

# TECHNOLOGY, SUPPLY OR DEMAND?

Hugo Blake

## Introduction

In the last decade many British archaeologists have reviewed their approach to the discipline, established by their European predecessors at the turn of the century. As part of this process of renewal pottery researchers, who have hitherto played a subordinate role, have been reassessing the way their material is studied and its value as evidence. This paper is offered as a contribution to discussion of the latter aspect. The range of examples cited reflects the writer's experience of Italian medieval archaeology. Some of the evidence was presented in an earlier paper (Blake 1978) with substantiating references, which are not repeated here. Short versions of the present paper were read in 1979 at the University of Manchester to the Department of Archaeology's graduate seminar and at Leeds to the Northern Universities' Archaeologists' Research Seminar.

## Traditional approaches

For many the prime role of pottery is as a dating tool. Emphasis has shifted from using the individual types which share technical, formal and decorative attributes for relatively short periods of time, to establishing chronologies by the relative proportions of types found in assemblages. Even so, the excavator of an historical site is more likely to rely on coins, tobacco pipes or relationships with datable buildings to date his or her phased sequence. Only in field survey are potsherds used, perhaps unwisely, as almost the sole means of dating (e.g. Potter, 1979:15-18).

The most obvious evidence provided by pottery is of the purpose which the vessel served. The majority of researchers limit themselves to naming the form, although a small number of forms could have served a wide range of uses (Moorhouse 1978). The study of residues, when developed and if applied extensively, may indicate usage (e.g. Rothschild-Boros, in press). Without this aid the trends of trade and of agricultural development have been plotted by studying, for example, the proportions of Roman amphorae, in which were transported, it seems, oil and wine (Panella 1973). The source of and amount transported in wooden barrels is unknown (Trier Museum, Noviomagus' memorial). On one English site there appears to be a relation between the change in size of food preparations vessels and of animal bone fragments (Grant in Cunliffe 1976:286). The function of buildings has been deduced from the kinds of vessels found within or nearby (Piponnier and Geslan 1973; Moorhouse 1974:62; Millett 1979; Maccari Poisson, in press). Little interest has yet been expressed in historical European social habits, for example changing customs of hospitality and manners in relation to tableware (cp. Matson 1966a:209).

Pottery has often been employed as one of the material traits which characterise archaeological cultures. Some protohistoric distributions do not correspond to known political units. In general, prehistorians appear to be dissatisfied with the definition of culture by groups of artifacts which do not in fact share the same distribution (Hodder 1978a; Hodder and Orton 1987:199). The contrasting ethnic identities of early and recent historical communities have been sought in the ceramic typology with varying success (Hills 1979; von Hessen 1970; Schuyler 1980). The only comparative study of historical distributions demonstrated that the pottery types then known did not correspond to regional cultures

otherwise defined nor, surprisingly, did they mirror variants in rural economy (Jope 1963). Elsewhere some ceramic types do reflect specific adaptations, carried in one case by first-generation migrants outside the area of geographical applicability (Whitehouse 1978). Some see ceramic change or persistence as an index of cultural contact, revealing even the subjugation of conquered female potters (Shepard 1965:348-52; Matson 1966a:211, 1966b:2).

Pottery researchers tend, like most specialists, to synthesise for their own sub-discipline, in their case by inserting types into a wider history of ceramics. A major concern for one group has been the early medieval re-introduction of simple techniques, explained with a rather outmoded diffusionist model (Hurst 1969). This interest has had such a distorting influence that one manual describes medieval pottery in terms of surface treatment to the exclusion of form and function (de Bouard 1975:137-48). West European medieval ceramics do not have a place in the history of technology. The techniques reacquired were already practised in other crafts, for example by woodturners and glassworkers (Evison 1979:58; Harden 1978). The early painting and glazing did not improve the use of the vessel and aesthetically were mere daubing. Although the products so treated were relatively few, it is unlikely that they were the most prized vessels (Hodges 1977).

In short, of the traditional approaches to pottery as dater, cultural characteristic, index of technical progress, and functional object, only the last may make any significant contribution to our understanding of the past.

#### The economic view: supply

Recently emphasis has been placed on pottery as an exchanged and traded commodity, interpreted as an index of social and economic contact (Renfrew 1977). As the historical period is characterised by the domination of complex societies whose products were supplied to peripheral or subordinate protohistoric groups, it would seem more appropriate to resort to traditional rather than anthropological economics (Cipolla 1976; Sahlins 1974).

