Discourse and Overview: A Note on the Theory of Potmarks

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Abstract
Pottery has played an integral role in the reconstruction of human behaviour. Their form, function, seriation, and provenance have collectively assisted archaeologists in understanding the organisation of production, distribution networks, and consumption strategies, of which all are expressions of communication. The various aspects of pottery analysis have proven essential to understanding the mobility of people, technology and ideology. One of these components is the potmark. Throughout the literature there has been much debate, confusion, and speculation regarding this enigmatic feature that is in need of re-evaluation. To understand the nature and origin of potmarks, it is necessary to examine them within the context of the geographic and temporal parameters from which they originated. This paper explores the potential roles of potmarks in the past and calls to attention the need for clarity and consistency regarding potmark terminology in archaeological discourse. It further assesses the current interpretation that potmarks are a form of communication, being any combination of six proposed hypotheses. The plausibility of each hypothesis is evaluated through current archaeological evidence and ethnographic studies. Consequently, an overview of previous research on potmarks is presented that will assist in the identification and understanding of potmarks, ultimately laying the foundation for standardised discourse and future research.

Introduction: Pottery in Archaeology
Renfrew (1980:292) emphasizes that the ultimate purpose of archaeology is “an intellectual one, to illuminate our understanding of the past of man.” Within archaeology there is an endeavour to reconstruct the behaviour of humans by examining the associated material remains. Among other artefacts, pottery maintains an integral role in this reconstruction. Archaeologically, pottery is described as low-fired, unvitrified objects, typically used for cooking or storage purposes (Rice 1987:4). Analysis has been conducted on pottery assemblages that date as early as 10,000 years ago (Sinopoli 1991:1). Pottery has proven to be exceedingly useful to archaeologists due to the durability and high abundance of these artefacts at settlements of pottery-producing cultures (Fowler 2011:151). Rice (1987:24-26) affirms that pottery imbues ideological, sociological, and technological characteristics that can be found in all cultures. Within pottery studies there is one feature that is frequently discussed and in need of further understanding: the potmark.

The Problem
Previous literature (e.g., Derrin 1997; Donnan 1971; Frank 2007; Hirshfield 2008; Wood 1990:46) has been unsuccessful in presenting a criteria by which potmarks can be defined, as well as a full explanation
regarding their purpose(s). Several hypotheses have been proposed rendering insight into the interpretation of potmarks. However, these hypotheses often appear ambiguous, incomplete, and/or display inconsistency in terminology. These drawbacks have lead to misnomers and unparalleled descriptions that, in turn, often have impeded cross-cultural comparisons. Therefore, there is a need to present an encompassing overview of potmarks in order to assist in their explanation and to understand their occurrence in the archaeological record. This is attempted below to ultimately improve the discourse regarding potmarks.

**Aim of Paper**

This study attempts to present and discuss 1) previous definitions of potmarks, and 2) current hypotheses explaining the purpose, variability, and visibility of potmarks. The plausibility of these hypotheses is critically evaluated through an examination of archaeological evidence and ethnographical observations. Analogous to the lumper-splitter debate in bio-anthropology, potmark hypotheses may be lumped or split. In the discussion below they have been lumped together, as this provides a simpler rubric for generating succinct categories and eliminating grey areas. As a result, there are six hypotheses that will be reviewed:

1) Decoration
2) Production marks
3) Trademarks
4) Administration marks
5) Vessel marks
6) Pre-writing

This inquiry encourages a reliance on the law of parsimony and considers factors such as geographic and temporal parameters, and culture. The overview below addresses the theoretical nature of potmarks in an effort to develop standardization in terminology and to identify the hypotheses of best fit. To begin, the definition and defining criteria of potmarks is presented. This is followed by a discussion and evaluation of the six hypotheses.

**Physical Appearance of Potmarks**

Many definitions of potmarks have put forth that bear similarities to each other. It is only in minute aspects that they differ. The appearance of potmarks is often described as stamped, scratched, or sealed impressions and incisions that involve the intentional addition or removal of clay (Derin 1997:81; Glatz 2012:5-6; Papadopolous 1994:439). The point of contention is whether to include post-firing marks in the description. (Hirshfield 2008:120). Potmarks have been described as inclusive of post-firing marks where they can be “applied at any point of [a vessels] use, transmission, or deposition, for many possible reasons” (Hirshfield 2008:120). In contrast, potmarks are also described as relating to the actions of the potter and being applied “to the pot before firing, when the pot was still in the hands of the potter, and therefore added most probably by the potter himself, whatever their meaning and function” (Bikaki 1984; Papadopolous 1994:439).

