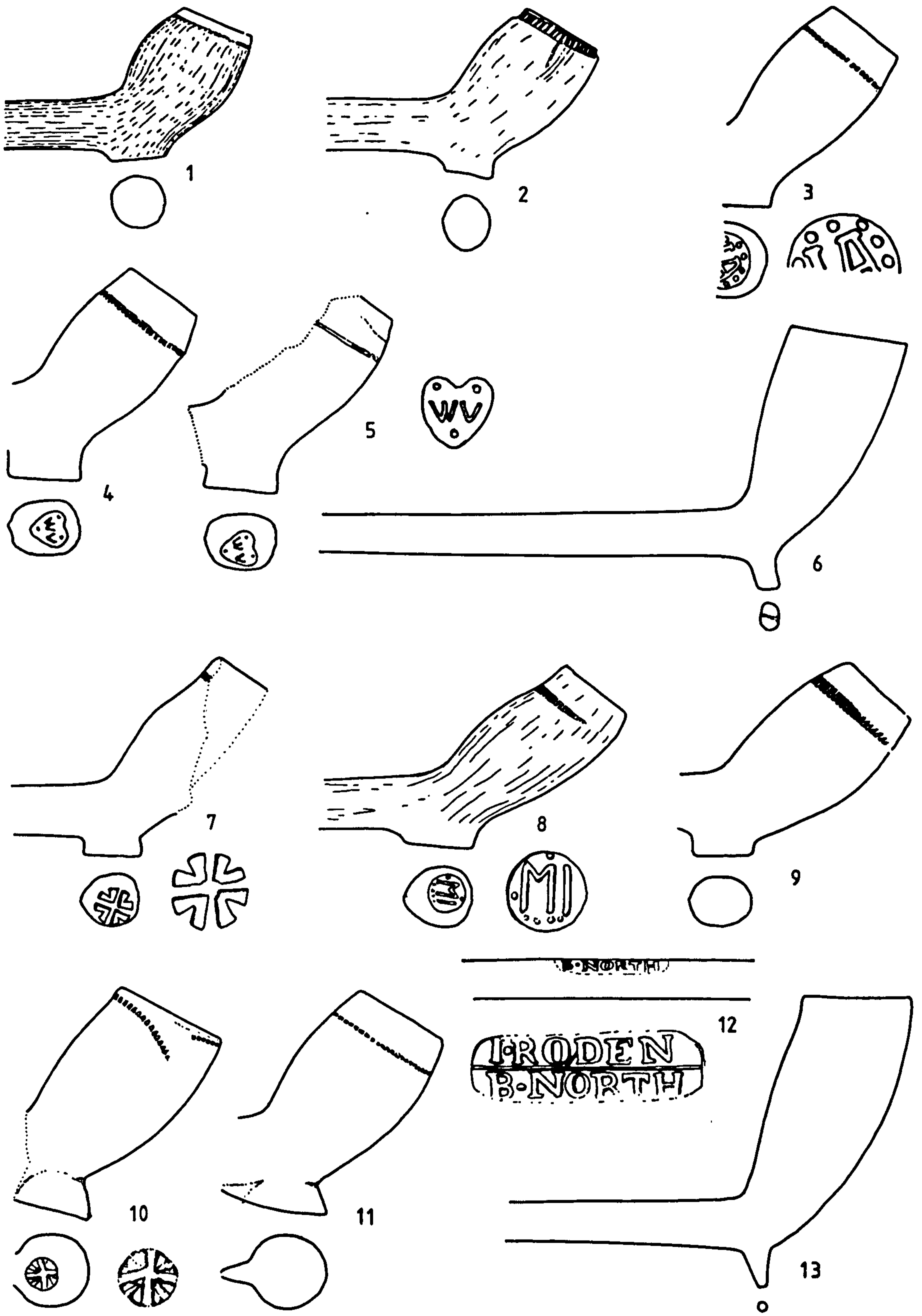


Fig 74 - Ludlow - Carmelite Friary Excavation, Bridgnorth Museum Collection & Dowles, Nr Bewdley.

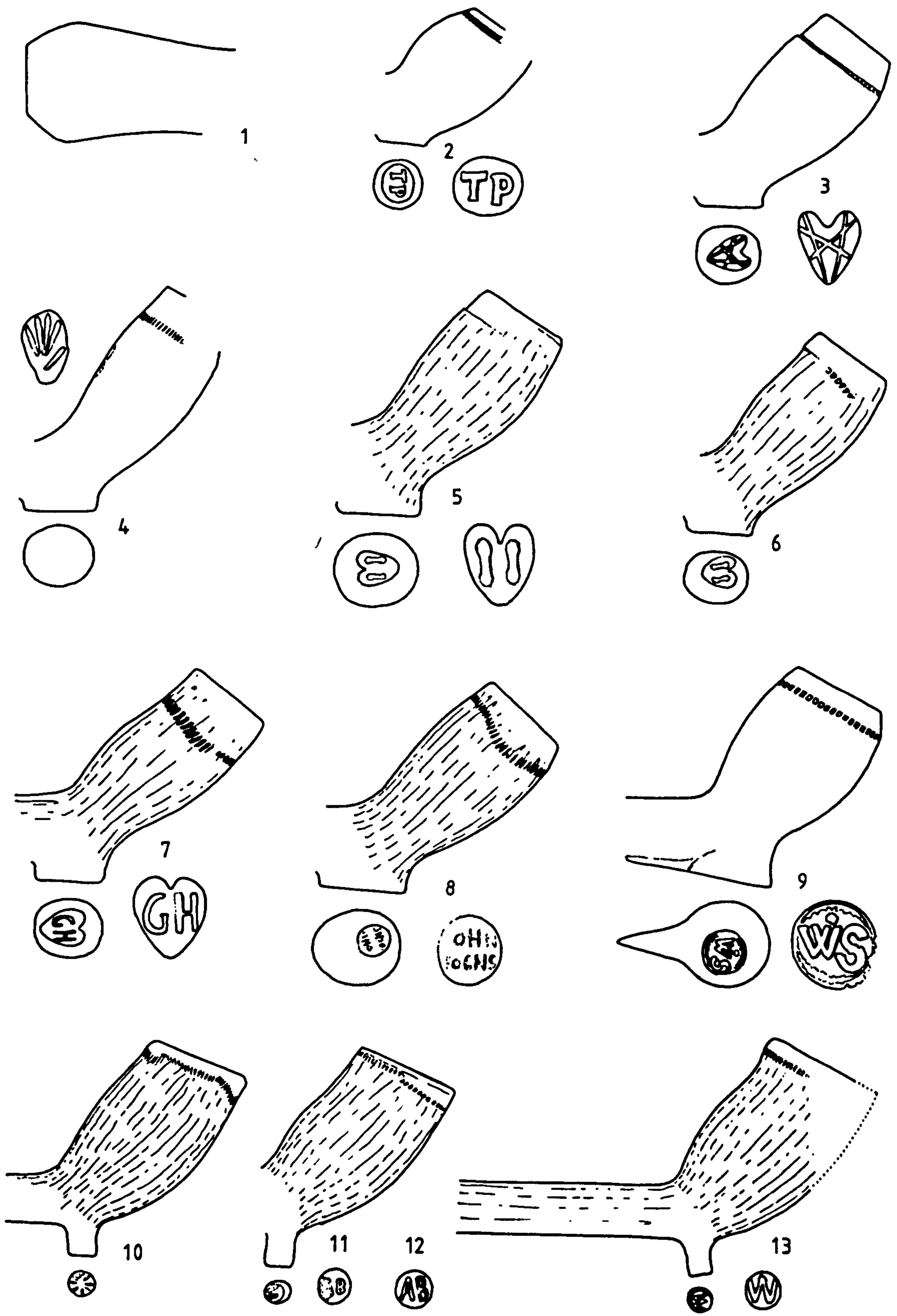


Fig 75 - Bewdley Museum - Porter Collection.

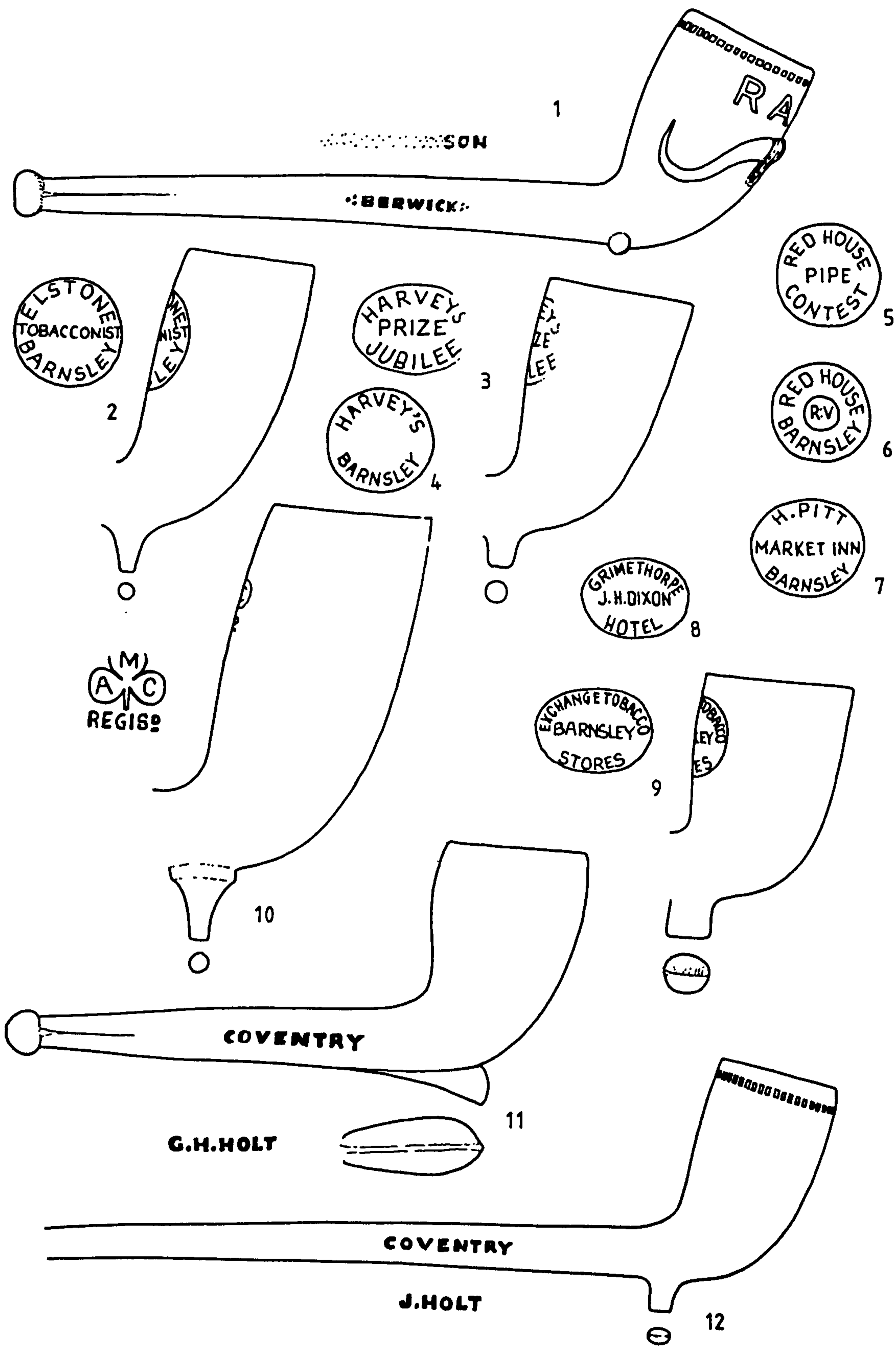


Fig 76 - Bewdley Museum - Porter Collection.

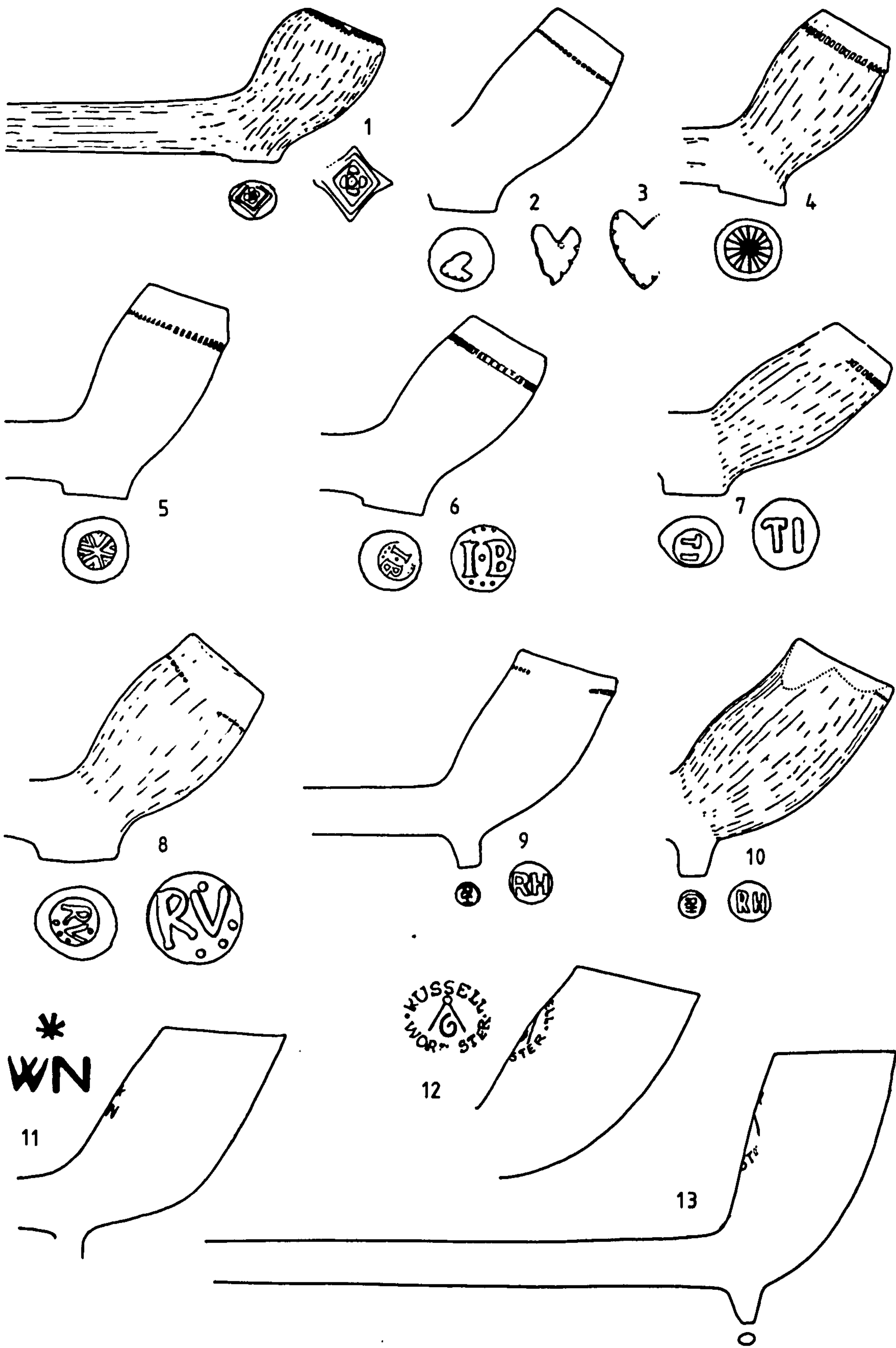


Fig 77 - Worcester - 43-49 St John's.

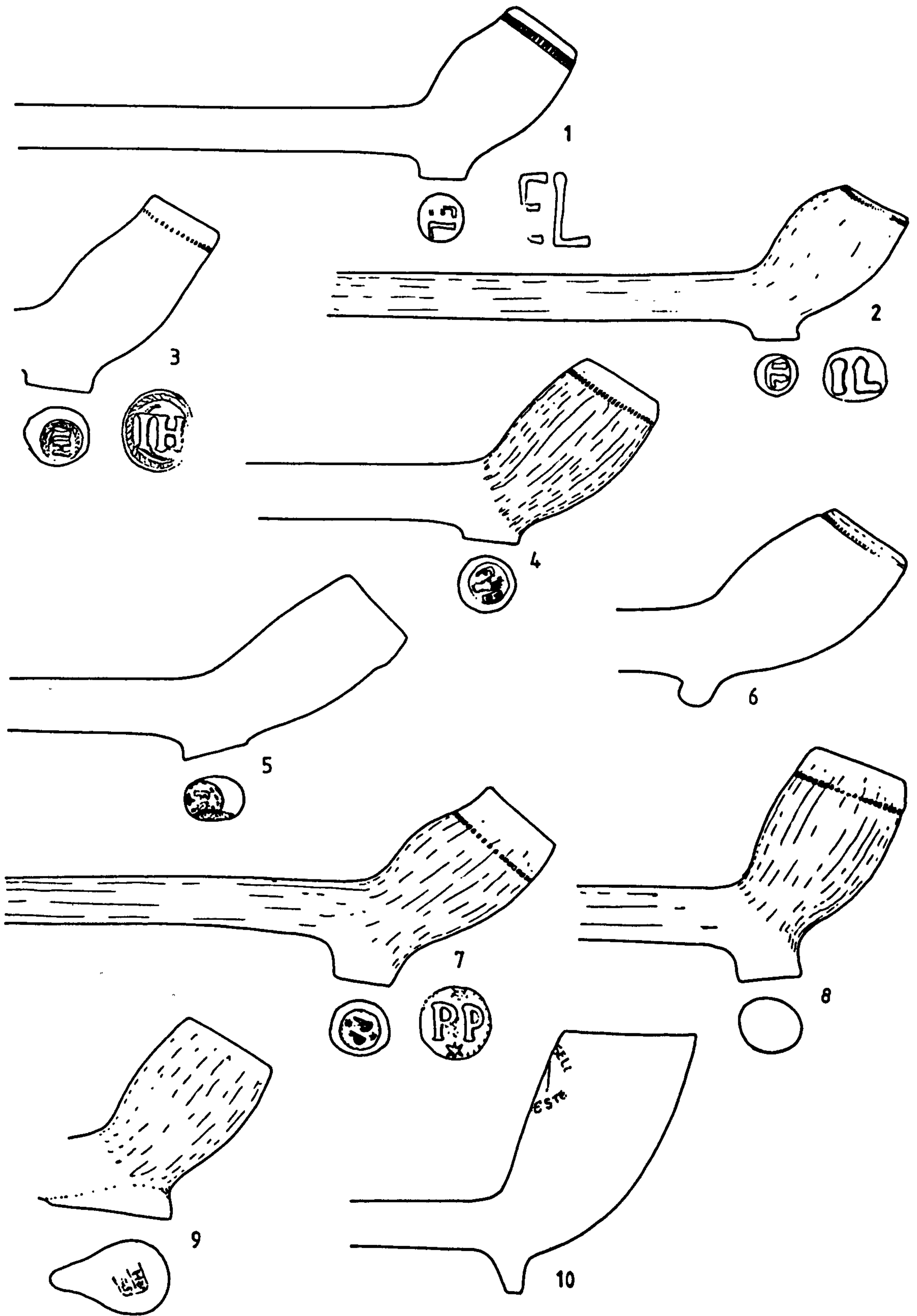


Fig 78 - Worcester - The Commandery Collections.

