Using Functional Analysis of a Ceramic Corpus to Investigate Ancient Activity in South Abydos

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Using Functional Analysis of a Ceramic Corpus to Investigate Ancient Activity in South Abydos

Abstract

Archaeological research on the mortuary monuments of Senwosret III has centered on using architectural cues to determine the king's final resting place. There has not yet been a study focusing wholly on material culture to discuss the ritual actions taking place around these monuments. Recent excavations at Senwosret III's tomb complex at South Abydos has uncovered a pottery assemblage that provides an opportunity for functional analyses of the ceramics and allows for elucidation of funerary cult activity associated with the tomb. In this paper, I first provide a typological outline and chronology of this corpus based on morphological characters, followed by functional interpretations using type studies, depositional observations, and surface analysis of eight vessel types. Based on these analyses, I offer a new interpretation of the Senwosret III Abydos tomb complex, including cultic activity related to purification and offering rituals occurring periodically from Dynasty 12 into Dynasty 13.

Keywords
ceramics, Middle Kingdom, functional analysis, Abydos Egypt, Senwosret III, archaeology

Disciplines
Anthropology
USING FUNCTIONAL ANALYSIS OF A CERAMIC CORPUS TO INVESTIGATE ANCIENT ACTIVITY IN SOUTH ABYDOS

By

McKay Burdette

In

Anthropology

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Department of Anthropology

University of Pennsylvania

Thesis Advisor: Dr. Katherine Moore

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Abstract

Archaeological research on the mortuary monuments of Senwosret III has centered on using architectural cues to determine the king’s final resting place. There has not yet been a study focusing wholly on material culture to discuss the ritual actions taking place around these monuments. Recent excavations at Senwosret III’s tomb complex at South Abydos has uncovered a pottery assemblage that provides an opportunity for functional analyses of the ceramics and allows for elucidation of funerary cult activity associated with the tomb. In this paper, I first provide a typological outline and chronology of this corpus based on morphological characters, followed by functional interpretations using type studies, depositional observations, and surface analysis of eight vessel types. Based on these analyses, I offer a new interpretation of the Senwosret III Abydos tomb complex, including cultic activity related to purification and offering rituals occurring periodically from Dynasty 12 into Dynasty 13.
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## Introduction

The Senwosret III tomb at South Abydos dates to the Middle Kingdom (for chronology, see Table 1) and is, as far as we know, the first royal tomb at Abydos since the earliest dynasties. It has both contemporary and archaic tomb features and is the earliest known example of the transition from royal pyramids to the unmarked subterranean tomb architecture common in the New Kingdom (Wegner 2007:365; Wegner 2009:103; Snape 2011:122; Cahail 2014:63).

Construction of such a tomb at Abydos provided Senwosret III with a connection to Early Dynastic kings and the cult of Osiris, which strengthened his kingship and reinvigorated the royal cult. Senwosret III made many attempts during his reign to separate himself from the chaos of his immediate predecessors and to re-establish faith in divine kingship (Cahail 2014:30-31; Arnold 2002:118-112). In addition to his tomb at Abydos, Senwosret III built a pyramid at Dahshur that resembled those of his Old Kingdom ancestors. Building multiple funerary memorials was an attempt to ensure post-mortem commemoration and was common practice for Egyptian pharaohs (Snape 2011:121-122, 173; Arnold 2002).

<table>
<thead>
<tr>
<th>Period</th>
<th>Dynasty</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Dynastic</td>
<td>1 - 2</td>
<td>2950 - 2650 BCE</td>
</tr>
<tr>
<td>Old Kingdom</td>
<td>3 - 8</td>
<td>2650 - 2130 BCE</td>
</tr>
<tr>
<td>First Intermediate Period</td>
<td>9 - 11</td>
<td>2130 - 1938 BCE</td>
</tr>
<tr>
<td>Middle Kingdom</td>
<td>12 - 14</td>
<td>1938 - 1630 BCE</td>
</tr>
<tr>
<td><strong>Senwosret III</strong></td>
<td><strong>Dynasty 12</strong></td>
<td><strong>1836 - 1818 BCE</strong></td>
</tr>
<tr>
<td>Second Intermediate Period</td>
<td>15 - 17</td>
<td>1630 - 1539 BCE</td>
</tr>
<tr>
<td>New Kingdom</td>
<td>18 - 20</td>
<td>1539 - 1150 BCE</td>
</tr>
</tbody>
</table>

*Table 1. The periods of Egyptian chronology relevant to this study, including the reign of Senwosret III. Dating structure here is based upon that from O’Connor (2011:208).*
Much of the previous research on Senwosret III’s mortuary monuments has focused on answering the question of where the king was buried. Evidence from the Metropolitan Museum of Art’s excavations at Dahshur indicate that Senwosret III’s pyramid never held his remains. There is also no evidence of a burial at the Abydos tomb, even though it is the only other extant possibility for Senwosret III’s actual tomb (Arnold 2002:15, 33, 36). Prior analyses of the mortuary monuments of Senwosret III have focused on documenting and interpreting architectural evidence, with limited attention to material culture, in an attempt to determine Senwosret III’s burial site and the motivations behind the choice of location. Without the existence of textual evidence or human remains, however, it is near impossible to confirm Senwosret III’s burial location.

While uncovering the details of Senwosret III’s burial is improbable, we can analyse archaeological remains to gain insight into the cultic activities that took place around his monuments. Unlike studies of the Dahshur pyramid complex, interpretations of the activities occurring at Senwosret III’s Abydos tomb complex cannot rely on structural comparisons to other tombs. This is due to its innovative form as the first example of an unmarked subterranean tomb. This problem motivates a move away from architecture towards artifact analysis to address the functionality of burial equipment and gain insight into tomb activity (Laemmel 2013:217; Beeck 2007:157). Functional studies of ceramics determine connections between vessel forms, technological methods of production, and ancient uses. These analyses subsequently inform interpretations of the ancient activities that produced the observable characteristics or depositional contexts relating to the vessels and assemblages (Beck 2010:47–48; Beeck 2006:157; Tite 2008:223). Of particular interest at the Abydos complex are ceramic assemblages
associated with the tomb, which convey information about activities taking place within the
necropolis and patterns of funerary activity over time.

In this study, I focus on two overarching questions: What functions are associated with
the ceramic types identified in this assemblage, and how do these functional types inform
interpretations about activity areas as related to the surrounding archaeological landscape? I
implement morphological studies to orient the existing ceramics within a known Egyptian
corpora associated with cultic landscapes. Using taphonomic observations to expand on this, I
track ritual activity at the site through time. And finally, I implement surface feature analysis to
identify the functions of specific vessel types and extrapolate broader activity within the area.

Context

Abydos is located in southern Egypt, 413 km south of Memphis, on the west bank of the
Nile, about 91 km northwest of Thebes (Figure 1). The total area of the site is 8 sq. km, however
it has been divided up into smaller areas; North, Middle, and South (O’Connor 2011:23). Abydos
was important throughout Egyptian history in the cult of Osiris and as a pharaonic funerary site.
Early Dynastic royal graves and later Osirian cult activity are found in the Northern areas, an
expansion of the Old Kingdom Town appears in the Middle region, and later Middle and New
Kingdom temple and tomb constructions stretch even farther into South Abydos (Figure 2;
O’Connor 2011:28).
Figure 1. Abydos is located to the west of the Nile in Upper Egypt. Adapted from O’Connor (2011:22).
The data and analysis presented here are the results of the Summer 2019 Penn excavations led by Dr. Josef Wegner at a subsection of the site that is home to multiple funerary enclosures and tombs from the Middle Kingdom and Second Intermediate Period. The Senwosret III tomb enclosure itself consists of a subterranean tomb and a mortuary complex, including small buildings likely associated with cultic or construction activities (Wegner 2007:365-368). The assemblage addressed in this paper comes from Unit S-1, which is approximately 15 m from the entrance building of the Senwosret III tomb enclosure. S-1 ia also in close association (about ...
20 m in distance) to a group of Second Intermediate Period royal tombs (Figure 3; Wegner 2007:365-368; Wegner 2009).

Figure 3. A comprehensive plan of the Senwosret III tomb enclosure, with an approximate location of Unit S-1 added just in front of the tomb entrance. Courtesy of Josef Wegner.
Unit S-1 was a 10 meter by 10 meter area excavated to a total depth of approximately half a meter, where evidence of material culture ceased. This unit was largely uniform, consisting of three loci within one stratigraphic unit. Locus 1 covered most of the unit and had a matrix of loose sand and large amounts of pottery fragments. Loci 2 and 3 were two smaller areas identified as limestone debris features (Figure 4). The material culture corpus from unit S-1 is in a secondary context, apparently a ceramic dump. Material remains from this context were both hand collected and screened with 0.5-1 cm mesh, mostly producing pottery. There were also minimal amounts of bone, wood, charcoal, and some other cultural artifacts such as beads and clay cylinders, but no evidence of architectural features in the unit.