However, while post-firing marks may appear as traditional potmarks, it is difficult to distinguish whether a mark was formed pre-firing or post-firing (Hirshfield 2008:127). As a results, post-firing marks will be left out of the discussion below based on three factors: (1) post-firing marks may be the result of accidental interaction with other objects, (2) post-firing marks probably were not applied by the potter, and (3)
post-firing marks may have been applied to stray sherds, removing any connection to the original vessel.

Conventionally, potmarks are understood to be a symbol located upon a pottery vessel that signifies something, acting as a message to the viewer. A contemporary example is the display of brand names and dates on the bottom of everyday coffee mugs. This feature is not foreign to archaeologists and is often discovered on both vessels and sherds. Excluding post-firing marks, a monothetic definition may be established: potmarks are symbols produced from the intentional addition or removal (e.g., incising, stamping) of clay prior to firing. This description may be limited but is operational. However, due to the variability of the archaeological record, an absolute definition may be impossible. Although, a criteria for identifying potmarks has been put forth, it is what they signify that gives them meaning and will be explored through the six hypotheses.

Hypothesis 1: Decoration

Perhaps an obvious hypothesis is that potmarks may be a form of decoration. Decoration is a broad category, dealing with aesthetics in various forms. Even the absence of added decoration is considered a form of decoration. Along with other aspects of pottery, potters often use decoration to demarcate cultural boundaries (Gosselain 1992). However, there are aspects of potmarks that serve to distinguish them from decoration. These are discussed below.

Location of potmark

Central to the determination of decoration is the location where it appears on the vessel, and the subsequent use of space (Rice 1987:249). It is questionable whether a potmark appearing on the interior or bottom of a vessel can be considered decoration, as it is intended to be hidden in general but visible upon close inspection. Papadopolous (1994:439) insists that the position of the potmark is imperative as it should not be associated with a separate decorative pattern if sufficiently isolated. This is supported by ethnographical studies undertaken by Donnan (1971) on Peruvian potmarks and Ogundiran and Saunders (2011) on Oyo potmarks where potters display alternative forms of decoration in separate spaces on the vessel than their intended potmarks. A criteria is promoted by Ogundiran and Saunders (2011:323) where potmarks:

"(1) must not indiscriminately occur in any part of the body of the ceramics, but must be restricted to areas that do not generally receive decorations, especially the interior, rim, base and carinated shoulder of a vessel; (2) they must not form a continuous decoration pattern that is impressed by any form of roulette; (3) they must be discrete from the circumambient decoration patterns that are usually found in Oyo pottery".

Comparatively, Donnan (1971:464) observes that Peruvian potmarks are distributed around the neck and rim. In addition, it is noted that potmarks appear on vessels absent of further added decoration that are used for utilitarian functions (Donnan 1971:464). If potmarks are intentionally isolated from decorative patterns or appear in locations on the vessel that potters of that society will typically not display decoration, then it is plausible such potmarks are not intended as decoration.
Intention and determination of decoration

Ethnography has demonstrated that potters will produce decoration based on public appeal with no specific intent other than commercialism (Gosselain 1992:574). Symbols arranged in a repeated pattern or images of animals and figures are frequently found incised on vessels (Lapp 1995:564). Such decorative arrangements are reminiscent of contemporary forms of vessel decoration. A modern projection onto the archaeological record elicits an identification of the style of decoration. It is through this equivalence that decoration may be inferred as a potential purpose of potmarks.

Summary

An arrangement of potmarks upon the vessel may be construed as decoration whether or not this is the intent of potter. The issue is not whether a designated potmark may be perceived as decoration but rather if it is intended as decoration or is part of the decorative pattern. However, it is difficult to conclusively state that the purpose of a potmark is decoration simply because it appears decorative.

Hypothesis 2: Production Marks

An alternative hypothesis regarding the occurrence of potmarks is one that may be perceived as rudimentary: allowing potters to identify their vessels among other potters’ vessels throughout the stages of production (Glatz 2012:34; Wood 1990:46). As these potmarks are deliberately applied prior to firing while the clay is still mouldable, they inevitably remain on the vessel for the duration of its use-life. Two significant examples, both ethnographical in nature, offer convincing support for this hypothesis. These are based on observations of Peruvian (Donnan 1971) and Folona (Frank 2007) potters.