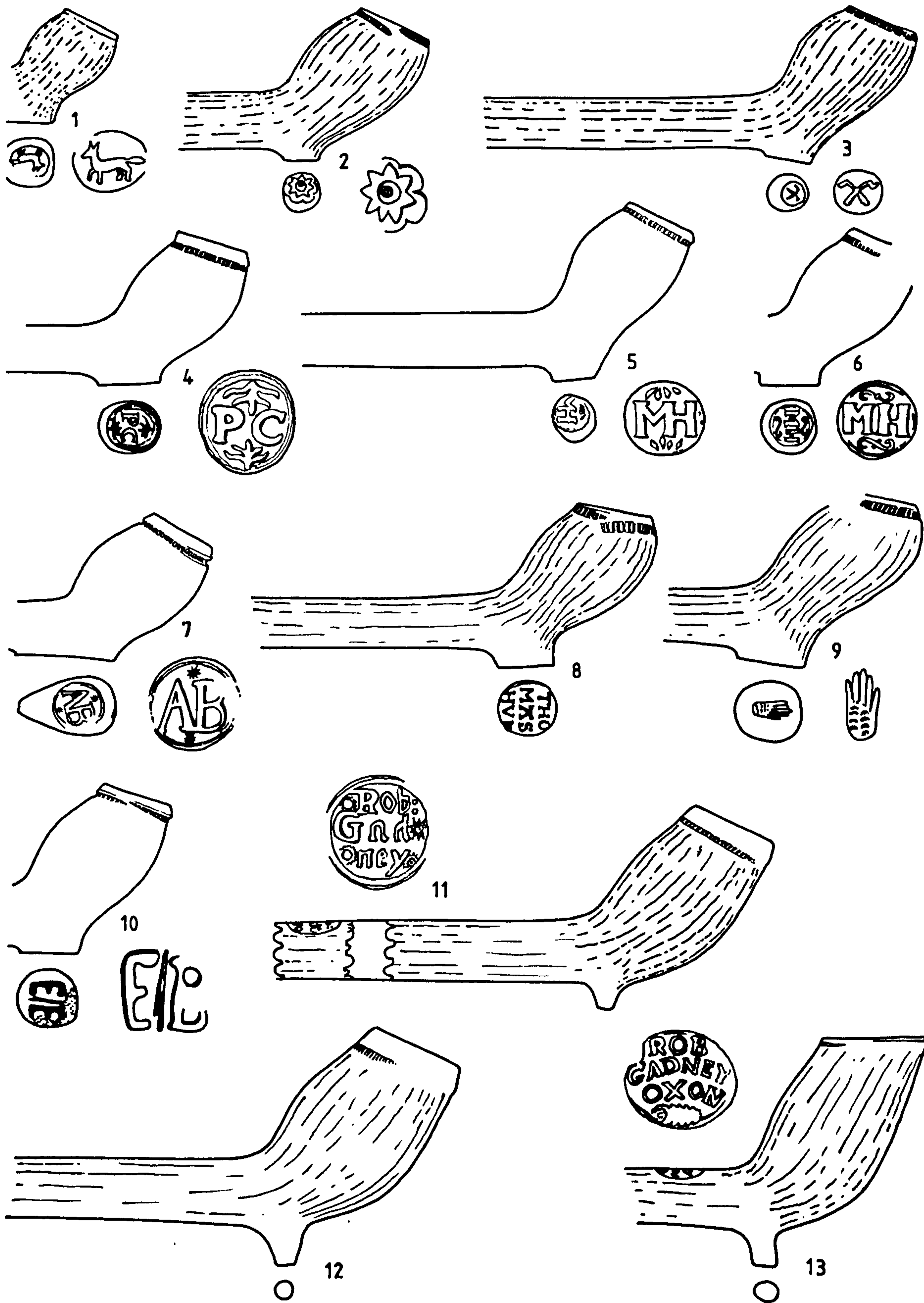


Fig 79 - Oxfordshire, misc.

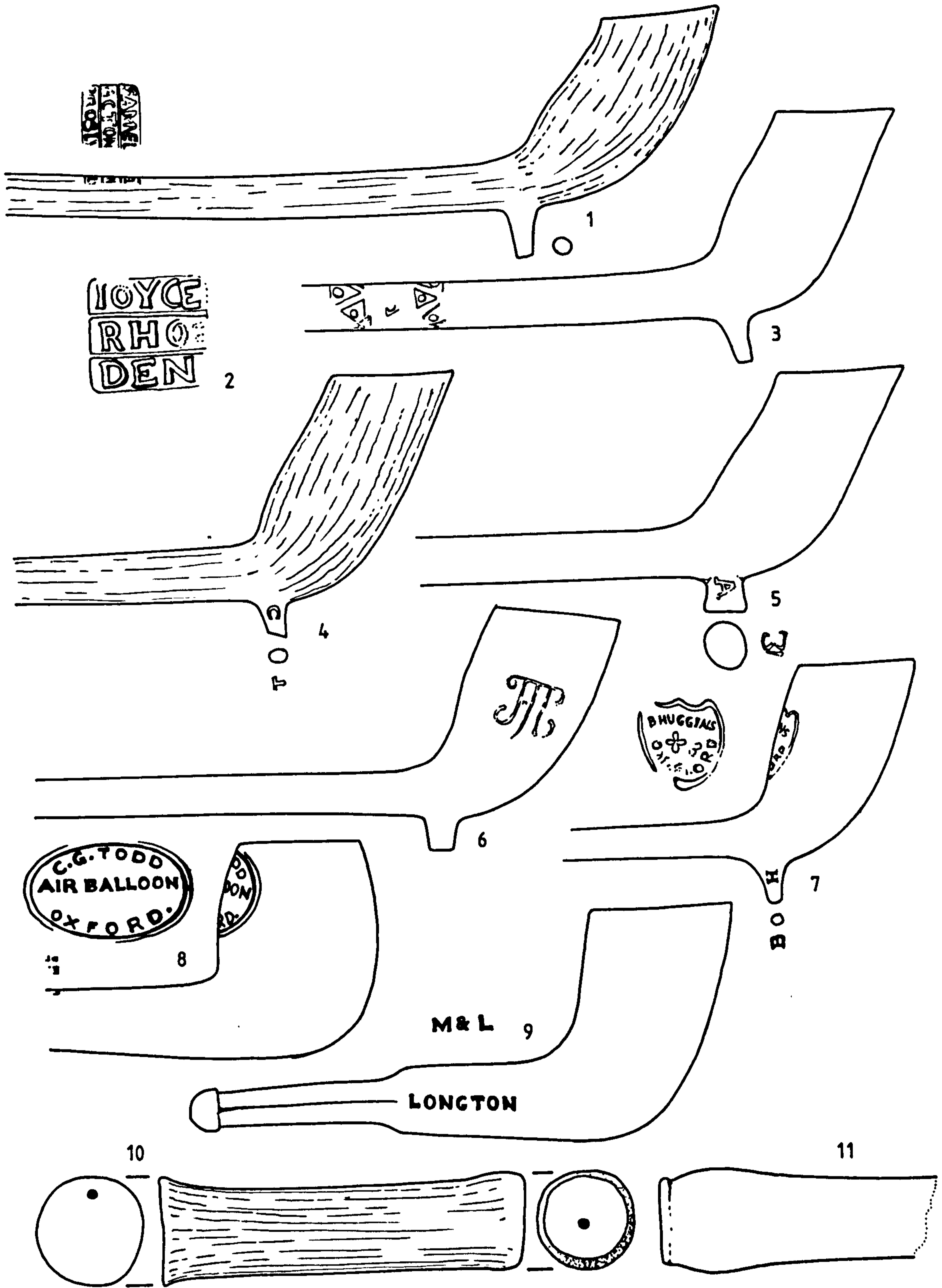


Fig 80 - Oxfordshire, misc.