Figure 4. Plan of Loci 1-3 in Unit S-1. The limestone dense Loci 2 and 3 are represented in gray. Two intact jars are shown in their approximate location.
Methodology

The S-1 excavations produced a ceramic corpus of 1,706 pottery fragments. I selected this corpus from the total pottery yield of the unit using diagnostic rim and base characteristics and quantified it using basic sherd count methods. The basis of my analysis is a rough typology of 14 broad types, constructed from sherd morphology and notes on fabric and surface treatments. This situates the assemblage within the purview of other established and chronologically relevant typologies (Schiestl and Seiler 2012; Wodzińska 2009). In approaching the analysis of these forms, I examine morphology, fabric characterization, use-wear evidence, and taphonomic patterns to examine vessel function (Whitbread 2016; Beck 2010:47–69). This study also uses a comparative approach, considering contemporary typologies and sites to further understand vessel functionality and its translation into understandings of ancient activity areas at Egyptian funerary sites. Specifically, I investigate previous excavations of ceramic assemblages from the Senwosret III tomb itself (Wegner 2007; South Abydos 2004 Field Notebooks 1 & 2, Egyptian Section, University of Pennsylvania Museum, March 2020) to understand how the S-1 corpus compares to contemporary assemblages from South Abydos.

Typology and Chronology

There were two varieties of clay used in the Middle Kingdom, marl clays and Nile alluvial silts. Marl fabrics are calcareous clays which fire to a cream or white color in oxidizing atmospheres. Nile silts are silica rich clays deposited on the banks of the river that fire to red or brown colors in oxidizing atmospheres (Bourriau et al. 2000:121-122). Siltware fabrics are organized into various groups based on porosity and inclusions according to the Vienna System.
which categorizes Egyptian fabrics based on the type and quantity of inclusions. Nile silts are the only fabrics which appear in the S-1 corpus, and the three relevant categories are Nile B1, Nile B2, and Nile C. Nile B1 is a finer fabric with only moderate porosity and temper of fine sand or organic particles. Nile B2 fabrics are defined by an abundance of sand inclusions and conspicuous organic remains. Finally, Nile C fabrics are of coarse clay with numerous pores formed by an abundance of coarse organic inclusions which have burned out in the manufacturing process. Nile C fabrics are also known to include temper of ash, shell, limestone, and bone (Arnold and Bourriau 1993:171-173; Bourriau et al. 2000:130-131).

The Egyptian Middle Kingdom ceramic corpus largely comes from mass-production workshops, making it quite homogenous. During this period, most vessels were made using a combination of non-radial and radial methods. Vessels could be produced by pinching/hallowing, paddle and anvil forming, shaping over a core, and/or slab or coiling. Often in the Middle Kingdom, vessels would be manufactured or completed on a turning wheel using centered radial methods (Arnold and Bourriau 1993:15-83; Wodzińska 2009:167; Yamamoto 2009:245). Firing was typically completed in updraught kilns (Bourriau et al. 2000:128). Quintessential Middle Kingdom vessel forms are: small and medium open form bowls and dishes, large basins and bowls, large jars in a range of morphologies, miniature bottles and jars, bread molds, bread trays, and hemispherical cups, which are the most identifiable Middle Kingdom vessel (Wodzińska 2009:167). The morphological terminology used throughout this work is based on the system outlined by Schiestl and Seiler (2012:33).
<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open Forms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Medium Bowls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium Inflected Bowls</td>
<td>13.5 - 18 cm</td>
<td>Nile B2</td>
<td>Light Reddish Brown</td>
<td>23 sherds</td>
<td>1.4%</td>
</tr>
<tr>
<td>Medium Carinated Bowls</td>
<td>13 - 14 cm</td>
<td>Nile B1</td>
<td>Reddish Brown</td>
<td>6 sherds</td>
<td>0.4%</td>
</tr>
<tr>
<td>Rim Fragments</td>
<td>--</td>
<td>Nile B1, Nile B2</td>
<td>--</td>
<td>585 sherds</td>
<td>34.3%</td>
</tr>
<tr>
<td><strong>Large Bowls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Direct Rim Bowls</td>
<td>26 - 30 cm</td>
<td>Nile C</td>
<td>Reddish Yellow, Reddish Brown</td>
<td>17 sherds</td>
<td>1.0%</td>
</tr>
<tr>
<td>Large Conical Direct Rim Bowls</td>
<td>apx. 28.8 cm</td>
<td>Nile C</td>
<td>Light Brown</td>
<td>7 sherds</td>
<td>0.4%</td>
</tr>
<tr>
<td>Direct Rim Fragments</td>
<td>--</td>
<td>Nile C</td>
<td>--</td>
<td>202 sherds</td>
<td>11.8%</td>
</tr>
<tr>
<td>Large Rolled Rim Bowl</td>
<td>24 - 32 cm</td>
<td>Nile C</td>
<td>Light Reddish Brown</td>
<td>53 sherds</td>
<td>3.1%</td>
</tr>
<tr>
<td><strong>Small Dishes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Square Rim Dish</td>
<td>7.5 - 8.8 cm</td>
<td>Nile B2, Nile C</td>
<td>Light Brown</td>
<td>105 sherds</td>
<td>6.2%</td>
</tr>
<tr>
<td>Small Direct Rim Dish</td>
<td>apx. 8 cm</td>
<td>Nile B1</td>
<td>Red</td>
<td>61 sherds</td>
<td>3.6%</td>
</tr>
<tr>
<td>4 Hemispherical Cups</td>
<td>apx. 12.2 cm</td>
<td>Nile B1</td>
<td>Red, Reddish Brown</td>
<td>99 sherds</td>
<td>5.8%</td>
</tr>
<tr>
<td>*5 Large Dish</td>
<td>apx. 38 cm</td>
<td>Nile C</td>
<td>Light Brown</td>
<td>1 sherd</td>
<td>0.1%</td>
</tr>
<tr>
<td>*6 Medium Spherical Dish</td>
<td>--</td>
<td>Nile B1</td>
<td>Light Reddish Brown</td>
<td>8 sherds</td>
<td>0.5%</td>
</tr>
<tr>
<td>*7 Possible Medium Bowl Type</td>
<td>--</td>
<td>Nile C</td>
<td>--</td>
<td>16 sherds</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Closed Forms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Large Storage Jars</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Direct Rim Storage Jar</td>
<td>6 - 9.5 cm</td>
<td>Nile C</td>
<td>Weak Red, Light Brown</td>
<td>286 sherds</td>
<td>16.8%</td>
</tr>
<tr>
<td>Large Modeled Rim Storage Jar</td>
<td>10 - 12 cm</td>
<td>Nile C</td>
<td>Weak Red</td>
<td>24 sherds</td>
<td>1.4%</td>
</tr>
<tr>
<td>Base Fragments</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>37 sherds</td>
<td>2.2%</td>
</tr>
<tr>
<td>9 Model Vessels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incurved Rim Jar</td>
<td>apx. 4.5 - 7 cm</td>
<td>Nile B1</td>
<td>Light Reddish Brown</td>
<td>18 sherds</td>
<td>1.1%</td>
</tr>
<tr>
<td>Bag Shaped Beaker</td>
<td>apx. 5 - 8 cm</td>
<td>Nile B1 - Nile C</td>
<td>Light Reddish Brown, Light Brown</td>
<td>29 sherds</td>
<td>1.7%</td>
</tr>
<tr>
<td>Modeled Rim Jar</td>
<td>6 cm</td>
<td>Nile B1</td>
<td>Reddish Brown</td>
<td>4 sherds</td>
<td>0.2%</td>
</tr>
<tr>
<td>10 Inflected Beakers</td>
<td>9.2 - 11 cm</td>
<td>Nile C</td>
<td>Reddish Brown, Light Brown</td>
<td>17 sherds</td>
<td>1.0%</td>
</tr>
<tr>
<td>*11 Ovoid Beaker</td>
<td>apx. 12 cm</td>
<td>--</td>
<td>Red</td>
<td>5 sherds</td>
<td>0.3%</td>
</tr>
<tr>
<td><strong>Non-Vessel Forms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Stands</td>
<td>10.6 - 11.4 cm</td>
<td>Nile C</td>
<td>Light Reddish Brown</td>
<td>19 sherds</td>
<td>1.1%</td>
</tr>
<tr>
<td>*13 Lids with Knob Handles</td>
<td>knob: 3-3.5 cm</td>
<td>--</td>
<td>Light Reddish Brown</td>
<td>5 sherds</td>
<td>0.3%</td>
</tr>
<tr>
<td>*14 Possible Handle</td>
<td>apx. 3.7-4.9 cm</td>
<td>Nile B2</td>
<td>Reddish Brown</td>
<td>2 sherds</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Low to Unfired Forms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Bases</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>6 sherds</td>
<td>0.4%</td>
</tr>
<tr>
<td>Large Rims</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>24 sherds</td>
<td>1.4%</td>
</tr>
<tr>
<td>Medium Bases</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1 sherd</td>
<td>0.1%</td>
</tr>
<tr>
<td>Medium Rims</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>26 sherds</td>
<td>1.5%</td>
</tr>
<tr>
<td>Stopper</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2 sherds</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Intrusive Forms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat Rim</td>
<td>--</td>
<td>Nile B1</td>
<td>Yellowish Brown</td>
<td>1 sherd</td>
<td>0.1%</td>
</tr>
<tr>
<td>Flat Base</td>
<td>--</td>
<td>Nile C</td>
<td>Pinkish Gray</td>
<td>2 sherds</td>
<td>0.1%</td>
</tr>
<tr>
<td>Unknown</td>
<td>--</td>
<td>Nile B1</td>
<td>Reddish Brown</td>
<td>1 sherd</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

*Table 2. The entire corpus from Unit S-1. Those forms identified with an * are not addressed in this paper. Data for the low to unfired sherds and intrusive forms in the corpus, which exist outside of the presented typology, are also given.*
In my research, I address eight of the most prevalent types from S-1, which make up 91.8% of the diagnostic corpus. The remaining six types are comparatively minor and inconsequential to the interpretation of this assemblage (Table 2). Several of these types have alternate names in relevant publications. I have avoided use of these names in an attempt to remove any functional bias from my typology, but I do make reference to them where pertinent.

