



Rethinking cultural hybridity and technology transfer: SEM microstructural analysis of lead glazed ceramics from early colonial Peru



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ABSTRACT

Through Scanning Electron Microscopy (SEM) microstructural analysis, we examine the firing technology of Early Green Glazed (EGG) Ware – a variety of “hybrid” lead-glazed ceramics produced in Peru’s north coast region during the 16th century CE. Previous scholars have interpreted EGG Ware as the product of indigenous potters who fired ceramics in kilns and learned how to make glazed vessels through direct instruction from Iberian ceramicists. We argue that the production of EGG Ware entailed a more complex process of technological incorporation and innovation. SEM microstructural analysis of 44 archaeological samples suggests that these ceramics were originally fired under highly variable conditions. Parallel analysis of five samples of lead-glazed ceramics produced in open firings by Peruvian artisans in the 1980’s reveals consistent firing beyond their clays’ maturation temperatures. Based on these results and analysis of whole EGG Ware vessels from museum collections, we suggest that at least some of our EGG Ware samples were produced in open firings. In turn, we argue that EGG Ware reflects the creativity of native potters who adapted indigenous firing technologies and experimented with different parameters in the process of forging a new decorative tradition.

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1. Introduction

The study of artifacts whose forms and decorations bring together elements from multiple cultural and technological traditions has been a recurring focus in the archaeology of culture contact, colonialism, and imperialism. However, scholars have disagreed sharply about what to call such objects and how to make sense of them – perhaps most saliently, in a series of recent discussions focused on the concept of cultural hybridity and its applications in archaeology and socio-cultural anthropology (Antonaccio, 2003; Card, 2013a,b; Jiménez, 2011; Liebmann, 2015,

2013, Loren, 2015, 2013, Palmié, 2013, 2006, Silliman, 2015, 2013; Stockhammer, 2012; Tronchetti and van Dommelen, 2005; van Dommelen, 1997; van Dommelen, 2005; van Pelt, 2013; VanValkenburgh, 2013).

Employed in the 19th century to describe biological crosses between wild and domesticated varieties of plants and animals (Warren, 1884), the term “hybrid” – and its derivation, hybridity – became critical keywords in postcolonial studies the 1980’s and 1990’s. Drawing on Bakhtin (1981), Bhabha (1994, 1985) redefined hybridity as the ironic juxtaposition of presumably distinct cultural forms in colonial contexts and highlighted their potential for subverting dominant discourses (see also García Canclini, 1989; Liebmann, 2008; van Dommelen, 1997; Young, 1995). However, as numerous authors have noted, archaeological scholarship has predominantly employed the words “hybrid” and “hybridity” to

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refer to an unspecific concept of cultural mixture – what VanValkenburgh (2013) calls the term's “vernacular” definition – and has treated hybridity as a property that inheres in objects themselves rather than the processes through which they are produced, used, and understood (see critiques in Dean and Liebsohn, 2003; van Dommelen, 2005; Liebmann, 2013; Silliman, 2015; VanValkenburgh, 2013).

While Silliman's (2015: 283) witty description of vernacular hybridity as a “Frankenstein creation that lumbers through the discipline” may overstate how pernicious this concept has become, we agree that it retains little analytical potential – except, perhaps, as an object of study itself that may be “symptomatic” of a range of contemporary cultural anxieties (Kohn, 2015; Palmié, 2013; Povinelli, 2016). Yet we continue to be fascinated by objects that are often labeled hybrid because of the potential they hold to reveal processes of technological change and artistic creativity in contact zones (Pratt, 1991).

How, then, do we best make sense of these qualities? Recently, some archaeologists have sought to retool the language through which we describe them, preferring the term “entanglement(s)” (from Thomas, 1991). First used in archaeological literature to describe indirect and long-term processes of cultural exchange in colonial societies (Alexander, 1998; Dietler, 1998, 2010; Jordan, 2009), the term entanglement has recent been used in a variety of other ways: 1) to label postcolonial cultural forms in a manner that signals how elements of earlier traditions are not fully erased but are often conserved within them (e.g., Norton, 2017); 2) as a description of step-wise processes by which “foreign” objects and ideas are incorporated into local traditions (Hitchcock and Maeir, 2013; Langin-Hooper, 2013; Stockhammer, 2012); and 3) as a metaphor for the affective engagement between people and things (Hodder, 2012; Der and Fernandini, 2016). In practice, however, we worry that some archaeologists are now employing the term to refer to the same unspecific notion of mixture that is encoded in the vernacular concept of hybridity – effectively mirroring the process by which earlier terms, including creolization and syncretism, were themselves tabooed and replaced (Dawdy, 2000; Palmié, 2006).