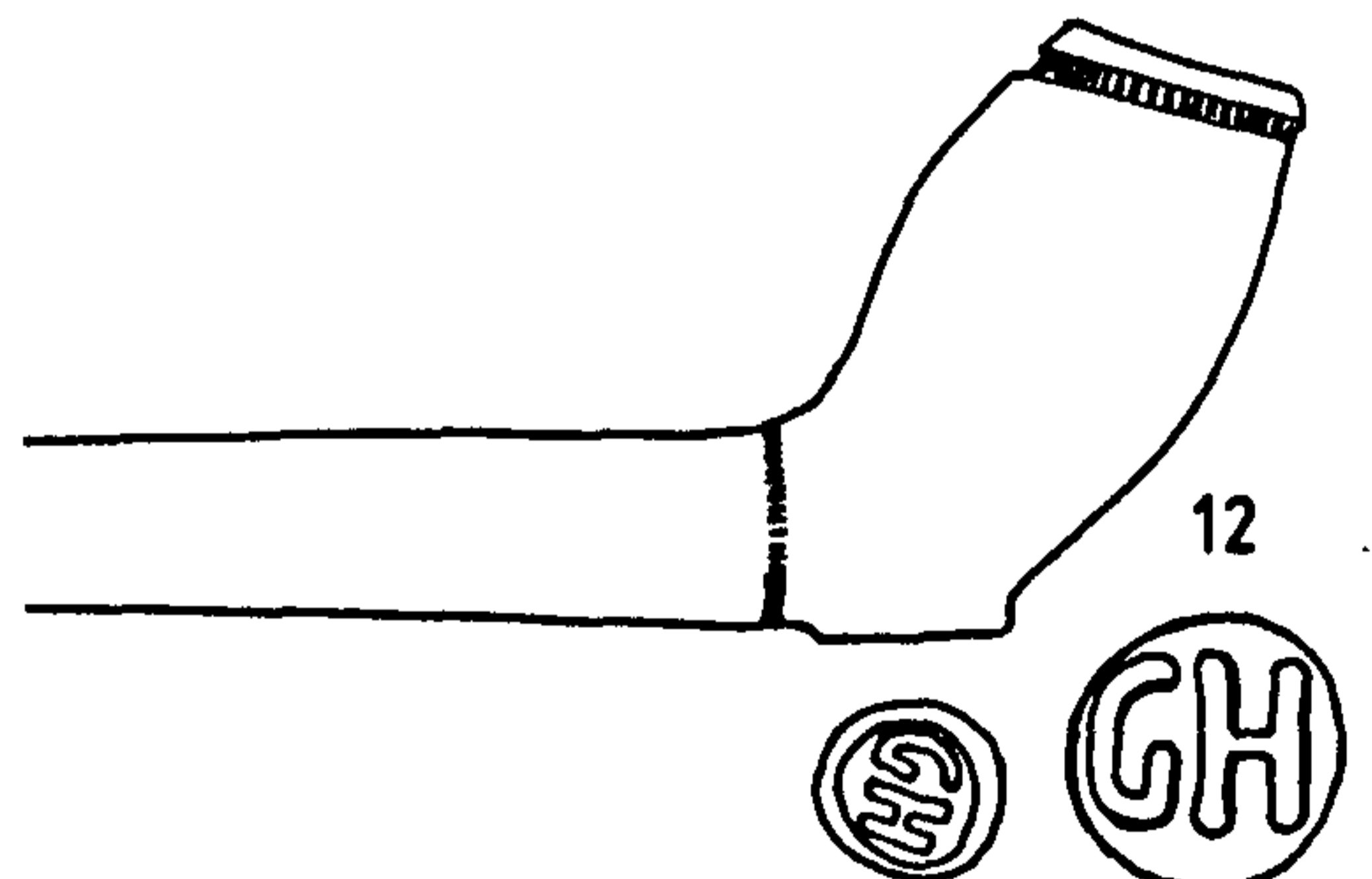
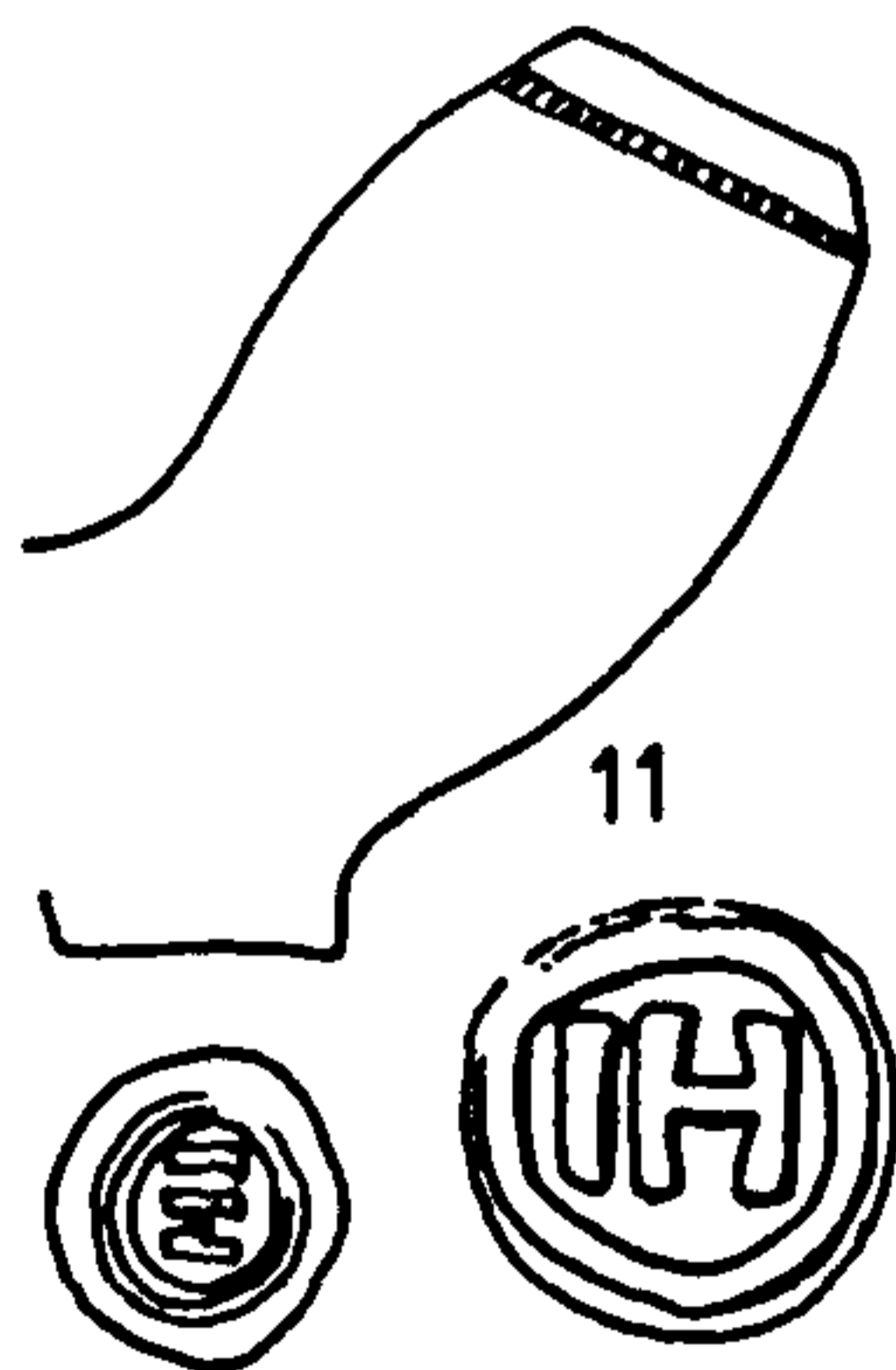
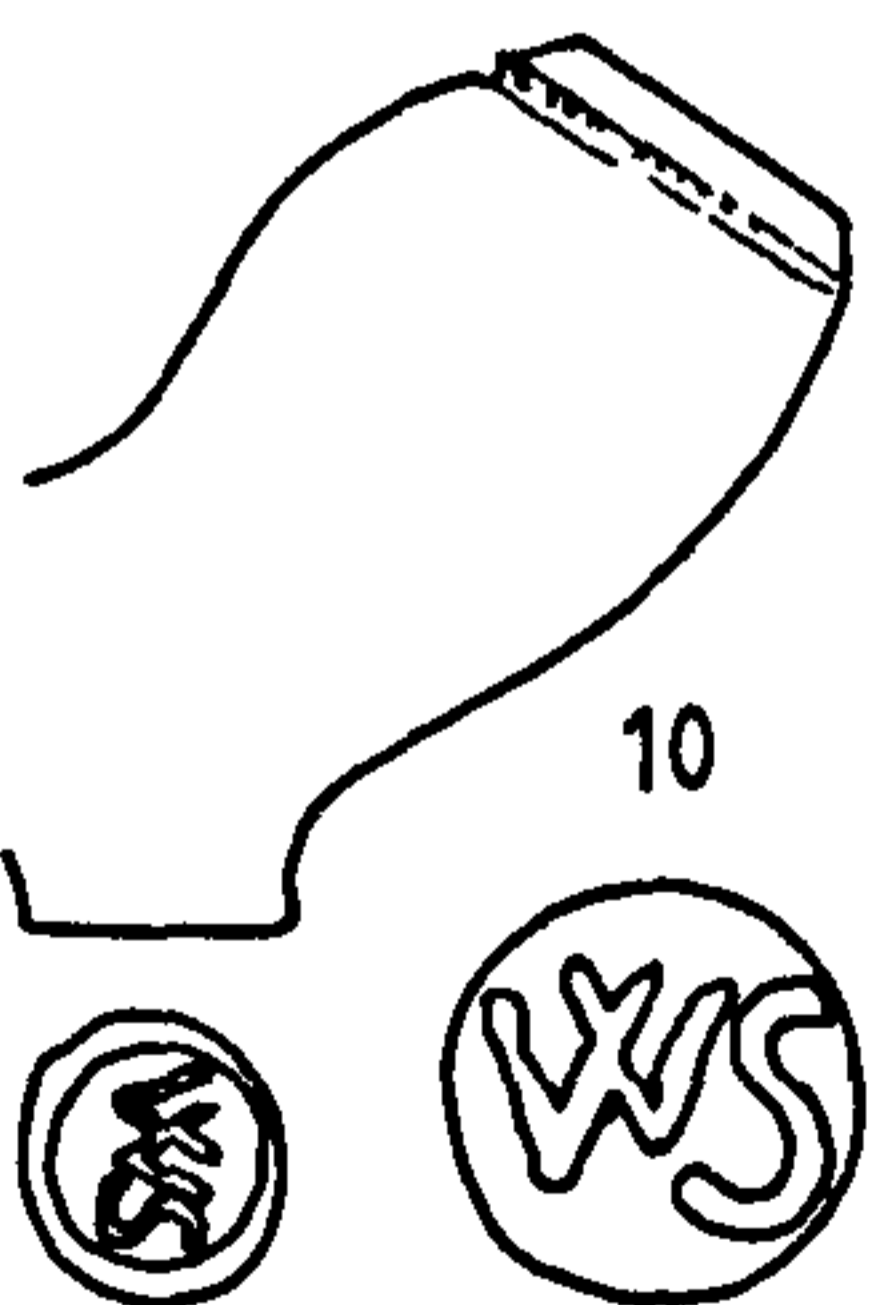
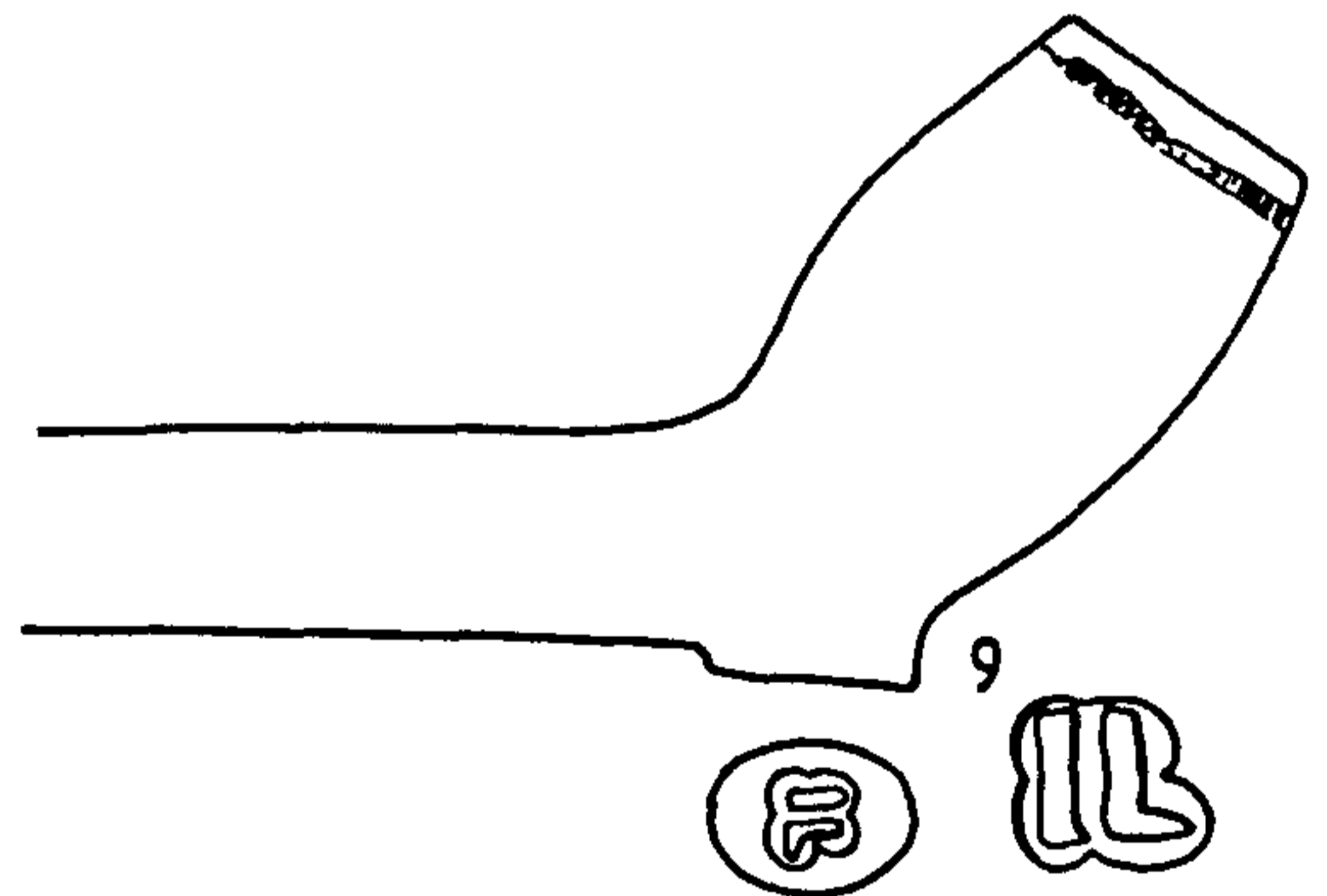
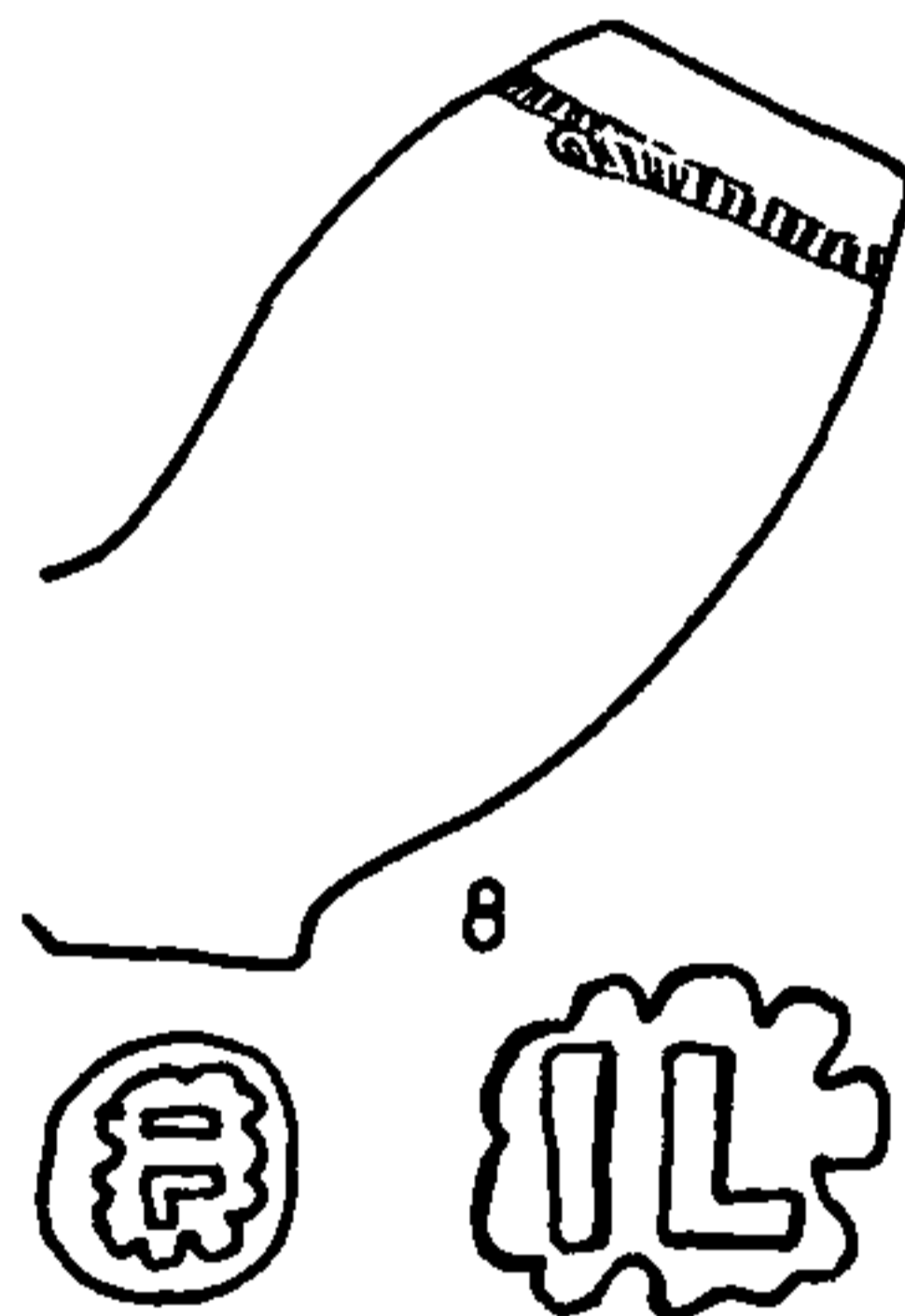
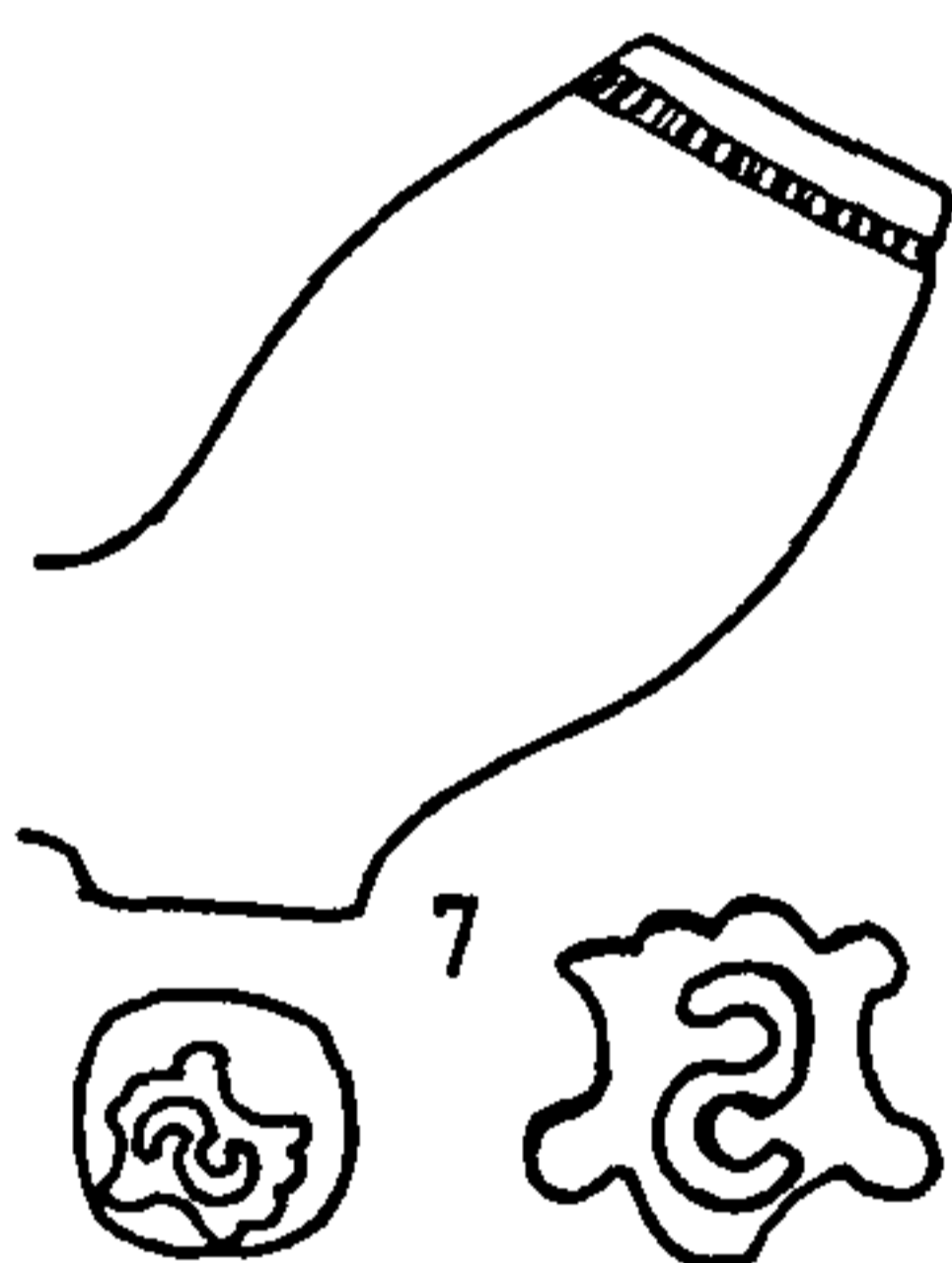
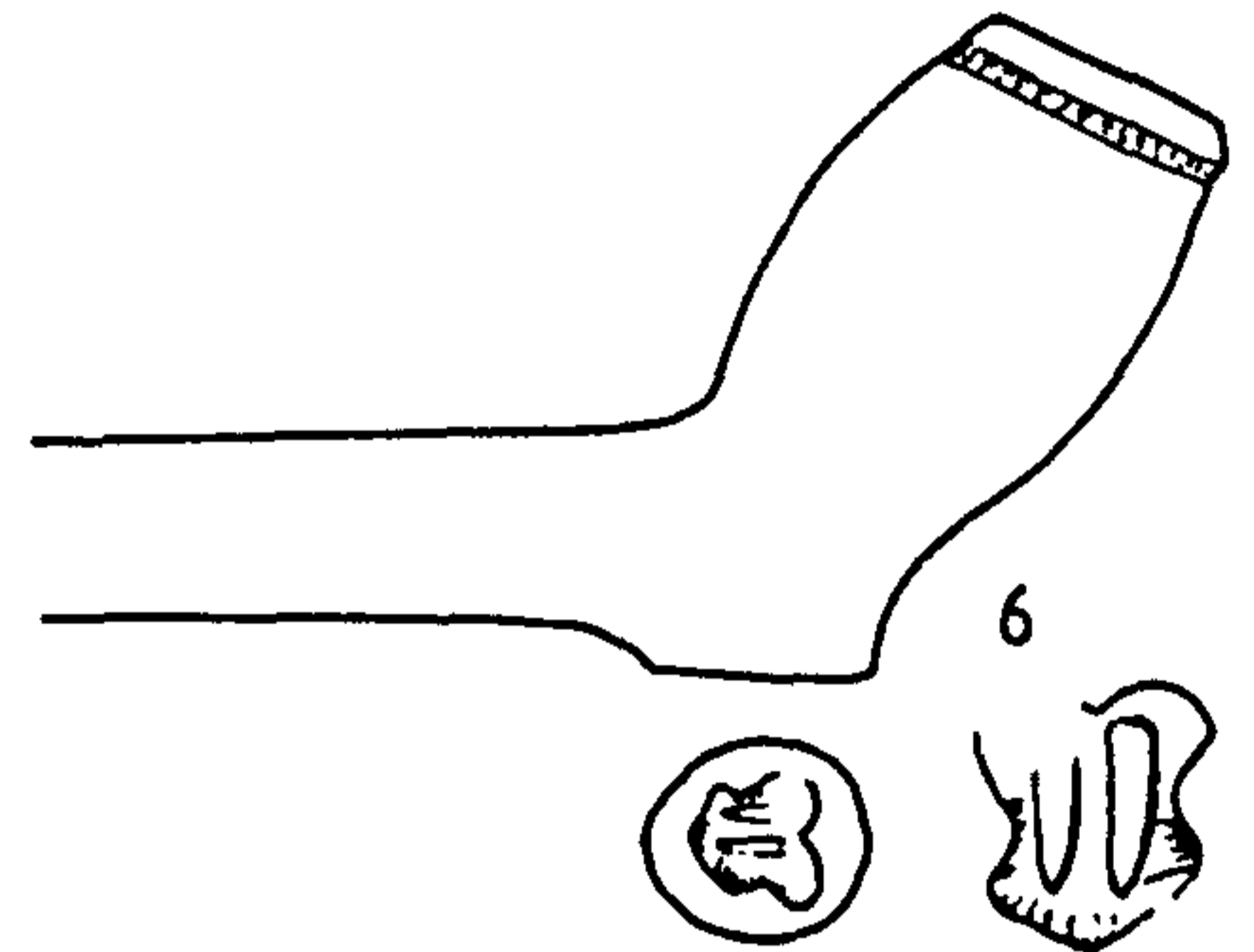
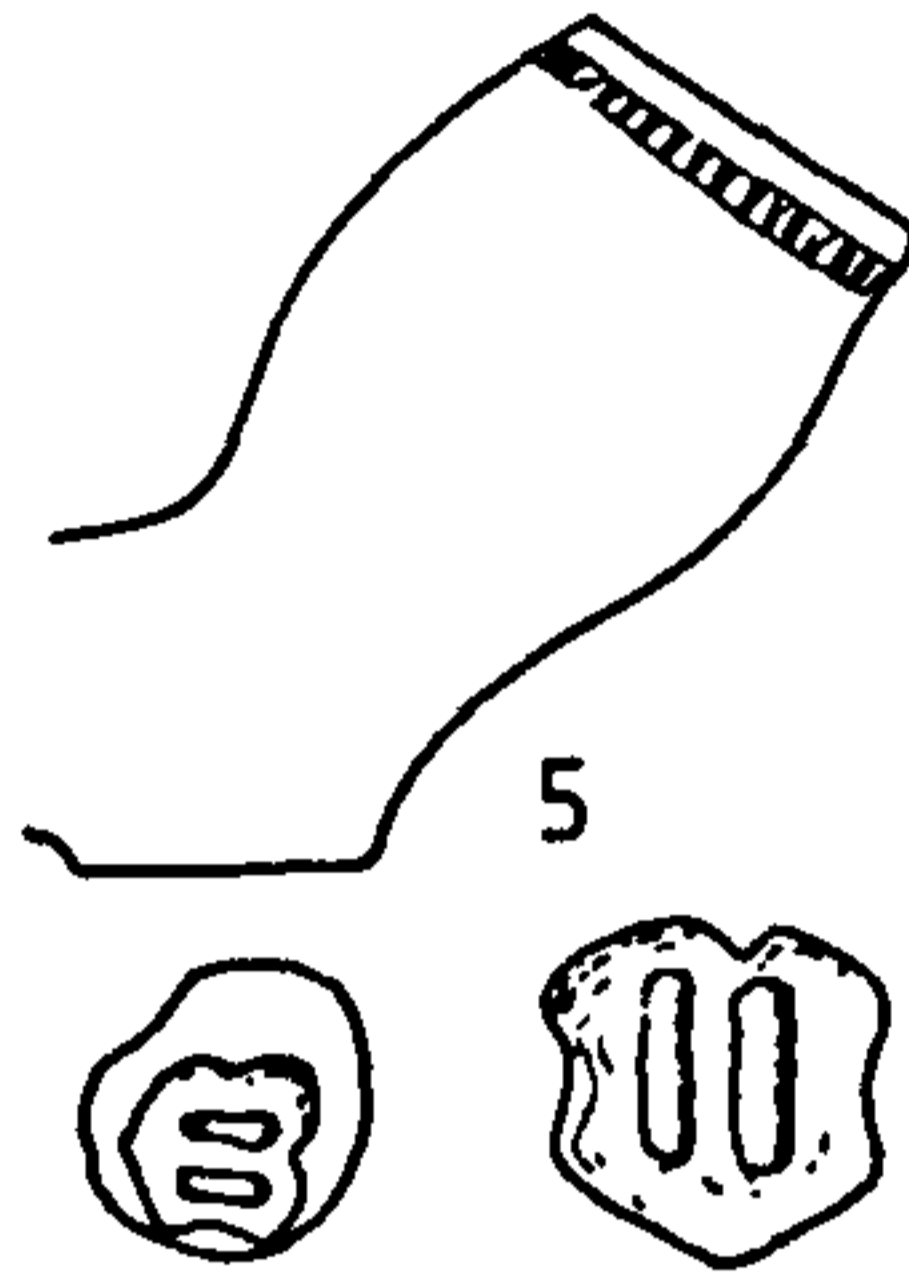
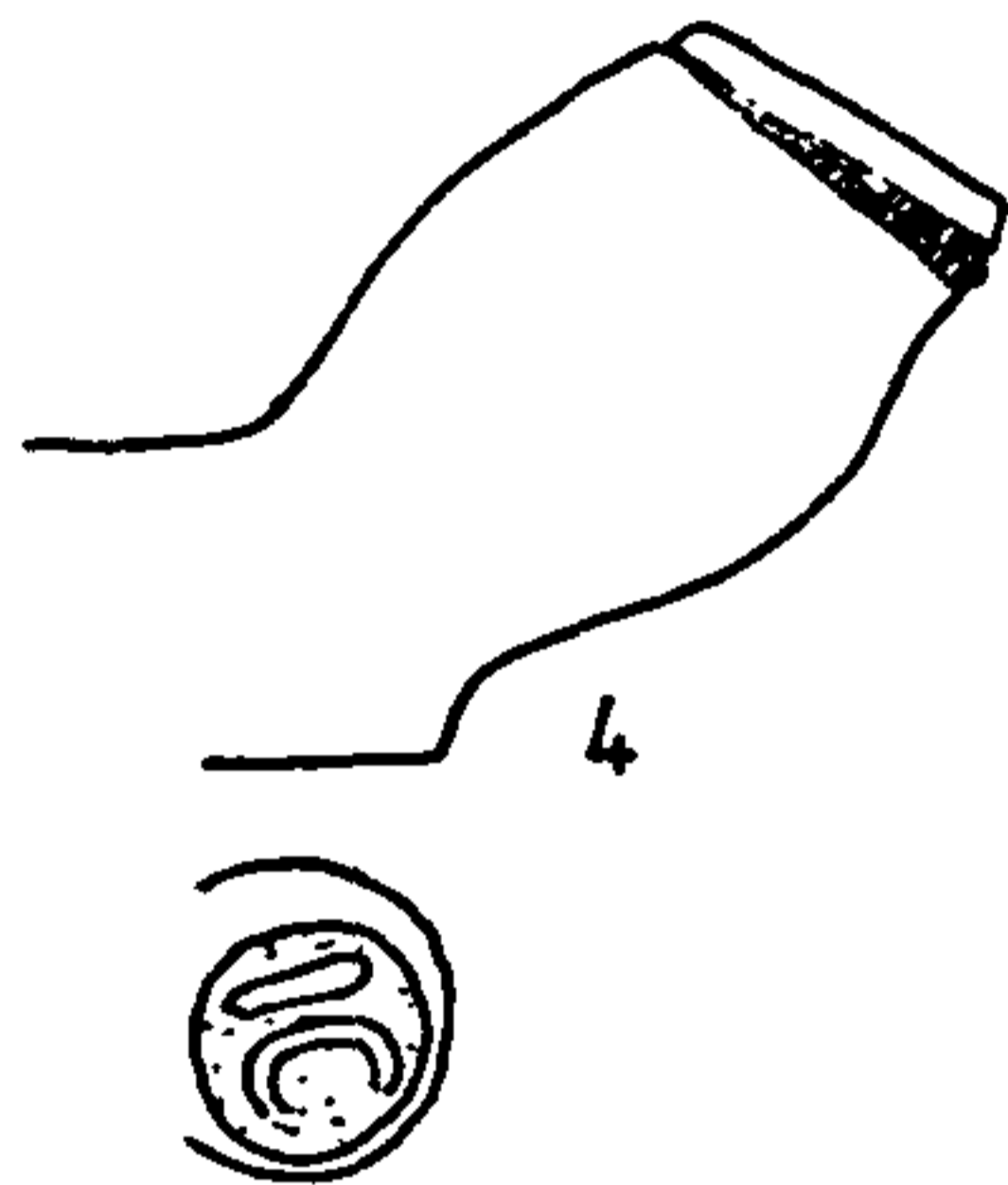
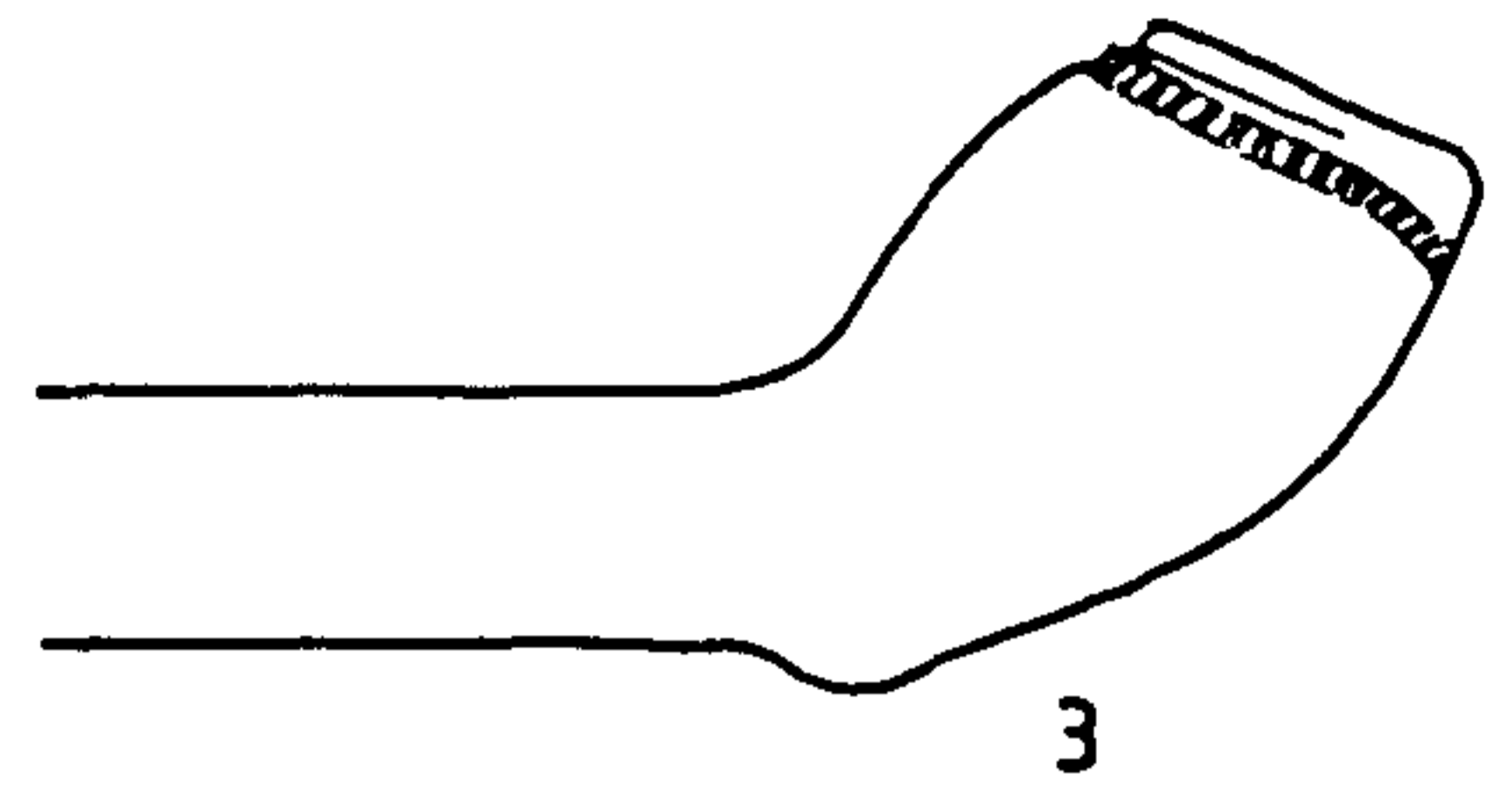
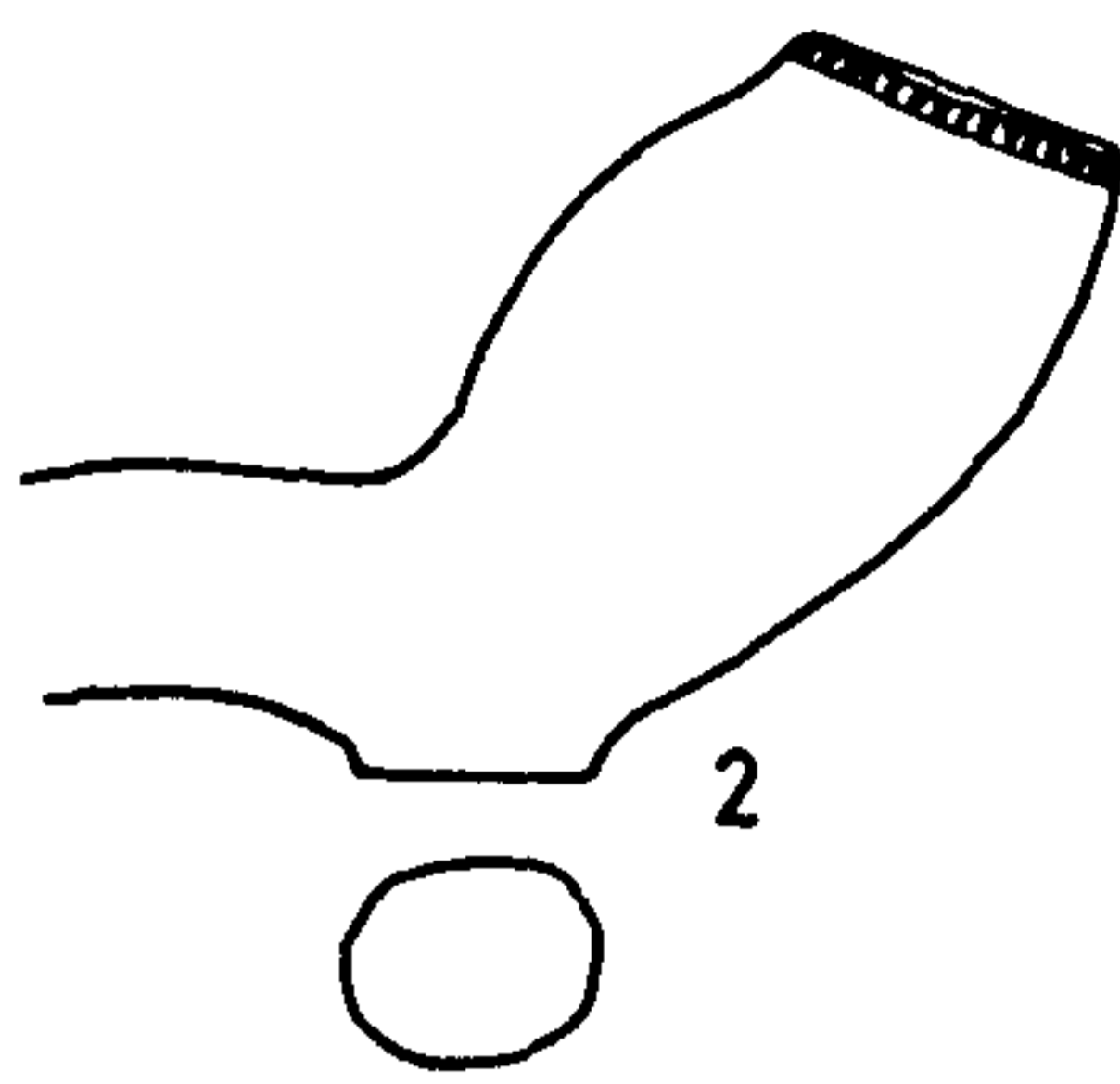
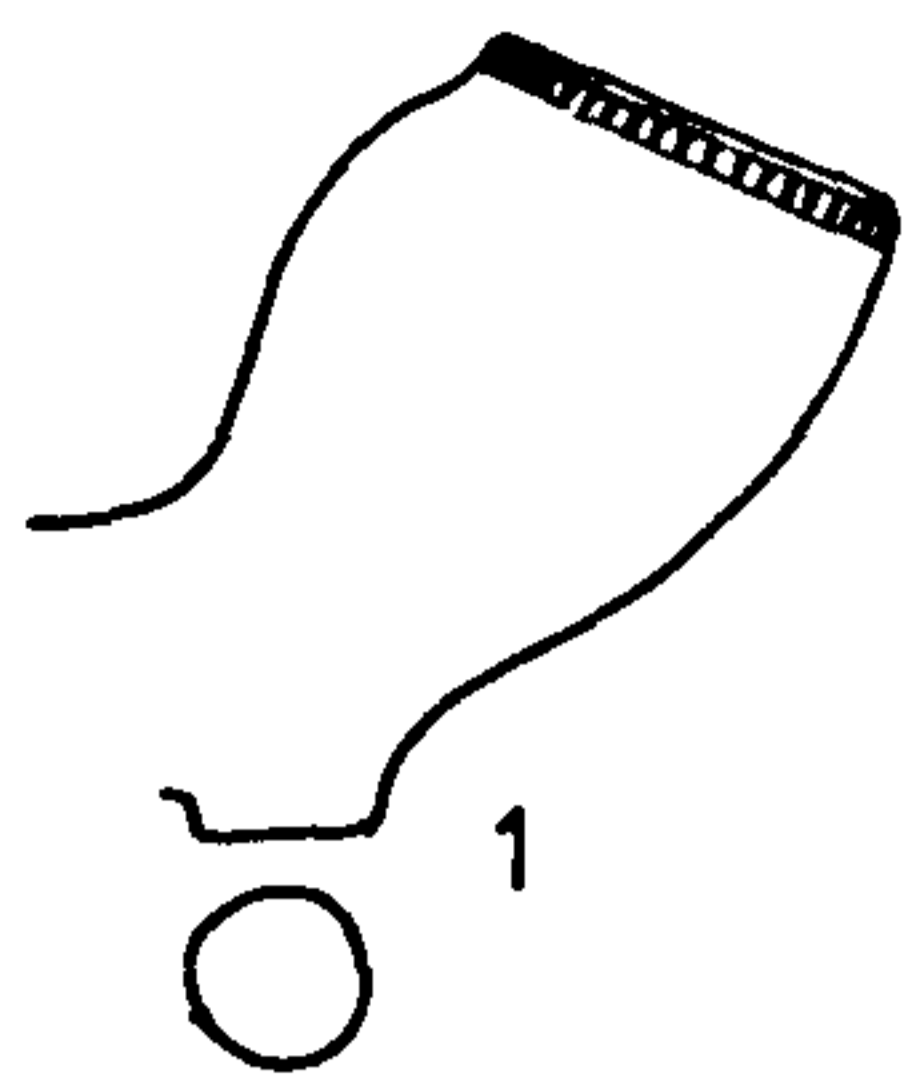