In addition to the presented types, there is a small group of intrusive forms that may have been incorporated into this assemblage during previous excavations, when the area was used as a spoil heap (South Abydos 2004 Field Notebook 1).

![Figure 5](image)

**Figure 5.** Type sherds representative of the medium bowl inflected and carinated profile variants. (a) medium bowl sherd 25749.3 (rim diameter 13 cm), (b) medium bowl sherd 25749.5 (rim diameter 16 cm), (c) medium bowl sherd 25749.10 (rim diameter 16 cm), and (d) medium bowl sherd 25749.38 (rim diameter 10 cm). The diagonal shading on 25749.5 and 25749.38 represent soot residues, while the stippling on 25749.10 represents an applied white slip.

<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Inflected Bowls</td>
<td>13.5 cm-18 cm</td>
<td>Nile B2</td>
<td>Light Reddish Brown</td>
<td>23 sherds (1.4%)</td>
</tr>
<tr>
<td>Medium Carinated Bowls</td>
<td>10 cm - 14 cm</td>
<td>Nile B1</td>
<td>Reddish Brown</td>
<td>6 sherds (0.4%)</td>
</tr>
<tr>
<td>Rim Fragments</td>
<td>--</td>
<td>Nile B1, Nile B2</td>
<td>--</td>
<td>585 sherds (34.3%)</td>
</tr>
</tbody>
</table>

**Table 3.** Rim Diameter, fabric, color, and prevalence data for the two variations of medium bowls in the Unit S-1 corpus.
Medium Bowls. Within the S-1 assemblage, there were two recognizable medium dish types, those with inflected vessel contour and those with carinated vessel contour (Table 3). The first of these variants, those with inflected contour, are made of Nile B2 fabric. These vessels have a range of base shapes from ring and flat-footed to round, and direct rims to varying degrees of inflection (1.4%; Figure 5a-c). There were a total of 13 complete profile examples of this type across the three base shapes. The second variant, carinated vessels, are made of finer Nile B1 fabrics. These vessels have inflected rims, profile carination, and likely rounded bases, which were not preserved (0.4%; Figure 5d). There was one complete profile example of this type. Both of these variants were likely wheel thrown (Wodzińska 2009:195-196) and showed evidence of interior burning as well as some elements of decoration, including incised lines and pale white slips (Figure 5).

Within the medium bowl type, there was a significant number of rim fragments that have the appropriate fabric and diameter to be associated with one of the above variants (34.3%). The rim characteristics of the inflected and carinated bowls are quite similar. Without the larger profiles of these rim fragments their identification beyond belonging to the broader ‘medium bowl’ group was not possible. Including these rim sherds, this group makes up 36.0% of the entire corpus, however these tentative fragments skew this calculation to an incredible degree, and without the rim sherds included, these dishes only make up 1.7% of the assemblage. (For comparanda, see Wegner 2007:236; Wodzińska 2009:195-196; Schiestl and Seiler 2012:127, 169, 201, 215, 219.)
Large Necked Jars. There are two variants of Large Necked Jars in the S-1 assemblage (Table 4). The more prevalent variant has direct rims, ovoid bodies, and bases ranging in shape from round to flat (16.8%; Figure 6a). Three complete vessel examples of this group were recovered. Only rim fragments of the second variant remain, showing ‘kettle mouthed’ (Schiestl and Seiler 2012:41) morphology (1.4%; Figure 6b). Based on comparanda (Wegner 2007:245), this form has a similar body and base shape to the former variation. For clarity, these two variants are named ‘large direct rim jar’ and ‘large modeled rim jar.’ In other typologies these vessels may be referred to as water, beer, or wine jars. Both of these variations are made from Nile C fabric and were likely wheel thrown (Wodzińska 2009:187). These vessels also have no evidence of slips or other surface treatments affecting surface porosity, but a majority of the examples of large direct rim jars did have a series of impressions circling their bodies. These details were caused by rope being tied around the vessels for support during the drying process and is seen in most large Egyptian pots (Arnold and Bourriau 1993:85-102). In the S-1 assemblage, there were additional base fragments (2.2%) that are likely attributable to these two types. Including these sherds and all identified fragments of both variants, this type makes up 20.5% of the entire S-1 corpus.

<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Direct Rim Jar</td>
<td>6 cm - 9.5 cm</td>
<td>Nile C</td>
<td>Weak Red, Light Brown</td>
<td>286 sherds (16.8%)</td>
</tr>
<tr>
<td>Large Modeled Rim Jar</td>
<td>10 cm - 12 cm</td>
<td>Nile C</td>
<td>Weak Red</td>
<td>24 sherds (1.4%)</td>
</tr>
<tr>
<td>Base Fragments</td>
<td>--</td>
<td>Nile C</td>
<td>--</td>
<td>37 sherds (2.2%)</td>
</tr>
</tbody>
</table>

Table 4. Rim Diameter, fabric, color, and prevalence data for the two variations of large necked jars in the Unit S-1 corpus.
Kettle mouth morphology in these jars is used as a dating criteria for Middle Kingdom ceramic assemblages. This shape begins as a modeled form in Dynasty 12 and evolves into the more distinctly ledged kettle mouth shape during Dynasty 13 (Smith 2010:173-174). The existence of kettle mouth jars in Unit S-1 likely indicates that this assemblage dates in part to Dynasty 13. (For comperanda, see Wegner 2007:244-245; Wodzińska 2009:187-188; Schiestl and Seiler 2012:651-655, 661-665, 671, 675-677.)
<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Direct Rim Bowls</td>
<td>26 - 30 cm</td>
<td>Nile C</td>
<td>Reddish Yellow, Reddish Brown</td>
<td>17 sherds (1.0%)</td>
</tr>
<tr>
<td>Large Conical Direct Rim Bowls</td>
<td>Apx. 28.8 cm</td>
<td>Nile C</td>
<td>Light Brown</td>
<td>7 sherds (0.4%)</td>
</tr>
<tr>
<td>Direct Rim Fragments</td>
<td>--</td>
<td>Nile C</td>
<td>--</td>
<td>202 sherds (11.8%)</td>
</tr>
<tr>
<td>Large Rolled Rim Bowl</td>
<td>24 - 32 cm</td>
<td>Nile C</td>
<td>Light Reddish Brown</td>
<td>53 sherds (3.1%)</td>
</tr>
</tbody>
</table>

**Table 5. Rim Diameter, fabric, color, and prevalence data for the two variations of large bowls in the Unit S-1 corpus.**

**Figure 7.** Type sherds representative of the large bowl direct and rolled rim variants. (a) large bowl sherd 25732.9 (rim diameter 26 cm), (b) large bowl sherd 25749.25 (rim diameter 27 cm), (c) large bowl sherd 25749.28 (rim diameter 27 cm), (d) large bowl sherd 25732.5 (rim diameter 28 cm), and (e) large bowl sherd 25749.6 (rim diameter 30 cm). The stippling on 25749.6 represents an applied red slip.

**Large Bowls.** Large bowls are a utilitarian vessel type that appears at most Middle Kingdom Egyptian sites (Wegner 2007:240). There are three morphological variants included in the ‘large bowl’ type (Table 5). The first is a group of vessels with direct rims and rounded bases in a range of profile shapes, including hemispherical, inflected, and carinated. These are referred to as ‘large direct rim bowls’ (1.0%; Figure 7a-c). The second variant includes vessels with direct rims, conical profiles, and flat bases. This group has been named ‘large conical direct rim bowls’ (0.4%; Figure 7d). There is a significant assemblage of rim fragments that have the appropriate fabric and diameter to be associated with one of these two variants (11.8%). Without their profiles, however, it is not possible to associate them directly with a specific large bowl type, and so they are included simply as ‘direct rim fragments.’ Including these fragments, this
type represents 16.4% of the entire corpus, without the rim sherds included these bowls make up
4.5% of the assemblage. The final variant in this type has modeled rims, hemispherical bodies,
and round bases. These vessels consistently have a red slip (Munsell 10R 5/6) on their interiors
which occasionally extends over a significant portion of their exteriors. This group is referred to
as ‘large rolled rim bowls’ (3.1%; Figure 7e). Similar to the large necked jar type, there are
remnants of rope impressions on the bodies of a portion of the large bowls. These impressions,
however, are less frequent than on the large necked jars, only appearing on about 20% of the
drawn and/or photographed fragments. These forms are all made from Nile C fabric and often
have shaved bases indicating probable manufacture on simple wheels (Wodzińska 2009:197-199;
Wegner 2007:240), and occupy 16.4% of the S-1 corpus. (For comperanda, see Wegner

<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Square Rim Dish</td>
<td>7.5 cm - 8.8 cm</td>
<td>Nile B2-C</td>
<td>Light Brown</td>
<td>105 sherds (6.2%)</td>
</tr>
<tr>
<td>Small Direct Rim Dish</td>
<td>Apx. 8 cm</td>
<td>Nile B1</td>
<td>Red</td>
<td>61 sherds (3.6%)</td>
</tr>
</tbody>
</table>

Table 6. Rim Diameter, fabric, color, and prevalence data for the two variations of small dishes in the Unit S-1 corpus.