Rather than attempting to coin a new term, we agree with previous authors that our focus should be trained not on objects, *per se*, but on what they have to tell us about the processes of their production, circulation and reception (Dean and Leibsohn, 2003; Silliman, 2013; Tronchetti and van Dommelen, 2005; van Dommelen, 2006). Studies of the technological properties and “technological style” of colonial artifacts hold particular promise in this regard, because they are explicitly focused on these processes, and they provoke fine-grained observations of patterns and indices that are often not revealed in the most salient elements of artifact form and decoration (Brezine, 2013; Card, 2013b; Chatfield, 2010; Dietler and Herbich, 1998; Hayes, 2013; Lechtman, 1977; Lemonnier, 2013; Sillar and Tite, 2000; van der Leeuw, 1993).

To demonstrate how the archaeometric study of ceramics can shed light on colonial social life and cultural practice, this paper discusses the firing technology of a variety of ceramics called Early Green Glazed (EGG) Ware – the earliest known example of glazed pottery produced in Spanish colonial Peru. Held in museum collections and found in 16th century archaeological contexts between the Lambayeque and Chao Valleys in Peru's north coast region, EGG Ware vessels have forms that are typically similar to those of the Prehispanic Chimú-Inka tradition but are covered with a thin, lead-based glaze in varying shades of green and yellow (Fig. 1) (VanValkenburgh et al., 2015a). No glazed ceramics have been recovered from pre-Columbian archaeological contexts in the Andes, and it has therefore been reasonably suggested that the glazing on EGG Ware vessels was in some way inspired by the arrival of glazed ceramics and perhaps Iberian ceramicists to the

Andean region after the Spanish invasion (Bushnell, 1959; Mayer, 1984).

However, the mechanics of this process of technological change and the manner in which it reflects colonial social relations are poorly understood – in part because no empirical study of EGG Ware technology has ever been conducted and no sites of EGG Ware production have been discovered. Instead, scholars have speculated that EGG Ware was produced by native artisans who were directly instructed by Iberian ceramicists but chose to continue to produce pottery with indigenous forms (Acevedo et al., 2004; Bushnell, 1959; Hecker and Hecker, 1988; Mayer, 1984; Mogrovejo Rosales, 1996; Stastny and Acevedo, 1986).

In this paper, we infer the conditions under which EGG Ware was fired through microstructural analysis using scanning electron microscopy (SEM). We examine 44 archaeological samples of the type and compare them to five samples of lead-glazed ceramics produced by modern potters in southern Peru. Our results suggest that EGG Ware vessels were fired under diverse circumstances that included both oxidizing and reducing conditions, different maximum temperatures, and variable temperature profiles.

We argue that EGG Ware's production was spurred on not by straightforward technology transfer between Iberian ceramicists and native artisans, but a more complex process of technological incorporation and emulation, in which native potters experimented with the production of glazes and, at least in some cases, fired their vessels in open firings. In our estimation, EGG Ware's artisans had a great deal of control over the terms of their artistic production. Based on these findings, we suggest that the study of the technological properties of colonial material culture can, in some cases, allow scholars to push beyond the vernacular definition of hybridity and provide substantial insights into social process and cultural expression in contact zones.

2. Background

2.1. Early Green Glazed Ware¹

EGG Ware vessels have two defining characteristics: they are decorated with a thin glaze that ranges from yellow-green to green in color and have forms that, in many cases, are similar to ceramics of the short-lived Chimú-Inka (ca. 1470–1532) tradition. Of the twenty-five whole vessels that we have observed in museum collections or existing publications, twelve are Chimú-Inka style double-bodied whistling pots (e.g., Fig. 1b and 1c) and three are flat-bottomed pitchers with no clear Precolumbian precedents (e.g., Fig. 1a). Both whole vessels and fragments bear common evidence of firing errors, including pinholing, crazing, crawling and discoloration (Fig. 2) – characteristics that are also frequently observed among lead-glazed ceramics fired in unstable conditions.

While the presence of European forms among EGG Ware vessels make it possible that type was employed in non-indigenous households, every EGG Ware fragment recovered to date through systematic archaeological excavations has been found in the remains of houses, middens, and mortuary contexts associated with people of indigenous descent (see VanValkenburgh et al., 2015a,b). Moreover, it is likely that complete (or nearly complete) EGG Ware vessels held in museum collections – such as those Rafael Larco Hoyle reports excavating in the Chao valley in the 1930's (ML Cuaderno 3) – were used as grave goods within local burials.

¹ In this section, we draw on a previous discussion (VanValkenburgh et al., 2015a,b) of EGG Ware's key features and chemical characterization of the samples studied here. We refer readers to this earlier publication for additional details, which are not repeated here for reasons of space.

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