Fig 81 - Dudley Castle Excavations.

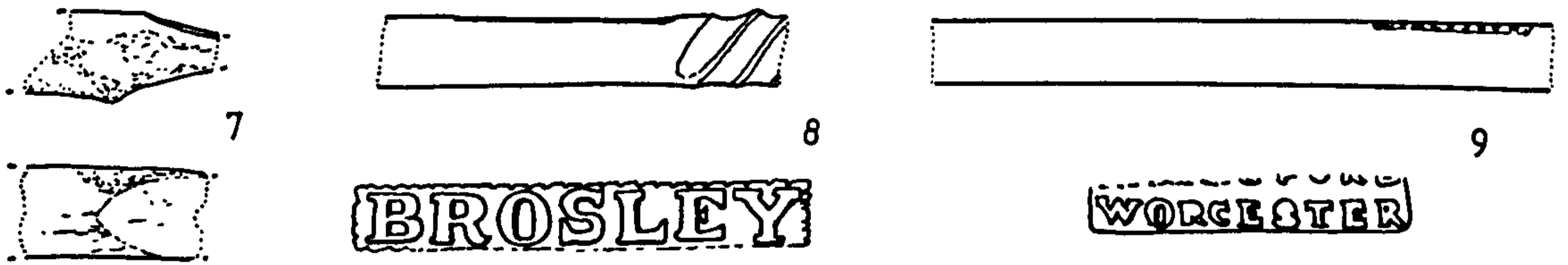
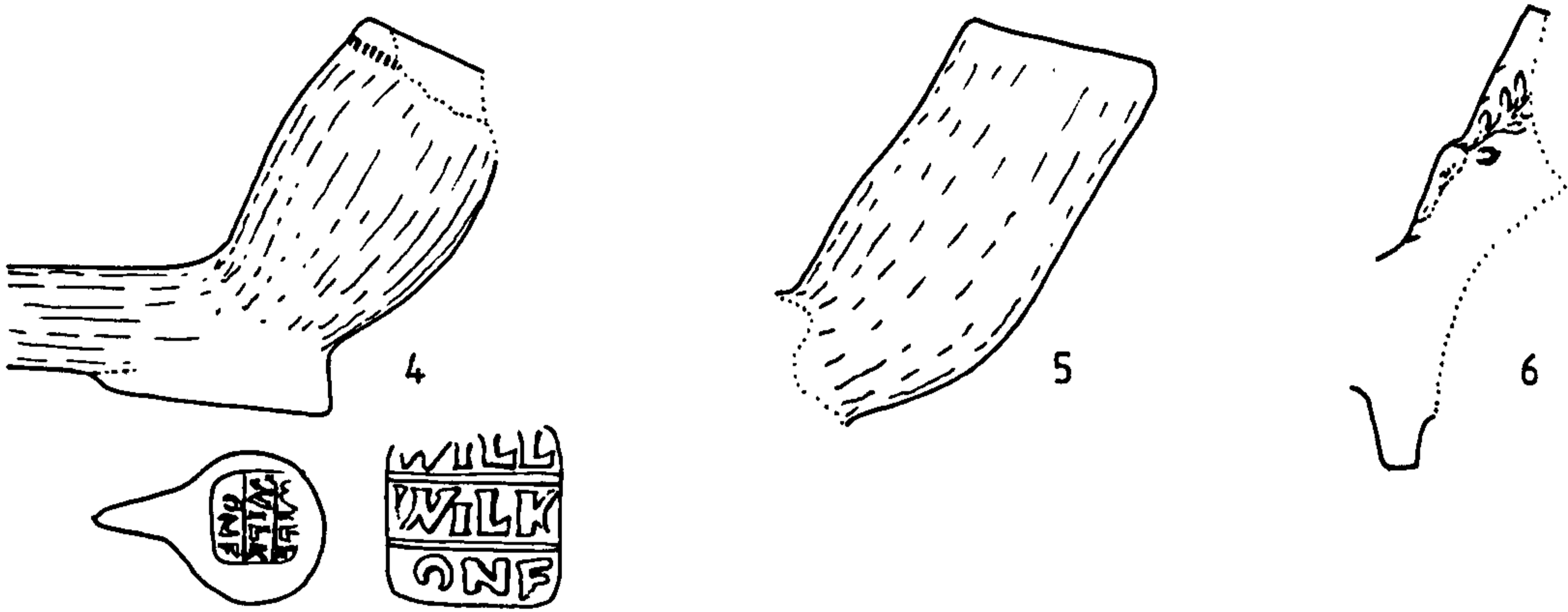
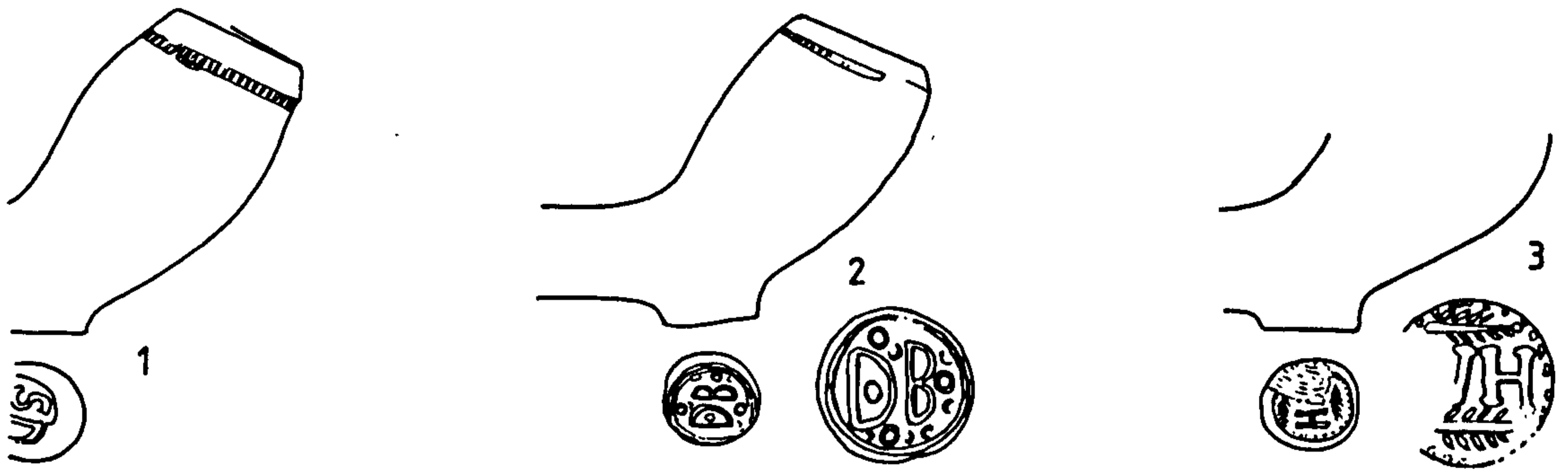


Fig 82 - Dudley Castle Excavations.

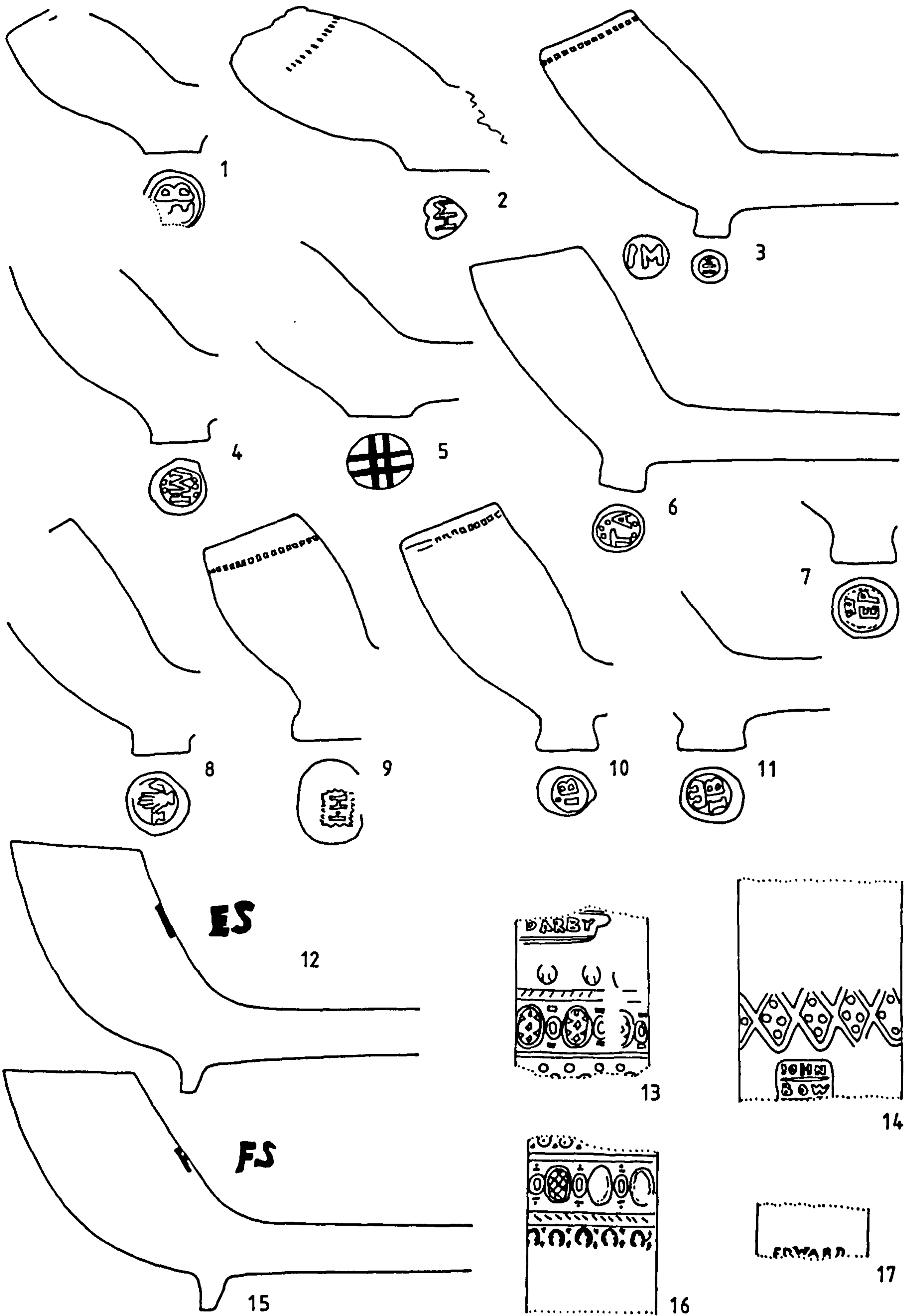


Fig 83 - Warwickshire, misc.