Production comprises labour, capital and natural resources. The raw material (clay) and the energy required (fuel) are not usually limiting factors; but the sources of some decorative materials and qualities of clay are geographically restricted and may therefore have cost more. The fixed capital (buildings and tools) of most pre-industrial crafts was insignificant. The amount of working capital would depend on the scale of unsold stocks and the cost of exotic materials. Imperishable pottery would have incurred little risk. Attempts have been made to deduce the organisation of labour from the product. Taking a static view, hand-formed vessels may have been made when required at home and they needed only hands and access to the hearth. Individual wheel-thrown pots were probably made by artisans working full time or seasonally in a workshop employing a wheel, a kiln and their skill. Standardised pots, turned in or on a mould, may have been produced in a factory or in a number of workshops to the order of an entrepreneur. He provided the working capital which permitted a scale of operation involving the division of labour (Blake in press). There are exceptions to these simple equations. In one instance hand-formed pottery was even produced on an industrial scale (Williams 1977). Dynamically, the kind of ceramic change coupled with the scale of output may reflect better the organisation of production. The reproduction for local consumption of types already established elsewhere may be the work of migrant craftsmen or local imitators (Mannoni 1971:441-4). Conscious innovations made in quantity imply the mediation of the entrepreneur. Where the pots are found, that is their distribution, may also be used as a crude index of production. It is often difficult to characterise hand-formed vessels because they are atypical. Locally restricted products are assumed to be the work of the artisan. International distribution and specialisation point to capital and entrepreneurs. There is as yet no place for nomadic potters in this scheme (Matson 1966a, 1966b:283).

It is in the field of distribution studies that the greatest advances have been made during the last decade. Research has been focussed on source characterisation and on spatial analysis (Picon 1975; Peacock 1977, in press; Démians d'Archimbaud and Picon in press; Mannoni *et al.* in press; Hodder 1978b). It has been assumed that pottery accompanied more significant commodities, thus indicating the routes and scale of past trade (Dunning 1968; Carandini 1969-70; Whitehouse 1979; Fulford 1980). Regression analysis has been employed to examine the pattern of fall-off in proportions of pottery in relation to distance from the source of production (Hodder and Orton 1976:98-126). It has been concluded *inter alia* that distribution centres served local areas with coarseware and traded fineware beyond the region. Mathematical methods have been devised to cope with the distortions caused by available communications (in particular by water, Nicklin 1971-72:14), the product's value and by the size of the centre. However, the monopoly tendency of producers who prefer to avoid competition may lead to exclusive type distributions regardless of the network of centres and communications (Bradley 1971-72). Account, too, must be taken of the exchange mechanism. Direct distribution by pedlars or collection by consumers, or indirectly through the market, middlemen, or the state are likely to have produced different distribution patterns (Hodges 1976; Gillam 1973). With the increased sophistication of commercial techniques the products could be ordered at source and delivered without passing through the place of abode of the middleman (Spallanzani 1979). The introduction of large ships and of cheaper rates for heavy goods with the concomitant need to fill returning holds may lead to objectively uneconomic trade with distributions which reflect the main routes in an unexpected way. On the other hand known trading connections are sometimes not mirrored in ceramic finds (Platt and Coleman-Smith 1975:29; Mannoni in press). Pottery must have been traded mainly for its own worth. Only distinctive products could have been sold in a market already supplied by local potters. They would need to have been technically different, or to have been sold in small quantities, or to have benefitted from economies of scale in order to have discouraged local imitation (Dunning 1968).

Even if the structure of supply can be deduced from the quality and distribution of the product, pottery was an insignificant manufacturing and commercial activity for all but a few, small specialized centres. It played a small role, employing perhaps a little more than one per cent of the urban work force. Its insignificance may, however, make this industry representative of labour organisation and distributive mechanisms prevailing in any particular period.

### Demand

The assumption behind all distribution studies is that the consumers wanted and were able to buy the products. Purchasing power, price, value and even the necessity "to have a minimum amount of people or demand for a good in a given area" have been acknowledged, but not explored (Hodder and Orton 1976:185). Effective demand, or purchasing power, is determined by the level and distribution of income of, and amongst, individuals and institutions, and by the level and structure of prices.

Pottery is an elastic consumption commodity because it is inessential and its function can be performed by vessels made in other materials. Its degree of elasticity would depend on its relative price and on taste, custom and other socio-cultural factors, which may have made a necessity of a want. Vessels may provide evidence of demand by assessing on what types of sites, ranked on a socio-economic scale, they are found. This measure may only reflect the scale of production in different periods and areas. It is rendered more effective if the types of pottery as well as the site can be ranked. This can be done where a variety of wares of similar function are on offer at different prices, as was the case in

Mediterranean Europe in the late Middle Ages. It may also have applied throughout the Roman Empire and in post-medieval times in Atlantic Europe. A hierarchy of glazed tableware can be constructed employing the pottery researchers' knowledge of decorative techniques.