Peruvian potmarks

Donnan’s (1971) inquiry involving contemporary Peruvian potmarks highlights an analogy with those of their Moche ancestors. The potmarks are considered to be a long-standing tradition with noticeable similarities between the potmarks of contemporary Peruvian potters and those of the Moche (Donnan 1971:466). The potmarks appear as an informality, bearing no personal representation of the individual potter (Donnan 1971:465). As each potter uses a variety of potmarks applied in no recognizable pattern, such as equating a season or location with a certain symbol, it is not possible for consumers to identify the potter by the potmarks (Donnan 1971:465). Rather, the purpose of the potmarks is for the potter to identify their own vessels during the firing stage of the chaîne opératoire, as potters will often hold communal firings, grouping their vessels together to conserve fuel (Donnan 1971:465). This investigation suggests that the aforementioned Peruvian potmarks are not an economic device, as they are similar between market-selling potters and travelling potters (Donnan 1971:466).

Folona potmarks

Frank (2007) relates similar findings discovered among the Folona potters in Mali. The aim of the study is to map identity history through the manufacture techniques involved in the chaîne opératoire and the associated potmarks. Observing the stages of the chaîne opératoire allowed Frank (2007:38) to record the potters incising of symbols on their vessels prior to engaging in a communal firing.
Like the Peruvian potters, the Folona potters apply potmarks in order to identify their own vessels after the firing.

Summary

These ethnographic examples provide logical evidence that production marks are a valid hypothesis for explaining the occurrence of potmarks. While the potters intend for these production marks to serve short-term use, they have a lasting appearance that signifies their former handiwork. Regardless of whether this occurs in a household, community or workshop setting (Costin 1991), the purpose of a production mark is the same.

Hypothesis 3: Trademarks

This form of potmarks serves to promote the potters’ products, displaying their talent and quality, ultimately indicating who constructed the vessel. They are considered to be an economic device and are closely associated with urbanism and task specialization (Rice 1987:182-183). A standardization of commodities in the archaeological record is thought to signal the presence of craft specialization (David and Kramer 2001:305). As an economic device, trademarks are associated with specialized craft production of individual, household and workshop industries (Costin 1991:9). As the largest decentralized system of organized production, the workshop places a high reliance on technology and competition in order to acquire capital (Costin 1991:10; Rice 1987:184).

Early Cypriot potmarks

An analysis of Early Cypriot potmarks in a Vounous cemetery by Frankel (1975) attempted to connect potmarks to individual potters. This was moderately successful as Frankel (1975:38) modelled the distribution of potmarks among the tombs, establishing that there were patterns between potmarks and lineages (Hirshfeld 2008:125). These associations led to the conclusion that each link between a potmark and lineage is representative of a relationship between an individual potter and the family of the deceased (Frankel 1975:51; Hirshfeld 2008:125). In this example the identification of the potmarks as trademarks is extrapolated from the densities of potmarks associated with a single lineage, suggesting they purchased from a single producer. The various trademarks then indicate other producers, leading to one of many explanations for these potmarks.

Oyo potmarks

Ethnography performed in the villages of the Oyo Empire of Nigeria provides information on workshop identity exhibited through the pottery and the related potmarks (Ogundiran and Saunders 2011). The lack of a centralized authority presents the opportunity for decentralized pottery production (Ogundiran and Saunders 2011:331). Furthermore, it is estimated that the scale of production exceeds the capabilities of individual potters, leading to the conclusion that workshops are involved in production, perhaps even through familial relations (Ogundiran and Saunders 2011:330-331). This is not to say individual potters are absent, but that they are less common. It is observed that “the nucleated workshop generally manifests more product diversity than the household industry” (Ogundiran and Saunders 2011:331). Research in many of these satellite villages reveals distinct spatial patterns regarding the quantity of vessels with potmarks. From this data it is established
that specific potmarks are associated with various regional spheres. The varied density of potmarks indicates competition and contention for marketability (Ogundiran and Saunders 2011:331).

Summary

Consequently, trademarks are potmarks that indicate their manufacturer or origin of production (Shai and Uziel 2010:69). This concept is not far-fetched for any commodity and pottery is no exception. Applied as advertisements of the potter’s craftsmanship, similar to why a painter will autograph their painting, trademarks serve commercial purposes. The plausibility of this hypothesis is apparent but without evidence directly linking a workshop or potter to their trademark it remains difficult to establish in the archaeological record.

Hypothesis 4: Administration marks

It is common for contemporary governments and organizations to display a flag, logo or other sign of their identity. A notable example is the beaver on the eagle on the 25 cent coin of the USA. This use of a visual representation of a centralized authority is a long-standing tradition and it is reasonable to assume this may have been the case in early state-societies. Administration appears in many forms and in different complexities. Three of these forms are represented by: 1) royalty or government, 2) trade networks, and 3) religious institutions. This hypothesis differs from trademarks in that they are commissioned by and represent an authoritative organization (Shai and Uziel 2010:69).