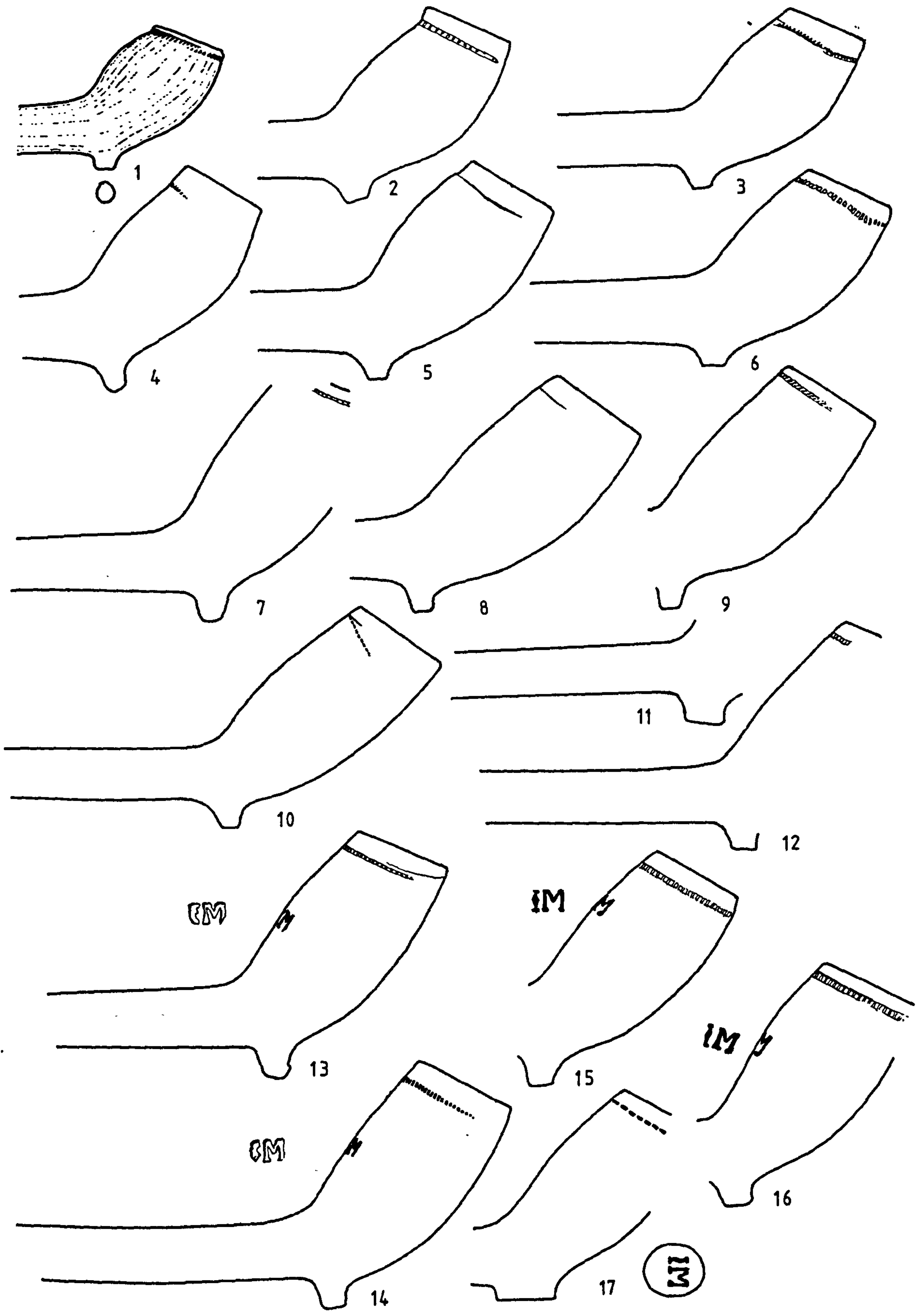


Fig 84 - Leicester, misc.

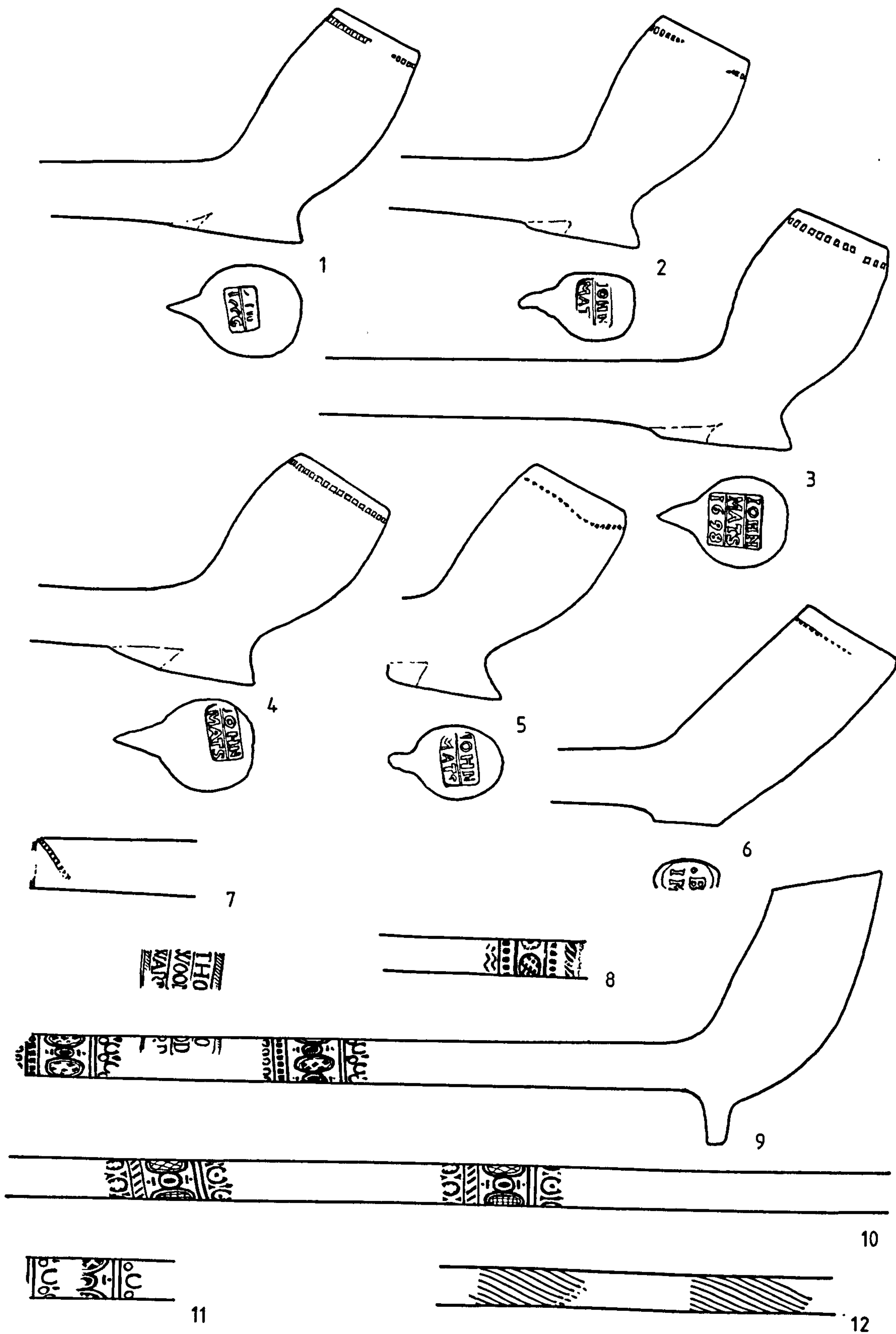


Fig 85 - Leicester, misc.

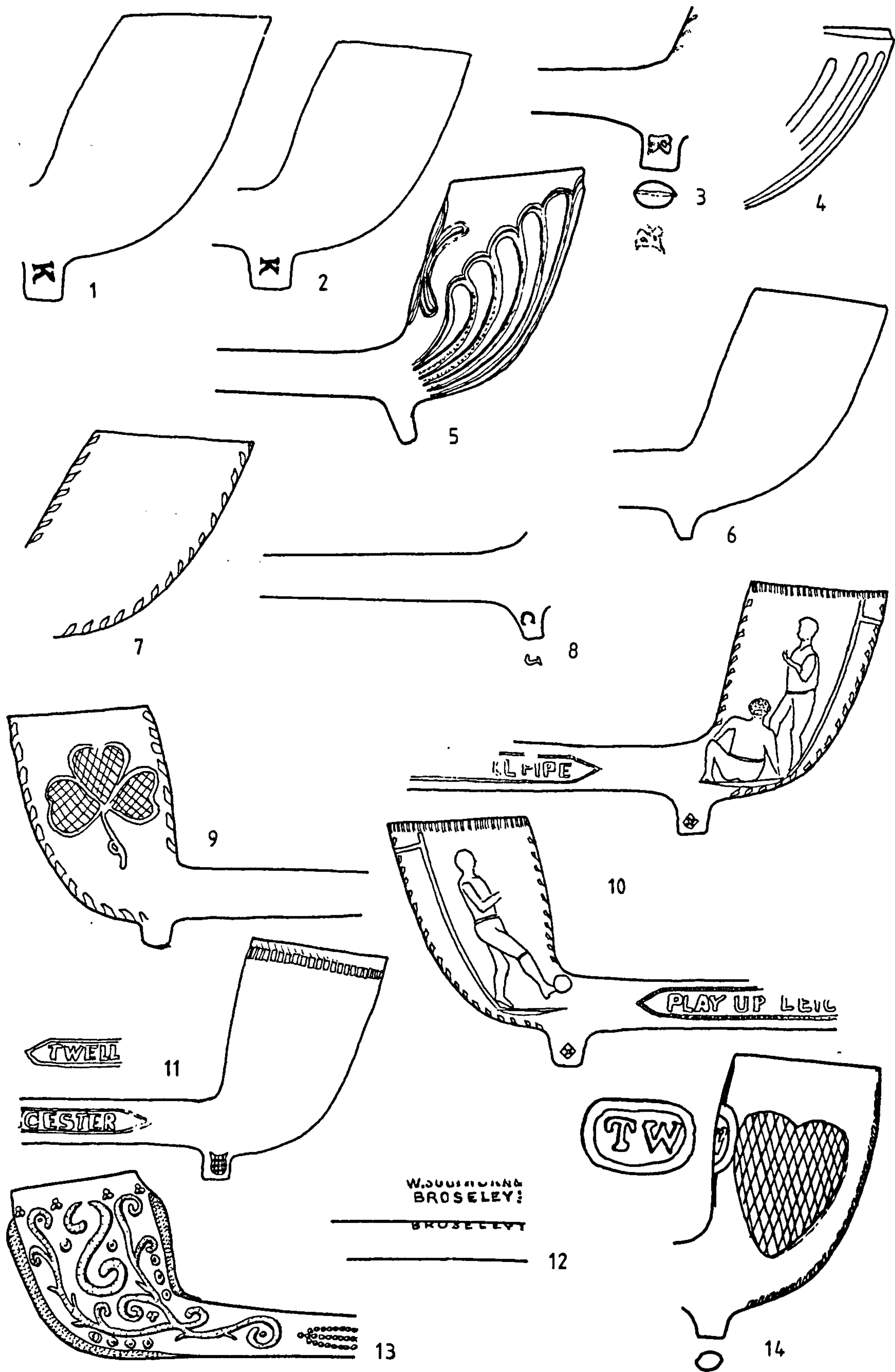


Fig 86 - Leicester, misc.

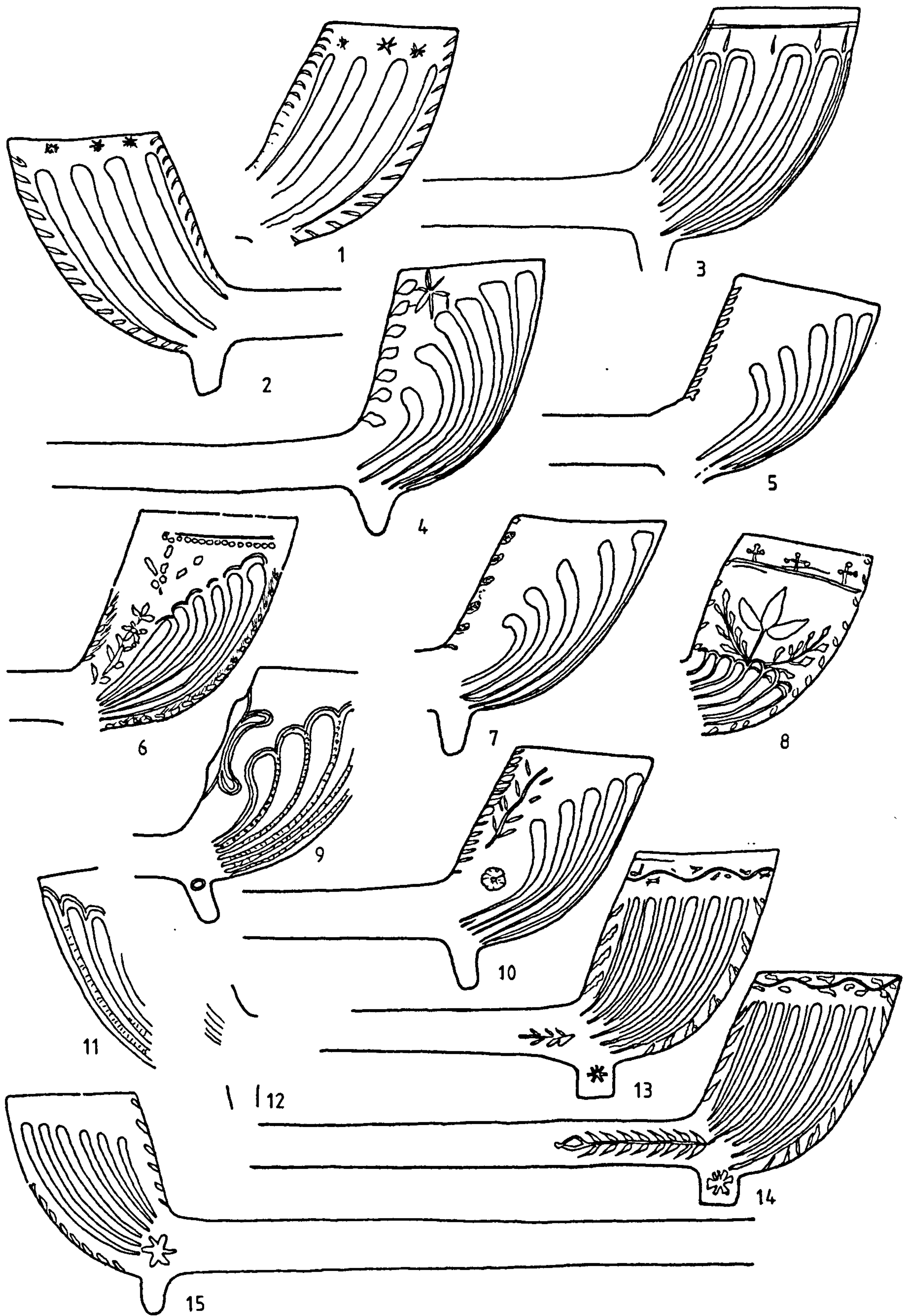


Fig 87 - Leicester, Elbow Lane group.

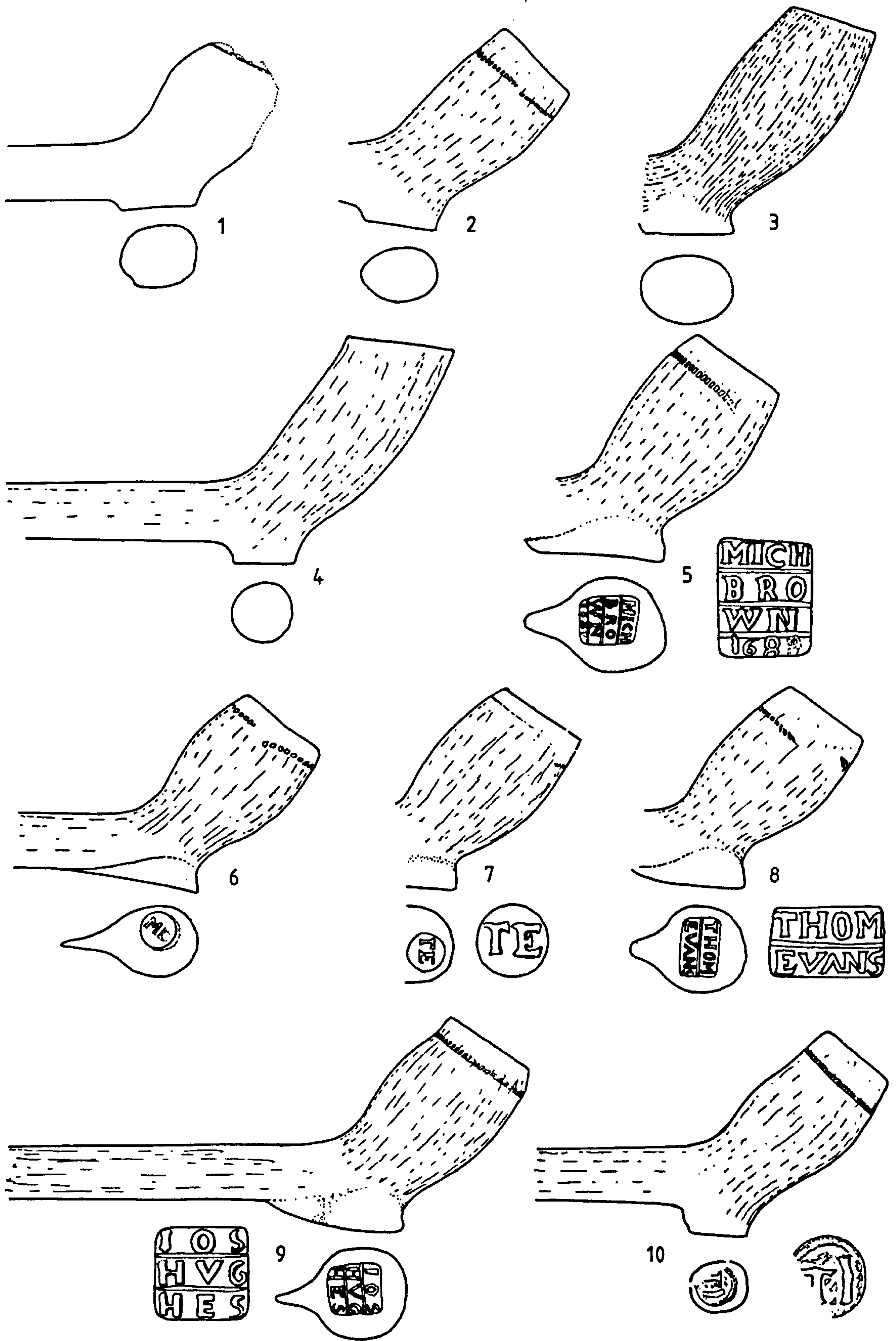


Fig 88 - Stafford : Mount Street pit group.