| <u>Coating</u> | <u>Decoration</u>                      |
|----------------|--|
| Porcelain      | Lustre<br>Painting quality             |
| Tin-opacified  | Colours — exotic<br>local<br><br>Plain |
| Slip           | Decorated<br>Plain                     |
| Lead glaze     | Decorated<br>Plain                     |

The relative expense and ranking of this surface treatment can be illustrated from disparate written sources. About A. D. 1800 lead made up two-fifths of the total costs of producing Albisola's simple glazed export ware (Cameirana in press). In fifteenth-century Florence a painted pot cost a third more than a plain one. The raw materials of white clay (which could be synthesised, Mannoni 1971:459), tin and colours such as blue derived from cobalt, were only found in a few places, or not at all, in the Mediterranean world. The technically difficult porcelain and lustre-decorated earthenware were only produced in some areas.

Two premises must be fulfilled before proceeding to social and economic interpretation. Firstly, pottery must have been widely used without excessive employment at the top of the social scale of metalware or at the bottom of wooden vessels. Secondly, in order to create the diversity and to register change, there must have been a desire to live like the better-off by acquiring similar possessions, if they could be afforded. Emulation is the assumption made in studies of fashion and architecture, but custom may determine different social uses of tableware (Veblen 1925; Jope 1972-73; Machin 1978:156-9). In some areas upper-class manners were certainly spreading down the scale, to judge from sumptuary legislation and the complaints of moralising chroniclers.

This measure has been applied to assess the relative wealth of different status groups on a nineteenth-century plantation (Otto 1977), of different quarters of a Renaissance-period town (Redman 1979), and of sites in a regional field survey (Mannoni and Mannoni 1975). Only in the last case has a sufficient range of sites been sampled to demonstrate repeated and significant differences in the distribution of types and the relative proportions according to the period and type of settlement. Different patterns prevail in town and country and on rich and poor sites. Trading and feudal polities can also be distinguished. Examination of the fortunes over the last millennium of the better-quality tableware on the lowest-ranking rural site shows (Fig. 1):

|           |  |
|-----------|--|
| 1050-1350 | exotica and tin-glazed types absent        |
| 1350-1500 | tin-glazed type present                    |
| 1500-1750 | slip-coated types replaced tin-glazed ware |
| 1750-1900 | peak in glazed ware.                       |

The changes are significant. Historians have debated whether or not there was an economic decline towards the end of the Middle Ages. Clearly between 1350 and 1500 the rural

Medieval

Continuous Occupation

| SETTLEMENT TYPES<br>NO. OF SITES | Medieval   |          |        |           |                     | Continuous Occupation |   | CLASSES OF POTTERY |
|----------------------------------|------------|----------|--------|-----------|---------------------|-----------------------|---|--------------------|
|                                  | INDUSTRIAL | MILITARY | FEUDAL | RELIGIOUS | LARGE MIXED ECONOMY | RURAL                 |   |                    |
| PRE 1050                         |            | 13       | 14     | 20        | 10                  | 89                    | PRE-ROMAN<br>COARSE<br>INDUSTRIAL<br>GLAZED<br>SIGILLATA  |                    |
| 1050-1350                        | 1          |          |        |           |                     |                       | COARSE<br>FINE<br>GLAZED<br>MED. INCISED<br>ISLAMIC   |                    |
| 1350-1500                        |            |          |        |           |                     |                       | COARSE<br>FINE<br>GL. COOKING<br>POLYCHROME INC.<br>MONOCHROME INC.<br>MED. TIN-GLAZE<br>SPANISH                          |                    |
| 1500-1750                        |            |          |        |           |                     |                       | GL. COOKING<br>GLAZED<br>SLIPPED<br>MARBLED<br>PO PLAIN INC.<br>WIDE INC.<br>LATE INC.<br>RENAISSANCE TIN<br>LIGURIAN TIN |                    |
| 1750-1900                        |            |          |        |           |                     |                       | GL. COOKING<br>GL. SLIPPED<br>BLACK ALBISOLA<br>CREAMWARE<br>TIN GL.  |                    |

Fig. 1 Liguria; proportion of ceramic types found in each class of settlement (after Mannoni and Mannoni, 1975, fig.3)

population was better off if tableware of a type previously considered a luxury reached communities living entirely off the land. In the succeeding post-medieval period (1500-1750) country folk had to make do with lower-status ware. This change in part reflects the impact of inflation and regional specialisation which may have led to greater price differentiation between types (Blake in press). To a greater extent it is the result of the relative impoverishment of the countryside caused by over-population and increased exploitation. Only in industrial times (1750-1900) did glazed tableware apparently reach every peasant table. Plates had finally replaced communal eating vessels in every home. The ceramic picture on the whole confirms the known economic trends. It is only especially significant where there is some disagreement amongst historians. But the measure is so effective that the socio-economic status of a settlement can be predicted from the surface collection of sherds.