Figure 8. Type sherds representative of the small dish square and direct rim variants. (a) small dish sherd 25749.27
(rim diameter 1.7 cm) and (b) small dish sherd 25749.2 (rim diameter 8 cm). Diagonal shading on 25749.27
represents soot residue.
Small Dishes. The Small Dish type breaks down further into two variations (Table 6). The first is of coarser Nile B2 or Nile C fabrics and has square rims, hyperboloid-conical bodies, and flat bases (6.2%; Figure 8a). There were 63 complete examples of this variant recovered, one with evidence of burning on both its interior and exterior. The second variation of this type is of finer Nile B1 fabric. Morphologically, this group has direct rims and similar hyperboloid-conical bodies and flat bases to those of the former variant (3.6%; Figure 8b). For clarity, these groups are named “small square rim dish” and “small direct rim dish,” respectively. In other typologies, these vessels are also referred to as lids or votive dishes, based on their interpreted function. Both of these variants show evidence of string cut bases (Figure 9), suggesting radial manufacture, and were likely mass produced as were comparable Old Kingdom vessels (Wegner 2007:236; Wodzińska 2009:195). Combined, the fragments of these small dishes occupy 9.7% of the entire assemblage. (For comparanda, see Wegner 2007:236; Wodzińska 2009:195; Schiestl and Seiler 2012:803, 885-888.)

Figure 9. Spiral patterning on the string cut bases of the small dish types, suggesting radial manufacture. Fragment 25749.26 is on the left and fragment 25749.2 is on the right. Photo courtesy of Josef Wegner.
Figure 10. Hemispherical cup 25749.4 (rim diameter 12 cm). Diagonal shading represents soot residue, stippling represents red paint.

<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemispherical Cups</td>
<td>Apx. 12.2 cm</td>
<td>Nile B1</td>
<td>Red, Reddish Brown</td>
<td>99 sherds (5.8%)</td>
</tr>
</tbody>
</table>

Table 7. Rim Diameter, fabric, color, and prevalence data for the hemispherical cups in the Unit S-1 corpus.

**Hemispherical Cups.** Hemispherical cups are made from Nile B1 fabric and have direct rims, hemispherical bodies, and round bases. All rim sherd examples had red painted rims (Munsell 10R 5/8) except for three conjoining sherds with white painted rims (Figure 10; Table 7). One of the two complete profile examples of this type contained extensive soot residue on its interior. These vessels typically have shaved bases and were most likely wheel thrown (Wodzińska 2009:202; Wegner 2007:223). The total number of hemispherical cup sherds make up 5.8% of the entire S-1 corpus.
Hemispherical cups are useful for dating due to their limited chronological range, which begins late in the First Intermediate Period and continues through both the Middle Kingdom and Second Intermediate Period. During this time, their dimensions progressively evolve from shallow and unrestricted to deep and slightly restricted (Bietak 1984:140). Calculations of the vessel index, the proportion of the rim diameter to the height of the vessel, correlates to this transition from shallow to deep bowl forms and can be used for dating (Schiestl and Seiler 2012:33). Calculated indices between 190-150 correlate to Dynasty 12 through early Dynasty 13, and numbers between 145-120 indicate an advanced Dynasty 13 date (Bietak 1984; Arnold 1988:140). This dating system is effective for analysing the Unit S-1 assemblage, as it is the strongest independent chronological evidence from this context.

In the complete hemispherical cup examples from the S-1 assemblage, the indexes are 150 (25732.6) and 152 (25749.4), which correspond to dates in the transitional period between late Dynasty 12 and mid Dynasty 13 (Wegner 2007:233; Schiestl and Seiler 2012:34). Besides the index numbers from traditional hemispherical cups, the white rimmed example (25749.11) has an index of 200. Using the same index dating technique for this anomalous type provides a pre- or very early Dynasty 12 date, which would suggest an earlier use-life for the site (Wegner 2007:233). Comparisons of this chronological data from Unit S-1 to previous calculations from excavations around the Senwosret III tomb enclosure and temple complex can provide insight into the longevity of activity associated with the Senwosret III mortuary cult. (For companiona, see Wegner 2007:233; Wodzińska 2009:202; Schiestl and Seiler 2012:66, 94-107.)
<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incurved Rim Jar</td>
<td>Apx. 4.5 - 7 cm</td>
<td>Nile B1</td>
<td>Light Reddish Brown</td>
<td>18 sherds (1.1%)</td>
</tr>
<tr>
<td>Bag Shaped Beaker</td>
<td>Apx. 5 - 8 cm</td>
<td>Nile B1, Nile C</td>
<td>Light Reddish Brown, Light Brown</td>
<td>29 sherds (1.7%)</td>
</tr>
<tr>
<td>Modeled Rim Jar</td>
<td>6 cm</td>
<td>Nile B1</td>
<td>Reddish Brown</td>
<td>4 sherds (0.2%)</td>
</tr>
</tbody>
</table>

Table 8. Rim Diameter, fabric, color, and prevalence data for the three miniature vessel variants in the Unit S-1 corpus.

**Figure 11.** Type sherds representative of the miniature vessel incurved rim, bag shaped, and modeled rim variants. (a) miniature vessel sherd 25736.2 (rim diameter 7 cm), (b) miniature vessel sherd 25736.8 (rim diameter 4.5 cm), (c) miniature vessel sherd 25736.13 (rim diameter 5 cm), and (d) miniature vessel sherd 25732.7 (rim diameter 6 cm).

**Miniature Vessels.** ‘Miniature vessels’ are small vessels that replicate full-scale forms. It is a broad type consisting of three variants (Table 8). The first is ‘incurved rim jars’ (1.1%), which are made from Nile B1 fabric. These vessels have direct, incurved rims, ellipsoid bodies, and flat bases. There were two complete vessel examples of this form (Figure 11a-b). The second variant is ‘bag shaped beakers’ (1.7%). These vessels are made from the full range of Nile B and C fabrics, have direct rims, and more or less ovoid bodies that are commonly labeled as ‘bag shaped’ (Schiestl and Seiler 2012:66, 36-37). The base morphology for this type is unknown as there are no complete examples, but based on comparanda it is likely that these vessels had flat bases (Figure 11c). The final variant within this type is ‘modeled rim jars’ (0.2%). These vessels largely parallel the incurved rim jars, however they have slightly modeled rather than direct rims.
(Figure 11d). Similar to the small dish type, the bases of these vessels show evidence of having been string cut, an implication of radial manufacture (Wegner 2007:242-243; Wodzińska 2009:186). Miniature vessels are known to have been mass produced on a wheel in the Old Kingdom (Allen 2006:20, 22). Taken together, these vessels are 3.0% of the S-1 corpus. (For complementa, see Wegner 2007:242-243; Wodzińska 2009:186; Schiestl and Seiler 2012:66, 1008-1009.)

Figure 12. Type sherds representative of the stand variants. (a) stand sherd 25736.9 (diameter 12 cm) and (b) stand sherd 25736.10 (diameter 11 cm).

<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stands</td>
<td>10.6 - 11.4 cm</td>
<td>Nile C</td>
<td>Light Reddish Brown</td>
<td>19 sherds (1.15)</td>
</tr>
</tbody>
</table>

Table 9. Rim Diameter, fabric, color, and prevalence data for the stands in the Unit S-1 corpus.

Stands. The stand type represents a non-vessel form, commonly identified as ‘vessel stands.’ Fragments of this type are made of Nile C fabric (Figure 12a-b; Table 9). They are
wheel-thrown (Wodzińska 2009:216) hyperboloid forms open on either end with what could be called modeled ‘rims.’ There were no complete examples of these stands preserved in the S-1 assemblage. Therefore, there is some ambiguity as to whether the S-1 examples align with shorter ‘ring stand’ types or ‘tall tube stands’ which are common parts of temple and cultic assemblages and were used to support round based vessels varying in size and function from hemispherical cups to large necked jars (Wegner 2007:249). However, the diameters of the present vessels suggest that these examples are likely of the ‘tall tube stand’ variation (Wegner 2007:249-250), although the profile contour suggests the S-1 stands are shorter than typical forms. This type makes up 1.1% of the S-1 corpus. (For comperanda, see Wegner 2007:249-250; Wodzińska 2009:216.)

![Figure 13. Type vessel representative of the inflected beaker. Inflected beaker vessel 25736.18 (rim diameter irregular between 9-11.5 cm).](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflected Beakers</td>
<td>9.2 - 11 cm (irregular)</td>
<td>Nile C</td>
<td>Reddish Brown, Light Brown</td>
<td>17 sherds (1.0%)</td>
</tr>
</tbody>
</table>

*Table 10. Rim Diameter, fabric, color, and prevalence data for the inflected beakers in the Unit S-1 corpus.*
**Inflected Beakers.** This type is a group of roughly made Nile C vessels unique to the Abydos area. In other discussions of this type, they have been referred to as ‘beer beakers.’ These vessels have direct, inflected rims, typically flat string-cut bases, and approximately cylindrical profiles (Figure 13; Table 10). The surface of these vessels is not smoothly made but rather have an irregular ‘ribbed’ topography, possibly an effect of coil based manufacture (Figure 14). Additionally, their rims are highly asymmetrical, making an accurate measure of diameter difficult. It is likely that these vessels were mass produced based on a standard volume requirement (Wegner 2007:242). Six of these fragments were either whole vessels or represented a whole profile. Overall, this type occupies 1.0% of the entire S-1 corpus. (For comperanda, see Wegner 2007:242-243; Schiestl and Seiler 2012:66, 906-908.)