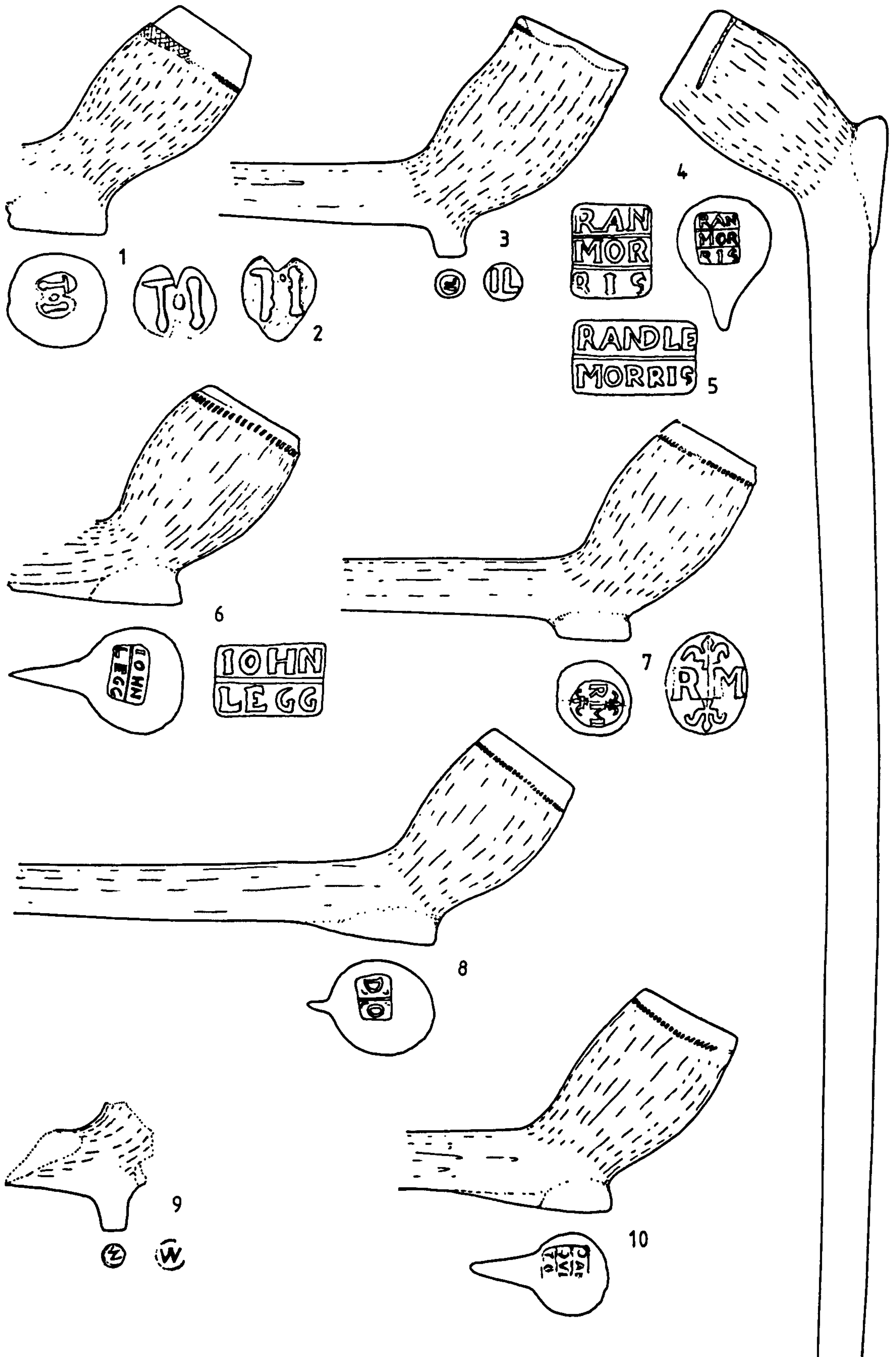


Fig 89 - Stafford : Mount Street pit group.

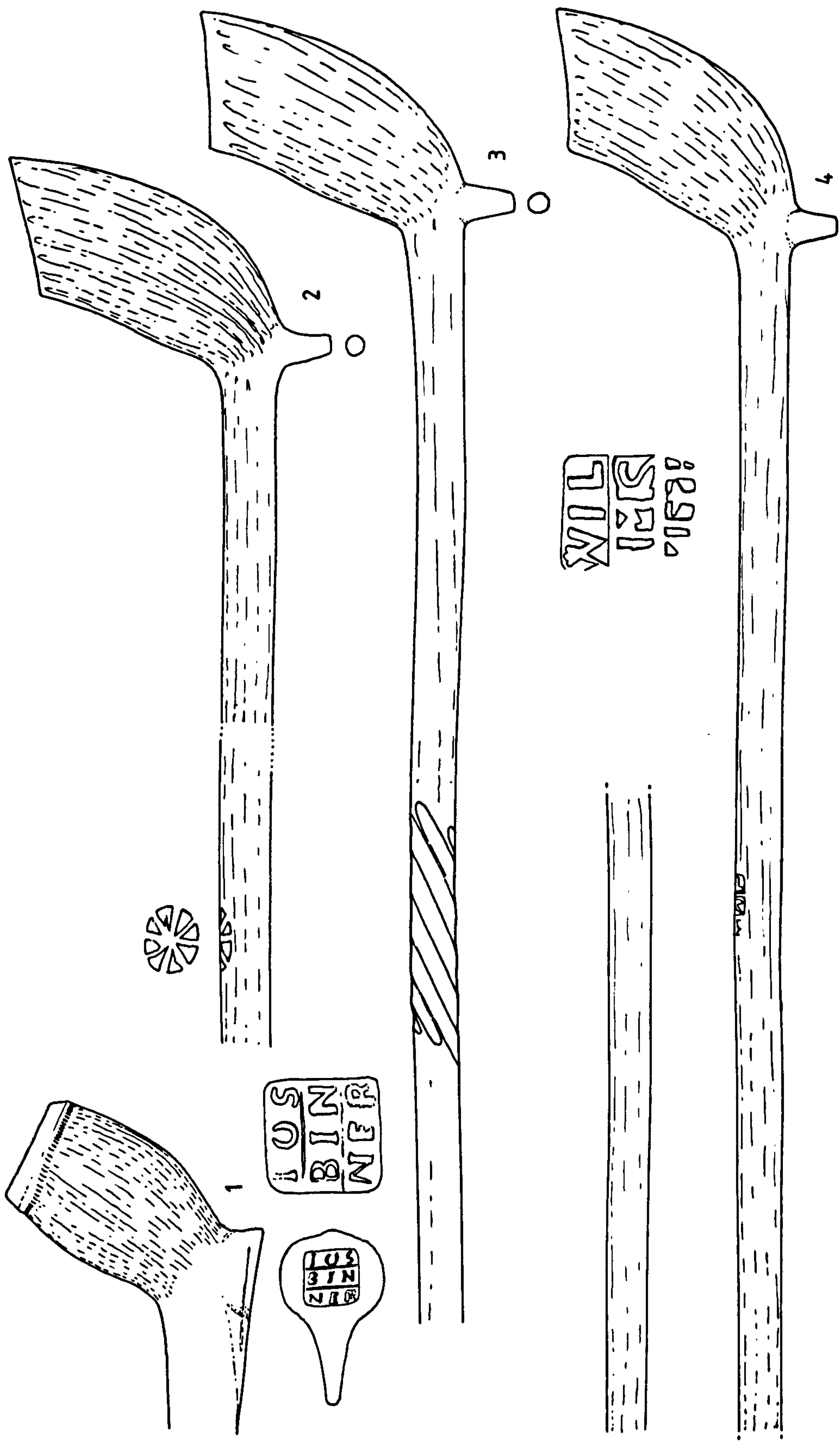
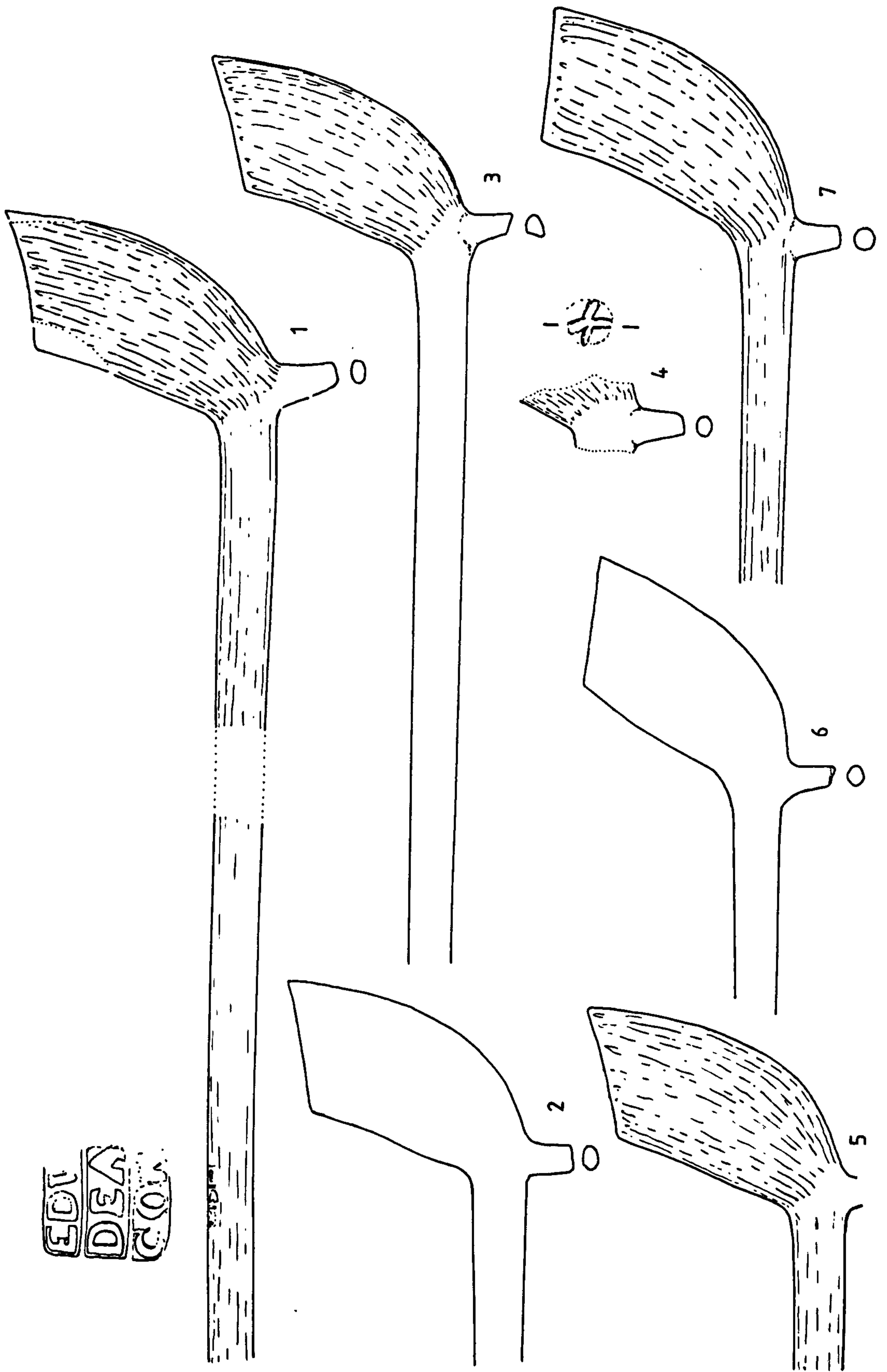


Fig 90 - Stafford : St Mary's Grove pit group.



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Fig 91 - Stafford : St Mary's Grove pit group.

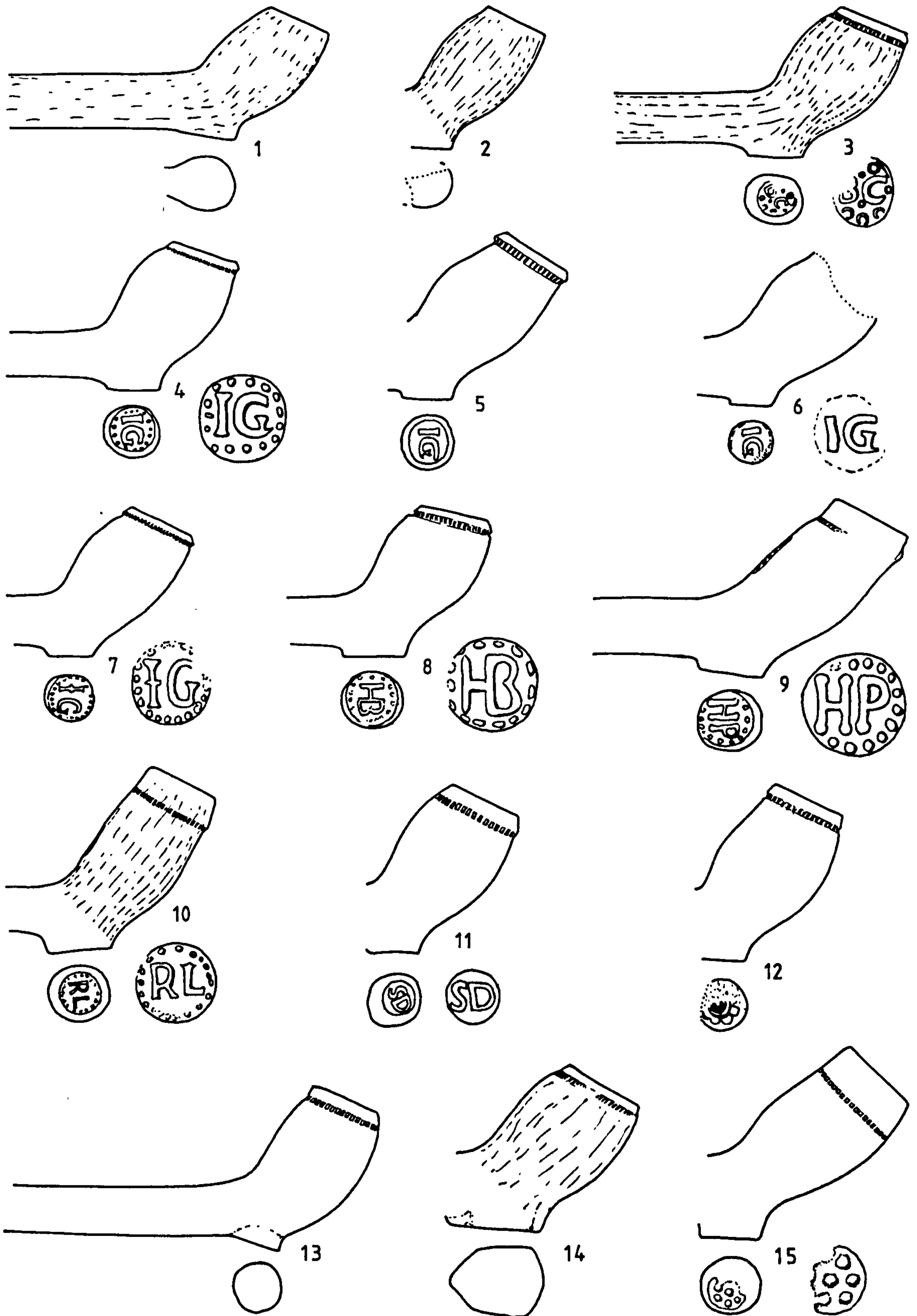


Fig 92 - Stafford Excavations, misc.

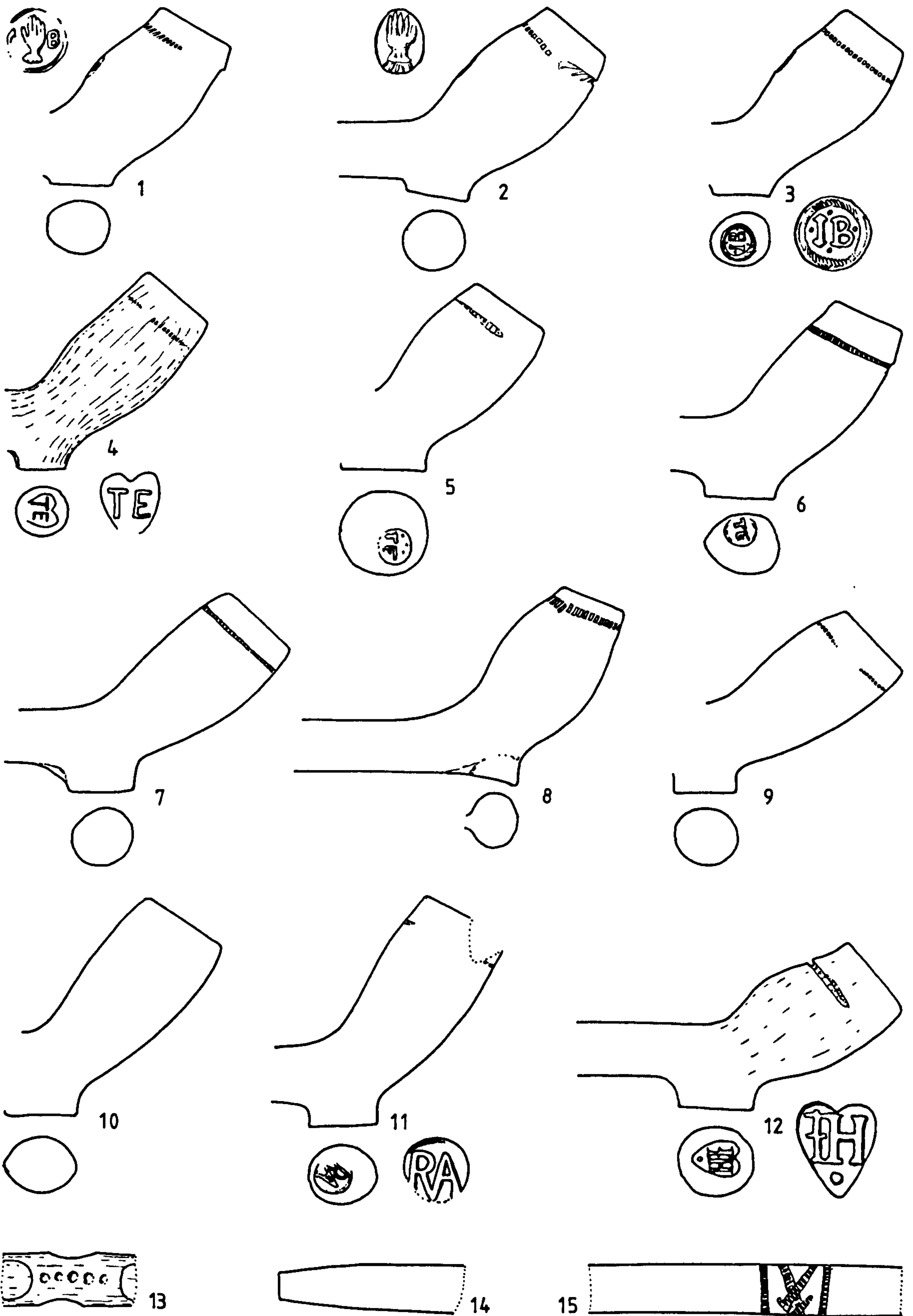


Fig 93 - Stafford Excavations, misc.