It is of even greater import if we turn to earlier historical periods. The Ligurian field survey data has not yet been sufficiently elaborated for the Roman period. Elsewhere in Italy the highest ranking ware made in north Africa is believed to have reached every class of settlement right down to shepherd's huts. Such penetration is only repeated in industrial times, implying that the Roman Empire had an advanced system of production, distribution and exchange. This is completely contrary to how ancient historians view the Roman economy. It also brings into question the concept of autarchic late-Antique latifundia. The major change which occurred at the beginning of the Middle Ages is difficult to assess. The shift in protohistoric frontiers in western Europe or even systems collapse may have meant that neither premise of the measure was fulfilled.

It seems that pottery reflects the components of effective demand. Pots are, therefore, a unique measure of the consumption habits of past communities. In certain circumstances they are the most reliable measure of economic change.

### Conclusion

Pottery can, it has been argued, make an important contribution to our understanding of demand, certainly greater than it can to our comprehension of supply factors. With the exception of a few aceramic periods and areas, most members of society used pottery, whereas few were engaged in its production and distribution. This view entails a number of methodological changes:

Firstly, as pottery is important evidence in its own right, field directors should give it and pottery specialists equal weight in the design and execution of their programmes.

Secondly, as the presence/absence and frequency of a type are determined by socio-economic factors, a type should not be employed in isolation as a dater (South 1977:207-18). Relative proportions of pottery types are the only meaningful indicators. Entire assemblages or genuine samples must be collected, studied and stored in both excavation and field survey. In turn it is incumbent on pottery specialists to state, when known, the socio-economic context of the pottery they publish.

Thirdly, as the moment of innovation was not significant, greater attention should be devoted to the role a type played and when it came into extensive use. In complex societies unimodal or simplistic linear patterns of development are misleading. With successive innovations, differentiation increased and types became stratified as previous market leaders were adapted to a lowlier role.

Fourthly, in order to understand the significance of a particular period's pattern, a long-term and comparative view should be taken (Fulford 1978). Pottery of all periods, including that of the last century, should be collected.

Ceramic historians have the choice whether to elaborate the history of minor technical adaptations, or to analyse distributions, or to play a role in the reconstruction of social and economic history.

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Après un examen rapide des méthodes de travail traditionnelles qui s'intéressent à la poterie en tant qu'évidence de la chronologie et de la fonction des objets, ainsi que des affinités culturelles de l'époque et de l'histoire de la céramique, l'auteur abordera le sujet d'un point de vue explicitement économique pour évaluer les travaux de recherche exécutés récemment en ce qui concerne la poterie de l'époque historique. Les études de l'offre supposent que les facteurs de production puissent être évalués à partir du produit lui-même et de sa distribution et qu'on puisse en déduire d'autres aspects des systèmes économiques de l'époque. La demande est plus significative et, comme le suggère l'auteur, peut être mesurée dans les sociétés où on peut évaluer à la fois la poterie et les sites d'habitation selon leur importance. Il en résulte qu'on devrait accorder à la poterie une place plus importante, que la chronologie ne devrait pas être établie à partir d'objets uniques, que c'est le moment où on assiste à la diffusion d'un nouveau type d'objet qui est significatif et non point le moment de sa création, et enfin, qu'on devrait faire des études comparatives de la poterie de toutes les périodes.

Nach einer flüchtigen Revision der traditionellen Behandlungen der Töpferware als Beweis der Chronologie, Funktion, kulturellen Verwandtschaft und keramischen Geschichte, wendet der Schreiber ein explizit wirtschaftliches Modell an, womit er die letzten Forschungen über geschichtliche Töpferware würdigt. Was das Angebot betrifft, wird es angenommen, dass die Faktoren der Produktion von dem Produkt und dessen Verbreitung abgeleitet werden können, und dass umfassendere wirtschaftliche Modellen widerspiegelt werden. Die Nachfrage ist viel bedeutender und kann, so wird vorgeschlagen, in Gesellschaften worin sowohl Töpferware als auch Siedlungen in eine Hierarchie sind, gemessen werden.

Die Schlussfolgerungen sind, dass die Töpferware ein grössere Anerkennung im Gebiet verdient, dass die Chronologie nicht von einzelnen Typen abgeleitet werden sollte, dass der Zeitpunkt der Diffusion und nicht der Innovation bedeutsam ist, und dass die Töpferware-Modelle von allen Perioden verglichen werden sollten.