*Figure 14.* Side profiles of an inflected beaker example 25736.18, with slight ribbing visible on exterior walls which suggests coil manufacture methods were used.
Figure 15. Two 'base' fragments and a series of rim sherds from the low to unfired group. Visible pores and remnants of color distinct from the fabric color are visible on these fragments. Photos courtesy of Josef Wegner.
Low to Unfired Forms

An enigmatic aspect of the S-1 assemblage is a series of fragments likely from low to unfired vessels. These 59 fragments are quite fragile and were relatively crumbly when handled. Their colors are unique within the assemblage, ranging from light gray to light brown, and the surface texture and color vary slightly from that of the fragments’ interiors. Clear pores in the fabric of these fragments are also present, suggesting the use of organic temper, likely paralleling Nile C fabrics, which was burned out in the firing process (Figure 15). Petrographic analysis by Jeremy Geller traces the progression of sherd color through increasing firing temperatures. At 500-600°C, sherd exteriors appear ‘grayer and browner’ while the core remains brown. As temperatures increased to 800°C both the surface and core became a ‘yellowish-red’ (Munsell 5YR 4/6) color. At 1000°C both surface and core turned ‘dark reddish-brown’ (Munsell 5YR 3/2-3; Geller 1984:65-66). This evidence aligns with the light gray-brown coloring and disparate surface to core appearance of the S-1 sherds, suggesting that these fragments are likely to be low fired at temperatures in the 500-600°C range.

<table>
<thead>
<tr>
<th>Type</th>
<th>Rim Diameter</th>
<th>Fabric</th>
<th>Color</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Bases</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>6 sherds (0.4%)</td>
</tr>
<tr>
<td>Large Rims</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>24 sherds (1.4%)</td>
</tr>
<tr>
<td>Medium Bases</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1 sherd (0.1%)</td>
</tr>
<tr>
<td>Medium Rims</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>26 sherds (1.5%)</td>
</tr>
<tr>
<td>Stopper</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2 sherds (0.1%)</td>
</tr>
</tbody>
</table>

*Table 11. Prevalence data for the various low to unfired sherds in the Unit S-1 corpus.*
The morphology of these low fired fragments align with identified types within the S-1 corpus. There are examples of large bases (0.4%), large rims (1.4%), medium bases (0.1%), medium rims (1.5%), and stoppers (0.1%) within this group (Table 11). The large bases are similar in form to the bases of the large necked jars or the large bowl types discussed above. The large rims also align with the morphology of the large bowl types, particularly the large conical bowl forms due to their thickness, projected diameters, and the presence of rope impressions on some of the fragments. The single medium base example seems to reflect the morphology of S-1’s incurved rim beakers. The medium rim examples may reflect incurved rim beakers as well, but also a variety of medium bowls. There was one example of a conical jar stopper in this assemblage (Wegner 2007:251-252). As a whole, these fragments make up 3.5% of the S-1 corpus.

Theory and Analysis

In the late 19th century, American architect Louis Sullivan developed the idea that “form ever follows function” (Sullivan 1896:407-408). This concept later evolved into the theory of ‘New Materiality,’ which emphasizes the ontological relationships between people and the agency of things (Urban and Schortman 1996). Together, New Materiality and Sullivan’s hypothesis facilitate functional studies of material culture from archaeological excavations. On a deeper analytical level, Schiffer et al. state that differences in systemic and archaeological artifact frequencies cannot have ‘a priori behavioral meaning’ in analysis (Schiffer et al. 2010:20). Therefore, only through integration with broader cultural knowledge do these observations become significant. As Allen puts it, a working knowledge of contemporary aspects
of culture, customs, technologies, and ancient resource access is necessary to track how an object’s function follows its form (Allen 2013:273). For the interests of this paper, these ideas on form, culturally significant features, and taphonomy are useful for interpreting vessel functionality and reconstructing ancient activity within the Senwosret III tomb complex. Signifiers from certain chronologically significant forms also imply that activity in the area continued after Senwosret III’s interment. These analyses lead to the conclusion that the S-1 assemblage is the result of a discard area for ritual offerings and purification practices, extending in use through space and time beyond the presumed burial of Senwosret III, while utilizing certain magical tenants of Egyptian belief to enhance ritual meaning.

The Cult of Senwosret III

Deposition of Cultic Vessels. There are certain vessel forms that are distinctly associated with Egyptian cults throughout pharaonic history. In particular, model and miniature vessels stand out as the clearest sign of votive activity at a site (Allen 2006:19). These types originate in the Old Kingdom and continue through to the Middle Kingdom, and some examples of these vessels appear in the S-1 corpus. These forms imitated full-sized vessels in smaller dimensions and were easy and inexpensive to mass-produce. Such miniature plates and jars of various forms are only excavated at funerary sites and are often in association with full-sized serving plates, jars, trays, and stands (Allen 2006:23-24; Wodzińska 2013:176-177). The easy and inexpensive nature of miniature vessels made them suitable to the frequent votive offerings required by Egyptian funerary cults and they are often found in large numbers outside of tomb and temple entrances. It follows that these vessels were used in above ground offering rituals, and were then
discarded outside the temple once the ritual was complete (Allen 2006:22-23; Wodzińska 2013:178). In fact, the small dish type is often ascribed to the miniature classification, with the understanding that it was made specifically for multiple cultic uses, including as votive dishes and lids (Knoblauch 2016:338). We see this pattern of extant miniature vessels, including small dishes, alongside full sized vessel forms in the S-1 corpus and from prior excavations (see ‘A Comparative Study: the Pottery-Mine’ below) outside of the entrance to Senwosret III’s tomb complex. Taken together, the miniature vessel and small dish types occupy 12.7% of the S-1 ceramics, indicating some of the activity in the area was related to cultic events.

If we look to the nearby Shena of Divine Offerings, the economic production center connected to Senwosret III’s nearby mortuary temple, we see a ceramic assemblage with varying types from the S-1 corpus. There is an abundance of bread molds, bread trays, and marl jar forms associated with large scale food production and consumption. These vessels are not present in excavated assemblages around the Senwosret III tomb (Smith 2010:92-96, 145). The existence of these utilitarian types distinguishes the function of the two areas, making it clear that the Shena was a production zone and that S-1 did not serve the same purpose. However, these two sites do contain many of the same vessel types, including; hemispherical cups, large jars, small dishes, inflected beakers, stands, miniature incurved rim jars, and unbaked jar stoppers (Smith 2010:92-96, 145).

If these two assemblages were as distinct in function as I argue, then why is there such an overlap in vessel composition? Middle Kingdom funerary corpora did exist separately from contemporary domestic assemblages. However, funerary assemblages often contain domestic or settlement ceramics, such as; large and medium plates, hemispherical cups, and large storage
vessels. These vessels acted as the deceased’s supply of tools and goods in the afterlife, which the Egyptians understood as more or less a continuation of life (Rzeuska 2013:74; Allen 2013:280). Assemblages dating to the end of Senwosret III’s reign show that typical funerary equipment for the time included hemispherical cups, large serving plates, large jars, and miniature jar, beaker, bottle, and cup forms (Allen 2013:283). These are all types found in Unit S-1, which confirms that it is a cultic assemblage related to funerary activity at the Senwosret III tomb containing both strictly cultic and repurposed domestic vessels.

According to Susan Allen, there is a distinct process for the deposition of the various cultic vessels. First, they were presented and any existing contents were consumed. Then, the vessels were taken away and discarded in nearby dumps (Allen 2013:278). Archaeological evidence of this process emerges just outside of the cultic area, with intact vessels appearing in high percentages close to the entrance and proceeding outward in horizontal growth (Wegner 2007:255). In the depositional patterning of Unit S-1, there is significant intact vessel deposition, especially prevalent in the small dish type (42.2% being complete vessels or whole profiles). This suggests Allen’s deliberate cultic practices of use and discard occurred in the area around the Senwosret III tomb and expanded out from the entrance building to the distance of Unit S-1.

We can look to the ceramic assemblages from the cultic building at the mortuary temple of Senwosret III for insight into the manifestation of Egyptian cultic assemblages, such as Unit S-1, in the archaeological record. The assemblage in question has been dated from the temple’s foundation in late Dynasty 12 to late Dynasty 13, approximately 150 years after the reign of Senwosret III. Twelve ceramic types occupy 90.0% of the corpus, including: hemispherical cups, shallow bowls, small plates, the miniature lid/dish type, bread molds and trays, inflected beer
beakers, a variety of stands, and a range of large storage vessels in both Nile silt and marl clays. The inflected beer beaker and miniature dish/lid types were the most prevalent forms in the assemblage (together being 86.0%; Wegner 2007:231-232, 255). This was a dense, uniform deposit of mostly intact ceramics outside the entryway to the cultic building, reflecting Allen’s discard patterns for ritual offerings. This area also showed distinct evidence of incense burning as part of daily purification of offerings and other cultic activities. Previous studies relate the function of this assemblage to repetitive daily offerings of goods and libations, connected to the prevalence of inflected beakers, and frequent performance of purification rituals (Wegner 2007:255, 257).