Representations of royalty or government

The presence of royalty and administration in the archaeological record is discerned by discoveries of public buildings, palaces and structures that required extensive organization in their construction (Greenberg and Paz 2005). An authority that could organize large numbers of people could also oversee the production of pottery. Derin’s (1999) analysis of Late Iron Age Anatolian potmarks supported such a conclusion. The analyzed corpus of potmarks corresponds to the reign of Rusa II, during which workshops began to increase the volume and diversity of potmarks (Derin 1999:93-95). The potmarks appear as both arbitrary symbols and depictions of nature, mainly trees, the Sun and the Moon (Derin 1999:94). While the latter category may point to the influence of religion through acknowledgment of seasons and life, the overriding conclusion is that these are result of government commission (Derin 1999:94). This is based on the discovery of a multitude of potmarks on sherds retrieved from the citadel, an authoritative location (Derin 1999:81).

Representation of religious institutions

Similarly, religious institutions affiliate themselves with a sign as well, such as the cross of the Christian Church. Potmarks associated with religion and religious functions may also be archaeologically identified. Recently it has been noticed that incised handle cooking pots (IHCP) of late Iron Age Judahite pottery assemblages contain a specific ‘x’-shaped potmark on the handles (Maeir 2010:43). This ‘x’-shape is similar to the Paleo-Hebrew letter taw and is exclusive to cooking pots most frequently found in assemblages from Jerusalem, a renowned religious centre throughout history (Maeir 2010:48). The letter
taw is considered to be an abbreviation of the Hebrew word tĕrûmâ, referring to the priestly offerings (Maeir 2010:47). Found in religious contexts with pre-firing potmarks being suggestive of a predetermined function, it is reasonable to infer they were manufactured for a predetermined group. Consequently, Maeir (2010) suggests they would be indicative not only of priestly personnel, but also of Judahite boundaries.

**Trade networks**

Additionally it is argued that potmarks can be utilized for economic purposes by administrative organizations, serving as indicators of trade networks (Helms 1987:46-48; Paz 2011). Although frequently used synonymously (Stager 2000:629), the terms trade and exchange are different forms of economic relations. While exchange (reciprocity, redistribution, market) is internal to a specific society, trade is the movement of commodities that is supervised by and performed between separate political entities or centralized authorities (Masson 2005:139; Renfrew and Bahn 2004:358). Trade conducted on a large-scale and at the state level requires organization in the distribution of the commodities. Among others, Paz (2011:19-22) suggests the potmarks of the Early Bronze Age Levant are associated with cylinder seals that together represent the economic domain or identity of the participants. In this paradigm the potmarks differ from trademarks, as they are not necessarily used for advertisement. Although plausible, there is inadequate evidence to fully support this hypothesis, but an insufficient amount to reject it completely (Zuckerman 2003:133).

**Summary**

This hypothesis is applicable in societies with a high level of social organization and in some cases extensive economic structure and religious institutions. To foreigners crossing the borders and viewing the pottery, the administration marks may serve as an ideological indication of whose jurisdiction they have entered. Adding to this point is that potmarks serve as a reminder to the local inhabitants regarding the authority to which they are subject. If these potmarks can be established as a device of administration, then through their geographic distribution they can assist in identifying the extent of influence an administrative authority retained within a region.

**Hypothesis 5: Vessel marks**

This hypothesis diverts attention from the agent(s) and focuses on the vessel. Two prominent sub-categories emerge: contents and capacity (Glatz 2012:5; Wood 1990:46). In general, these sub-categories provide systems for organizing vessels.

**Contents and capacity**

It is noted by Glatz (2012:8) that cross symbols are thought to indicate vessel content or storage in Late Bronze Age Anatolian pottery. However, it must be asked: who placed the potmark on the vessel? If it were the potter, they would have presupposed knowledge of what should and should not be contained within the vessel. Perhaps the person arranging the storing and distribution would be better suited to inscribe a potmark, although this may be inscribed post-firing. While the contents and storage location may alter, the capacity, unless broken, will remain constant. The issue of a pre-firing potmarks
indicating the volume of a vessel appears easily dismissed. As vessels shrink during firing, due to the evaporation of water, to approximately three-quarter its pre-fired size (Rice 1987:87), it is too difficult to determine its final capacity before this action. However, it is possible for potters to estimate a final capacity, not necessarily in terms of calculable volume but in a numerical size scale similar to that of dresses. A particular study (Astrom 1969) attempted to find a correlation between potmarks and capacity, but the results were negative (Hirshfeld 2008:125). Additionally, vessels bearing the same potmark have often been found with varying capacities (Maeir 2010:48).