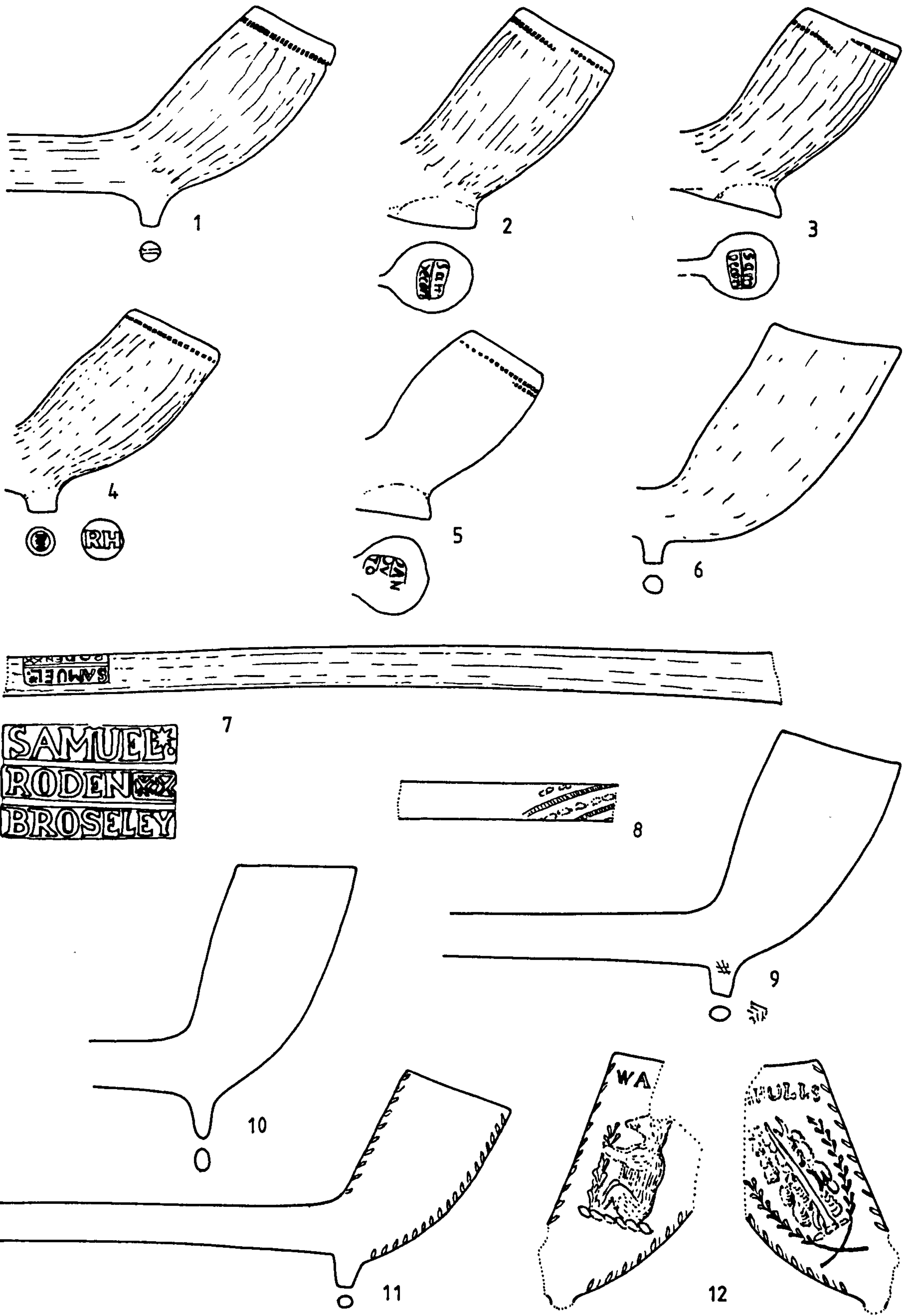


Fig 94 - Stafford Excavations, misc.

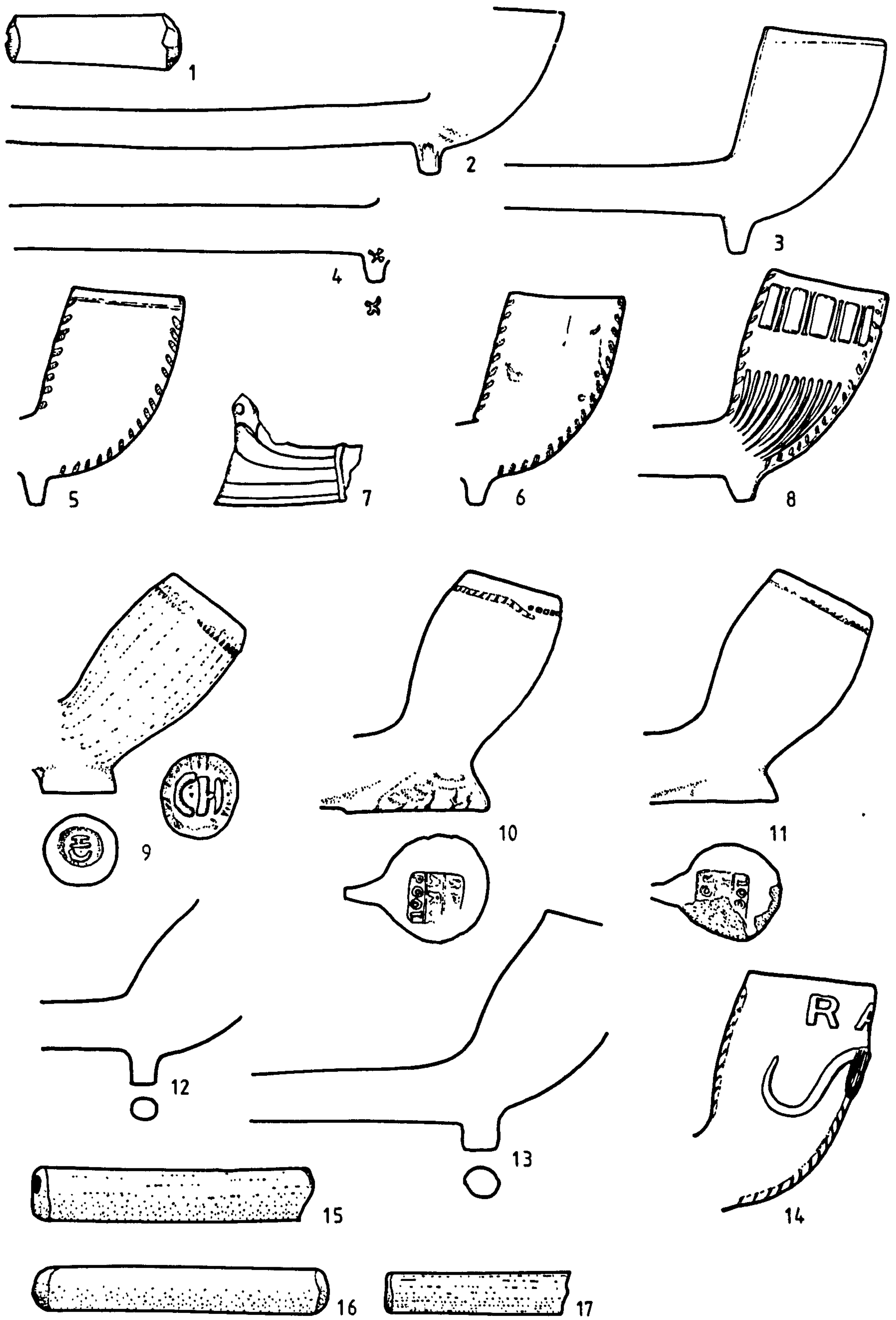


Fig 96 - Cheshire : Middlewich & Church Lawton.

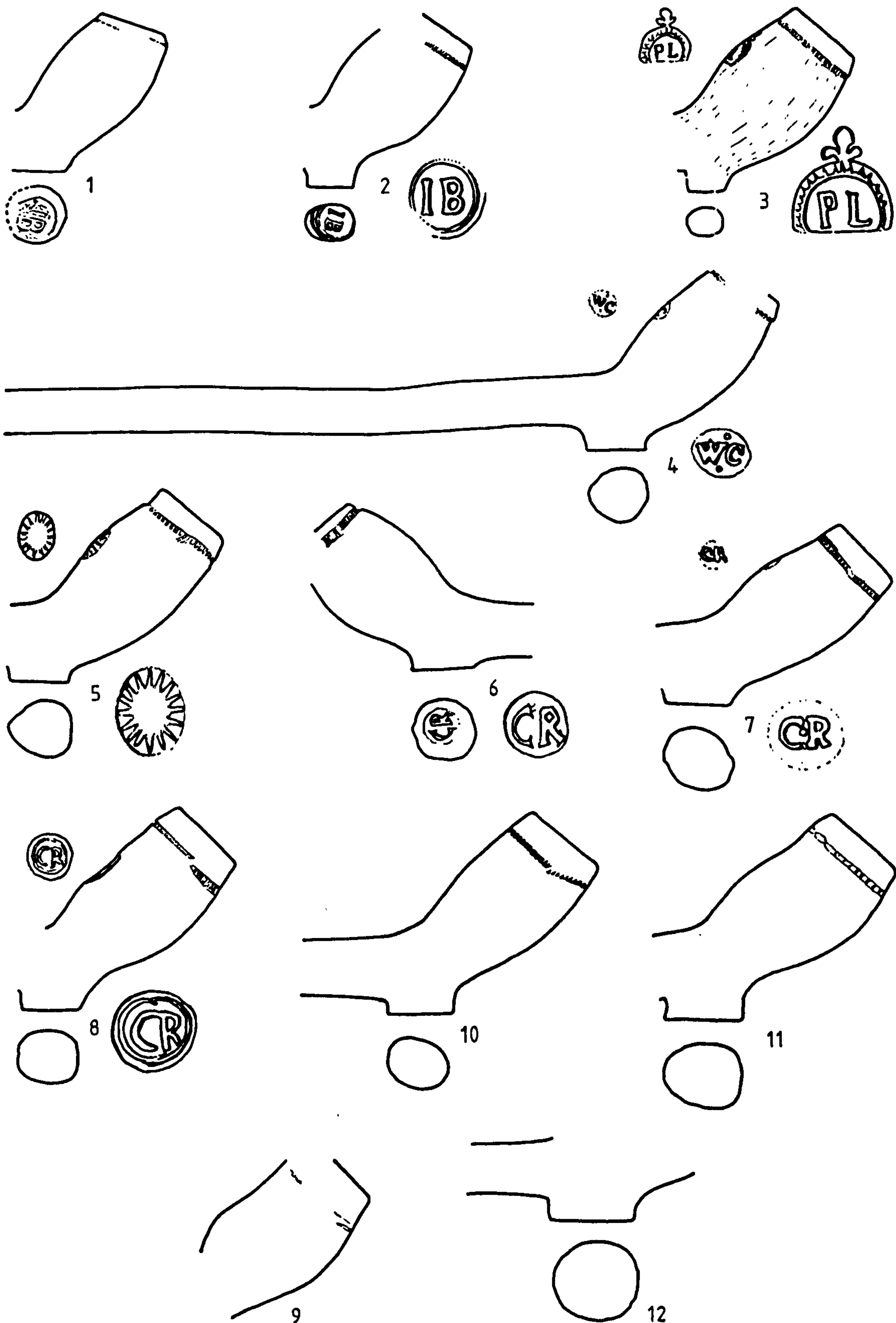


Fig 97 - Cheshire : Sandbach.

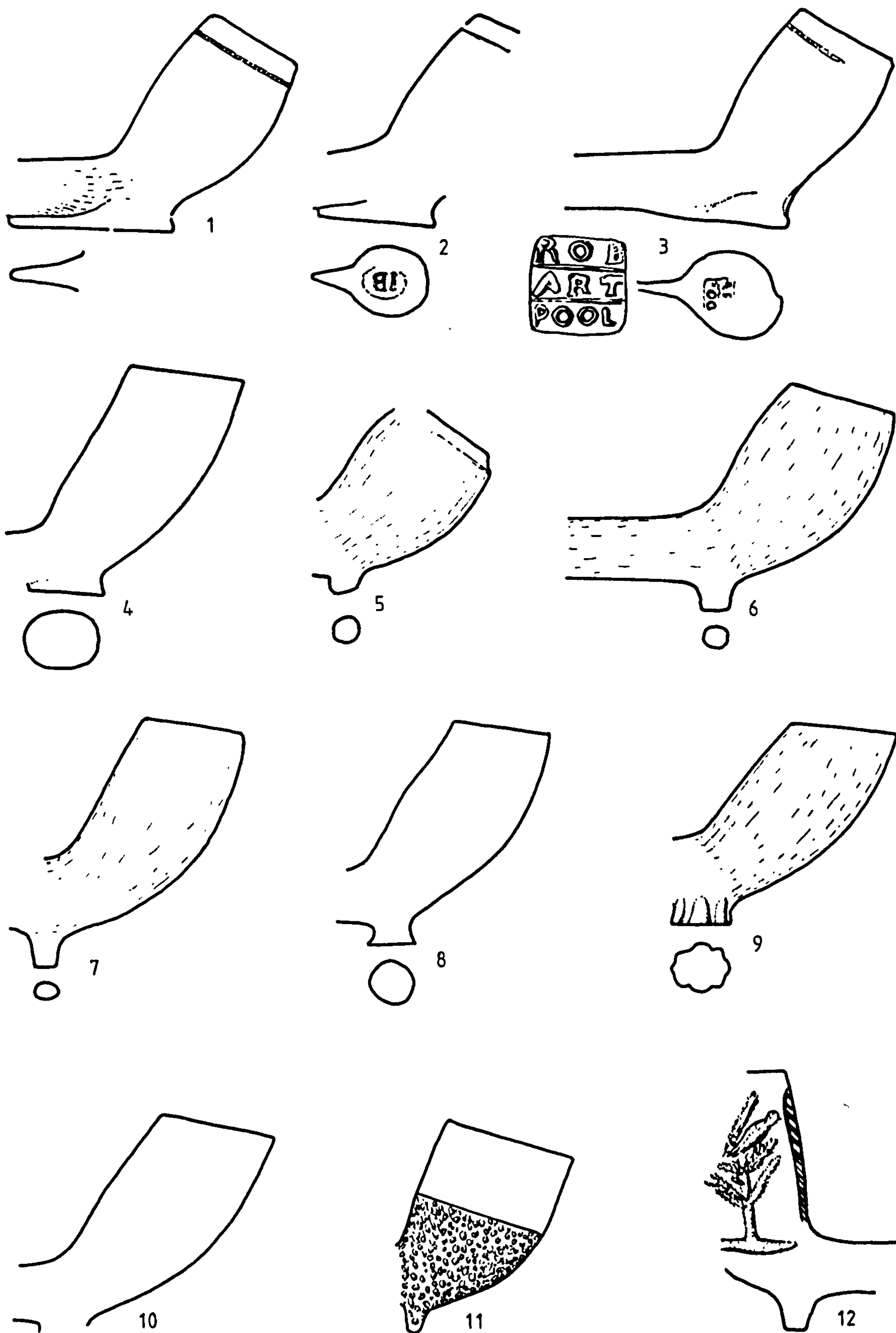


Fig 98 - Cheshire : Sandbach.

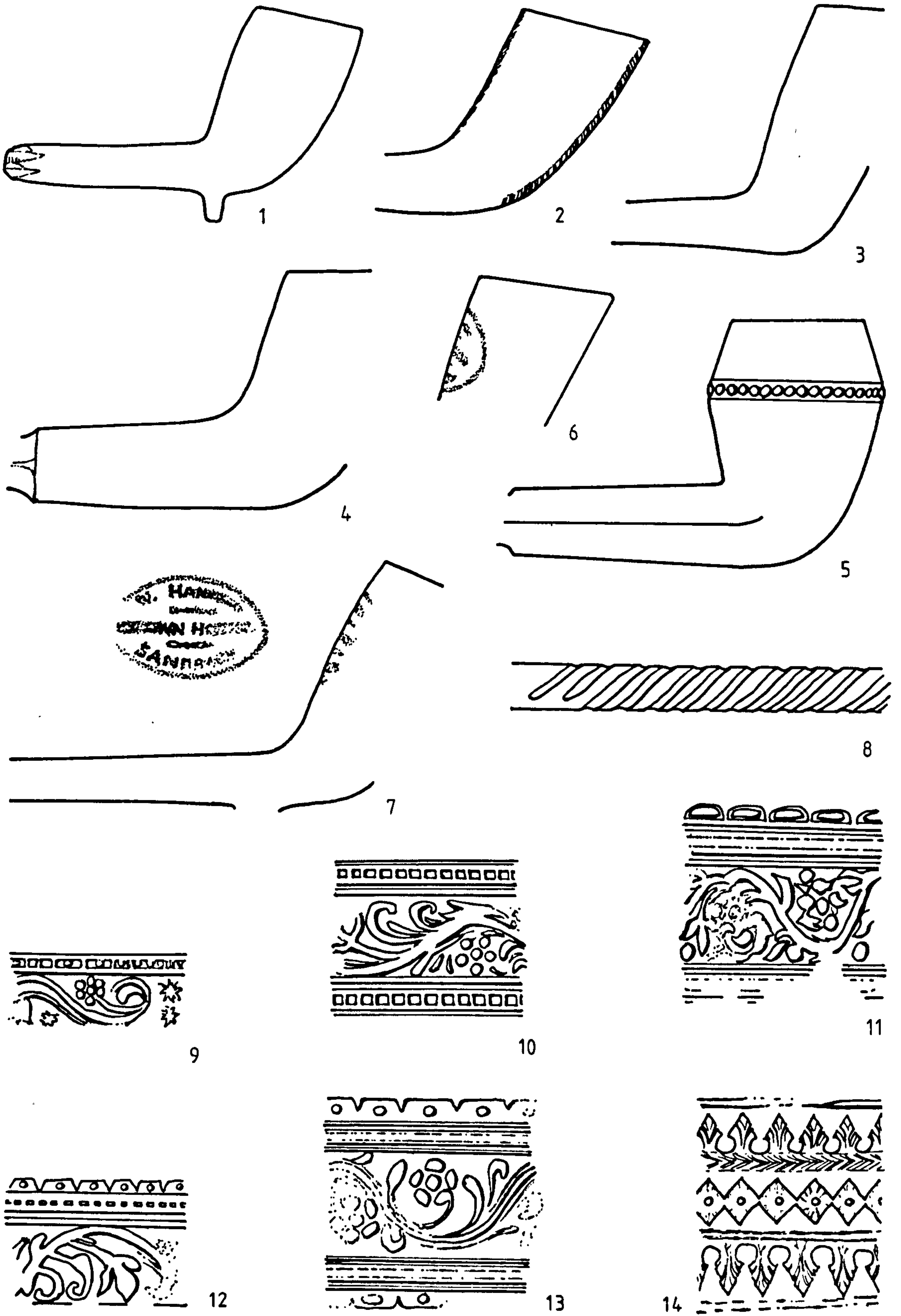


Fig 99 - Cheshire : Sandbach.

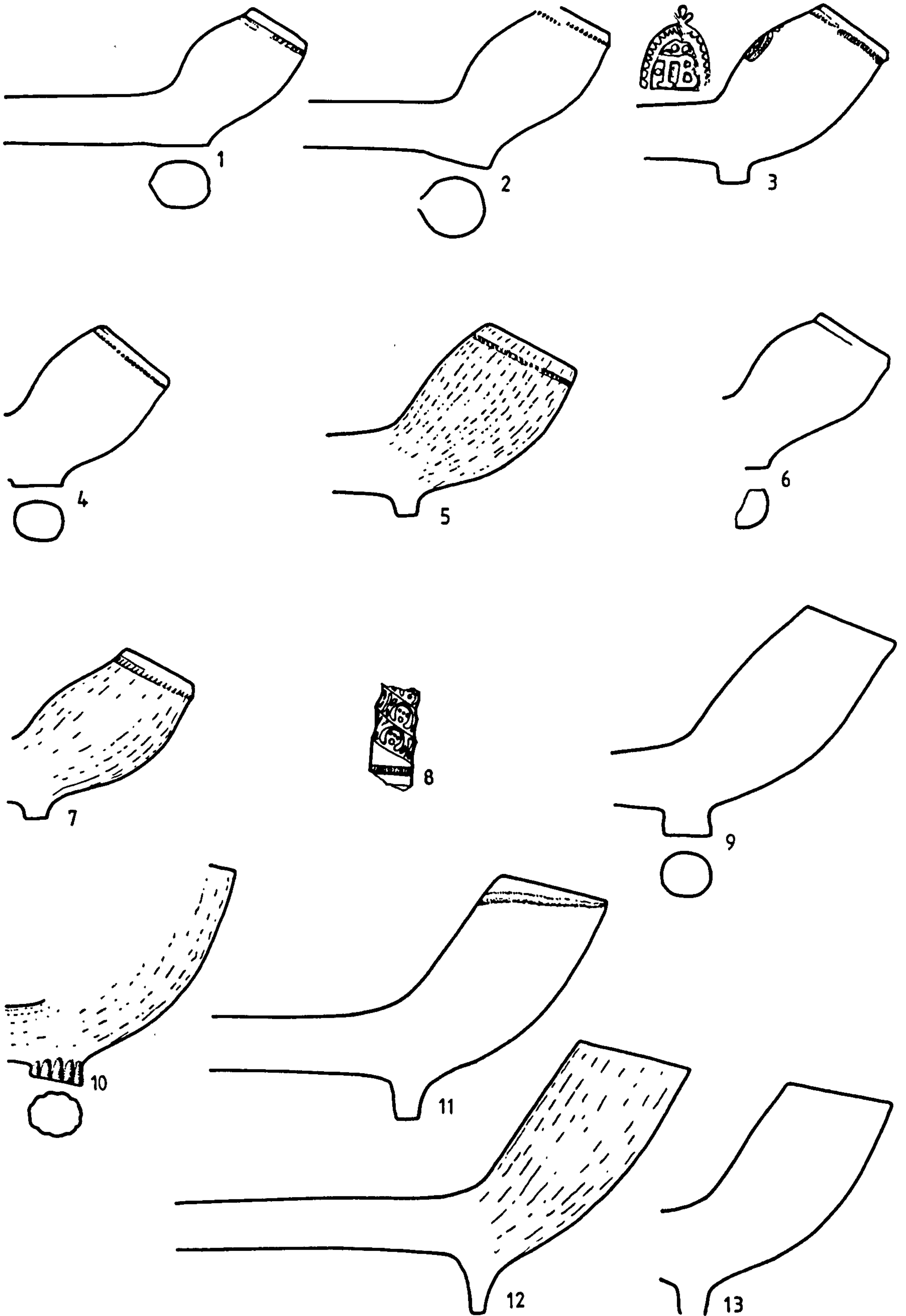


Fig 100 - Cheshire : Tatton Hall.