Such expansion of discard zones is a common feature outside of Egyptian cultic areas due to their mortuary beliefs. In Egypt, the dead relied on the living to supply them with food and necessities required in the afterlife. Likewise, the living relied on the dead to enact requests on their behalf. This relationship demanded continued contact between the living and the dead after burial, which was achieved through funerary rituals. These rituals took shape in visits to the necropolis, oral and written petitions to the deceased, and meals held near the tomb during festivals and personal feast days (Harrington 2012:28; Cahail 2014:238). The accumulations of cultic vessels in dumps outside of Senwosret III’s tomb entrance align with cultic votive offerings, a practice that originated in the Old Kingdom and continued throughout pharaonic history. Therefore, the accumulation of miniature vessels, including the small dish type, and other utilitarian open and jar forms just outside the tomb in Unit S-1, mark it as a refuse site for the funerary cult of Senwosret III.
Chronology. The hemispherical cup indices from Unit S-1 cluster around 150, which dates the assemblage to the transition period from Dynasty 12 to Dynasty 13. This extends the cultic activity in this area beyond the end of Senwosret III’s rule, his reign ending approximately 60 years before the beginning of Dynasty 13 (O’Connor 2011:208). The presence of kettle rim jars in the S-1 assemblage is another indication that part of this group has a terminus post quem in Dynasty 13. Together, the presence of kettle mouthed jars and late dates from the hemispherical cup indices suggest that the S-1 assemblage represents activity in the tomb complex following the reign of Senwosret III and continuing into Dynasty 13. This longevity is not unheard of, as Egyptian offering cults linked the living to the dead and continued to be active beyond the funeral as a way to ‘feed’ the spirit of the deceased (Nyord 2013:197-198; Ezzamel 2002:89-97).

If we look at a group of calculated hemispherical cup indices from Wegner’s 2004-2006 excavations of a ‘pottery-mine’ adjacent to Unit S-1 (South Abydos 2004 Field Notebooks 1 & 2 and ceramic drawings), we see that their indices lie between 161-195. Calculations in this range correlate to Dynasty 12 dates. This indicates that the assemblage, which is spatially closer to the Senwosret III tomb enclosure, was closer in time to the pharaoh’s death. With regards to the kettle mouth jar method of dating, it is unclear if any such vessels were present in this assemblage. No kettle mouth vessels were illustrated, however the unpublished pottery catalog from these excavations does reference some ‘lipped’ jar rims which have the potential to reference kettle mouthed vessels (Unpublished 2005-2006 Pottery Book #3. Egyptian Section, University of Pennsylvania Museum, March 2020). Using this data, we can turn to accumulation studies showing that the buildup of sherds, often from cooking pots, can estimate the length of
site use (Varien and Mills 1997:142). When this is synthesized with the dates from Unit S-1, a
timeline develops in which cultic deposition appears to begin close to the Senwosret III tomb
entrance around the time of the king’s interment, and as time progressed and refuse started to
pile up these deposits expanded farther away.

_Ancient Activities of the Senwosret III Cult_

_Storage and Use of Liquids._ Nile C fabric uses organic inclusions, making vessels porous
and light-weight (Figure 16). This fabric was often used for heavy and/or large vessels (Arnold
and Bourriau 1993:174), such as the large jar type discussed above. Vessels with the
light-weight, porous, and untreated qualities of Nile C fabrics are useful in the short term storage
of liquids, especially water, as the fabric allows permeability and evaporative cooling of their
contents (Tite 2008:224; el-Senussi 2013:37-38). In fact, these qualities are still exploited for
short term water storage and cooling practices in Egypt today. These characteristics align with
identifications from previous scholarship in which large jars stored liquids such as water and/or
seems that the large jars in the S-1 assemblage were used to contain offerings of beer or water,
likely for cultic purposes.
Figure 16. Large necked jar sherd 25725.1 showing the porosity of it’s Nile C fabric. Photo courtesy of Josef Wegner.
The concept of offering jars, similar in form to the S-1 storage jar examples, develops out of the Old Kingdom. Tomb texts document such vessels as containers for water, beer, wine, honey, milk, etc. (el-Senussi 2013:31-32). Tomb inscriptions also give us clearer indications of the cultic function of these vessels. Old Kingdom scenes depict this vessel type in use to facilitate the movement of statues (Figure 17a), in purification rituals (Figure 17b), and as offerings such as in the tomb of Ptahshepses at Abusir (el-Senussi 2013:32, 40-41). Storage jars were part of both funerary offering requests and rituals, and the presence of such vessels in the S-1 assemblage indicates that other activity, in addition to offering practice, was occurring around Senwsoret III’s tomb.

Figure 17. Two tomb scenes showing offering jars in use. (a) facilitating the move of a statue, from the tomb of Idut and (b) in a purification scene from a mastaba at Saqqara. Adapted from el-Senussi (2013:50, 52).
Further confirmation of liquid-centered activity within the Senwosret III tomb area comes from the evidence of various vessel sealing methods. The unbaked jar stopper found in Unit S-1, as well as multiple examples of similar stoppers from the previous excavations in the area (see ‘A Comparative Study: the Pottery-Mine’ below), point to the sealing of storage jars. There are suggestions that, in addition to their votive function, the small dish type may have served as part of this sealing procedure. Indeed, the ledged neck morphology of certain jar variants and rim impressions on the stoppers confirm their relationship (Smith 2010:172, 174, 176-177; Yamamoto 2009:106). Wegner in particular has argued that the indentation on the interior of the modeled and kettle rim storage jars is the perfect ledge for the small dish type to rest on and
serve as a lid, with mud stoppers placed on top to seal the vessel (Figure 18; Wegner 2007:236; Smith 2010:149-150). El-Senussi corroborates this, citing Old Kingdom depictions of similar jars sealed with both a miniature dish and unbaked stopper (el-Senussi 2013:38). The preference for sealing such vessels supports the conclusion that they were for the storage of liquid goods. Clearly, their typical contents had a tendency to spill during the storage period and so needed to be sealed (Smith 2010:172, 174, 176-177; Yamamoto 2011:559). The discovery of jar stoppers in Unit S-1, and the potential dual function of the prevalent small dish type as votive vessels and lids, supports the conclusion that potable liquids, such as water or beer, were part of the offerings and/or rituals of the Senwosret III funerary cult.

With the prevalence of liquid storage vessels at Senwosret III’s tomb complex, it is also important to examine the inflected beaker type. Wegner has observed that many of these vessels emerge unbroken or with whole profiles (35.3% of the examples from the S-1 corpus being complete vessels or whole profiles), similar to the fracture patterns of the small dish type. He proposes that this shows the use of these beakers for limited periods or in single occurrence events, and their subsequent discard (Wegner 2007:242). High volumes of these vessels are also excavated in the Shena of Divine Offerings. In this context, they are considered drinking vessels and distribution tools for workers’ rations (Smith 2010:169; Yamamoto 2009:129). However, the Shena’s connection with the Senwosret mortuary temple means these beakers may still have a cultic function, likely associated with the presentation of beer offerings and libations, which are common in Egyptian ritual (Smith 2010:170). Taking this varied distribution of the inflected beaker type, it remains ambiguous whether these vessels were used in an offering, for ritual, or for consumption. The potential for vessels functioning in multiple ways, as well as the
interaction between cultic and domestic forms mentioned above, leaves the possibility that any combination of these three functions may have occurred.

*Incense and Burnt Offerings.* Evidence of soot residue is prevalent in the S-1 corpus, with the hemispherical cup, medium dish, and small dish types all exhibiting indications of interior burning. One of the complete hemispherical cup forms has extensive clumps of shiny soot residue on its interior (Figure 19a; 25749.4, one of nine complete profile and base fragments). This suggests that heated material such as charcoal was placed inside the vessel, as the exterior does not show extensive soot patterns associated with cooking (Rzeuska 2013:76, 83). Of the represented medium dishes, six of the complete vessels (Figure 19b; e.g. 25749.5, one of the group of whole profiles and base sherds) show soot clouding. This residue is on the vessel interiors, again suggesting that heated material was placed inside the vessels. There is also evidence of encrusted soot residue on the interior and exterior of one of the Square Rim Dishes (Figure 19c; 25749.27). However, the interior burning on this vessel was far more extensive than on the exterior. Admittedly, this is only one example (of the group of 145 whole profile and base fragments from both variants of this type), and is therefore not a telling feature for vessel function as compared to the same soot residues in other vessel types from this assemblage. The S-1 corpus did contain four fragments (three of which conjoin, with the fourth of the same type but not connecting) exhibiting exterior burning (Figure 19d), but overall the evidence of interior soot residue was far more extensive than exterior examples in this corpus. Therefore, these fragments are likely an anomalous example and should not be considered analytically significant. In addition to soot residue from the vessels themselves, the S-1 excavations and previous work in
the area have uncovered consistent evidence of charcoal in these pottery dumps, providing further evidence of burning within the assemblage (South Abydos 2004 Field Notebooks 1 & 2).