Summary

The above hypothesis remains quite prominent throughout the literature, though it is difficult to substantiate (Shai and Uziel 2010:69; Maeir 2010:48). Its popularity is maintained by the commercially understandable aspect, but is frequently negated by the lack of archaeological evidence (Hirshfeld 2008:125). If potmarks served this purpose, trade and exchange would be simpler, as vessel marks would permit a sufficient communicative system for determining corresponding quantities and commodities. However, there is insufficient evidence to validate this hypothesis (Tassie et al. 2008:206).

Hypothesis 6: Pre-writing

Writing, the way that verbal language is expressed through graphic forms, is several millennia younger than pottery. Early depictions of abstract symbols on various artefacts, including pottery, have often been cited as an intentional communication system (Millard 1986:392). These depictions could act as signifiers, visually or even physically (e.g. brail) representing a separate concept: the signified (Chandler 2007). In pre-literate societies, those without an established alphabet or written script, it is plausible that a greater quantity and variability of symbols indicates developments toward literacy. Because cuneiform and hieroglyphs may be derivatives of proto-script symbols, it is possible that such proto-script symbols were utilized by potters.

Harappan script and potmarks

A notable association is made between Harappan potmarks, Harappan script and the Proto-Elamite script. This is explored by Potts (1981) through the examination of a corpus of potmarks recovered from Bronze Age Tepe Yahya in Iran. There is minor chronological overlap among the appearance of the potmarks, the Harappan script and the Proto-Elamite script, with the potmarks falling in the middle of the three. The argument is presented that the early roots of the Harappan script are located in the potmarks that, in turn, are borrowed from the Proto-Elamite script (Potts 1981:114). Indeed there are striking similarities among the symbols used by the three communication systems (Potts 1981:117). Additional evidence is cited as potmarks are utilized prior to and during the use of Harappan script (Potts 1981:115). Although not definitive, it is highly plausible that these potmarks played a significant role in the development of the Harappan script (Potts 1981:115).
Summary

It should be noted that this hypothesis does not necessarily explain a potmarks purpose. Rather it sheds light on why they appear as a certain symbol as opposed to another. Furthermore, it is possible that there are alphabets archaeologists have not yet identified and that forms of “proto-writing” may have served as a complete script for some societies. Consequently, the study of this form of potmarks falls within a trifecta of pottery analysis, semiotics and epigraphics (Hirshfeld 2008:120).

Conclusion

Potmarks appear as a debated feature of pottery analysis. The six hypotheses presented above contain varying degrees of plausibility, encouraging additional inquiry and questions. In addition it appears that the purposes of potmarks are culture-sensitive and that archaeologists must consider the geographic and temporal parameters of the corpus. Ethnography has demonstrated that potters regularly use production marks (Derin 1999; Frank 2007). Alternative hypothesis are not as securely validated, but are unlikely to be dismissed from the literature (Papadopoulos 1994:495). However, it is imperative to recognise that more than one hypothesis may be applicable to a single potmark, an interpretation reiterated by most researchers (e.g Maier 2010; Potts 1981; Shai and Uziel 2010; Wood 1990). For example, the consistent use of the same production mark may also serve as the identification of a single potter or workshop, serving as a trademark as well.

Additional investigation should be conducted on the location on the vessel where potmarks appear, establishing corollaries between purpose and location. This will lead to sceptical inquiry, such as whether potmarks on the interior of closed vessels can be considered decoration or trademarks. While it is apparent that an increase in information will assist in understanding potmarks, the hypotheses discussed previously collaborate to provide an explanatory theory of their identity and occurrence.

Needless to say, the purposes of potmarks reside in communication. For who this communicative symbol is intended will be continually debated. At present, potmarks are symbols produced from the intentional addition or removal of clay prior to firing and, at minimum, fall under the umbrella of one of six hypotheses. The discussion regarding the six hypotheses provides a valuable examination of their cross-cultural applicability and validity.

The assignment of separate potmark terms for each hypothesis is an effort to formulate and retain standardized terminology. The clarification of terminology increases description accuracy and decreases ambiguity. This investigation has been an effort to improve the discourse of potmarks by providing an overview of the current hypotheses that attempt to provide an explanation for potmarks. Ultimately, the information presented in this paper promotes the aims of archaeology by seeking to understand human behaviour. In some respects it advances beyond the artefact, seeking the “Indian behind the artefact”, or in this specific case - the potter behind the potmark (Trigger 1996:393-396).

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