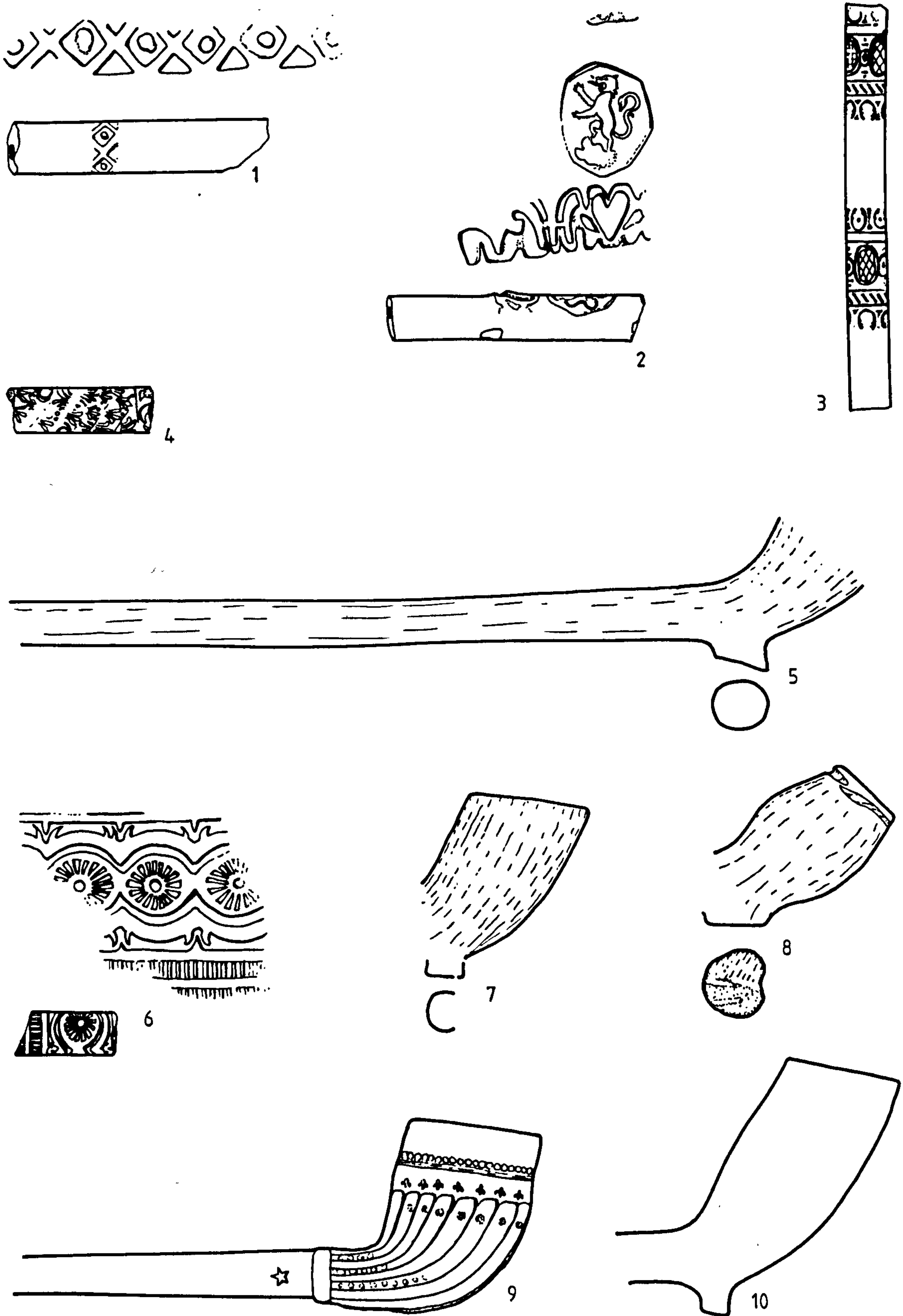


Fig 101 - Cheshire : Tatton Hall & Village.

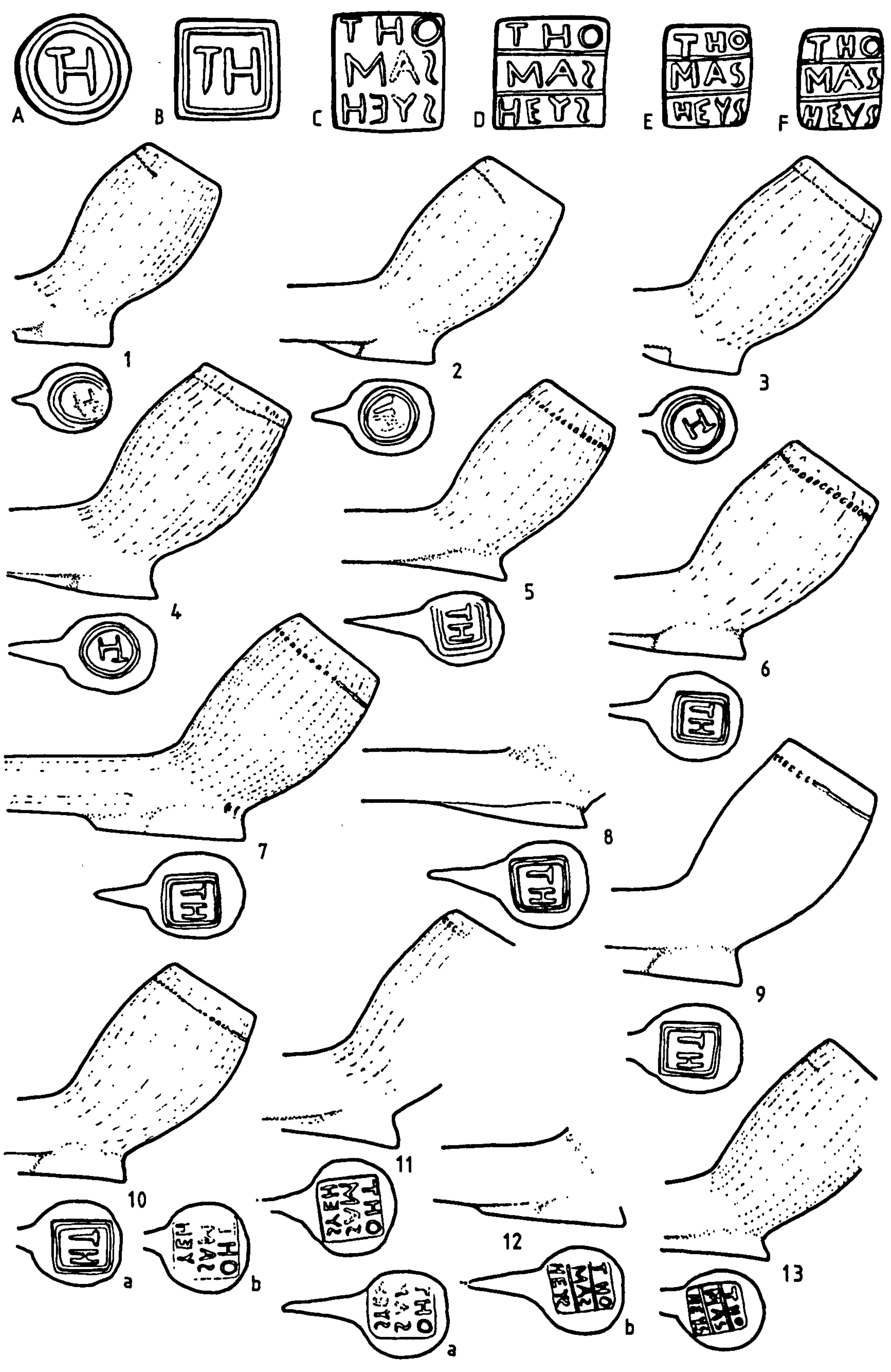


Fig 102 - Brookhill, Buckley, Clwyd.

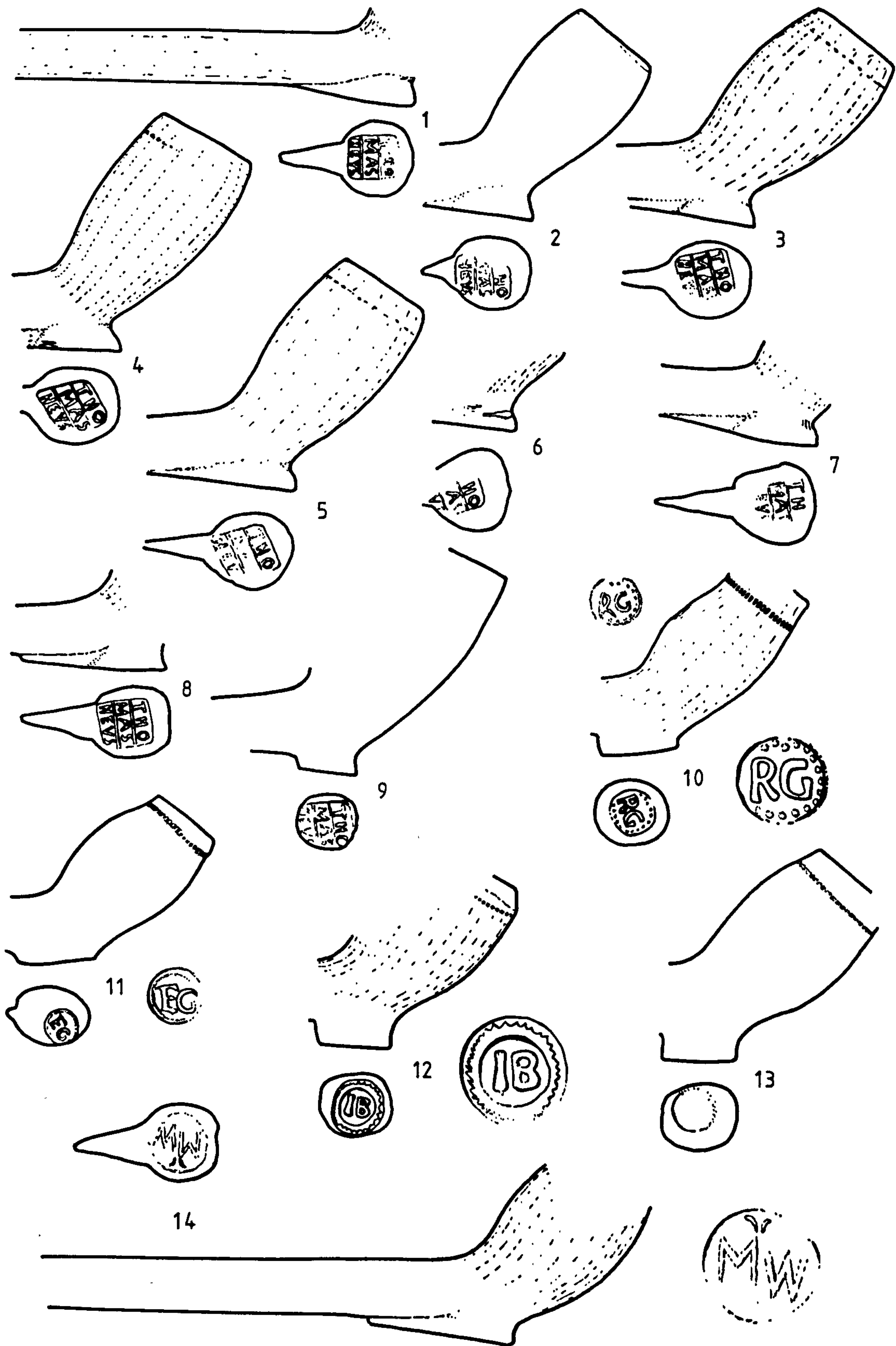


Fig 103 - Brookhill, Buckley, Clwyd.

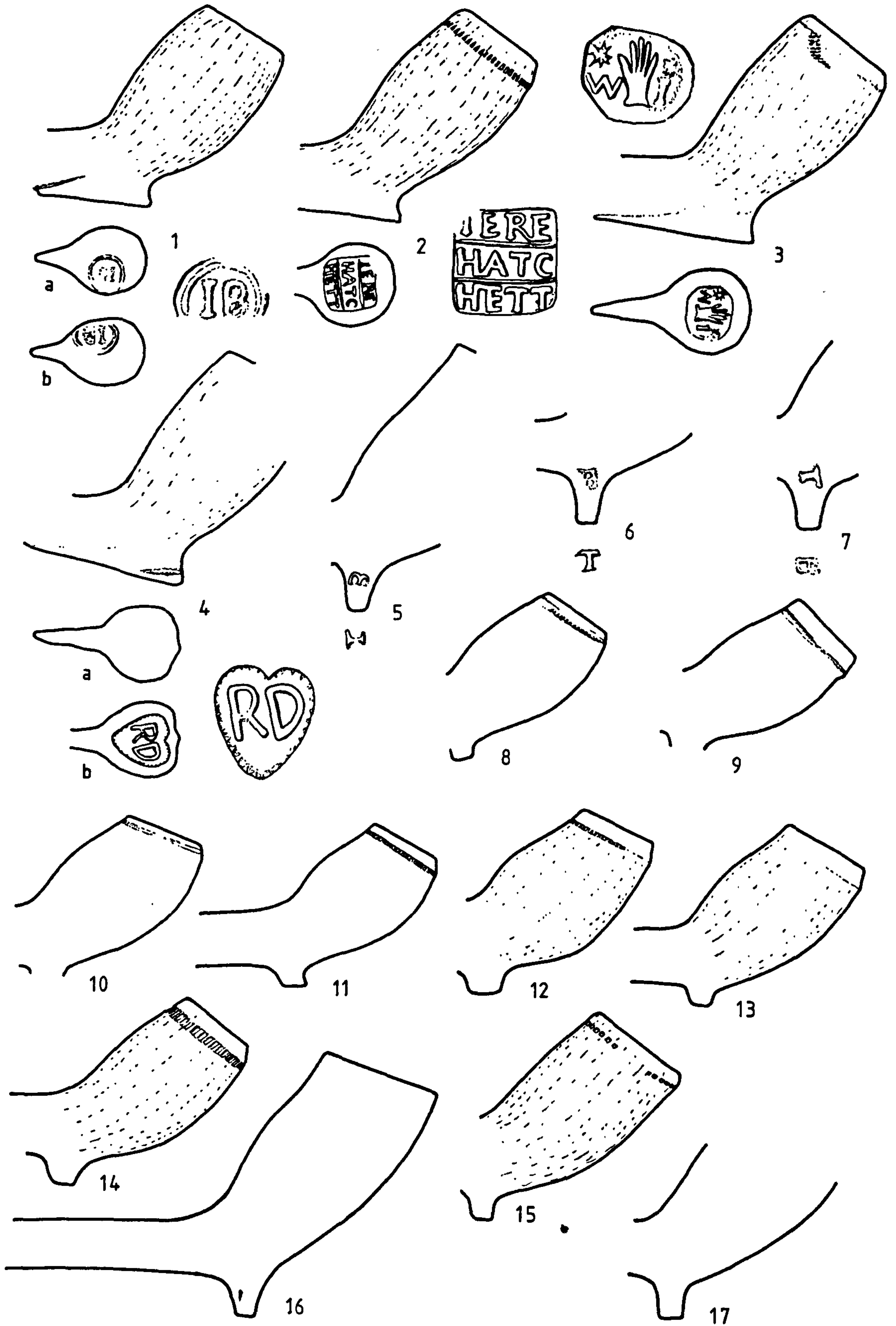


Fig 104 - Brookhill, Buckley, Clwyd.

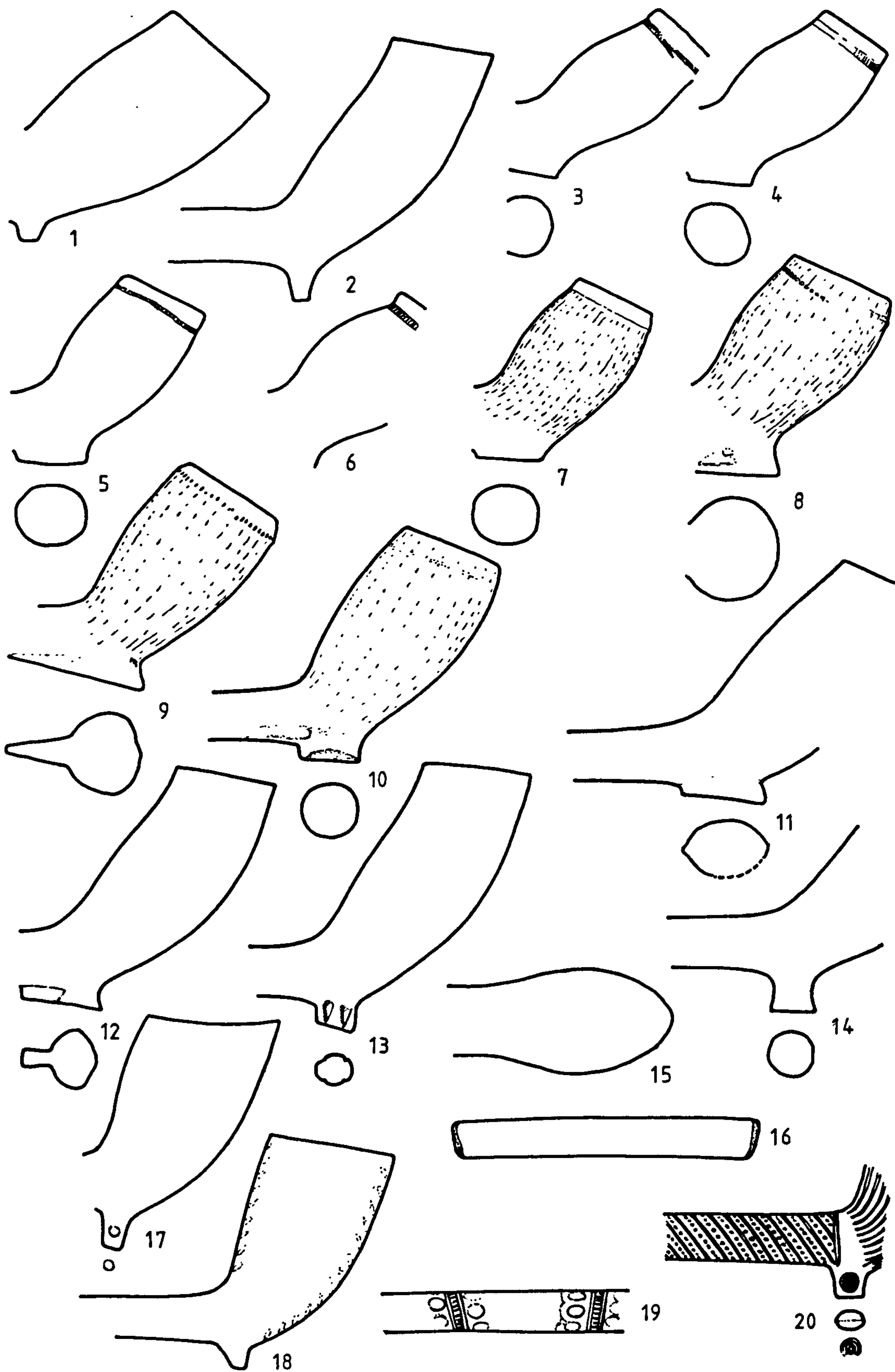


Fig 105 - Brookhill, Buckley, Clwyd.

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