Figure 19. Various examples of soot residue for Unit S-1. (a) hemispherical cup fragment 25749.4 with large amounts of clumpy, shiny soot residue on the interior, (b) medium dish fragment 25749.5 showing clouded soot residue on its interior, (c) small dish fragment 25749.27 showing encrusted interior soot residue, and (d) fragment 25732.3 from the undiscussed ovoid beaker type showing evidence of exterior sooting.
The cultic use of direct rim bowls, such as the medium and small dishes with soot residue in the S-1 corpus, is well documented throughout Egyptian history. These vessels come from religious contexts and have residues of burned incense or charcoal on their interiors (Masson 2013:147-148). Vessels with interior burning patterns such as this are often identified as braziers used for short-term heated offerings, i.e. incense or other burnt offerings such as meat (Allen 2013:286). Meat offerings are attested in temple texts and funerary art on the coffin of Djehutinakht, where illustrations show deep flaring dishes containing coals with cuts of meat on top (Allen 2009:334; Cauville 2012:79, 82). Other examinations of residues from hemispherical cups, similar to those from S-1, classify the burnt residue as ‘oily,’ connecting it to known ritual patterns of incense burning in other vessel types (Wegner 2007:374). The small size of the vessels with soot residues and the amount of interior burning in this assemblage suggests that the S-1 ceramics were more likely used for incense burning rather than other burnt offerings (Josef Wegner, personal communication with author, April 22, 2020).

Old Kingdom tomb illustrations identify incense vessels as part of purification rituals (el-Senussi 2013:40). Yet, archaeological evidence suggests these vessels were not only used for incense burning. The associated dishes are also found without soot residues in domestic zones, indicating a dual role in both Egyptian cultic and utilitarian contexts (Masson 2013:147-148). The counterparts of sooted vessels in the S-1 corpus lacking residue evidence therefore do not weaken the cultic interpretation of sooting. Rather, these vessels may operate in multiple functional capacities, both as offering vessels and to serve utilitarian purposes for the dead in the afterlife. For example, hemispherical cups are identified as drinking vessels in settlement contexts and as offering vessels or incense burners in mortuary sites. It is reasonable to assume
that they operated in both roles in the funerary assemblage (Allen 2013:283). The presence of multiple types in this corpus showing soot residues does suggest that heated offerings or incense burning for rituals was a major part of the activity taking place at the site. However, we must also consider the prevalence of soot residues in the S-1 assemblage. The lower percentages of this evidence clearly indicates this activity was prevalent but not on the same degree as seen at Senwosret III’s mortuary temple. Therefore, activity at Senwosret III’s tomb was not part of daily ritual. Instead, the ritual undertakings at the tomb complex were performed infrequently and on less intense scales.

Figure 20. Plan of the 2004-2006 excavations at the Senwosret III tomb enclosure. The pottery-mine area is shaded in gray, the location of Unit S-1 is noted. Each grid square is 10 m by 10 m. Adapted from Wegner (2007:373).
<table>
<thead>
<tr>
<th>Vessel Type</th>
<th>Unit S-1</th>
<th>Pottery-Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Inflected Bowls</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Medium Carinated Bowls</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Incense Burner</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Large Direct Rim Bowls</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Large Conical Direct Rim Bowls</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Large Rolled Rim Bowl</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Small Square Rim Dish</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Small Direct Rim Dish</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hemispherical Cups</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Carinated Cups</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Large Dish</td>
<td>✓</td>
<td>*</td>
</tr>
<tr>
<td>Medium Spherical Dish</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Large Direct Rim Jar</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Large Modeled Rim Jar</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Incurved Rim Jar</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bag Shaped Beaker</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Modeled Rim Jar</td>
<td>✓</td>
<td>*</td>
</tr>
<tr>
<td>Inflected Beakers</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ovoid Beaker</td>
<td>✓</td>
<td>*</td>
</tr>
<tr>
<td>Small Jar</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Stands</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Lids with Knob Handles</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Stoppers</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Table 12. A comparison of the vessel types present in the Unit S-1 assemblage and pottery-mine corpus. The types are consistent across both types except for six types between the two. Those types indicated by a * are possible correlations, however they cannot be connected with certainty due to fragmentation in the S-1 corpus.*

**A Comparative Case Study: the ‘Pottery-Mine’**

The features and material culture of Unit S-1 correspond to a zone abutting the Senwosret III mortuary complex called the ‘pottery-mine.’ This area was excavated by Dr. Wegner and his team in 2004-2006 and is 10 m from S-1 at approximately the same elevation (Figure 20). Wegner characterized the identified depositional features in this area as typical of repetitive and short lived vessel use. The major forms found in this deposit date to the Middle Kingdom and include significant amounts of what Wegner called ‘simple neck jars,’ which correlate to the
large direct rim jar type above, and medium bowl forms, including hemispherical bowls and shallow dishes, almost all with burnt residues on their interiors. Wegner notes that the soot patterning on these vessels is comparable to that seen on well-known footed incense burners. Wegner also identifies a prevalence of large and medium bowls, which align with multiple varieties of S-1’s large bowl type. As noted in the unpublished field notes from the excavations, stands and beer beakers were also found within the assemblage. Besides the ceramics, remnants of charcoal and jar stoppers also came from this area (Table 12; South Abydos 2004 Field Notebooks 1 & 2 and ceramic drawings). The similarity of the pottery-mine ceramic assemblage to that of Unit S-1 is quite striking, and indicates that these might be two parts of a larger whole.

Based on analysis of ceramic morphologies and residues, Wegner suggests that the activities occurring in the building adjacent to the pottery-mine utilized large amounts of water, involved incense burning, and were associated with purification rituals for entry into the tomb enclosure during Senwosret III’s funeral rites (Wegner 2007:369, 374; Josef Wegner, personal communication with author, April 22, 2020). Primary texts identify purification occurring before almost every Egyptian ritual, as it was imperative for priests to be pure before entering a sacred space. Purification practices utilized both water and incense, with water represented in jars and incense in bowls with burning charcoal. Scenes exemplifying these rituals come from the tomb of Sekhemka at Saqqara and the coffin of Djeuhutihotep, both of which illustrate large jars in use during the ritual (Cauville 2012:21, 36; el-Senussi 2013:41; Beeck 2007:158). Wegner concludes that this was a discard zone for the purification rituals taking place in the two adjacent buildings, as based on the vessel types, patterns of wear, and depositional characteristics present in the ceramic assemblage. There are clear similarities between the typology, deposition, context,
dating, and functional determinations observed in both Wegner’s assemblage and Unit S-1. This suggests that the S-1 refuse deposit is an extension in both space and time of the purification depositional zone from Wegner’s excavations, speaking to the longevity of cultic activity at the tomb of Senwosret III.

**Beyond Cult: Low and Unfired Vessels**

Unlike the identifiable forms from S-1, the enigmatic low fired pieces are minimal, fragmented, and unusual in form, which makes their interpretation difficult. However, the excavations of the adjacent pottery-mine also found unbaked and low fired forms, adding to the interpretive material for this group. Two possible theories emerge when considering these vessels. The first is an association with ceramic manufacture, in which these low to unfired vessels are taken as an indication of a nearby production area. The second line of thought is that, like the apparent function of the rest of the S-1 corpus, these vessels would have related to the presentation of offerings. If this is the case, this practice ties in to certain types of Egyptian offerings involved in magical substitution, such as offering lists and substitute vessels. Ultimately, although both theories can be argued, there is no way to determine with certainty the purpose of these forms within this assemblage without further analysis and comparanda.

**Ceramic Manufacture at South Abydos.** Unfired pottery often suggests that ceramic production took place somewhere nearby, and is usually substantiated with other signs of ceramic industry, i.e. potters wheels or kilns. In the case of Unit S-1 however, none of the tools or structures identifying a pottery workshop exist within the current extent of excavations.
Middle Kingdom ceramic manufacture zones do not often appear around tombs, but are associated with military outposts, temples, and other administrative buildings. The only evidence of such pottery production excavated at South Abydos thus far comes from the Shena of Divine Offerings. This center would have produced a supply of massive amounts of pottery to support production for Senwosret III’s offering cult, not only at his temple but his tomb as well (Smith 2010:243-250; Yamamoto 2009:230, 234, 236).

The Shena houses a pottery kiln fitting the uniform Middle Kingdom blueprint. This feature was surrounded by a ceramic dominant midden filled with remnants of beer beakers, storage vessels, and bread molds - one of which was unfired. The kiln and unfired mold are the only hints of any manufacturing activity, as previous excavations did not find evidence of associated clay wasters or potters wheels (Smith 2010:243-250; Yamamoto 2009:230). Although centered radial shaping methods using a potter’s wheel were the norm in the Middle Kingdom, especially for production of miniature vessels, the lack of wasters at the Shena production site suggests that this technique was not used. Hand shaped closed-form vessels are less likely to deform into unfired wasters, and since none were found, this technique seems to be the preferred method of production at the Shena (Yamamoto 2009:245, 257; Smith 2010:251; Doherty 2015:1). An additional interesting side effect of a Shena based production site is the existence of the inflected beaker type. This vessel is unique to Abydos, both from the Shena and the deposits around Senwosret III’s tomb, and it lacks known parallels. Therefore, these vessels are likely a local production, which further implies that pottery manufacture was taking place at the Shena and maybe elsewhere within South Abydos (Wegner 2007:242; Smith 2010:170).
It seems unlikely that there would be a production zone close to Senwosret III’s tomb in the area of Unit S-1, even considering the presence of such atypically fired vessels. Instead, I suggest that many of the forms present in the S-1 corpus, especially the inflected beakers and other prevalent types, were produced in the Shena for use at the king’s tomb. However, it does seem that a production center using wheel throwing methods is necessary in this area to produce the miniature vessels and other wheel formed types found within the S-1 assemblage. Additionally, the low to unfired rim sherds from Unit S-1 show rope impressions from the drying process typical of the manufacture of the larger vessel types the fragments represent. It is possible that wheel-based production was occurring at the Shena and evidence of it has simply not been found. However, there could also be a yet unknown production location for wheel-thrown manufacture at South Abydos. Beyond this speculation, we cannot know for sure why we find unfired and low fired sherds within these pottery dumps until we have confirmation of whether there is evidence of ceramic production or not.

**Magical Substitution in the Funerary Cult.** Egyptians were no strangers to the idea of virtual reality or long term planning. In the context of funerary religion, they used texts, pictures, and physical objects to act as proxies for genuine offerings of food and goods. These representations would magically ensure that the deceased would have everything they needed for life after death, working in place of real objects or in the absence of offerings should the living stop bringing them (Allen 2006:19; Harrington 2013:31). In a similar manner, other funerary materials would magically stand in for the deceased themselves in the afterlife. For example, shabtis stepped in to do work in the afterlife and udjat eye illustrations allowed the deceased to
look out beyond the grave (Harrington 2013:104). It was not an issue to use alternative materials or representations to serve a variety of cultic purposes in Egyptian mortuary cults, as long as the essence of the ritual was maintained. The low to unfired vessels from Unit S-1 could be part of this program, in which they acted as substitutions for real vessels of the same form and function.

Susan Allen’s studies of miniature and model vessels track how, in situations of substitution, shape was often more important than accuracy or usefulness for conveying the ritual meaning of a vessel (Allen 2013:273). She finds that, beginning in the Old Kingdom, there is a trend away from real offerings of food towards the use of representative offering lists and imitation vessels as magical stand-ins for the real thing. The vessels acting in this capacity were made from stone, metal, and even unbaked mud (Allen 2013:273, 275). For the purposes of this study, I focus on mud substitutions, which develop in the Old Kingdom and continue in the Middle Kingdom. Using beer storage jars as an example, Allen discusses how the mud substitution trend began with real vessels filled with mud. In this case, the shape of the vessel manifested the idea of a beer offering, while the mud fill provided a realistic weight for the offering. This practice further developed in the Middle Kingdom, where vessel interiors were instead lined with thin layers of mud and then topped with unbaked stoppers as if they were actually full of liquid (Allen 2013:278-280).

It is possible that the unfired to lowfired bases from the S-1 corpus are examples of mud fills that were separated from the large jars in the process of vessel fragmentation. Their existence around the Senwosret III tomb would then be an indication of ongoing offering practice using the Old Kingdom concepts of magical substitution. Evidence of mud fills are also alluded to in the unpublished field notes from the pottery-mine excavations. In these notes, it is
mentioned that storage jars are found with finely levigated clay molded to vessel interiors. Without observation of marks within the fragments themselves, we cannot tell from photographs if the clay was pressed into place inside the vessel or was molded into shape due to melting and drying over time. This phenomenon is referred to by the excavators as ‘jar stopper fragments’ or ‘interior vessel coating,’ however, I suggest that these are examples of mud fill substitutions (South Abydos 2004 Field Notebooks 1 & 2 and ceramic drawings). Extrapolating this idea of substitution further, we can address the unbaked and low-fired rims found in the S-1 corpus. In this case, rather than filling a vessel with mud as an offering substitute, the vessel itself was mud, relying on the form rather than functionality to uphold its ritual meaning. The field notes from previous excavations of the pottery-mine also contain comments about unfired vessels of both open and closed forms (South Abydos 2004 Field Notebooks 1 & 2 and ceramic drawings). The overall presence of such enigmatic vessels in these two assemblages confirms that this occurrence is not a one off, but rather a common practice relating to the magical substitution of offerings.

**Conclusion**

At the beginning of this paper, I set out to answer two broad questions about the S-1 ceramic assemblage from the area surrounding Senwosret III’s tomb enclosure at South Abydos. What functions are associated with the ceramic types in the S-1 assemblage? How do these functional types inform interpretations about activity areas as relates to the surrounding archaeological landscape? In addressing these queries, I investigated 1,706 diagnostic ceramic fragments, focusing on the implications of eight vessel types. I used morphology, depositional
taphonomy, and surface analysis to tease out vessel function for these eight types, relating this data to previous scholarship on Egyptian ceramics and funerary practice through the framework of ‘form follows function.’

My analysis of the S-1 ceramics culminated in four conclusions. First, the presence of miniature vessels and their coexistence with typically utilitarian forms in taphonomic patterns of intentional deposition outside the entrance to Senwosret III’s tomb identifies S-1 as part of the funerary cult in nature. Second, hemispherical cup indices and kettle mouth morphology dates from this corpus indicate that the area continued to be in use during Dynasty 13, about half a century after the death of Senwosret III. Third, the prevalence of large jars and beakers for the storage and use of water or beer and of hemispherical cups, medium dishes, and small dishes for use as incense burners relates to the activities involved in ritual purification. This connects to patterns observed in the adjacent pottery-mine and Wegner’s previous interpretations of the area. Finally, the funerary cult identity of this area rules out the possibility of a production zone with regard to the low or unfired fragments in this assemblage. Instead, I suggest that these fragments are related to common Egyptian practices of magical substitution using mud fill and proxy vessels to act as genuine mortuary offerings.

It's clear that funerary cult practice at the tomb complex began in Dynasty 12 around the end of Senwosret III’s reign, and that both offering and purification activities were a part of this program. These pursuits continued into Dynasty 13, assumedly to ensure the deceased king was supplied in the afterlife and to perpetuate relationships between the deceased and the living. It is yet unknown if the activity for Senwsoret III’s funerary cult could have continued beyond this date.
As a known necropolis site with a long history of connections to Osiris, the cultic nature of Abydos perpetuated the traditional elements of Egyptian mortuary belief, including; completion of funerary processions to the necropolis, funerary meals and feasting, and occasional visits to tombs to supply the dead with food or to invoke the deceased (Harrington 2013:103-104, 113; Garstang 1907:2). Dynasties 12 and 13 were important periods for such activity in relation to the Osiris cult at Abydos. Stela from two of Senwosret III’s officials recount details of processions related to the annual festival celebration of the ‘Mysteries of Osiris,’ which commemorate the god’s death and resurrection (Lichtheim 2006:135-136; Yamamoto 2011:555; Wegner 2007:398). One of these stela, that of Nebipusenwosret, is an attempt to have eternal participation in such festivals, specifically due to the presence of Senwosret III’s mortuary cult within the wider Abydos ritual landscape. In so doing, Nebipusenwosret links the pharaoh with the cult of Osiris and its religious undertakings (Wegner 2007:396-398). We also see some potential evidence of continued cultic activity and site visitation relating to the cult of Senwosret III in graffiti from the boat burial building 100 m from the Senwosret III tomb complex (Wegner 2016).

Keeping in mind the constant activity at Abydos and the ties between the Osirian rituals and Senwsoret III’s own cult, we can extrapolate the motivating factors for a continued cult at Senwosret III’s tomb complex. The S-1 and pottery-mine assemblages are likely the results of funeral rituals, feasting, and periodic festival celebrations. The vessels that make up the S-1 and pottery-mine corpora can be attributed to the remains of initial funerary feasts and offerings, later recurrences of such activities in relation to the annual cultic festivals of Abydos, and the purification activities that preceded each ritual undertaking.
Wegner’s original interpretation of the purification building and pottery-mine related to its specific use as part of the funerary ceremony. However, the longer duration of the area’s use, extending into Dynasty 13, now suggests something more was going on. It is likely that this area was also utilized for longer-term libation and incense offering rituals. However, the scale for such activities does not match the degree of concentration seen for the daily offerings occurring at the temple. Therefore, I suggest that these activities only occurred at periodic times as an extension of temple practice for festivals, such as the Mysteries of Osiris or other special cultic events, and covered a broader scope of ritual activity than the offerings performed at the temple.

Overall, the character of the pottery-mine and Unit S-1 deposits reflects that of a funerary purification center and daily offering cult, but it is altered in nature due to a distinctly separate cultural context. However, it is unclear why the ritual activity at the Senwosret III tomb complex seems to stop 50 years after his death when activity at his nearby mortuary temple continues for 150 years. This study cannot provide a concrete answer, I can only suggest some potential theories. There may have been a shift away from festival activity at the tomb itself to focus on the daily rituals at the temple. The encroaching Second Intermediate period tombs could have affected how the area around Senwosret III’s tomb was used. Only further study will be able to provide answers to this issue.

Moving forward, chemical residue analysis and petrography would be beneficial methods to employ to address functional questions related to this assemblage. Ideally, soot residues from the hemispherical cups and other burned types should be studied to understand what products were burned with more concrete verification than current assumptions based on pictorial comparisons. In a similar fashion, representative fragments from both fired and low to unfired
vessels in this assemblage should be further examined using X-ray spectrometry (XRD) and petrographic thin section analyses to determine locality and methodology of vessel production and mud filling, as relating to the existence of a production center at Abydos and the creation of substitute offerings. To expand this research in a new direction, it would be interesting to continue excavations in the area surrounding Unit S-1, to see if there is a relationship between the S-1 and pottery-mine and the Second Intermediate Period tombs clustering around Senwosret III’s tomb, and to investigate why activity in the area ceased a century before it stopped at Senwosret III’s mortuary temple.
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